

EXECUTIVE SUMMARY

Feasibility Study

for the

Charlotte Multi-Modal Station

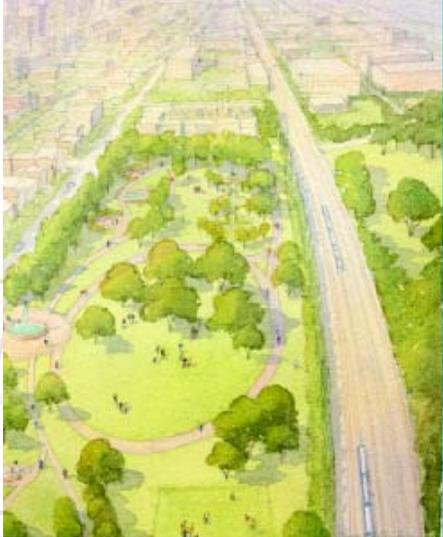
and

Area Track Improvements

July 2002



EXISTING #10 CROSSOVER
TO BE REMOVED



Prepared for
North Carolina Department of Transportation Rail Division

RAIL DIVISION

Prepared by

 **Gannett Fleming**

WAGNER MURRAY ARCHITECTS

TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
1. Overview	2
2. Study Objectives and Strategies	3
3. Station Program and Master Plan	5
4. Parks and Greenway Program	6
5. Area Track Improvements	7
6. Track Improvement Alternatives Considered	8
7. Station Alternatives	21
8. Cost Sharing Analysis	22
9. Project Construction and Phasing	23
10. Next Steps	24
11. Summary	25
APPENDIX ES-1 Station Options	
APPENDIX ES-2 Proposed Track Improvements, Preferred (Full Build) Alternative	

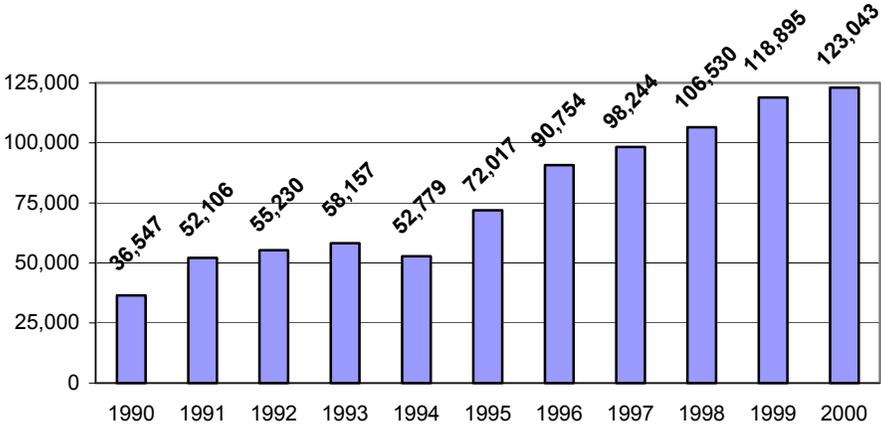
EXECUTIVE SUMMARY

1. Overview

A multi-modal transportation system that provides transportation options and easier ways to connect between them will be critical to the future of the Charlotte region and will have positive and lasting impacts on the state of North Carolina. Passenger rail service is a critical component of an effective multi-modal transportation system.

Charlotte has a long history of rail service for both passenger and freight. Passenger rail popularity surged in 1990 in the Charlotte region when the state of North Carolina began daily round trip service between Charlotte and New York on the *Carolinian*. In the decade following, passenger rail boardings grew by 242 percent, placing a strain on the existing Amtrak station (chart). With an anticipated 20 percent population growth rate in Mecklenburg county between 2000 and 2010, popularity in train traffic will only increase.

Table ES-1: Charlotte Station Arrivals & Departures, 1990-2000



Charlotte’s current Amtrak station is located on Tryon Street, approximately two miles from the Center City. Constructed in the 1960s, the station’s waiting room is approximately 1,200 square feet with a single ticket window. The station does not meet all of the current North Carolina or the Americans with Disabilities Act (ADA) standards for disabled access in and around the station and platforms. The parking lot has 60 spaces, which are shared between passengers and staff. The station is in an existing railroad freight yard, creating conflicts for both freight and passenger rail traffic.

Pedestrian access and connections to other transportation modes is inadequate at the current station. The region’s main business, government and cultural center is two miles away and there are no connections to intercity buses or rental car opportunities nearby. Passengers who wish to connect to the CATS Route 11 must cross four lanes of busy traffic (with no traffic light or crosswalk) to head into the downtown to either reach their destinations to connect to other transit services.

Taking into consideration the current and predicted future growth in passenger train boardings, the projected growth in the area's population, and the inadequate condition and location of the current station, the state of North Carolina and the city of Charlotte concluded that the future of the city, county, region, and the state would be best served by planning for a new passenger rail station in Charlotte's Center City. The North Carolina Department of Transportation (NCDOT) undertook this engineering feasibility study to create a vision plan for the new Multi-Modal Station serving the city, region and state.

Existing Conditions, Charlotte Amtrak Station



2. Study Objectives and Strategies

The study has eight objectives:

1. Enhance intercity passenger rail service for Charlotte and the region.

The new station will include better amenities, including a larger waiting room, more ticket windows, baggage handling facilities, and other passenger services such as retail services and meeting facilities.



2. Reduce conflicts with freight operations.

Moving the station from its current location will help meet this objective, and care has been taken to ensure that the station's new location and operations will not create conflicts with existing and future freight operations.

3. Increase access to the region's employment, entertainment, and cultural center.

Over the last two decades, Charlotte's business, government, and institutional leaders have driven an impressive resurgence of the central city. Today, Charlotte's "Center City" is a vibrant hub for arts, culture, sports, entertainment, and business for the region's citizens, and visitors. However, facing a 10, 20 or even 30 minute travel distance from many of the area's suburbs – and limited transportation options to make that commute – many of the region's growing number of suburbanites choose not to venture into the Center City for fun or for work. Making the Center City more accessible to all the region's citizens is key to its future.

4. Develop and expand intermodal connections.

Integrating various transportation modes provides the public "one-stop" transportation options and easier ways to connect between transportation alternatives. Intermodal and multi-modal centers are becoming increasingly popular in communities across the country and are looked upon favorably by the Federal Transit Administration and Congress for federal funds. The new Multi-Modal Station complex has been designed to connect with the maximum number of transit and transportation options possible, including intercity bus, local bus service, regional rapid transit, and pedestrian and bicycle access to the Center City.

5. Integrate station design with various regional plans

Integrating the Charlotte Multi-Modal Station with existing area plans is critical to the success of the project. Extreme care was taken in the development of this proposal to ensure that it goes far beyond simple compliance, and substantially supports and adds to the goals and objectives of the 2010 Charlotte Center City Plan, the Mecklenburg county Greenways Plan, and the Charlotte-Mecklenburg Bicycle Plan.

6. Minimize adverse effects on neighborhoods and businesses

Particular attention was given to the Charlotte Multi-Modal Station design to minimize adverse effects that a facility of this kind could have on surrounding businesses and neighborhoods. Adding physical improvements to the right-of-way, including heavily landscaped buffers, sound walls, and other aesthetic devices will diminish the unsightly appearance of trains and tracks and increase the visual appeal of the area. Improved safety and a measurable noise reduction were also key areas addressed.

7. Maximize positive changes to the surrounding area.

The plan will add significantly to the beauty and usability of the immediate surrounding area. Landscaping, parks, and greenways will connect surrounding neighborhoods. Center City residents, workers, and visitors will enjoy quiet strolls or cycling trips through open green spaces in a safe urban setting that offers panoramic views of the city. In addition, bridges and overpasses in the area will be improved visually and functionally.

The Multi-Modal Station should enhance the positive redevelopment and reinvestment occurring in the area, and should provide not only a transportation service to the region, but also transportation and retail services for the surrounding neighborhoods.

8. Improve overall safety

The plan improves safety for rail, auto, pedestrian, and bicycle traffic.

To meet these objectives, the study team developed a number of strategies to ensure that the study was comprehensive in its consideration of all possible uses and impacts. The strategies include:

- Determine track layout
- Examine impacts to existing bridges
- Evaluate impacts to the freight railroads
- Evaluate at-grade crossings
- Study impacts on area businesses
- Evaluate impacts on city streets
- Develop the Station program
- Coordinate with the freight railroads
- Coordinate with the city of Charlotte

- Coordinate with Greyhound and Amtrak
- Determine right-of-way requirements.
- Review environmental issues.
- Consult with the public, stakeholders, and nearby neighborhoods
- Estimate project cost

3. Station Program and Master Plan

The Charlotte Multi-Modal Station will be a fully operational facility, integrated into the urban area, and supporting existing and expanded rail traffic on the Norfolk Southern corridor. Numerous modes of transportation will connect at this location – inter-city rail, commuter rail, commercial bus service for inter-city lines, city bus service (CATS), shuttle bus service, taxis, rental car pickup and drop-off, short and long term parking, and vehicle drop-off. Access points into and out of the station will serve the pedestrian level of the station and permit ease of flow and minimize cross-traffic conditions. Bicycle parking will be provided, and bicycle access to the station will be via new greenway and via new bicycle paths being constructed throughout the city.

The station will be a hub for transportation in the Center City and a showplace for the reinstatement of train travel as an alternative mode of transportation. As an important civic building, the Station will present a clear and deliberate civic design.

The integration of a bus facility into a larger multi-modal station has been an extremely successful venture in a number of major metropolitan areas around the country. The new Greyhound terminal, part of the Charlotte Multi-Modal Station, will feature an upscale and upgraded design for Greyhound. Passengers entering the terminal will have immediate access to retail shops, food and beverage facilities, telephones, restrooms, ATMs, and a branch bank. An information stand located in the facility will offer maps and brochures on the area. A law enforcement station on site will provide increased security.

A public art master Plan will integrate and complement the overall design and vision for the transportation center. Through the public art master plan, the project team intends to establish an artistic language for the building, its greenway connections, the bridge underpasses, and pedestrian access areas. This language will recognize and identify the uniqueness of the city and the surrounding region.



A significant component in the analysis is the potential to expand the scope of the new development within the station area. The Multi-Modal Station creates a catalyst for development in many ways. As a transportation center, it brings pedestrians and vehicles to its

central location on a daily basis. The large number of people who disembark at this point will move into the center of the city, affect the surrounding area, and increase the population density.

To support the projected growth of this area, the NCDOT will obtain approximately 17 acres of land between West 10th Street and West 3rd Street along the right-of-way. Each of these parcels is being analyzed for its potential future development impact to the Center City and its programmed development consistent with the ongoing development of the West Trade Street district.

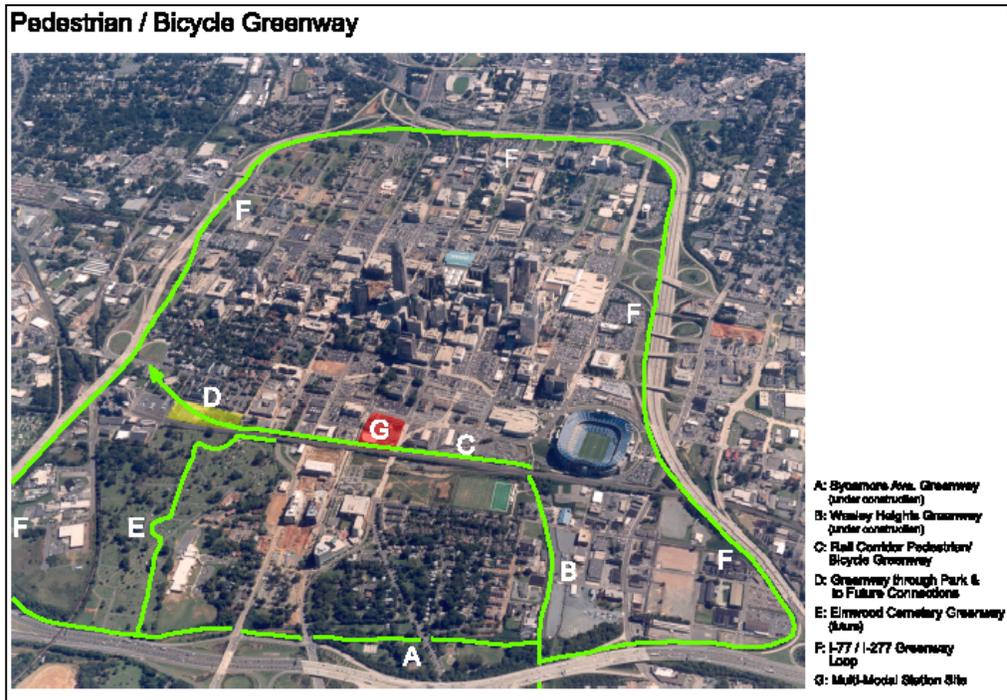
In order to truly be “multi-modal” the Station will combine many transportation choices to facilitate a seamless travel experience for the traveling public. To achieve that goal, seven alternative station layout plans have been developed to integrate intercity rail (Amtrak), Greyhound, commuter rail, light rail, bus, taxis, autos, pedestrians and bicycles in the station complex. These various design options are based upon numerous meetings with future operators (CATS, Greyhound) as well as with the public. At least two station design options will be carried forward to the preliminary engineering and design aspect of the project.

Appendix ES-1 shows the proposed master plan for the area in and around the Station.

4. Parks and Greenway Program

The plan will add significantly to the beauty and usability of the immediate surrounding area. Landscaping, parks, and greenways will connect the neighborhoods of Third and Fourth Wards. Center City residents, workers, and visitors will enjoy quiet strolls or cycling trips through open green spaces in a safe urban setting that offers panoramic views of the city. In addition, bridges and overpasses in the area will be improved both visually and functionally.

The greenway that will be developed as part of the Charlotte Multi-Modal Station program will support the expanded greenway system advocated by the Mecklenburg county Greenway Master Plan as an important ingredient in protecting the quality of life of



the area's citizens. A well-lit area with beautiful landscaping will make walking or cycling a safe and visually pleasant experience.

The plan will also add to Charlotte's beauty with the addition of inviting public space. A neighborhood park – spanning four and one-half acres – will be added in Fourth Ward. An attractively landscaped berm between the park and the tracks will provide visual separation and reduce noise.

5. Area Track Improvements

The track improvements for the Charlotte Multi-Modal Station project begin nearly one-mile north of the main Station site and extend over one-half mile south of West Trade Street. All of these improvements are necessary to ensure that commuter and intercity passenger rail effectively serve the Station and the region for the next 50 years.

Starting north of Trade Street in Charlotte's First Ward, the track improvements call for the relocation of CSXT's Tryon Yard. The yard's relocation is necessary to accommodate the placement of CSXT railroad below grade to pass under NS main line, discussed below. The relocation of the CSXT yard will also require the closing of at-grade crossings at North Brevard and North Church Streets.

Proceeding to Charlotte's Fourth Ward, the main rail improvements include the grade separation of the CSXT and NS railroads, and the reconfiguration of the ADM mill that spans the NS railroad/future high speed rail passenger line. This CSXT/NS grade separation is necessary to prevent delays in future intercity and future passenger rail service, particularly if commuter rail is to be implemented on CATS North Corridor ('O' Line). With the placement of the CSXT below grade, Seaboard Street will be realigned to pass under I-277 and connect with Graham Street north of ADM. The existing at-grade crossing at Seaboard Street would be closed. The ADM flourmill would be reconfigured to reduce the amount of truck traffic from driving over the railroad tracks, thereby improving safety and reducing truck traffic in Fourth Ward.

Between ADM (at 10th Street) and the main Station block (at Trade Street) track improvements will mainly consist of the construction of additional tracks for intercity and future commuter rail trains to access the platforms at the Station. Two tracks will remain for freight only traffic, with a third track being shared between intercity passenger rail and freight. West of the NS freight mainlines would be the track for the potential North Corridor commuter rail ('O' Line).

Between Trade Street and Ericsson Stadium (in Third Ward) the track improvements consist of Station area tracks and platforms, including two event/layover tracks with a platform to serve additional trains that would discharge passengers directly to Ericsson Stadium and a possible new sports/event arena. Beyond Ericsson Stadium, new passenger tracks would extend to a new service facility south of I-277 where cleaning and small repairs would be made to passenger trains terminating in Charlotte.

Plans illustrating all of the proposed track improvements under the Preferred Alternative are at the end of this Executive Summary in Appendix ES-2.

6. Track Improvement Alternatives Considered

During the course of the feasibility study eight alternatives for constructing the track improvements for the multi-modal station were considered (in addition to the seven design and layout alternatives to the station complex). Below is a description of some of these track improvements alternatives.

Preferred Alternative – Cost: \$206.8 million

The Preferred Alternative plan for the Charlotte Multi-Modal Station project and area track improvements described in Sections 1.3 through 1.5 includes the following components:

- Station complex, including Amtrak, commuter rail, Greyhound, CATS, parking, taxis, retail and office
- Mail and express facility
- Pedestrian/bicycle greenway
- Neighborhood park with noise buffer in Fourth Ward
- Public art program
- Service and mail facility south of main station complex
- CSXT/NS grade separation (including relocation of the CSXT Tryon Yard)
- Reconfiguration of ADM on-site, including relocation of businesses adjacent to ADM
- Closing of crossings at 9th, Seaboard, Brevard and Church Streets
- Demolition of the I-277/Graham Street on-ramp and relocation of Seaboard Street
- Construction of the North Corridor Commuter Rail track and platform, including relocation of graves and expansion and improvements to Elmwood and Pinewood Cemeteries.

This full-build alternative is the Preferred Alternative because it incorporates all of the improvements needed for the Multi-Modal Station to serve the Charlotte region for the next 50 years. The Preferred Alternative was also designed to meet the goals and objectives set out in the feasibility study. Specifically, the potential benefits of the Preferred Alternative would be as follows:

- The Preferred Alternative enhances intercity passenger rail service by creating a fully integrated station that will adequately serve both intercity and commuter rail passengers.
- It reduces the number of conflicts between passenger and freight rail by constructing station tracks that will have only passenger rail while allowing freight rail to pass through the station complex unimpeded.
- The Preferred Alternative provides far better connections to the Center City than the current Amtrak Station.
- The Preferred Alternative integrates all possible transportation modes by constructing a new Greyhound bus station and a second CATS bus transfer facility, in addition to serving commuter rail, taxis, rental cars and shuttles.

- The Alternative substantially supports and adds to the goals and objectives of the 2010 Charlotte Center City Plan, the Mecklenburg county Greenways Plan, and the Charlotte-Mecklenburg Bicycle Plan by working to integrate all of the area plans with the Station and by creating additional retail and private development opportunities in and around the station.
- Particular attention was given to minimize adverse effects on surrounding businesses and neighborhoods by adding physical improvements to the right-of-way, including heavily landscaped buffers, sound walls, and other aesthetic devices will diminish the appearance of trains and tracks and increase the visual appeal of the area. A measurable noise reduction will also be an outcome of the park, landscaping and closing of at-grade crossings proposed under the Preferred Alternative.
- The Preferred Alternative will add significantly to the beauty and usability of the immediate surrounding area. Landscaping, parks, and greenways will connect surrounding neighborhoods. Center City residents, workers, and visitors will enjoy quiet strolls or cycling trips through open green spaces in a safe urban setting that offers panoramic views of the city. In addition, bridges and overpasses in the area will be improved visually and functionally.
- Under the Preferred Alternative, the Multi-Modal Station should enhance the positive redevelopment and reinvestment occurring in the area, and should provide not only a transportation service to the region, but also transportation and retail services for the surrounding neighborhoods.
- The plan improves safety for rail, auto, pedestrian, and bicycle traffic by closing various at-grade crossings and by grade separating the CSXT and NS tracks near ADM. Moreover, the separation of passenger rail traffic from freight rail traffic by constructing station and layover tracks will improve overall safety for both passenger and freight.
- The plan under the Preferred Alternative has gained the support of every transportation agency that will be affected by the plan, including both freight railroads (CSXT and NS), Amtrak, Greyhound, CATS, and the NCDOT.

While the Preferred Alternative best meets the transportation needs of the Charlotte region, there are some potential drawbacks to the proposal. First, the Alternative might require the relocation of some graves in Elmwood Cemetery if CATS proceeds with the commuter rail option in the North Corridor; however, the Preferred Alternative would expand Elmwood Cemetery to both re-intern the affected graves and gravesites as well as create additional space for new burial plots, something that is currently not available. Moreover, new fences and walls would be constructed in the northern and eastern edges of Pinewood and Elmwood Cemeteries, which will improve the overall security of both cemeteries.

A second potential disadvantage of the Preferred Alternative is the need to phase the project and to secure funding over multiple fiscal years. While the overall track layout and station concept is for a 50-year life span, the project's multiple layers and price tag will likely require a multi-phased approach to constructing the Station. Most likely the station will not be able to open for at least five years from the start of construction since the track improvements would be built first. Moreover, phasing the project might create some difficulties for users of the Station the Station will need to operate while portions are under construction.

The Preferred Alternative would likely be constructed in phases with multiple funding sources because of the many benefits it provides for both public entities (CATS, NCDOT, Amtrak) and private entities (Greyhound, CSX, NS).

A breakdown on the cost of the Preferred Alternative is below.

Item	Cost
Track work and Related Items, including: <ul style="list-style-type: none"> • CSXT/NS Grade Separation • Relocation of CSXT Tryon Yard • Closing of 9th, Seaboard, Brevard and Church Street Crossings • Service Facility • 'O' Line (North Corridor) Improvements 	\$146,450,000
Station Complex, including intercity rail, commuter rail, intercity bus, local bus (CATS) and structured parking	\$53,900,000
Mail and Express Facility	\$1,265,000
Pedestrian/Bicycle Greenway	\$900,000
Neighborhood Park and Acoustic/Landscape Buffer	\$2,320,000
Public Art	\$2,000,000
TOTAL COST, PREFERRED ALTERNATIVE	\$206,835,000

No-Build Alternative – Cost: Minimal

As a first step in the feasibility study, the project team considered the possibility of upgrading the existing station at North Tryon Street. The potential benefits of this option are:

- Upgrading the existing station would be much less expensive than the Preferred Alternative.
- Upgrading the existing station would avoid impacting Elmwood Cemetery, ADM, Charlotte Pipe & Foundry, and other properties near the proposed Station site.

Upgrading the existing station was rejected for the following reasons:

- The current Charlotte Amtrak station is of outmoded design, is over capacity, and does not meet federal Americans with Disabilities (ADA) standards, Amtrak station standards and various state design standards. Upgrading the existing station would require completely rebuilding the station's electro-mechanical systems. Because of the extensive modifications required to enlarge the building, passengers would have to be served via temporary modular units. Under the Preferred Alternative, the new Station can be constructed while patrons use the existing station with minimal impacts.
- The existing station is within the Norfolk Southern (NS) freight yard, creating numerous operational conflicts for both freight and passenger rail traffic. For example, Amtrak trains must block both of Norfolk Southern's mail lines when loading and unloading passengers at the existing Station. Eliminating these conflicts at the existing station

would require an expensive and complete reconfiguration of the NS yard, which would likely still not meet the needs of the Charlotte region of the next 50 years.

- The existing station operates under a lease agreement between NS and Amtrak. The North Carolina Department of Transportation (NCDOT) has no legal basis for upgrading the existing station. Any improvements to the existing station would require a new three-party agreement among NS, NCDOT and Amtrak.
- Unlike the Preferred Alternative, improving the existing station would not close and improve safety at at-grade crossings such as 9th and Seaboard Streets.
- Charlotte's existing station lacks connectivity to other transportation choices and to the region's economic, government and cultural center. Upgrading the existing station would not improve intermodal connections to Greyhound, or future light rail and bus rapid transit lines that will converge in Charlotte's Center City.
- Upgrading the existing station would not construct a noise barrier for Fourth Ward and mitigate the noise created by the existing freight and passenger traffic passing by Fourth Ward.

Station Build Only Alternative – Cost: \$109.6 million

As a second alternative in the station study, the NCDOT Rail Division considered to build only the Multi-Modal Station complex with a minimal amount of track improvements. The object of this alternative was to determine the level of infrastructure improvements needed to construct an operational intercity passenger rail and bus station without constructing the commuter rail (CATS North Corridor/ 'O' Line) component or the improvements for freight operations (CSX and NS). The Station Build Only Alternative removes those components from the Preferred Alternative (Full Build) that primarily benefit the freight railroads (CSX and NS) and CATS commuter rail. In summary the Station Build Only Alternative consists of the following components:

- Station complex, including, a Greyhound station, CATS bus station and parking
- Station tracks and platforms for intercity rail
- Event/layover tracks and platforms
- Neighborhood park and pedestrian/bicycle greenway
- Rehabilitation and construction of the 3rd NS mainline track near ADM
- Service and mail facility, including construction of Event/Layover Track 2 to the Facility

This Station Build Only Alternative differs from the Preferred Alternative as follows:

- The CSXT and NS railroads would not be grade separated. As such, the CSXT interchange track would not be constructed, nor would the CSXT Tryon Yard be relocated. The crossings at Church and Brevard Streets would remain open.
- ADM would remain in its current configuration and no improvements made.

- The grade crossings at 9th, 10th, Church, Brevard and Seaboard Streets would remain open. Seaboard Street would not be realigned, and the I-277 on-ramp would remain open.
- The project does not assume construction of the 'O' Line North Corridor Commuter Rail. There would be no impacts on Elmwood Cemetery or relocation of graves. (Should CATS decide to implement the North Corridor Commuter Rail project at a later date, there could be impacts to the cemetery.)
- The A. J. Hagood and URS Real Estate parcels would not be taken and businesses such as AmeriCold logistics would not be relocated.

The potential benefits to the Station Build Only Alternative would be as follows:

- There would be fewer impacts on existing CSXT Tryon Yard operations.
- The alternative would have fewer impacts on ADM Milling during construction.
- Businesses to the west of ADM along 9th and Johnson Streets would not require relocation.
- The overall timeframe for construction would be shorter, resulting in fewer impacts on freight and passenger service, area businesses and neighborhoods.
- The Station Build Only Alternative would cost approximately \$109.6 million, or approximately \$99 million less than the Preferred Alternative.

The potential disadvantages to the Station Build Only Alternative are:

- Not grade separating the CSXT from the other railroads will hinder the ability of CATS from reaching a future operating agreement with CSXT and implement their commuter rail project.
- Not grade separating the CSXT line will result in additional delays and other operating inefficiencies for CSXT. The potential for delays to commuter trains and intercity trains could be significant.
- Removing the various track improvements under the Preferred Alternative would likely hinder future intercity and commuter service and may prevent NCDOT from reaching an agreement with NS to construct the Station.
- Failure to close 9th, 10th and Seaboard Streets will result in additional noise impacts for residents of Fourth Ward, as the proposed noise barrier would not be extended past 9th Street and passing trains will still be required to sound their horns when approaching these crossings.
- Not reconfiguring ADM's operations would create a bottleneck for both intercity and freight rail trains and would prevent any future commuter rail operations to be introduced to the northeast, east and southeast Mecklenburg county.

ADM Relocation Alternative –

Cost: \$5 million to \$16 million more than the Preferred Alternative

A third alternative developed during the Multi-Modal Station study included relocating the ADM mill from its current location between the CSXT and NS main lines to a new location off-site. This possibility emerged as a possible alternative to reconfiguring ADM's operations within the project area, particularly if reconfiguring ADM's operations appeared to be technically infeasible or proved to be less cost effective than relocating ADM.

Under the Preferred Alternative, a majority of ADM's trucking operations would be reconfigured on a new parcel West of the 'O' Line. Other ADM functions would also be relocated to the North of the CSXT main line, while some truck operations would remain on the East side near Smith Street.

The overall goal of these reconfigurations is to keep ADM operational while preventing truck traffic from having to cross the NS main line to unload grain or load flour. These reconfigurations are necessary to permit future commuter rail and intercity rail service to the new Multi-Modal Station without interfering with ADM's milling operations. Moreover, reconfiguring the trucking operations will improve safety for both freight and intercity passenger rail, reduce noise from truck traffic and eliminate the public and private crossings (thereby also eliminating the noise from trains blowing their horns as they approach the crossings). The cost of reconfiguring ADM is projected to be \$19.7 million.

The advantages to the ADM Relocation Alternative would be as follows:

- The amount of property needed under the ADM Relocation Alternative would be less than the Preferred Alternative. The A.J. Hagood parcel would not need to be acquired for relocation of ADM's trucking operations. Moreover, additional parcels north of I-277 Brookshire Freeway would not be needed for the location of temporary tracks along the NS.
- Truck traffic from ADM in and around Fourth Ward would be eliminated.
- Grade crossings at 9th, 10th and Seaboard Street would be closed. The proposed noise barrier could be extended to Seaboard Street/11th Street. The proposed neighborhood park could be extended to 10th Street.
- Noise from ADM's operations would be eliminated, improving conditions for residents in Fourth Ward.
- The Alternative would provide ADM an opportunity to construct a new mill with room for expansion and improved operational efficiency.

The disadvantages to the ADM Relocation Alternative are:

- The cost of constructing a new mill would be approximately \$25 million to \$35 million, or \$5 million to \$16 million more than reconfiguring ADM under the Preferred Alternative.
- Finding a new location for ADM that provides the same level of highway and rail access as the current site may be difficult.

Shifting Track Alternative – Cost: Unknown

Other alternatives considered in this feasibility study included shifting of the tracks, placing the tracks and station below-grade in a trench, construction of a freight railroad bypass, and constructing fewer platforms and station tracks. All of these alternatives were rejected because of cost, implementation or operational considerations. Only the Preferred Alternative, the Station Build Only Alternative and the ADM Relocation Alternatives will be carried forward to the next phase of engineering and design.

While CATS undertook the North Corridor Commuter Rail preliminary engineering feasibility study (completed in March 2001) a proposal was raised to “shift” all of the track improvements east in the project area. Under this proposal, the North Corridor Commuter Rail would use the existing NS ‘O’ line and would shift to the existing NS Main Track No. 2 south of the Seaboard Street crossing. The commuter rail would then use the NS Main Track No. 2 for its station stop with a new platform. To accommodate the existing freight service, the eastern freight siding track would be upgraded to main line track standards. The other intercity and passenger rail track and platform improvements would then be shifted east from their proposed locations.

The potential benefits of this proposed alternative are:

- The URS Real Estate LP and AJ Hagood properties west of ADM at 9th Street would remain intact.
- There would be no impacts to the Elmwood and Pinewood cemeteries and to the parking deck electrical equipment at Gateway Village.

This proposal was discussed among the Multi-Modal Station Project team but was rejected for the following reasons:

- The distance between the existing NS Main Tracks Nos. 1 and 2 is approximately 14 feet. Railroad operating rules require a 26-foot minimum clearance between tracks to avoid shutting down adjacent tracks during maintenance or repairs. Under the Preferred Alternative, the future ‘O’ Line passenger operations would have a 26-foot clearance from the NS Main Track No. 2, and neither railroad would interfere with the other’s operations or maintenance. To create the 26-foot clearance necessary under the HDR alternative, all three existing NS tracks would need to be relocated further east.
- The alternative would impact NS freight operations during construction to a greater degree than the Preferred Alternative, which would likely be unacceptable to Norfolk Southern.
- The alternative would require major reconstruction of additional ADM infrastructure and have a greater impact on ADM operations near the CSXT interchange track.
- The alternative would create additional noise and vibration impacts in Fourth Ward by shifting the track and platform improvements to the east closer to the residences along Smith Street. Moreover, the alternative would reduce the amount of land for the proposed neighborhood park between the NS tracks and Smith Street in Fourth Ward.
- Additional bridge structures would be required east of the existing bridges compared to those proposed under the Preferred Alternative. The alternative would likely require

more extensive lowering of city streets such as 6th, 5th, Trade and 4th Streets to ensure statutory vertical clearances.

Below Grade (Trench) Alternative – Cost: at least \$875 million

During the study, the Friends of Fourth Ward requested that the NCDOT Rail Division consider placing all or part of the proposed project below grade. A separate technical report on the feasibility of placing the Station project below grade was undertaken in 2001.

In order to keep NS operational during construction of the trench, a detour route would be established prior to trench construction. The detour route would use existing CSXT and NCDOT trackage between the north end of the NS Charlotte Yard and Belmont, by way of Mount Holly. The existing single-track rail lines would be upgraded and a second main track would be constructed over the entire length of the detour route to accommodate NS traffic volumes. A railroad wayside signal system would be installed on the detour route.

The construction of the railroad trenches would require reprofiling of a number of city streets as they approach the proposed trench. Bridges would be constructed to carry the reprofiled streets over the trenches. It would be necessary to grade separate both the NS main line and 'O' Line from the CSXT tracks. The CSXT line would cross over both the NS and 'O' Line trenches on new bridges.

The NS trench would bisect the existing Archer Daniels Midland facility and would require substantial and expensive underpinning of the ADM structures. This would severely affect ADM's operations. This study assumes that the ADM facility would need to be relocated off-site in advance of trench construction. Moreover, Rail service could not be provided to the Charlotte Observer sidings during or after trench construction.

An order of magnitude cost estimate for the construction of the trench is \$820,000,00 (2001 dollars). This does not include the cost of the Multi-Modal Station.

The potential benefits to this alternative are:

- After construction, the noise and vibration impacts on nearby residences and business would be reduced by the railroad traffic being below grade.
- Placing the tracks below grade would likely be more visually appealing by removing the elevated structures.
- The existing at-grade crossings at 9th and Seaboard Streets could remain open and span the trench.
- The lack of overhead structures and keeping 9th and Seaboard Streets open would allow for better connections among neighborhoods.

After reviewing the alternatives, the NCDOT Rail Division decided to reject placing the tracks below grade for the following reasons:

- Preliminary estimates place the cost of the alternative at \$820,000,000 (exclusive of Station construction, real estate or most business relocations).

- Construction of the long-term railroad freight detour route would place additional noise, vibration and access impacts on neighborhoods with currently little or no freight rail service.
- Placing the tracks below grade would eliminate or restrict freight rail service for businesses near the Station site, including the Charlotte Observer, Charlotte Pipe & Foundry, and the existing NS freight yard on North Tryon Street. ADM would require a complete relocation of its milling operations.
- The trench alternative would require re-configuration or relocation of the proposed service facility near West Carson Boulevard.
- West Morehead Street would likely need to be raised or closed to meet the clearances required over the proposed railroad trench. Raising the road would affect intersecting side streets and adjacent properties. Moreover, West Morehead Street is a major gateway into Center City Charlotte and is an emerging and redeveloping corridor that would be severely impacted if closed. Impacts to these properties (including possible relocation of businesses and residences) were not included in the cost estimate.
- Summit Avenue would need to either be closed, raised to go over the lead track serving Charlotte Pipe & Foundry and the main line tracks, or placed at-grade with the lowered railroad tracks. Placing the 'O' line in a trench would also require raising Statesville Avenue and raising or closing Spratt Street. Removing the crossing or raising the road would affect intersecting side streets and adjacent properties. Impacts to these properties (including possible relocation of businesses and residences) were also not included in the cost estimate.

Based upon the above information, the NCDOT Rail Division has decided not to further investigate the Below Grade Alternative.

Freight Railroad Bypass Alternative –
Cost: at least \$300 million more than the Preferred Alternative

The Friends of Fourth Ward requested the NCDOT Rail Division investigate an alternative of creating a freight rail bypass, by re-routing the NS freight rail traffic northwest along the CSXT railroad to I-485, then west along I-485 to the existing NS line near the Airport.

The potential benefits of this alternative are as follows:

- By diverting a majority of the NS freight traffic away from the Station complex, the two freight-only tracks passing through the Station could be eliminated, thereby reducing the footprint of the Station complex and related track improvements.
- Reducing the amount of freight rail traffic passing through the Station would reduce the amount of noise and vibration that may affect residences in Fourth Ward.

After reviewing the proposed route and discussing the alternative with both NS and CSXT, the NCDOT Rail Division decided to reject this alternative for the following reasons:

- Diverting the NS traffic to the CSXT right-of-way would effectively triple the amount of freight rail traffic along the CSXT route, increase the risk of pedestrian and automobile

accidents and impose additional traffic problems for residents at numerous at-grade road crossings along the CSXT line. The existing NS right-of-way is wide enough to handle the proposed freight and passenger rail traffic through Center City and has fewer at-grade road crossings than the CSXT right-of-way.

- Diverting the NS traffic to the CSXT right-of-way would require a minimum of two additional freight tracks. This would likely require the relocation of indigent graves in the Pinewood Cemetery that borders the CSXT right-of-way near Fourth Ward. Most of the graves in Pinewood Cemetery are unmarked, meaning that an unknown number of graves would be disturbed.
- The CSXT right-of-way borders Johnson C. Smith University and placing additional freight tracks may impact the athletic facilities at the University.
- Five railroad overpasses would require widening to accommodate additional tracks: I-77, Brookshire Freeway, Beatties Ford Road overpass of Brookshire Boulevard, Belhaven Boulevard and I-85. In addition, getting from the CSXT tracks on the west side and down to the mainline track at the Airport would require new overpasses/underpasses of I-85 and Wilkinson Boulevard (US 74).
- Adding the additional traffic and tracks would require reconfiguration of CSXT's Pinoca freight yard.
- The CSXT right-of-way passes by another cemetery south of Old Mount Holly Road at Rozzelles Ferry Road. Relocation of graves to construct additional tracks may be necessary here as well.
- At various points Old Mount Holly Road and Rozzelles Ferry Road are within 60 feet of the CSXT track, which may necessitate the relocation of one or both roadways to construct additional freight tracks for NS.
- Increased rail traffic through the various neighborhoods would impact fire and emergency response services. Our current project plans for the Multi-Modal Station on West Trade Street is where the railroad is already grade separated.
- I-485 was not designed to include a double-tracked freight railroad to run in the middle of the highway or parallel to it. The I-485 right-of-way was acquired to accommodate future highway lanes. Interstates and railroads have different design standards and retrofitting a railroad right-of-way, which requires more gentle grades, would not be cost effective. Access into and out of a multi-use corridor would provide extremely difficult design challenges, for example at each interchange.
- Construction of the expanded freight railroad line would require taking of additional right-of-way, some of it already developed, and would introduce rail traffic to many neighborhoods that have not been designed to accommodate an active railroad.
- The additional freight tracks and service would hamper the ability to implement future commuter rail or intercity passenger rail service on the existing CSXT corridor.

- NCDOT's experience with new facilities on new rights of way has been that it can add considerable time to project development, even when the project is compatible with existing land use.
- Access to CSXT tracks by the NS would require a trackage rights agreement between the two competitive railroads. NCDOT does not have authority to require the two parties to agree to such an arrangement. Neither NS nor CSXT is likely to see a business advantage in complicating their switching and dispatching operations in Charlotte.
- Diverting the NS freight traffic to the CSXT corridor would unfairly impact the neighborhoods along the CSXT corridor while placing an unnecessary burden on a single rail corridor. These burdens are particularly unfair given that much of the existing NS right-of-way already is grade separated, has the capacity to handle the projected future freight and passenger rail traffic, and that the current project also provides for a buffer and other mitigations that will minimize impacts to the Fourth Ward and other adjoining neighborhoods.

Fewer Tracks & Platforms

During the planning of the Charlotte Multi-Modal Station Project, questions were raised as to the possibilities of fewer platforms and tracks to reduce the width of the bridges and the overall footprint of the Station complex. One alternative was not to construct the extension of the 'O' Line but instead route the North Corridor trains from the 'O' Line (west side) to cross over the NS main lines to reach platforms on the east side. This alternative was not accepted by NS because of the negative impacts that the commuter rail service would have on NS mainline freight traffic. Ultimately this alternative was rejected because support from NS (owner and operator of the railroad right-of-way) was contingent upon separation of commuter rail from the NS main line traffic. Questions were raised about the need for two intercity rail platforms on the east side of the main line. While reducing the number of tracks and platforms may be possible, doing so would severely restrict the Station's capacity and its ability to serve additional commuter rail or high-speed intercity rail service in the future. This alternative was rejected because of the goal for the Station to be able to serve the region's growing transportation needs for the next 50 years.

Table ES-1. Comparison of Track Improvements Alternatives, Part 1

Alternative	1. Preferred (Full Build)	2. No-Build	3. Station Build Only	4. ADM Relocation
<p>ADVANTAGES/ DISADVANTAGES</p> <p><i>(For Alternatives 2 through 8, Advantages/ Disadvantages are compared to Preferred Alternative)</i></p>	<p>ADVANTAGES</p> <ul style="list-style-type: none"> Enhances intercity passenger rail service by creating a fully integrated station Reduces the number of conflicts between passenger and freight rail Provides better connections to the Center City Supports Center City plans Minimizes adverse effects on surrounding areas via landscaped buffers, sound walls Adds significantly to the beauty and usability of the immediate surrounding area via landscaping, parks, greenways Creates opportunity to expand Elmwood and Pinewood Cemeteries and to improve security Enhances positive redevelopment and reinvestment occurring in the area Improves safety for rail, auto, pedestrian, and bicycle traffic by closing various at-grade crossings Has support of freight railroads, Amtrak, Greyhound, and CATS <p>DISADVANTAGES</p> <ul style="list-style-type: none"> Construction of North Corridor may create need to relocate graves and gravesites in Elmwood Cemetery Will likely require multi-phased funding and construction 	<p>ADVANTAGES</p> <ul style="list-style-type: none"> Upgrading existing station would be much less expensive than the Preferred Alternative Upgrading existing station would avoid impacting Elmwood Cemetery, ADM, and other properties near proposed Station site on West Trade Street <p>DISADVANTAGES</p> <ul style="list-style-type: none"> Existing Amtrak station is of outmoded design, and is over capacity Existing Station not meet and various design standards; would likely require completely new structure on-site Passengers would have to be served via temporary modular units during construction Existing station creates numerous operational conflicts for both freight and passenger rail traffic NS (owner of the existing station building and right-of-way) has indicated that expansion of the existing station is not an option Any improvements to the existing station would require a new three-party agreement among NS, NCDOT and Amtrak No closure of at-grade crossings Existing station lacks connectivity to other transportation choices and to Center City; would not improve intermodal connections Option would not mitigate the noise passing by Fourth Ward 	<p>ADVANTAGES</p> <ul style="list-style-type: none"> Fewer impacts on CSXT yard operations than Preferred Alternative Fewer impacts on ADM and other area businesses than Preferred Alternative Shorter construction timeframe Would be approximately \$95 million cheaper than Full Build (Preferred) Alternative <p>DISADVANTAGES</p> <ul style="list-style-type: none"> Lack of grade separation of CSXT from 'O' Line would hinder ability of CATS to reach agreement on North Corridor commuter rail Additional delays for both passenger and freight rail traffic Fewer track improvements would hinder future intercity and commuter rail service Fewer tracks improvements may prevent NCDOT/CATS from reaching agreements with NS Failure to close crossings will result in additional noise impacts for Fourth Ward Lack of grade separation of CSXT and NS would create delays for freight and passenger rail, and fail to reduce noise impacts along Fourth Ward 	<p>ADVANTAGES</p> <ul style="list-style-type: none"> Less property needed with ADM relocated Truck traffic from ADM in and around Fourth Ward eliminated Noise barrier could be extended to Seaboard Street/11th Street Neighborhood park could be extended to 10th Street Noise from ADM operations eliminated ADM allowed opportunity to construct new, more efficient mill with expansion room <p>DISADVANTAGES</p> <ul style="list-style-type: none"> Cost of ADM Relocation Alternative \$5 million to \$16 million more than the Preferred Alternative Finding new location for ADM with same level of highway and rail access as current site may be difficult
<p>OUTCOME</p>	<p>Retained for further analysis in Preliminary Engineering</p>	<p>Eliminated</p>	<p>Retained</p>	<p>Retained for further analysis in Preliminary Engineering</p>

Table ES-1. Comparison of Track Improvements Alternatives, Part 2

Alternative	5. Shifting Tracks	6. Below Grade (Trench)	7. Freight Railroad Bypass	8. Fewer Tracks & Platforms
<p>ADVANTAGES/ DISADVANTAGES</p> <p><i>(Compared to Preferred Alternative)</i></p>	<p>ADVANTAGES</p> <ul style="list-style-type: none"> • Properties and businesses west of ADM remain intact • No impacts to Elmwood and Pinewood Cemeteries • No impacts to electrical equipment between Gateway Village and tracks <p>DISADVANTAGES</p> <ul style="list-style-type: none"> • Would either require shorter distance between North Corridor and heavy freight lines, thereby complicating maintenance and operating issues for both freight and passenger rail • Would impact NS freight operations to a much higher degree during construction than the Preferred Alternative • Would require major reconstruction of ADM infrastructure • Would create additional noise and vibration impacts in Fourth Ward by shifting tracks closer to residences • Would reduce the amount of land available for neighborhood park • Bridges at city streets such as 4th, Trade, 5th and 6th Streets might require lowering of streets to meet statutory vertical clearances • Alternative would likely not receive needed support from NS • May require more substantial reconfiguration of ADM 	<p>ADVANTAGES</p> <ul style="list-style-type: none"> • After construction, noise and vibration on nearby residences would be reduced • More visually appealing • Existing crossings at 9th and Seaboard Streets could remain open, allowing for better connections between neighborhoods <p>DISADVANTAGES</p> <ul style="list-style-type: none"> • Cost would be at least \$600 million more than Preferred Alternative • Tracks below grade would restrict freight rail service for nearby businesses • West Morehead Street would require closure or be raised • Summit Avenue would require raising or closure, with businesses impacted • Statesville Avenue would be raised, impacting properties along street • May require more grave and gravesite relocations than the Preferred Alternative • Spratt Street would require closure or be raised, impacting Greenville neighborhood • Construction of temporary freight detour route would place noise, vibration and access impacts on other neighborhoods • Temporary freight bypass would create numerous other problems along CSXT right-of-way (see Disadvantages under Alternative 7) 	<p>ADVANTAGES</p> <ul style="list-style-type: none"> • Footprint of Station and track improvements reduced • Fewer noise and vibration impacts to Fourth Ward <p>DISADVANTAGES</p> <ul style="list-style-type: none"> • Would triple amount of freight traffic along CSXT right-of-way, increasing risk of pedestrian and automobile accidents • Imposes additional traffic problems for neighborhoods along CSXT • Would require relocation of indigent graves in Pinewood Cemetery • May impact athletics facilities near CSXT at JCSU • Requires major upgrade to CSXT railroad; Requires reconfiguration of CSXT Pinoca Yard • Increased freight traffic at crossings along CSXT creates additional conflicts for emergency vehicular access • I-485 not designed to include freight railroad in right-of-way • Introduces freight railroad traffic in neighborhoods that currently have none • Requires trackage rights agreement between NS and CSXT; NCDOT has no legislative authority to force agreement • Costs would be at least \$300 million more than Preferred Alternative 	<p>ADVANTAGES</p> <ul style="list-style-type: none"> • Properties and businesses west of ADM remain intact • No impacts to Elmwood and Pinewood Cemeteries • No impacts to electrical equipment between Gateway Village and tracks • Lower overall costs <p>DISADVANTAGES</p> <ul style="list-style-type: none"> • Would impact NS freight operations to a much higher degree during construction than the Preferred Alternative • Alternative would likely not receive needed support from NS • Creates additional delays for both passenger and freight rail traffic • May prevent NCDOT/CATS from reaching agreements with NS • Would hinder future intercity and commuter rail service • Sharing commuter and freight tracks reduces technology options for CATS (i.e., CATS must choose FRA compliant trains) which affect number of stations and service along whole North Corridor
OUTCOME	Eliminated	Eliminated	Eliminated	Eliminated

7. Station Alternatives

In order to facilitate a complete analysis of the station components, multiple scenarios were investigated to establish potential functional inter-relationships of the station program, the Greyhound program and the CATS program. Seven different station development options were developed during the study. (These seven station development options were in addition to the eight track improvement alternatives developed and discussed in the previous section.) Each of the seven scenarios represents an ordering of functions to determine the feasibility of multiple block development along with the station requirements.

Three schemes (2, 6 and 7) incorporate all of the rail station, Greyhound and CATS functions into a single facility within a physical block (identified on the plans as the "Station Block"). These three options were developed based upon input from various potential users and other stakeholders. Because of the complex traffic configurations required when combining all transportation modes (CATS, Greyhound, rail, and parking) on the station block, an analysis of the various traffic patterns necessary to accommodate the station complex was completed for options 2, 6 and 7. Diagrams were completed illustrating the circulation and queuing requirements for automobiles, pedestrians, CATS (city buses), Greyhound, taxi, and building services.

Depending on the final disposition of the developed program of each of the study components, a minimum of two scenarios would be more fully addressed in preliminary engineering (PE) and design. The PE phase would allow stakeholders (NCDOT, Amtrak, Greyhound, CATS, city, county, public and others) an opportunity to participate in developing a suitable program for the facility, along with refining the options for sustainable economic development projects.

Description of Station Layout and Plan Development Options

Below is a short description of the seven options developed for the station layout and surrounding blocks. Each option includes the various transportation functions in some configuration on the three blocks between 3rd and 5th Streets. For the purposes of this study, the block between 3rd and 4th Streets is called the Annex Block; the block between 4th and Trade Streets is known as the Station Block; and between Trade and 5th Streets is the Polk Block (near the existing Polk Building). The station complex will be mixed with retail and office space, and mixed-use development likely would occur between 5th Street and 7th Street and a public park from 7th Street to 9th Street. Drawings of the station components for each option are found in Appendix ES-1.

OPTION 1 places the rail and CATS functions on the Station Block. Greyhound would be combined with a multi-level parking deck on the Polk Block. Off-site CATS and Greyhound bus storage would occur on the Annex Block.

OPTION 2 combines the rail station, CATS, Greyhound, and taxis and on the Station Block, with public parking would be placed below-grade. Like option 1, off-site bus storage for CATS and Greyhound would occur on the Annex Block, but with some surface public parking and some public/open space. Only private mixed-use development would occur on the Polk Block.

Like option 2, OPTION 3 places all rail, CATS, Greyhound, taxis and below-grade parking functions on the Station Block. Unlike option 2, bus storage for CATS and Greyhound would occur on the main Station Block. No Station functions would occur on the Annex Block or on the Polk Block.

OPTION 4 places the Greyhound station and bus storage on the Annex Block. The Station Block would handle rail and CATS functions. Mixed-use development with structured parking above grade would occur on the Polk Block.

OPTION 5 is nearly identical to option 4 except that Greyhound bus storage would occur someplace completely outside of the Station complex, thereby allowing a small portion of the Annex Block to include park land/open space.

OPTIONS 6 and 7 are similar to option 3 and place all rail, CATS, Greyhound, taxis and below-grade parking functions on the Station Block. The options differ in their traffic configurations. No Station functions would occur on the Annex or Polk Blocks.

8. Cost Sharing Analysis

Funding for final design and construction of the Multi-Modal station has not yet been secured. Because of the multiple transportation modes and providers who will occupy the station, the project will be funded with a combination of private, state, federal and local funds. Project participants include the state of North Carolina, the city of Charlotte, Mecklenburg county, the Charlotte Area Transit System, Greyhound, Amtrak, Norfolk Southern Corporation and CSX Transportation.

The NCDOT is evaluating the project for public-private partnership potential including air rights, franchise fees and other commercial opportunities. A brief analysis of commercial development potential has been completed and is included in the technical report. Public-private sector funding options include certificates of participation and the income stream from enterprise operations. The project also would be eligible for tax credit bond financing now under consideration in Congress. Federal funding sources for significant project components include the Federal Transit Administration and Federal Railroad Administration grants, as well as income from postal service contracts.

Table ES-2 lists the potential funding sources and beneficiaries for the Preferred and Station Build Only Alternatives. The list is not a final determination of funding and cost sharing but a starting point for additional analysis to be completed in later phases.

Table ES-2. Charlotte Multi-Modal Station preliminary cost sharing analysis

Item	Estimated Cost	Station Build Only Alternate	Preferred Alternate	Beneficiaries	Potential Funding Sources ¹
Station					
Multi-modal station (rail and local bus)	\$28,300,000	X	X	NCDOT, CATS, Amtrak & Community	NCDOT, FRA, FTA & CATS
Parking Structure/ Greyhound Terminal	25,600,000	X	X	NCDOT, city & Greyhound	NCDOT, FTA & Greyhound, city
Station Subtotal	\$53,900,000				
Track Work					
Station & Mail/Service	\$49,230,000	X	X	NCDOT, CATS & NS	NCDOT, FTA, CATS & NS
Additional Control and Signal System	\$5,950,000		X	NCDOT, CATS & NS	NCDOT, FTA, CATS & NS
Remove Grade Crossings	185,000		X	NCDOT, CATS, NS & Community	FRA, FHWA & NCDOT
"O" Line	14,240,000		X	CATS & CSX	CATS & FTA
Seaboard Street & I-277 on-ramp	2,250,000		X	NCDOT, NS, CATS, ADM & Community	FRA, FTA, FHWA & NCDOT
CSX/NS Grade Separation	58,360,000		X	CATS, CSX, NS & NCDOT	FTA, CSX, NS, FRA & CATS
ADM Reconfiguration	16,230,000		X	CATS, ADM, NCDOT & Community	FTA, CATS, ADM, & Community
Track Work Subtotal	\$146,450,000				
Associated Projects					
Mail/Service	\$1,265,000	X	X	NCDOT & US Postal Service	Income Stream
Greenway	900,000	X	X	NCDOT & Community	FHWA & Community
Buffer Park	2,320,000	X	X	NCDOT, CATS & Community	FHWA & Community
Public Art	2,000,000	X	X	Community	FHWA, Community & Private
Associated Projects Subtotal	\$6,485,000				
Total		\$109,615,000	\$206,835,000		

¹ Federal Transit Administration (FTA), Federal Railroad Administration (FRA), Federal Highway Administration (FHWA), North Carolina Department of Transportation (NCDOT), the city of Charlotte and Mecklenburg county (referred to as Community), Charlotte Area Transit System (CATS), Archer Daniels Midland Company (ADM), CSX Transportation (CSX), Norfolk Southern Railway (NS), Income Stream derived from enterprise operations, and private companies and private non-profit charitable foundations (referred to as Private).

9. Project Construction and Phasing

Because the project is located in a major urban area, and because of the need to maintain railroad operations as the existing railroads are configured and new facilities built, construction of the Charlotte Multi-Modal Station will be a complex undertaking.

It should be noted that the phases described below would overlap in their implementation timeframe. Nevertheless, they give a general idea on the staging of construction necessary in this complex project. The project phasing described here is for the Preferred Alternative.

Phase I of the project will consist of CSXT/NS grade separation. This phase includes the construction of the temporary NS and CSXT main line track, the relocation of the CSXT Tryon Yard, the construction of the CSXT trench, and the switch over to the CSXT trench and restoration of the NS main line. Seaboard Street would be realigned, and the Graham Street on-ramp to I-277 would be permanently closed and demolished.

In addition, a number of other major activities will be undertaken to maintain CSXT, NS and ADM operations during construction of the proposed CSXT trench, such as temporary and permanent modifications to the facilities at the ADM milling complex in phase II.

Phase II will involve ADM improvements. The design and construction of temporary and proposed ADM trackage and processing facilities trench will involve major design activities, demolition of existing facilities and construction of new and temporary facilities, the construction of a temporary tracks, the construction of new tracks unloading facilities, and parking areas and final cutover of the permanent track and permanent ADM facilities.

Phase III will involve bridge, track and signal improvements. Phase IV will involve the design and construction of the proposed neighborhood park, pedestrian/bicycle greenway, and noise buffer.

Construction of the proposed Charlotte Multi-Modal Station buildings and platforms will occur primarily in the latter stages of construction. Phase V, Station Construction, will consist of constructing station tracks and platforms, the main bus and rail station building, the Greyhound Station and parking deck, and the mail and express handling facility.

10. Next Steps

The Charlotte Multi-Modal Station will be an ambitious project that will develop over a period of years. Because of the many facets of the project, there are multiple steps that will need to be undertaken before the project becomes a reality for the Charlotte region.

Property Acquisition: The state of North Carolina will continue to acquire property necessary for the project. As of October 2001, NCDOT had acquired a majority of the property required for the Station and related track improvements. In state fiscal year 2002, NCDOT plans to acquire most of the additional parcels on the east side of the NS main line between Ericsson Stadium and 7th Streets. These parcels acquired on the east side of the NS main line will be used for construction of the rail station buildings, intercity rail platforms, intercity bus station, parking deck, linear park, noise berm or wall and pedestrian/bicycle greenway.

In later years, additional property will be acquired for North of the station the reconfiguration of ADM, Elmwood Cemetery grave relocation, construction of the CSXT trench, and construction of a future service facility.

Continued Coordination with City and Community Outreach: As CATS moves forward with its planning and design of the five corridor rapid transit system and improved bus services,

additional coordination will be necessary to ensure that the design and operations of the Multi-Modal Station will interface with the new transit system. Ultimately, coordination is necessary to ensure that the Station incorporates as many modes as possible and meets the needs of the traveling public. Additional coordination and outreach to neighborhoods, developers, city planners, and others is necessary to ensure that the Station enhances the continually developing area of the city.

Final Funding: Funding for final design and construction of the Station has not yet been secured. Because of the multiple transportation modes and providers who will inhabit the Station, the Station itself will be funded with a combination of private, state, federal and local funds.

Engineering, Design, and Environmental Assessment: After completion of this engineering feasibility study, the state of North Carolina will begin preliminary engineering and design as the Environmental Assessment (EA) phase of the project.

Construction: The Preferred Alternative assumes a three-year construction timeline for the Station and related track improvements.

11. Summary

The health of a metropolitan region rests on three legs: the strength of its business community, its accessibility, and its quality of life.

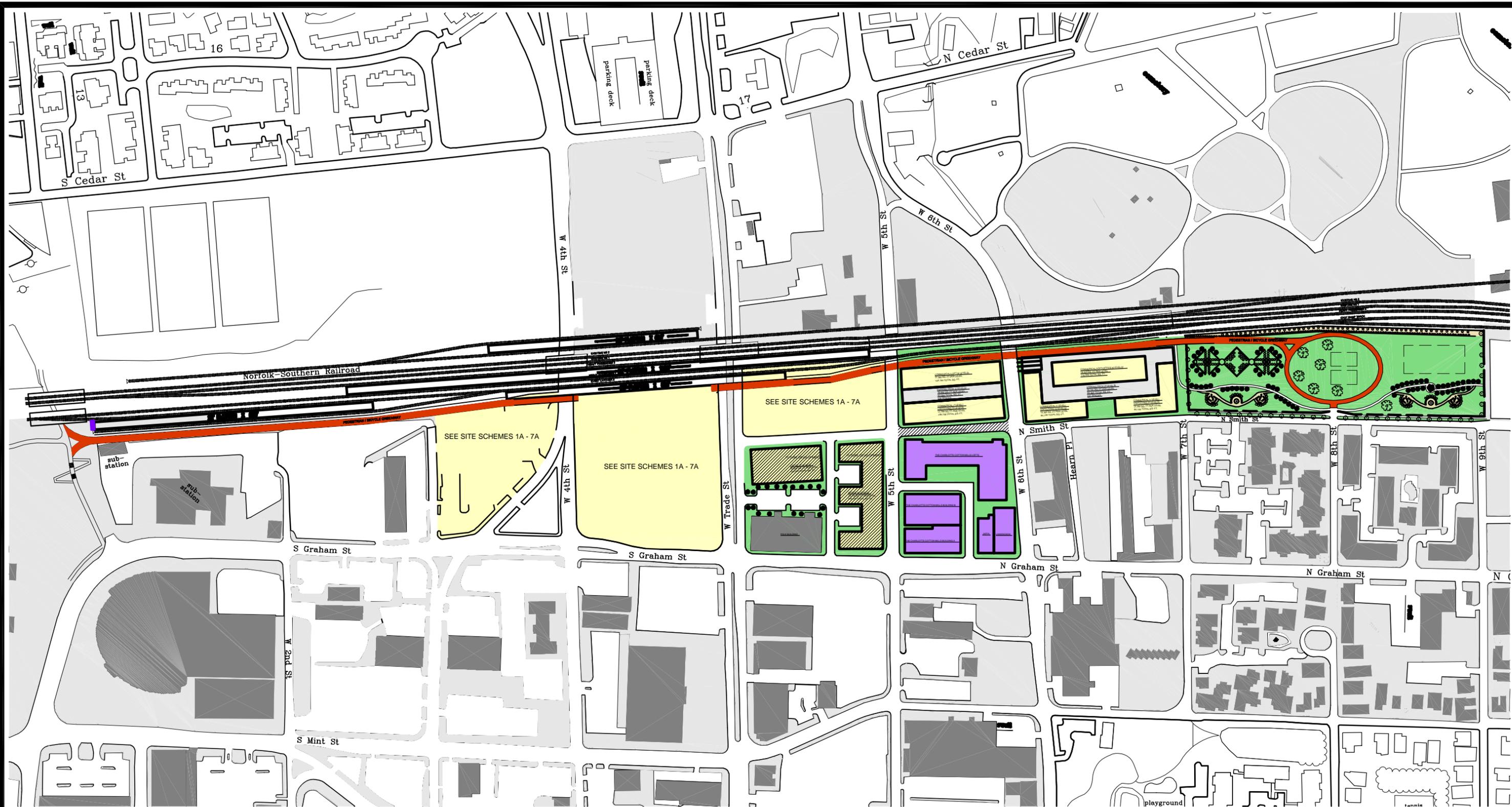
The Charlotte region has long been a thriving business center and has offered some of the best quality of life in the country. Today, however, the accessibility leg is wobbly, and it is placing the rest of the region's economic security at risk. Charlotte/Douglas International Airport is a transportation hub for the region and adds to the region's attractiveness as a business location, and the region is a growing tourist attraction. The problem – simply stated - is that the region is choking on congestion. Charlotte's citizens have few or no transportation options available except the automobile, the routes to and from Center City are full of cars, and roads cannot be built fast enough to meet the growing demand.

This situation is costly in many ways. Commuting issues create many business inefficiencies, and there is the real potential of an inability to add future jobs in Center City. This limit will not be imposed by the economy, but by a growing disillusionment with congested highways and lengthy commutes. In addition, long commutes on clogged streets deter many of the region's citizens from enjoying the arts, culture, and entertainment options offered in Center City, since the drive and the hassle often outweigh the pleasure on the other end. And the environmental issues grow in number and in significance daily.

A central part of the solution lies in affordable, convenient, and reliable transportation options that are built on sound economic principles and promise real financial returns and economic benefits. The choice today is about the fundamentals: safety, security, quality of life, the environment, and the economic future of the Charlotte region. It's a choice made not only for today, but also for the generations that will follow.

APPENDIX ES-1

STATION OPTIONS



SCALE: NTS

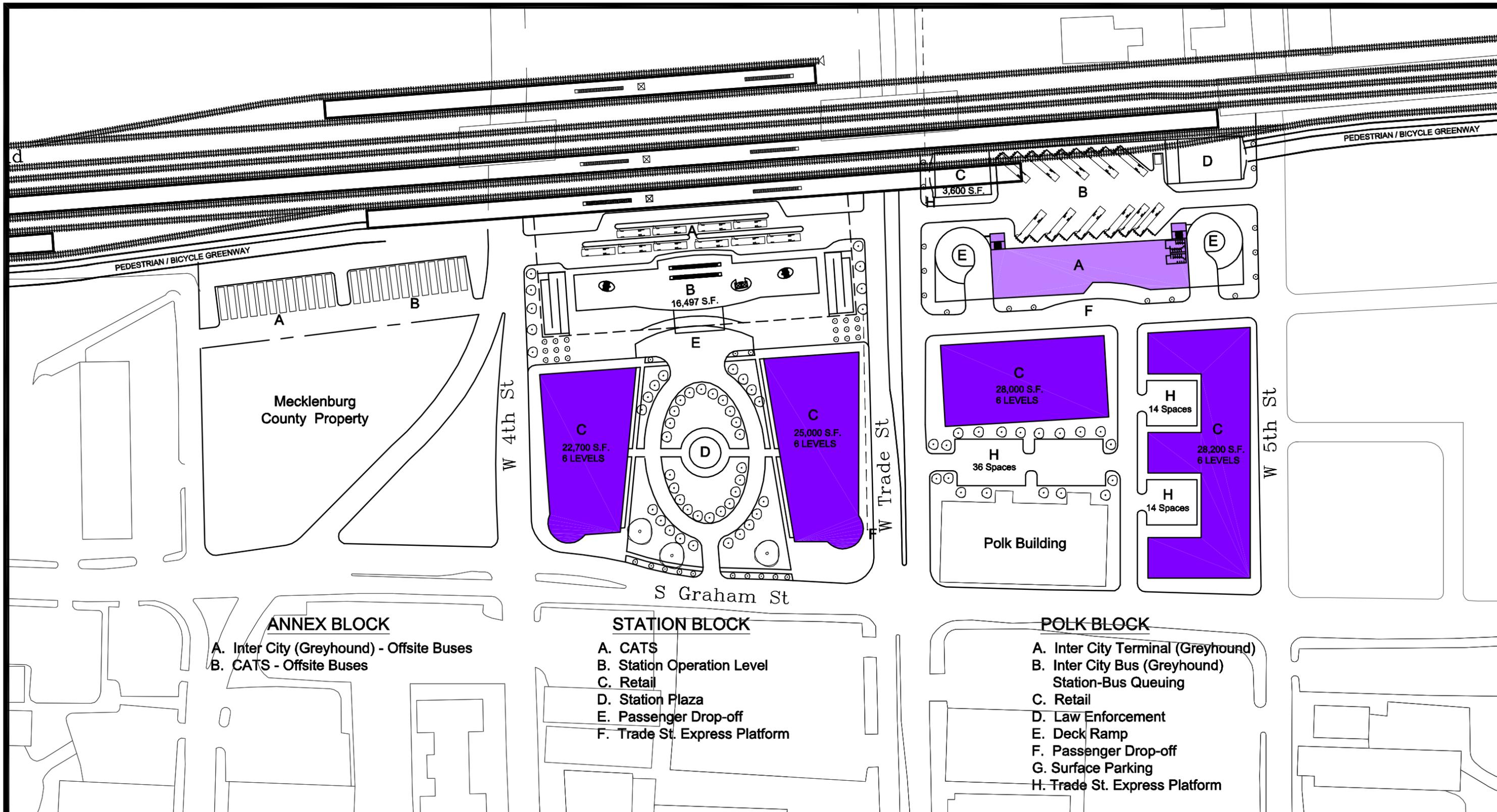


CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
Overall Site Plan

JOB NO. 35596.700	SHEET NO. 1
DATE: DEC. 19, 2001	FIGURE NO. ES-1



- ANNEX BLOCK**
- A. Inter City (Greyhound) - Offsite Buses
 - B. CATS - Offsite Buses

- STATION BLOCK**
- A. CATS
 - B. Station Operation Level
 - C. Retail
 - D. Station Plaza
 - E. Passenger Drop-off
 - F. Trade St. Express Platform

- POLK BLOCK**
- A. Inter City Terminal (Greyhound)
 - B. Inter City Bus (Greyhound) Station-Bus Queuing
 - C. Retail
 - D. Law Enforcement
 - E. Deck Ramp
 - F. Passenger Drop-off
 - G. Surface Parking
 - H. Trade St. Express Platform

SCALE: NTS

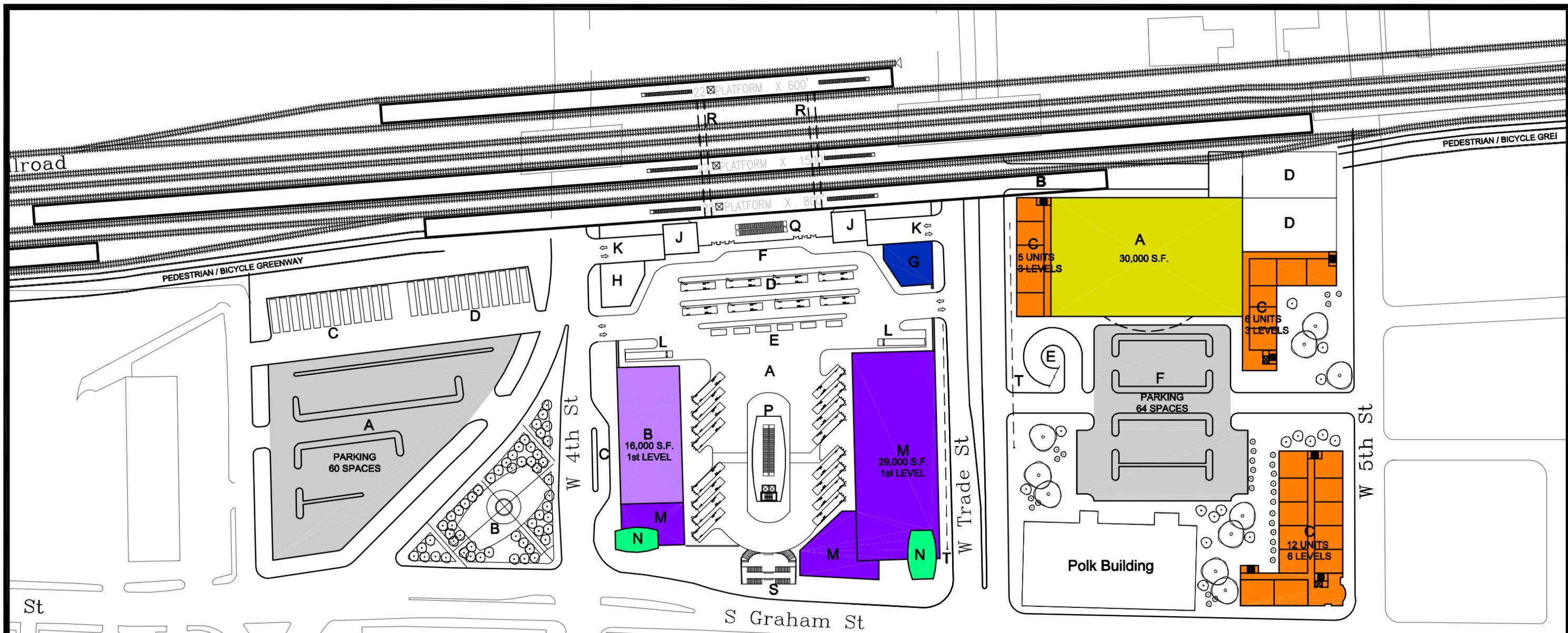


CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
1 - Station /
CATS Station Block (Level 1)
Intercity Bus - Polk Block

JOB NO. 35596.700	SHEET NO. 1
DATE: APRIL 8, 2002	FIGURE NO. 3.4-1



ANNEX BLOCK

- A. Public Parking / County Land
- B. Open Space / Park Land
- C. Inter City (Greyhound) - Offsite Buses
- D. CATS - Offsite Buses

STATION BLOCK

- A. Intercity Bus (Greyhound) Station-Bus Queuing
- B. Intercity Bus (Greyhound) Terminal
- C. Bus Terminal Drop-off
- D. CATS
- E. Taxi Queuing
- F. Passenger Drop-off
- G. CATS Operations
- H. Law Enforcement
- J. Station Operations
- K. Parking Entrance/Exit
- L. Building Service
- M. Retail
- P. Station Vertical Circulation
- Q. Station Platform Access
- R. Passenger Platform Concourse
- S. Grand Stair to Platform
- T. Trade St. Express Platform

POLK BLOCK

- A. Grocery Store
- B. Building Services
- C. Residential
- D. Existing Buildings
- E. Deck Ramp
- F. Store Parking

SCALE: NTS

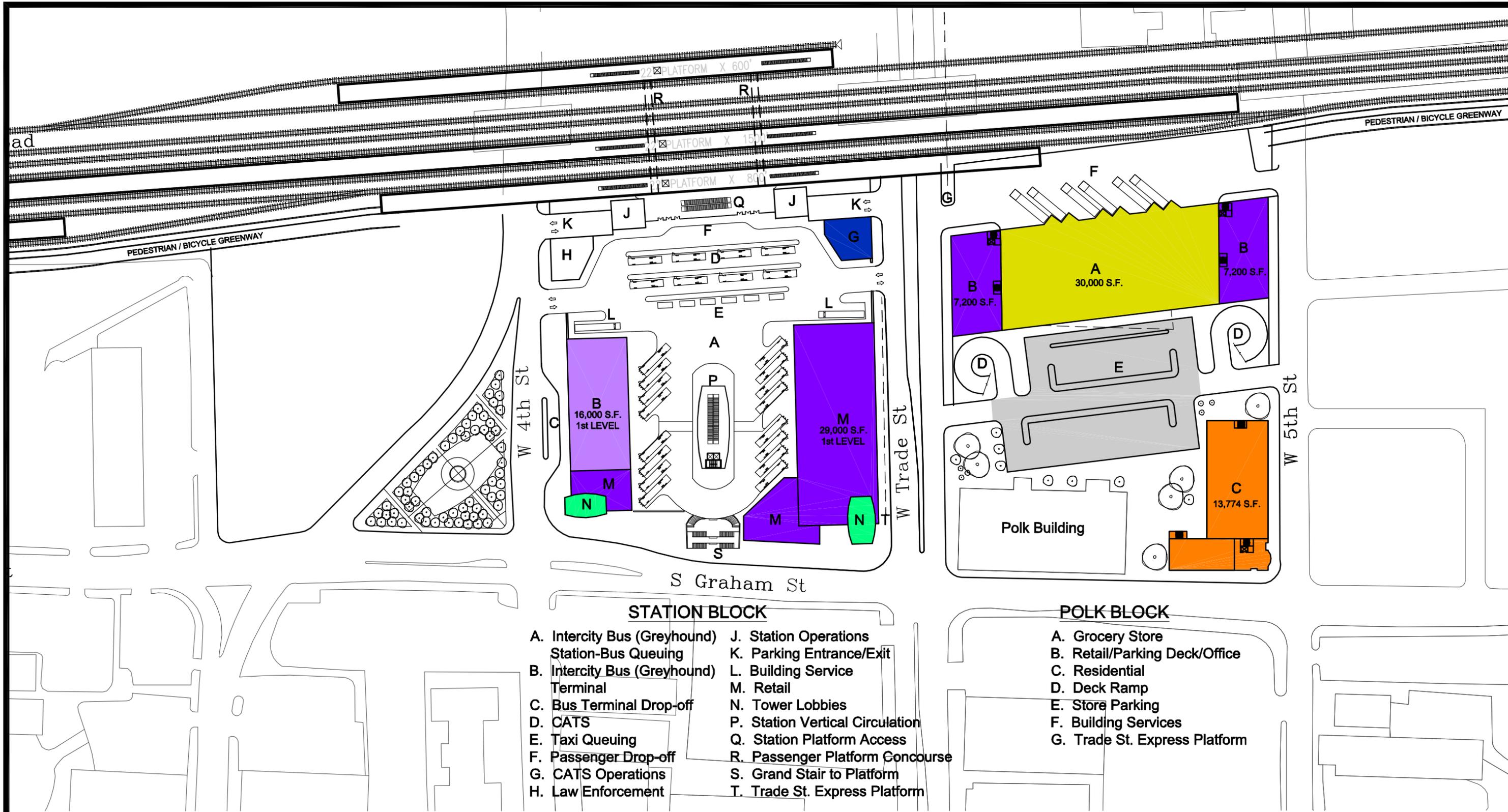


CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
2 - Station /
Intercity Bus/
CATS Station Block (Level1)

JOB NO. 35596.700	SHEET NO. 1
DATE: APRIL 8, 2002	FIGURE NO. 3.4-2



STATION BLOCK

- A. Intercity Bus (Greyhound) Station-Bus Queuing
- B. Intercity Bus (Greyhound) Terminal
- C. Bus Terminal Drop-off
- D. CATS
- E. Taxi Queuing
- F. Passenger Drop-off
- G. CATS Operations
- H. Law Enforcement
- J. Station Operations
- K. Parking Entrance/Exit
- L. Building Service
- M. Retail
- N. Tower Lobbies
- P. Station Vertical Circulation
- Q. Station Platform Access
- R. Passenger Platform Concourse
- S. Grand Stair to Platform
- T. Trade St. Express Platform

POLK BLOCK

- A. Grocery Store
- B. Retail/Parking Deck/Office
- C. Residential
- D. Deck Ramp
- E. Store Parking
- F. Building Services
- G. Trade St. Express Platform

SCALE: NTS

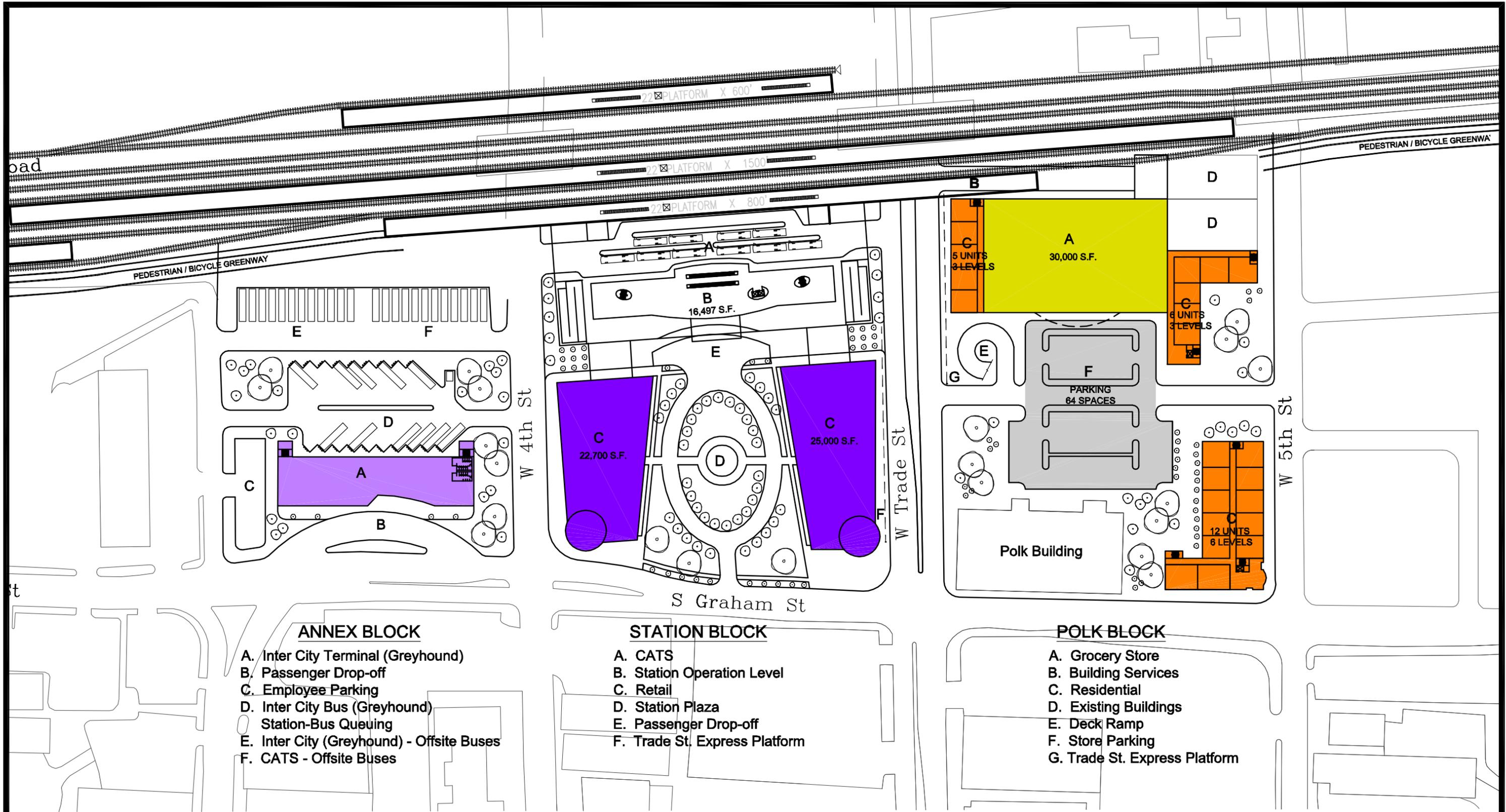


CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
3 - Station / Intercity Station /
CATS Station Block (Level 1)

JOB NO. 35596.700	SHEET NO. 1
DATE: APRIL 8, 2002	FIGURE NO. 3.4-3



ANNEX BLOCK

- A. Inter City Terminal (Greyhound)
- B. Passenger Drop-off
- C. Employee Parking
- D. Inter City Bus (Greyhound) Station-Bus Queuing
- E. Inter City (Greyhound) - Offsite Buses
- F. CATS - Offsite Buses

STATION BLOCK

- A. CATS
- B. Station Operation Level
- C. Retail
- D. Station Plaza
- E. Passenger Drop-off
- F. Trade St. Express Platform

POLK BLOCK

- A. Grocery Store
- B. Building Services
- C. Residential
- D. Existing Buildings
- E. Deck Ramp
- F. Store Parking
- G. Trade St. Express Platform

SCALE: NTS

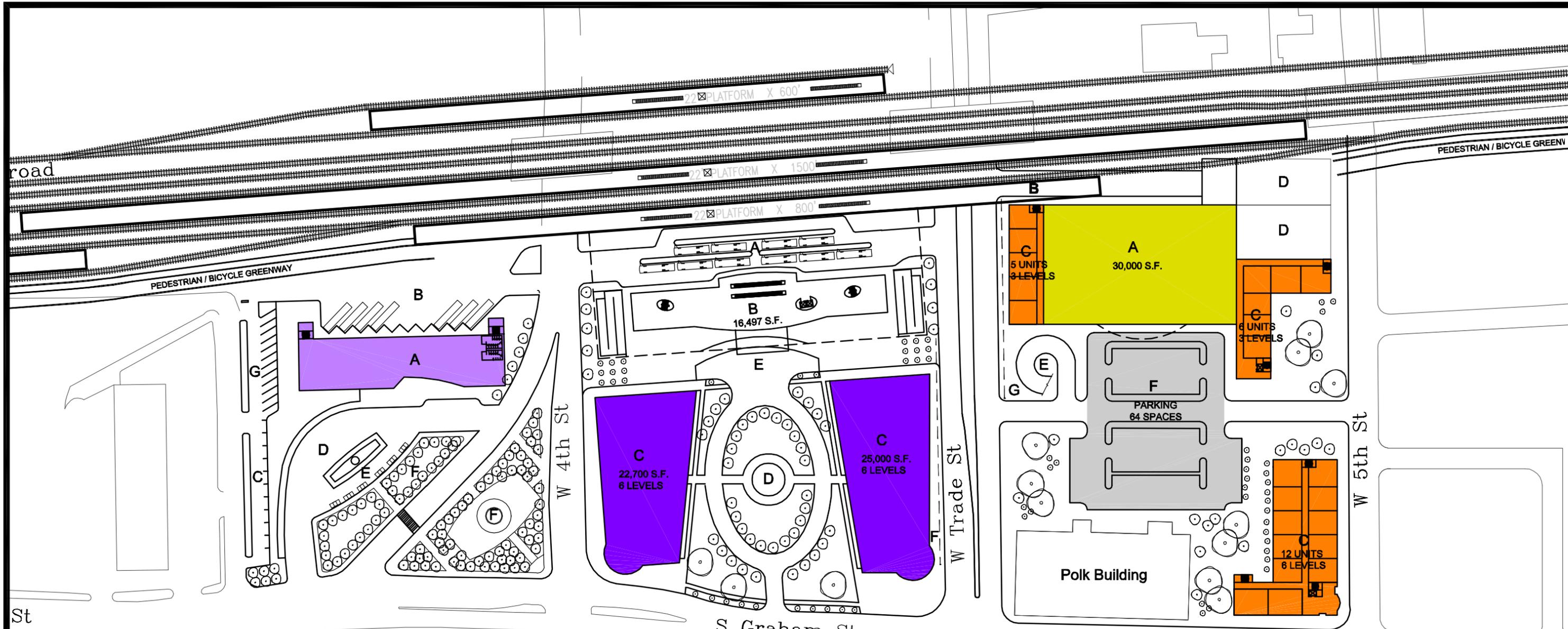


CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
4 - Station / CATS Station
Block (Level 1)
Intercity Bus - Annex Block

JOB NO. 35596.700	SHEET NO. 1
DATE: APRIL 8, 2002	FIGURE NO. 3.4-4



ANNEX BLOCK

- A. Inter City Bus (Greyhound) Terminal
- B. Inter City Bus (Greyhound) Station-Bus Queuing
- C. Drop-off Transit Stop
- D. Terminal Auto Drop-off
- E. Taxi Waiting
- F. Open Space/Park Land
- G. Employee Parking

STATION BLOCK

- A. CATS
- B. Station Operation Level
- C. Retail
- D. Station Plaza
- E. Passenger Drop-off
- F. Trade St. Express Platform

POLK BLOCK

- A. Grocery Store
- B. Building Services
- C. Residential
- D. Existing Buildings
- E. Deck Ramp
- F. Store Parking
- G. Trade St. Express Platform

SCALE: NTS

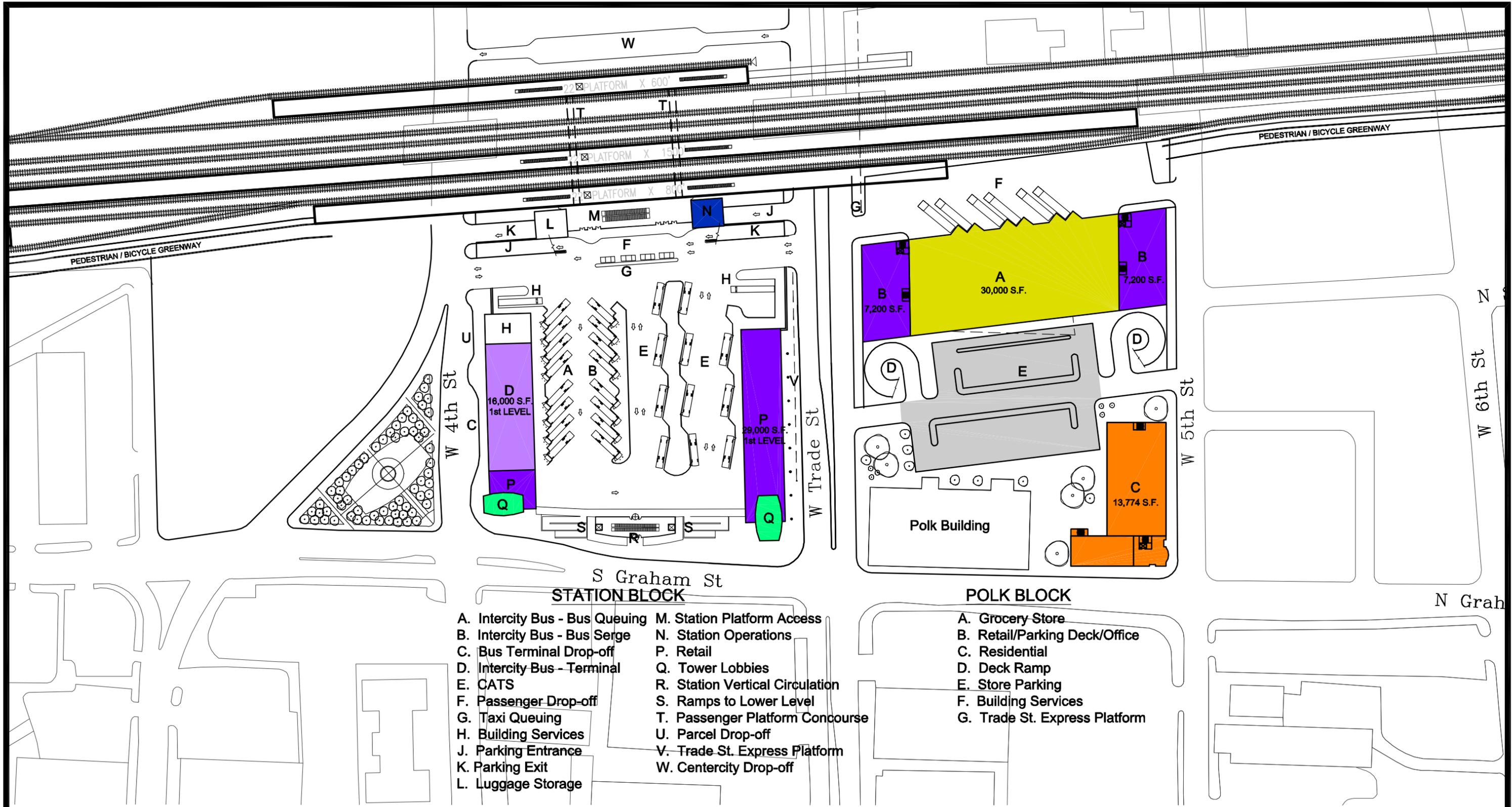


CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
5 - Station / CATS Station
Block (Level 1)
Intercity Bus - Annex Block

JOB NO. 35596.700	SHEET NO. 1
DATE: APRIL 8, 2002	FIGURE NO. 3.4-5



- S Graham St
STATION BLOCK**
- | | |
|--------------------------------|---------------------------------|
| A. Intercity Bus - Bus Queuing | M. Station Platform Access |
| B. Intercity Bus - Bus Serge | N. Station Operations |
| C. Bus Terminal Drop-off | P. Retail |
| D. Intercity Bus - Terminal | Q. Tower Lobbies |
| E. CATS | R. Station Vertical Circulation |
| F. Passenger Drop-off | S. Ramps to Lower Level |
| G. Taxi Queuing | T. Passenger Platform Concourse |
| H. Building Services | U. Parcel Drop-off |
| J. Parking Entrance | V. Trade St. Express Platform |
| K. Parking Exit | W. Centercity Drop-off |
| L. Luggage Storage | |

- W 5th St
POLK BLOCK**
- | |
|-------------------------------|
| A. Grocery Store |
| B. Retail/Parking Deck/Office |
| C. Residential |
| D. Deck Ramp |
| E. Store Parking |
| F. Building Services |
| G. Trade St. Express Platform |

SCALE: NTS

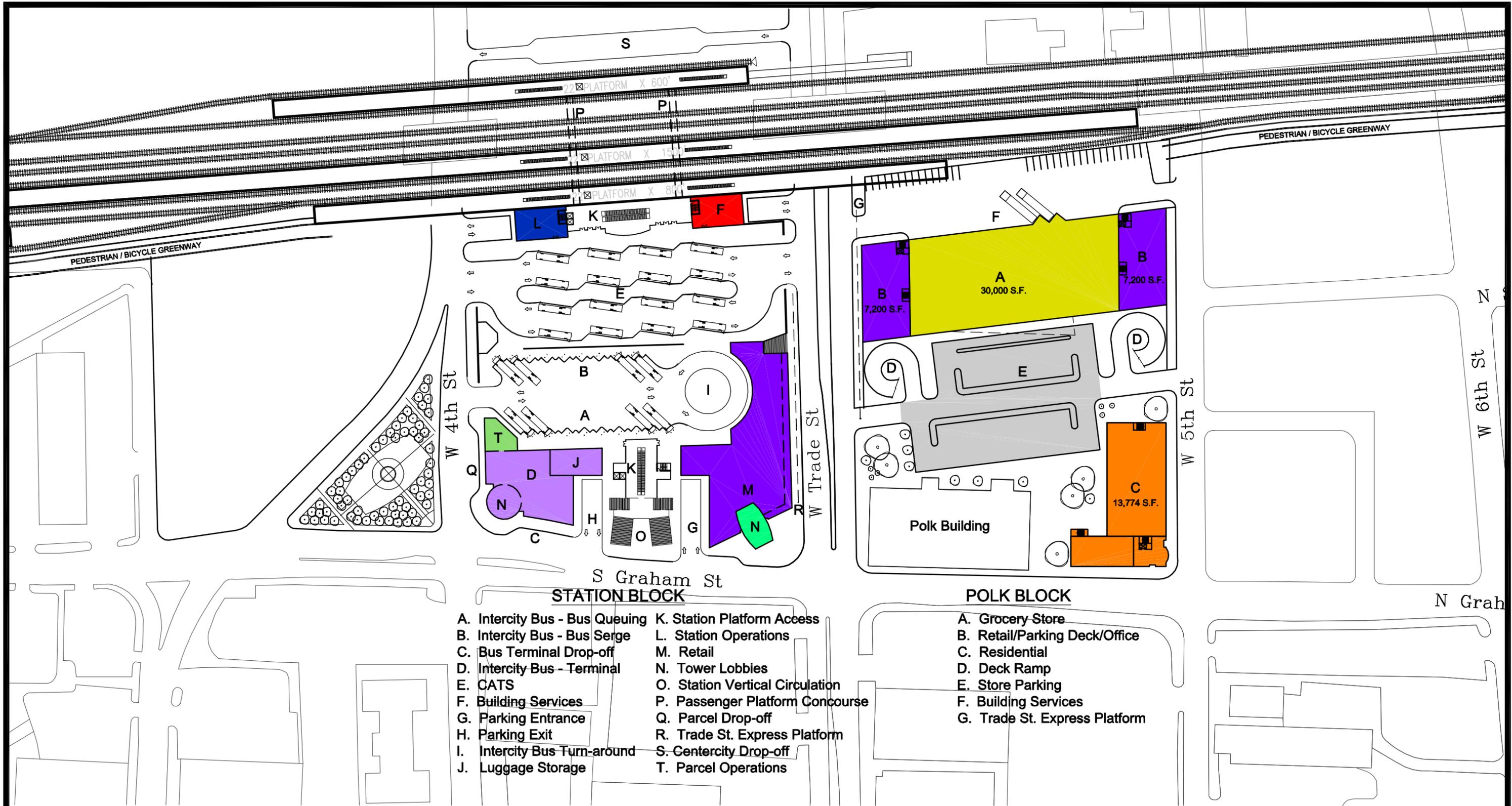


CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
6 - Station / Intercity Station /
CATS Station Block (Level 1)

JOB NO. 35596.700	SHEET NO. 1
DATE: APRIL 8, 2002	FIGURE NO. 3.4-6



- STATION BLOCK**
- A. Intercity Bus - Bus Queuing
 - B. Intercity Bus - Bus Serge
 - C. Bus Terminal Drop-off
 - D. Intercity Bus - Terminal
 - E. CATS
 - F. Building Services
 - G. Parking Entrance
 - H. Parking Exit
 - I. Intercity Bus Turn-around
 - J. Luggage Storage
 - K. Station Platform Access
 - L. Station Operations
 - M. Retail
 - N. Tower Lobbies
 - O. Station Vertical Circulation
 - P. Passenger Platform Concourse
 - Q. Parcel Drop-off
 - R. Trade St. Express Platform
 - S. Centercity Drop-off
 - T. Parcel Operations

- POLK BLOCK**
- A. Grocery Store
 - B. Retail/Parking Deck/Office
 - C. Residential
 - D. Deck Ramp
 - E. Store Parking
 - F. Building Services
 - G. Trade St. Express Platform

SCALE: NTS



CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

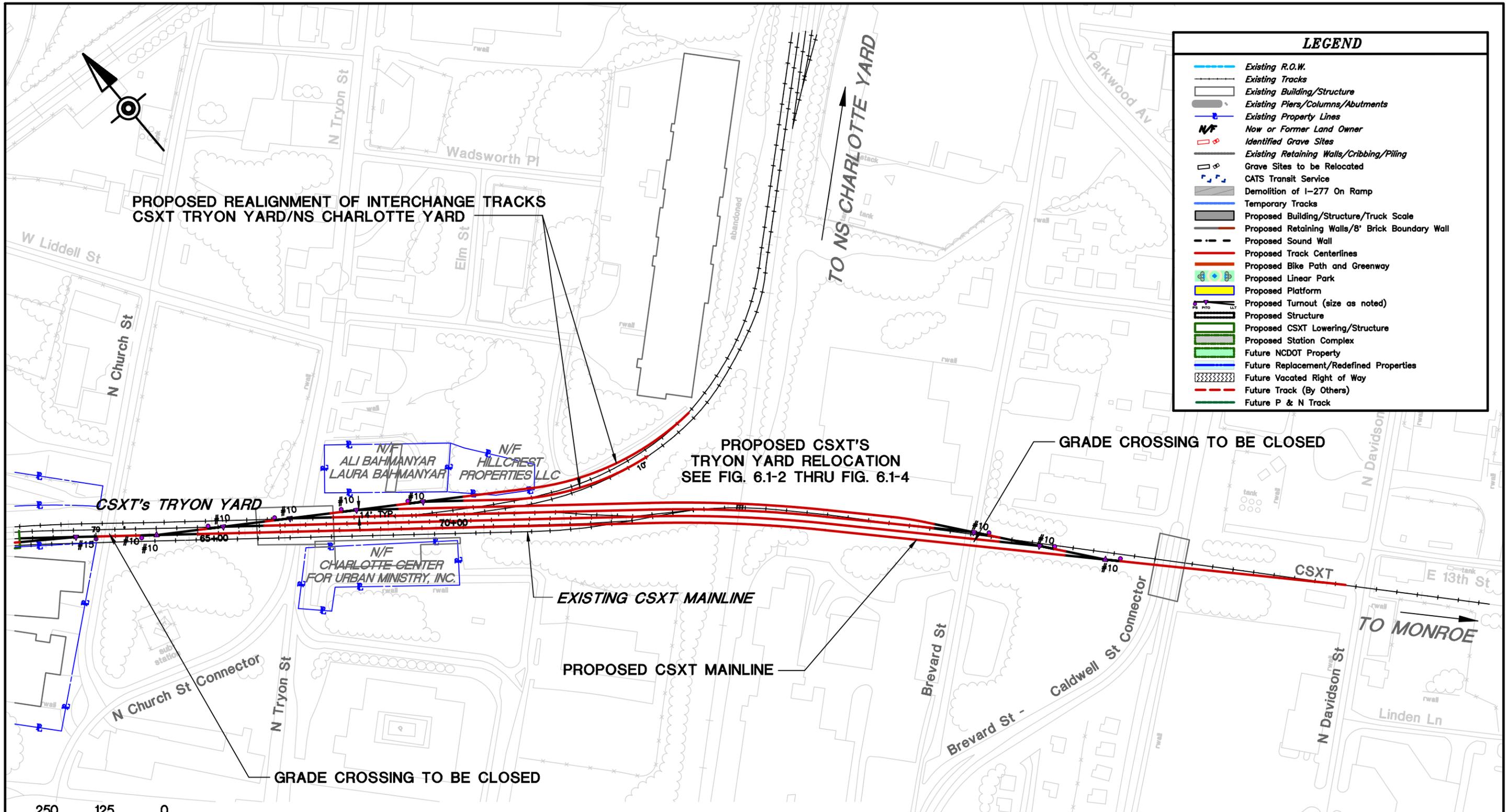
PROJECT:
CHARLOTTE MMSP

CONCEPTUAL
7 - Station / Intercity Station /
CATS Station Block (Level 1)

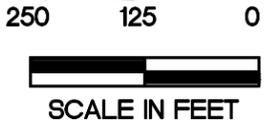
JOB NO. 35596.700	SHEET NO. 1
DATE: APRIL 8, 2002	FIGURE NO. 3.4-7

APPENDIX ES-2

PROPOSED TRACK IMPROVEMENTS PREFERRED (FULL BUILD) ALTERNATIVE



LEGEND	
	Existing R.O.W.
	Existing Tracks
	Existing Building/Structure
	Existing Piers/Columns/Abutments
	Existing Property Lines
	Now or Former Land Owner
	Identified Grave Sites
	Existing Retaining Walls/Cribbing/Piling
	Grave Sites to be Relocated
	CATS Transit Service
	Demolition of I-277 On Ramp
	Temporary Tracks
	Proposed Building/Structure/Truck Scale
	Proposed Retaining Walls/8' Brick Boundary Wall
	Proposed Sound Wall
	Proposed Track Centerlines
	Proposed Bike Path and Greenway
	Proposed Linear Park
	Proposed Platform
	Proposed Turnout (size as noted)
	Proposed Structure
	Proposed CSXT Lowering/Structure
	Proposed Station Complex
	Future NCDOT Property
	Future Replacement/Redefined Properties
	Future Vacated Right of Way
	Future Track (By Others)
	Future P & N Track



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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

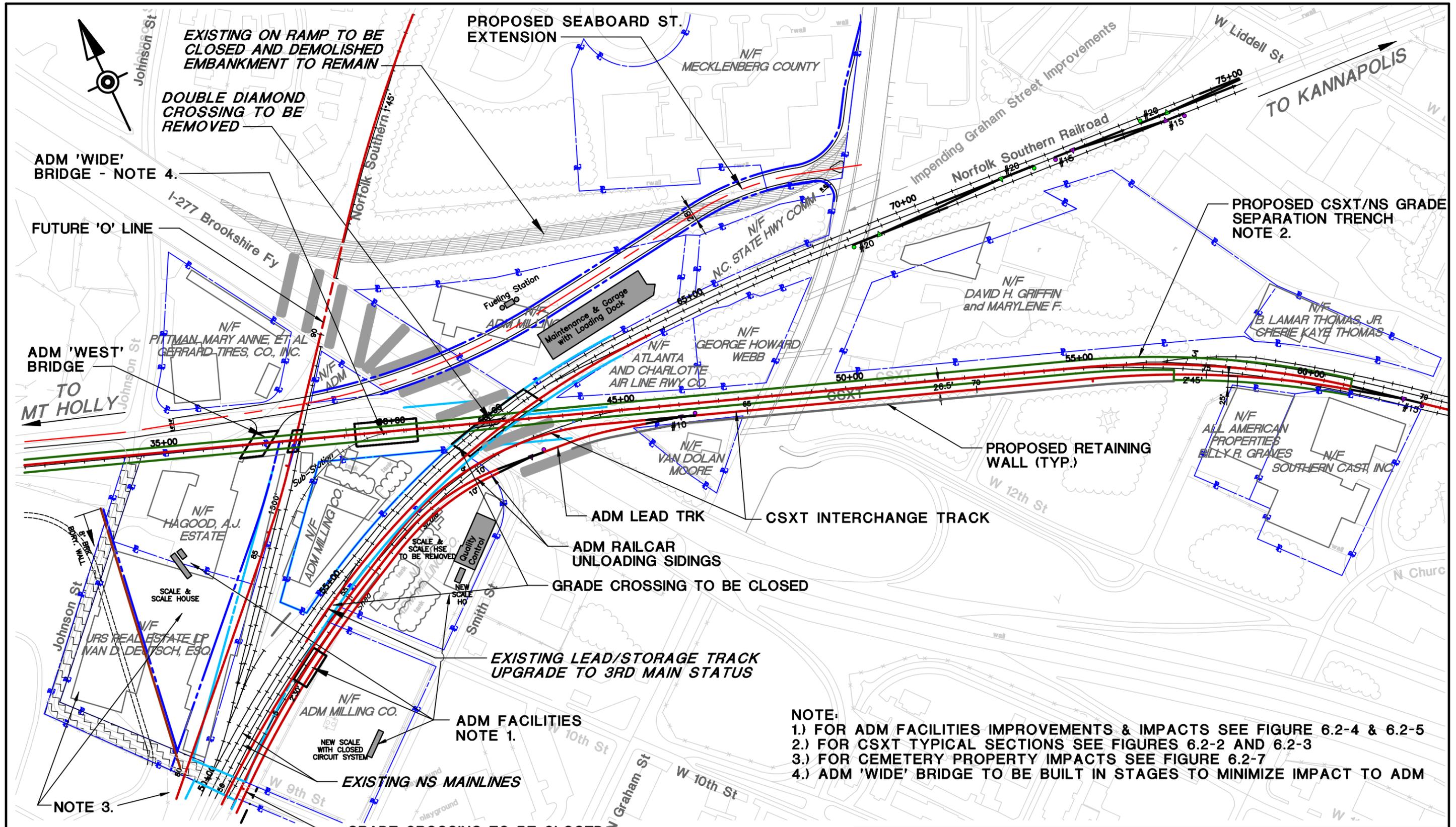
PROJECT:
CHARLOTTE MMSP

First Ward
North Tryon Street Area
Preferred Alternative

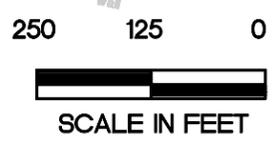
CONCEPTUAL

JOB NO.:	SHEET NO.:
36596.700	•
DATE:	FIGURE NO.:
DEC. 19, 2001	6.1-1

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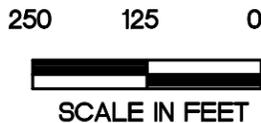
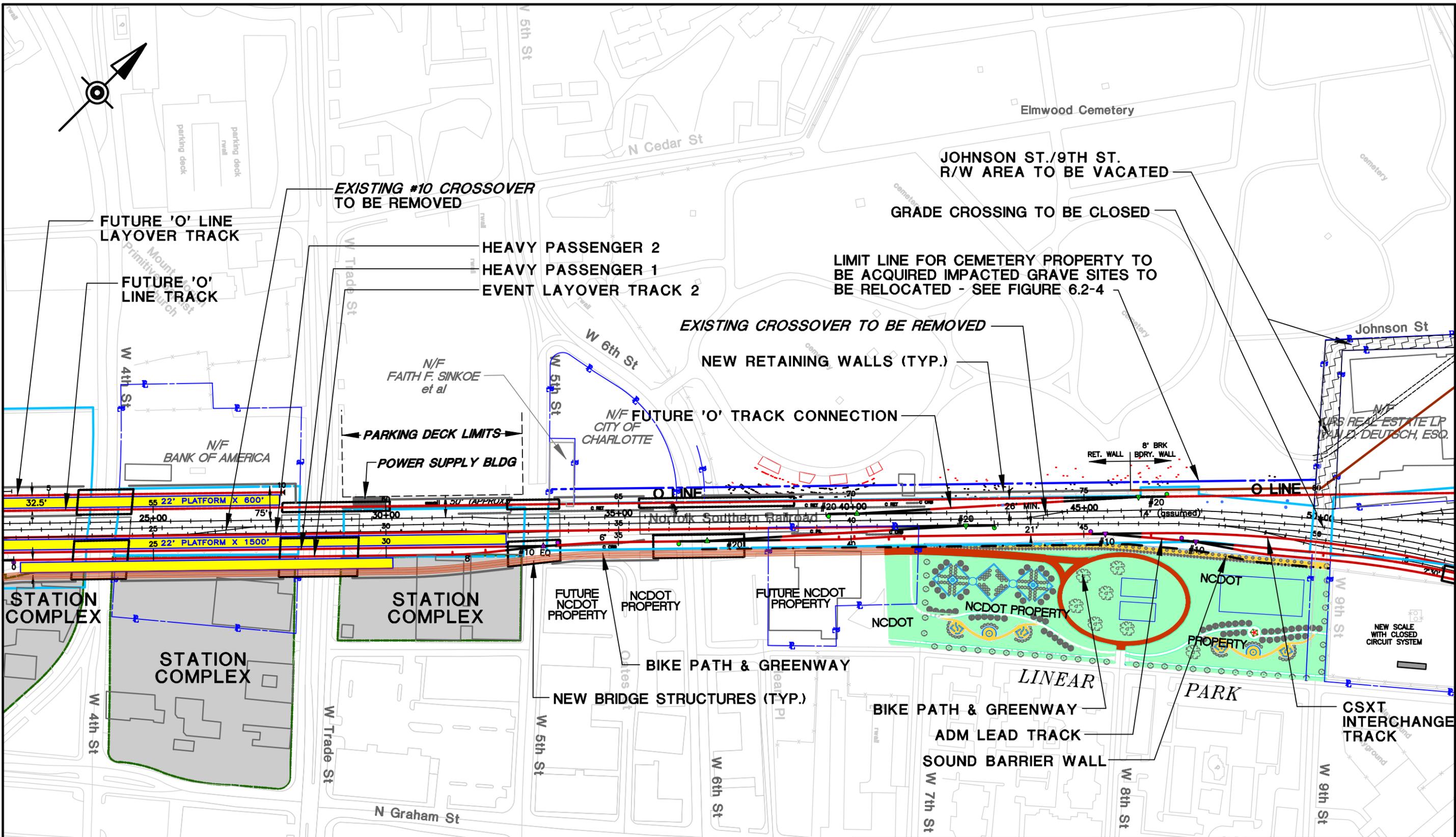


NOTE:
 1.) FOR ADM FACILITIES IMPROVEMENTS & IMPACTS SEE FIGURE 6.2-4 & 6.2-5
 2.) FOR CSXT TYPICAL SECTIONS SEE FIGURES 6.2-2 AND 6.2-3
 3.) FOR CEMETERY PROPERTY IMPACTS SEE FIGURE 6.2-7
 4.) ADM 'WIDE' BRIDGE TO BE BUILT IN STAGES TO MINIMIZE IMPACT TO ADM



CLIENT: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION PROJECT: CHARLOTTE MMSP	Fourth Ward Graham St. to Trade St. Preferred Alternative	JOB NO.: 35596.700	SHEET NO.: .
	CONCEPTUAL	DATE: April 2002	FIGURE NO.: 6.2-1A

FILE: c:\35596\atodumstudy\700\Report & Est\WAGNER_CD\6.2-1-a.dgn
 DATE: 04-Apr-2002 15:28



CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

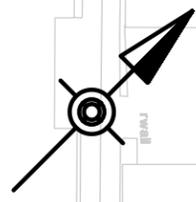
PROJECT:
CHARLOTTE MMSP

Fourth Ward
Graham St. to Trade St.
Preferred Alternative

CONCEPTUAL

JOB NO.:	SHEET NO.:
35598.700	
DATE:	FIGURE NO.:
April 2002	6.2-1B

FILE: e:\35598\studies\study\700\Report & Est\WAGNER_CD\6.2-1b.dgn
DATE: 04-Apr-2002 15:28



BIKE PATH & GREENWAY

EXISTING SIDING TO REMAIN

S Cedar St

EXISTING #10 CROSSOVER TO BE REMOVED

FUTURE P & N TO GASTONIA

FUTURE 'O' LINE LAYOVER TRACK
FUTURE 'O' LINE TRACK

OLD TEAM TRACKS TO BE REMOVED

EXISTING NS 2 TRACK
EXISTING NS 1 TRACK

600.00'

Norfolk Southern

OLD TEAM TRACK TO BE REMOVED

STATION COMPLEX

STATION COMPLEX

STATION COMPLEX

EXISTING P & N BRIDGE SPAN TO BE RAISED

Ericsson Stadium

N/F CITY OF CHARLOTTE

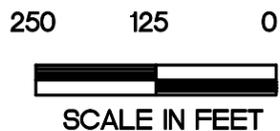
S Graham St

NEW BRIDGE STRUCTURES (TYP.)

RETAINING WALLS (TYP.)

BIKE PATH & GREENWAY

- HEAVY PASSENGER 2
- HEAVY PASSENGER 1
- EVENT/LAYOVER TRACK 2
- EVENT/LAYOVER TRACK 1



CLIENT:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

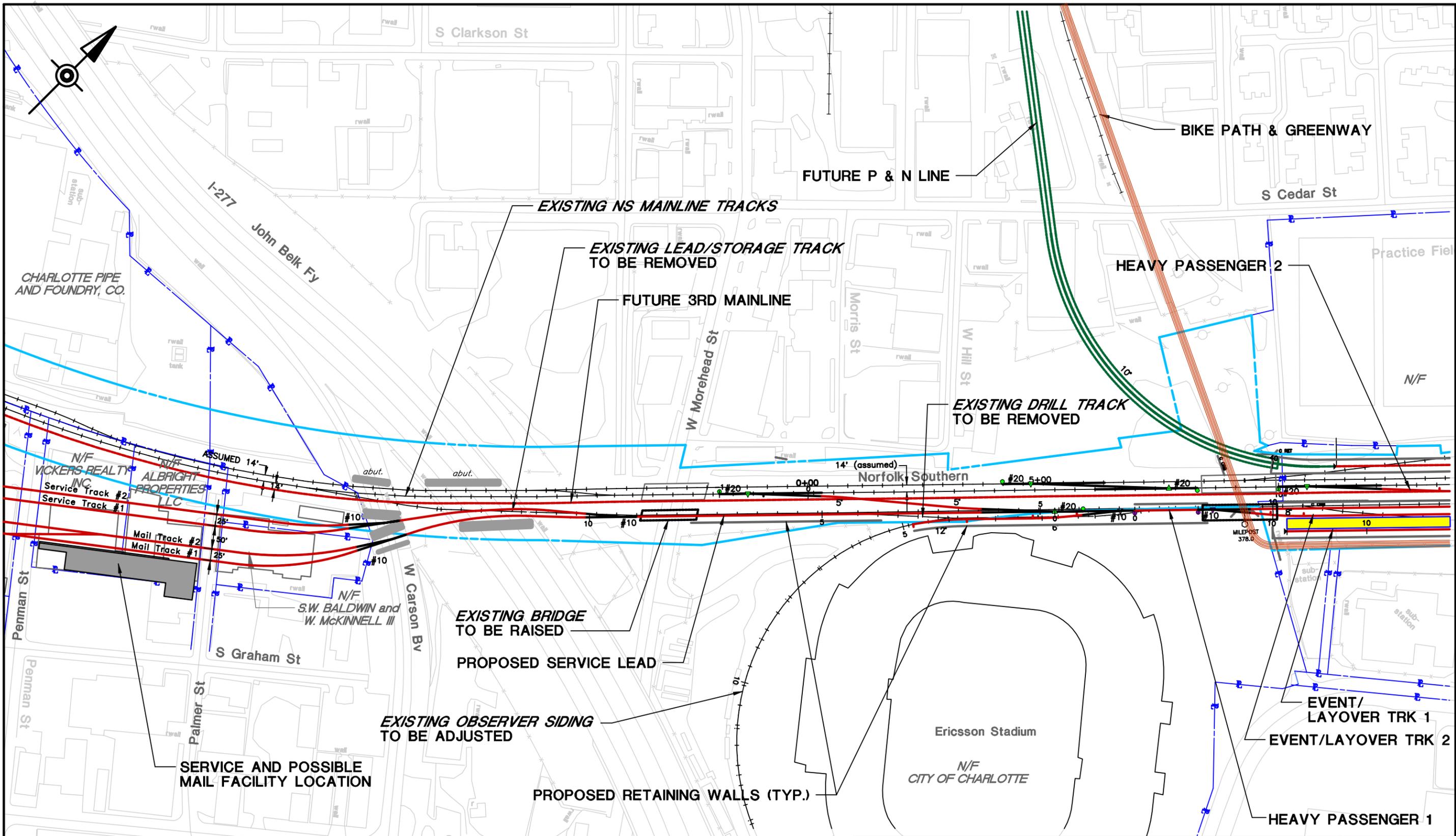
PROJECT:
CHARLOTTE MMSP

Third Ward
Trade St. to P & N Underpass
Preferred Alternative

CONCEPTUAL

JOB NO.:	SHEET NO.:
36598.700	
DATE:	FIGURE NO.:
April 2002	6.3-1

FILE: g:\35598\stadiumstudy.700\Report & Est\WAGNER_CD\6.3-1.dgn
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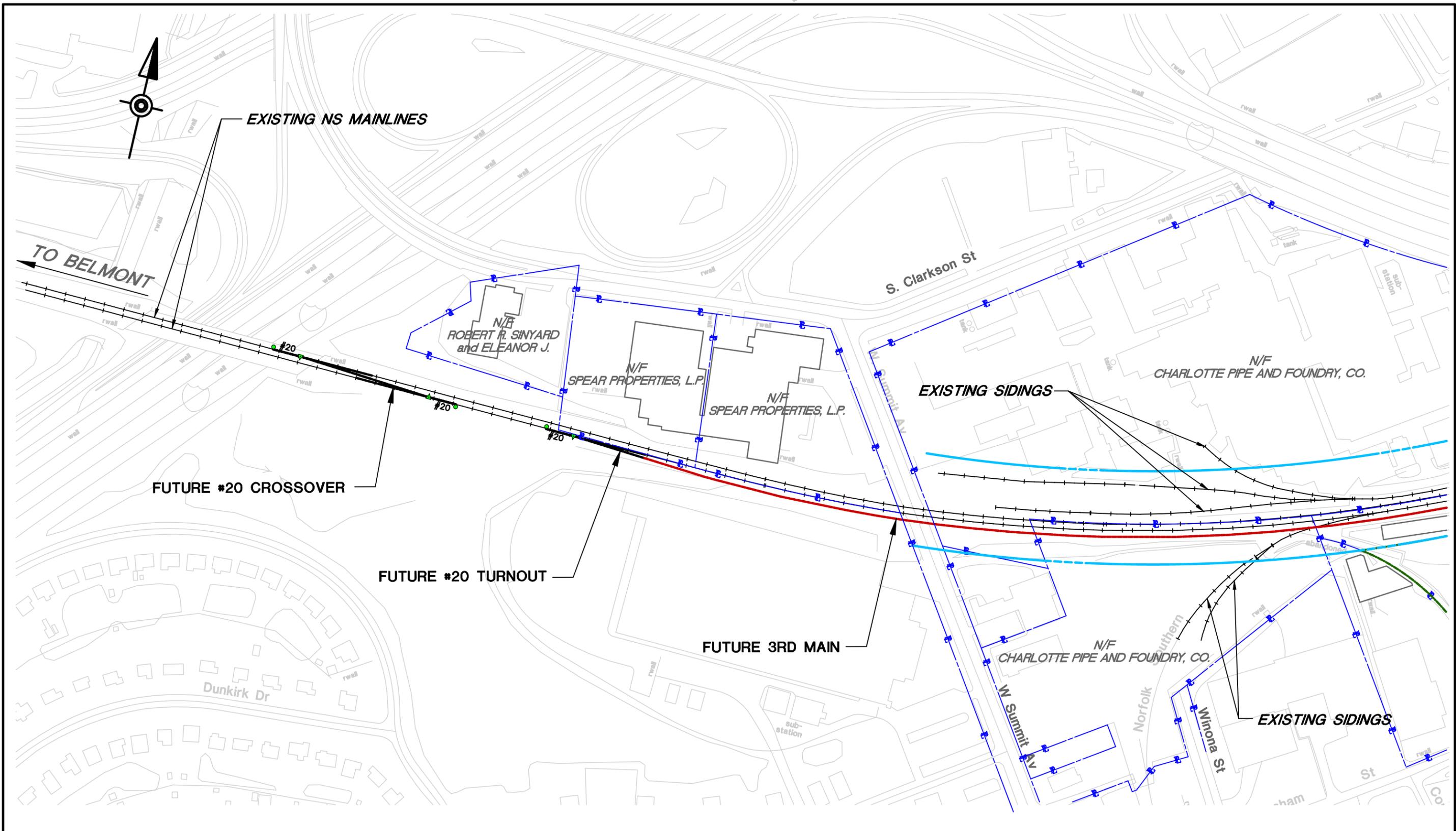
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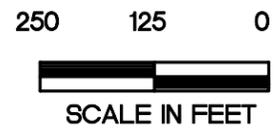
CLIENT:
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 RAIL DIVISION
 PROJECT:
 CHARLOTTE MMSP

Service Facility
 P & N to Summit Avenue
 Preferred Alternative
CONCEPTUAL

JOB NO.:	SHEET NO.:
35596.700	
DATE:	FIGURE NO.:
April 2002	6.4-1A



FILE: c:\35596\stadium\study\700\Report & Est\WAGNER_CD\6.4-1b.dgn
 DATE: 05-Apr-2002 10:57



CLIENT:
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 RAIL DIVISION
 PROJECT:
 CHARLOTTE MMSP

Siding Replacement
 Summit Avenue Area
 Preferred Alternative
CONCEPTUAL

JOB NO.:	SHEET NO.:
35596.700	
DATE:	FIGURE NO.:
April 2002	6.4-1B