Goldsboro Union Station
Multimodal Transportation Center Study

September 2009

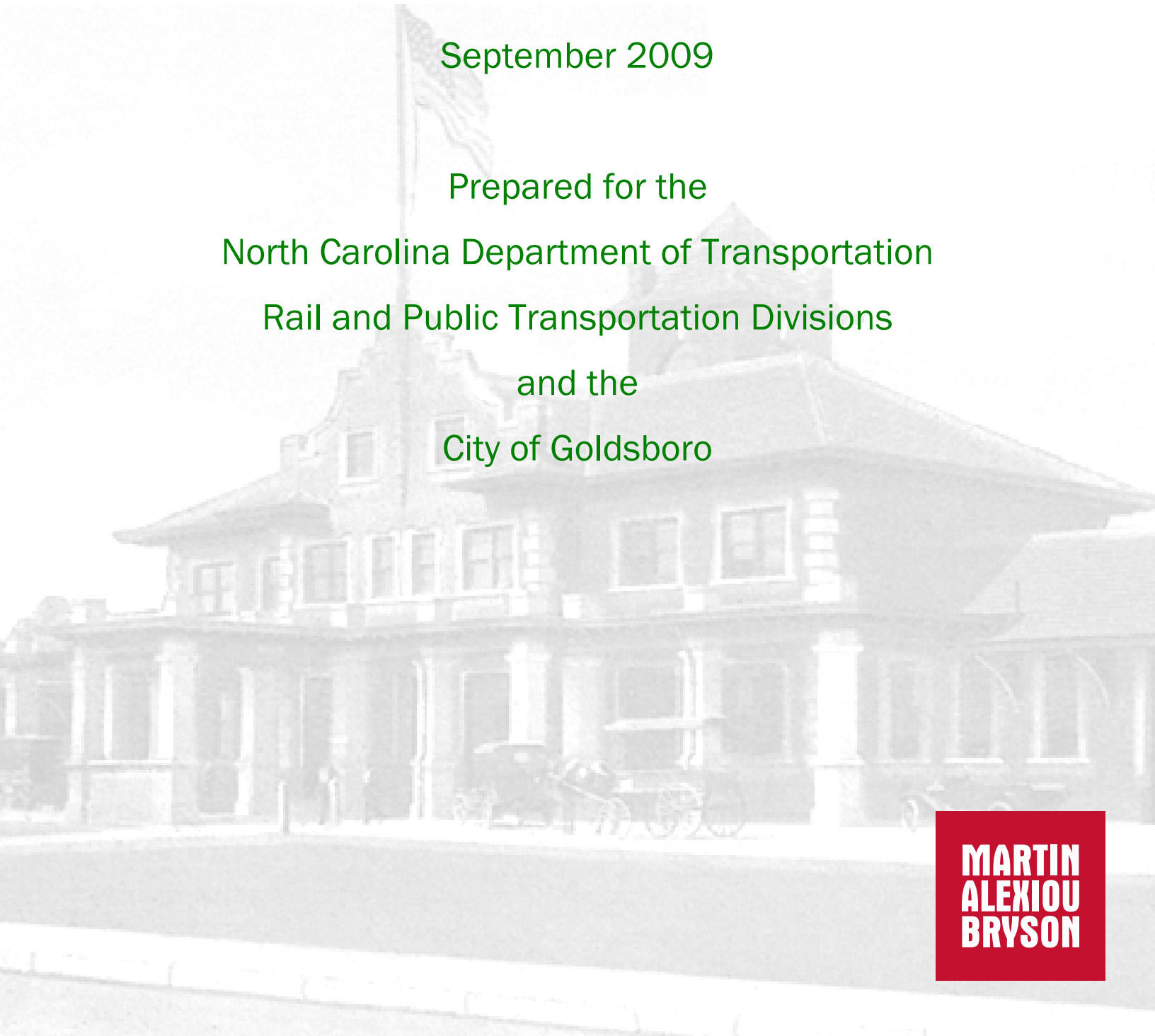
Prepared for the

North Carolina Department of Transportation

Rail and Public Transportation Divisions

and the

City of Goldsboro



MARTIN ALEXIOU BRYSON

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Goldsboro Union Station

Multimodal Transportation Center Study

August 2009

Table of Contents

Table of Figures

Table of Tables

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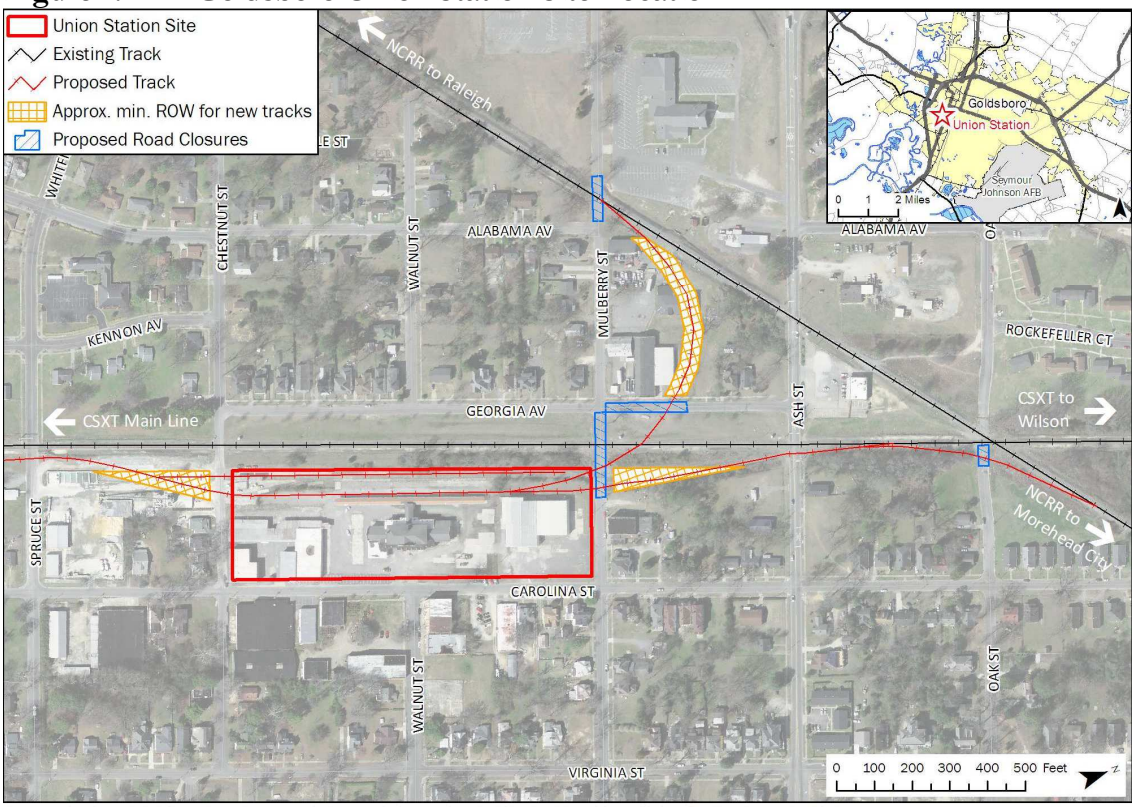
1 Executive Summary

1.1 Purpose of Study

This study recommends a site layout for the proposed Multimodal Transportation Center (MMTC) at Goldsboro Union Station (GUS) in Goldsboro, North Carolina. Figure 1.1 shows the location. This center will include the primary bus transfer point for Gateway Transit services and Greyhound intercity bus service, future commuter and intercity passenger rail service, and could be expanded to serve other transportation providers. The historic station building will be restored for interim use. The overall study goal was to agree on a site layout that will form the basis for future detailed design and construction work on the individual components of the GUS site.

The study also examined the feasibility of constructing a new operations and maintenance depot for Gateway Transit at a separate site within Goldsboro. This work was included in the study because future railroad track construction could require taking property near GUS which could then be made available for Gateway Transit use.

Figure 1.1 Goldsboro Union Station Site Location



Proposed tracks and ROW are shown for ease of reference but are not part of the Goldsboro Union Station Multimodal Center Study.
The ROW shown represents approximate minimum required to accommodate proposed tracks. It is indicative and does not represent specific purchase proposals.

1.2 Background

The North Carolina Department of Transportation Rail Division (NCDOT RD) purchased GUS in 2007 to preserve it for rail service in the long-term as well as near-term local transit and community use.

Gateway Transit, the unified City/County transit agency for the City of Goldsboro and Wayne County, has expanded beyond the capacity of its current transfer facility and has identified the Union Station site for a new transfer center, possibly with administrative offices, and a maintenance/bus storage facility nearby.

Additionally, in 2007, the City of Goldsboro released the *Goldsboro Downtown Master Plan*, which calls for the renovation of the Union Station site for public activities and City administrative uses.

NCDOT has recently finished stabilization of the historic station, and is preparing to begin its rehabilitation for interim community use. It is therefore an appropriate time to agree on the future site layout, to inform the rehabilitation process.

1.3 Study Process

The study was led by a Steering Committee which included representatives of NCDOT RD, NCDOT Public Transportation Division (NCDOT PTD), Gateway Transit, and the City of Goldsboro. The study was undertaken by a consulting team from Martin/Alexiou/Bryson (M/A/B) and Simpson Engineers & Associates, working with the Steering Committee, other transportation providers, and other stakeholders.

The key steps in the process included:

- Reviewing background information from previous transit and planning studies to identify current and future travel patterns and barriers within the city, county, and region, in order to understand the needs that the transportation center should support.
- Collecting information on existing transportation centers to identify lessons learned applicable to Goldsboro.
- Interviewing transportation service providers and civic stakeholders, to understand their views, potential space requirements, and short- and long-term plans.
- Developing the specific functional requirements and space needs for the center, based on stakeholders' requirements, best transit planning practices, and various transit design standards.
- Developing functional site layouts to show how the center might be laid out, and agreeing on a recommended layout.

1.4 Recommended Site Layout and Functional Requirements

The recommended site layout (Figure 1.2 and Figure 1.3) includes:

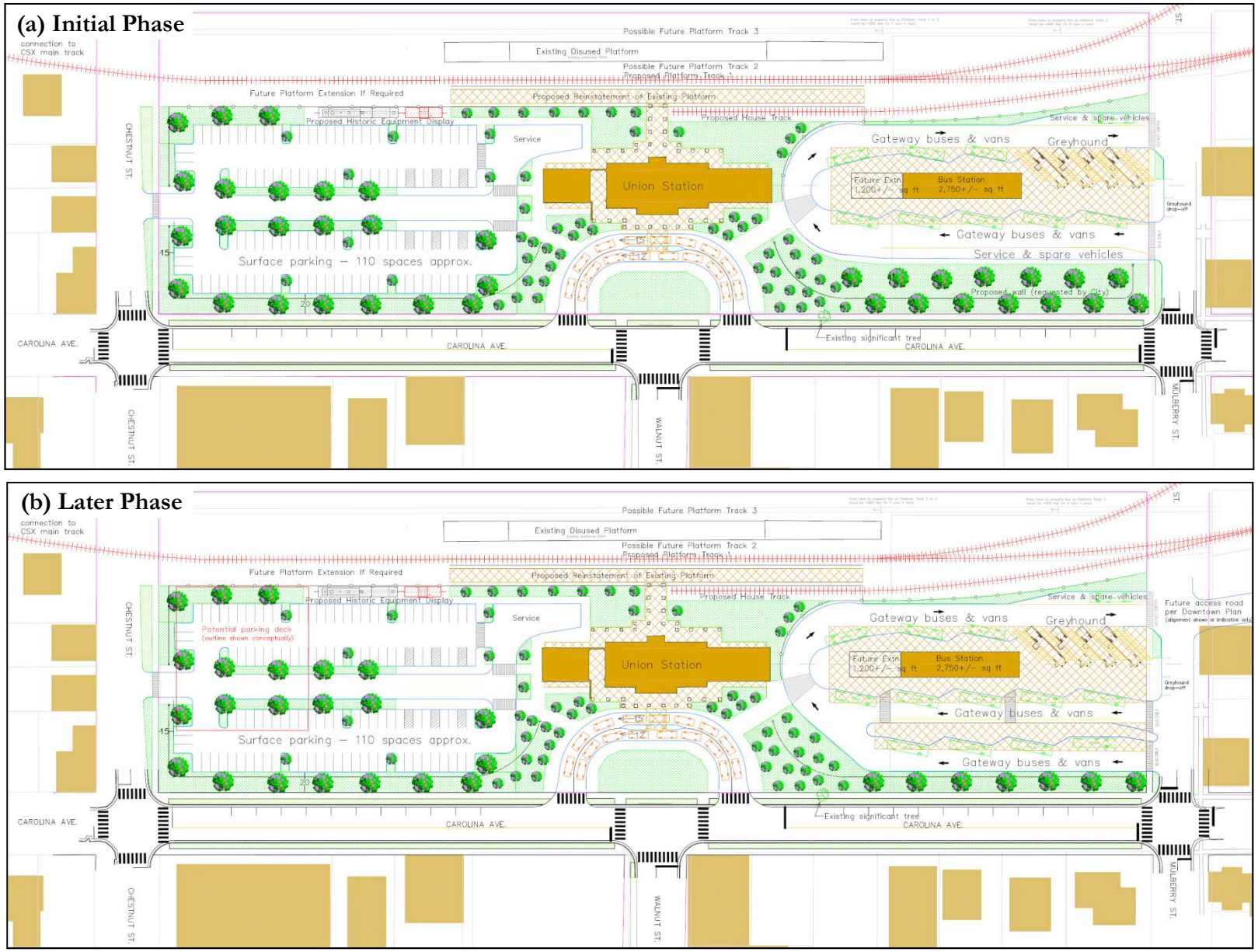
- Restoration of the historic station building as the centerpiece of the site. Initially it will be used for events and community purposes, and ultimately converted to passenger rail facilities.
- Construction of a bus transfer facility at the north end of the site. This will accommodate Gateway Transit and Greyhound, and has provision for later expansion.
- Construction of a new driveway in front of GUS, to serve as a drop-off loop for all the functions on the site.
- Construction of a surface parking lot at the south end of the site. This includes service access to the rear of the GUS building. A parking structure can be built on this part of the site, replacing the surface lot, if required in the future.
- Providing on-street parking on the west side of Carolina Avenue, while retaining the existing curb lines.

A detailed set of functional requirements is provided in the main text of the report.

1.5 Phasing

The recommended site layout is designed to allow change and expansion as required in the future. This includes expansion of the bus facilities, conversion of the historic station from community use to passenger rail service, construction of an additional building alongside the station for complementary use, and construction of a parking deck to provide additional parking. These potential changes are independent of each other, and can be made as required, in any sequence. For clarity, the discussion below is split into an initial phase and a final layout.

Figure 1.2 Recommended Site Layout s for Goldsboro Union Station



Railroad geometry is approximate. Landscape treatment is shown illustratively and does not represent a full landscaping plan. Landscape design should be sensitive to historic sightlines.

Figure 1.3 Visualization of Initial Phase

1.6 Key Design Features – Initial Phase

Figure 1.4(a) shows the recommended site layout, with the initial phase of development complete on all parts of the site. It is anticipated that the surface parking will be provided as part of the station restoration, and that the bus facilities will be provided in a separate project. These two projects represent a complete first phase of the GUS site. The landscaping shown is purely indicative and does not represent a full landscaping plan. Key features include:

1. Rehabilitated historic station (GUS).
2. Service access to GUS (employees, delivery trucks, catering vans, etc.).
3. Drop-off loop, serving GUS and also bus riders.
4. Bus transfer facility, serving Gateway Transit and Greyhound. This includes eight bays for Gateway Transit service and four bays for Greyhound or other motorcoach service.
5. Two on-street short-stay spaces. These are provided primarily for package express and luggage pick-up/drop-off.
6. Space for service vehicles, spare buses, and layovers.
7. House track, available for equipment set-off and/or special events, with potential access from the GUS function rooms and lawn.
8. Historic equipment display.
9. Surface parking lot with approximately 110 spaces. This will mainly serve events at GUS and, later, parking for rail passengers.
10. Pedestrian improvements including sidewalks and crosswalks.

1.7 Key Design Features – Later Phase

Figure 1.4(b) shows the recommended site layout with the later phase of development complete on all parts of the site. Again, the landscaping shown is purely indicative and does not represent a full landscaping plan. The later phases of development, if required, could include:

11. A dedicated connection from Mulberry Street to Ash Street, for transit vehicles only. This was shown in the Downtown Master Plan, and is principally aimed at diverting bus traffic away from the residential part of Carolina Avenue.
12. Expansion of the bus transfer facility with an additional concourse and four additional bus bays.
13. Construction of a parking deck to provide additional parking capacity. This may be needed if Goldsboro succeeds in attracting heavy commuter rail ridership. The outline is shown conceptually and does not represent a specific deck layout.

Figure 1.4 Key Design Features

Railroad geometry is approximate. Landscape treatment is shown illustratively and does not represent a full landscaping plan. Landscape design should be sensitive to historic sightlines.

1.8 What Happens Next?

The City of Goldsboro, Gateway Transit, NCDOT PTD, and NCDOT RD are asked to approve the recommended site layout as the basis for design.

The City of Goldsboro has recently selected an architectural team to progress the rehabilitation of the historic station for community use, and the recommended site layout from this study will inform that rehabilitation process.

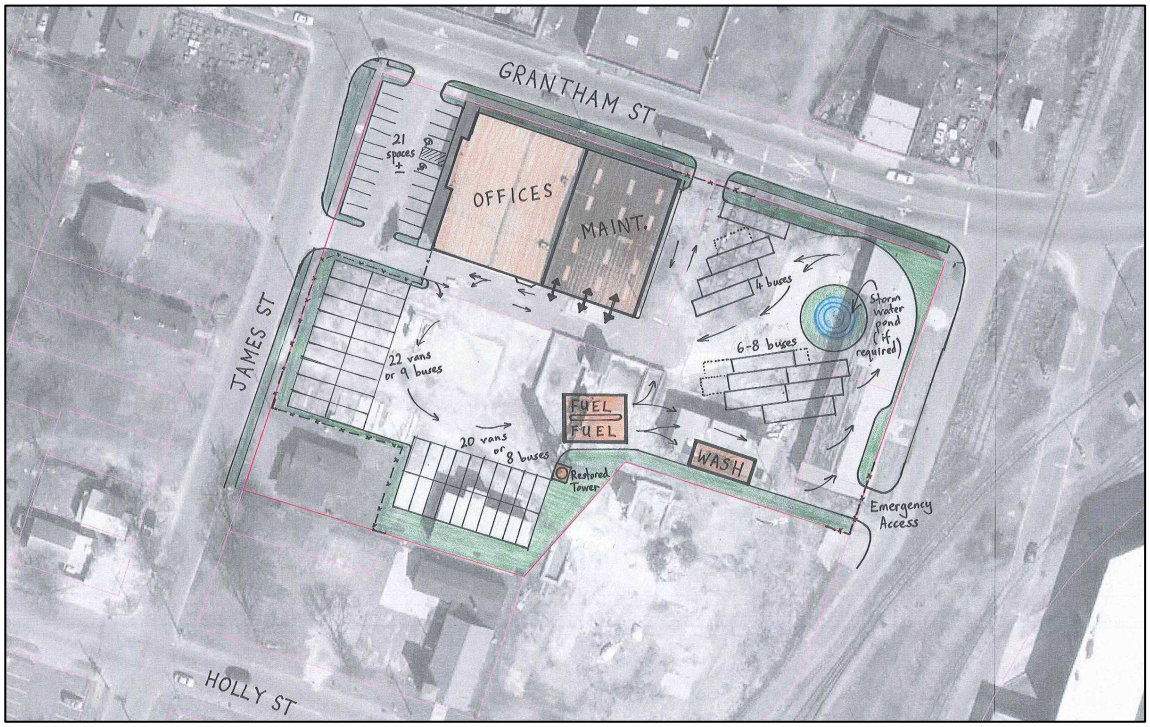
Gateway Transit has secured initial federal funding for the bus transfer facility. This funding is sufficient for an environmental document and architectural design services. NCDOT, Gateway Transit and the City are working to obtain additional funding for construction. Again, the recommended site layout from this study will inform that design process.

1.9 Gateway Transit Operations and Maintenance Center

The study also examined potential sites for a Gateway Transit operations and maintenance center. Initially, it was though that a site near GUS, possibly required for purchase to build an additional railroad connection, bounded by Georgia Avenue, Ash Street, Mulberry Street and the NCRR line, could be suitable. However, the study found that it was unsuitable, primarily due to its inadequate size.

The study then considered two alternative sites. A vacant commercial site on Grantham Street, known as the W.P. Rose site, appears to be suitable, and Gateway Transit is currently investigating possible purchase of this site. Figure 1.5 shows this site and its possible layout.

Figure 1.5 Recommended Site for Operations and Maintenance Center



2 Introduction

2.1 Purpose of Study

This study developed a site layout for the proposed Multimodal Transportation Center (MMTC) at Goldsboro Union Station (GUS) in Goldsboro, North Carolina, that can form the basis for future detailed design work on the individual components of the GUS site. This center will include a bus transfer point for Gateway Transit services, Greyhound intercity bus service, and could be expanded to serve other transportation providers. The historic station building will be restored for interim community use, pending establishment of passenger rail service.

The study also examined the feasibility of locating and designing a new operations and maintenance depot for Gateway Transit. This work is included in the study because future railroad track construction could require taking property near GUS which could be available for Gateway Transit use.

2.2 Background

The North Carolina Department of Transportation Rail Division (NCDOT RD) purchased GUS in 2007 to preserve it for rail service in the long-term as well as near-term local transit and community use.

Gateway Transit, the unified City/County transit agency for the City of Goldsboro and Wayne County, has expanded beyond the capacity of its current transfer facility and had identified the Union Station site for a new transfer center, possibly with administrative offices, and a maintenance/bus storage facility nearby.

Additionally, in 2007, the City of Goldsboro released the *Goldsboro Downtown Master Plan*, which calls for the renovation of the Union Station site for public activities and City administrative uses.

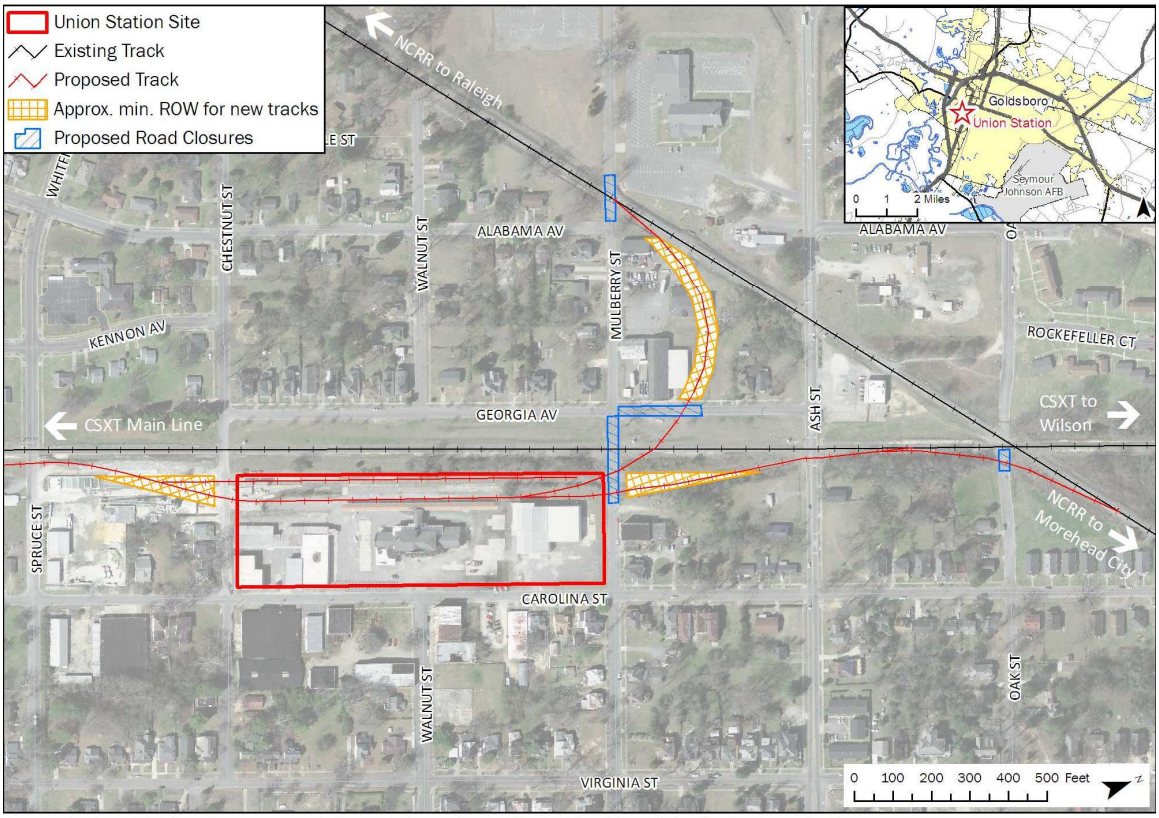
In 2009, NCDOT finished stabilization of the historic station, and deeded the property to the City of Goldsboro. The City is preparing to begin its rehabilitation for interim community use. It is therefore an appropriate time to agree on the future site layout, to inform the restoration process.

2.3 Proposed Site

Figure 2.1 shows the proposed MMTC site, Goldsboro Union Station, located in downtown Goldsboro. The site encompasses two city blocks, bounded by W. Mulberry Street on the north, N. & S. Carolina Street on the east, W. Chestnut Street on the south, and the CSXT railroad right of way on the west. While the site has not been used as an active train station since 1968, the Union Station building (constructed in 1909) and platforms remain in place. NCDOT RD recently completed a building stabilization project that restored the structural integrity of the station and platforms, and prevents water intrusion.

The remainder of the site includes concrete and foundations from demolished buildings. The City of Goldsboro and NCDOT RD would like to rehabilitate the Union Station building to meet local and federal historic preservation standards while redesigning the remainder of the site in a manner that will convert it into a central transportation hub to serve the needs of Goldsboro and Wayne County residents and employees.

Figure 2.1 Goldsboro Union Station Site Location



Proposed tracks and ROW are shown for ease of reference but are not part of the Goldsboro Union Station Multimodal Center Study.
The ROW shown represents approximate minimum required to accommodate proposed tracks. It is indicative and does not represent specific purchase proposals.

2.4 Study Process

The study was directed by a Steering Committee that included representatives from:

- NCDOT RD
- NCDOT Public Transportation Division (PTD)
- Gateway Transit (Executive Director and Board Chairman)
- City of Goldsboro (City Manager's Office and Planning Department)
- Downtown Goldsboro Development Commission (DGDC)
- Wayne County Planning Department
- Goldsboro Metropolitan Planning Organization (GMPO)

The study was undertaken by a consulting team from Martin/Alexiou/Bryson and Simpson Engineers & Associates, working with the Steering Committee, other transportation providers, and other stakeholders.

The key steps in the process included:

- Reviewing background information from previous transit and planning studies to identify current and future travel patterns and barriers within the city, county, and region, in order to understand the needs that the transportation center should support.
- Collecting information on existing transportation centers to identify lessons learned applicable to Goldsboro.
- Interviewing transportation service providers and civic stakeholders, to understand their views, potential space requirements, and short- and long-term plans.
- Developing the specific functional requirements and space needs for the center, based on stakeholders' requirements, best transit planning practices, and various transit design standards.
- Developing functional site layouts to show how the center might be laid out, and its approximate site area requirements.

2.5 Stakeholder Involvement

In addition to the stakeholders represented on the Steering Committee, a range of other stakeholders were invited to contribute to the study process.

Table 2.1 Stakeholders Contacted

Organization	Participated?/Comments
Gateway Transit	Yes. Steering Committee member
Greyhound	Yes.
NCDOT RD	Yes. Steering Committee member
Alexis Transportation Inc.	No. Private service provider.
City Cab Company	No. Private service provider.
Forte's Express	No. Private service provider.
Goldsboro Tour Bus	No. Private service provider.
Jolan's Limousine Service	No. Private service provider.
Premiere Limousines	No. Private service provider.
Safe & Sound Transportation	No. Private service provider.
Starlight Limousines	No. Private service provider.
Webb Town Taxi	No. Private service provider.
NCDOT Public Transportation Division	Yes. Steering Committee member
City of Goldsboro City Manager's Office	Yes. Steering Committee member
City of Goldsboro Planning Department	Yes. Steering Committee member
DGDC	Yes. Steering Committee member
Wayne County Planning Department	Yes. Steering Committee member
Goldsboro MPO	Yes. Steering Committee member
Wayne County Chamber of Commerce	Yes.
Wayne County Development Alliance	Yes.
Seymour Johnson Air Force Base	Yes.

3 Background Information

3.1 Regional Context

Goldsboro is the county seat and principal city of Wayne County, in eastern North Carolina (Figure 3.1). The city is centrally located between other eastern coastal plain cities, such as Fayetteville (62 miles southwest), Greenville (41 miles northeast), Rocky Mount (53 miles north), Jacksonville (67 miles southeast), and Wilmington (80 miles southeast). Wayne County is also 70 miles southeast of the Triangle Region (Raleigh, Durham, and Chapel Hill), which is the state's second-most populous metropolitan area.

The City population in 2007 was approximately 38,000, out of a county population of approximately 114,000. The next largest municipality, the Town of Mount Olive, had a population of approximately 4,400, and there are a number of smaller municipalities.

The County population grew by approximately 8% between 1990 and 2000, but was almost unchanged between 2000 and 2007. The County population is expected to reach 123,152 by 2030, representing almost an 18% increase over 1990 levels. The City of Goldsboro population fell by approximately 4% from 1990 to 2000 and again by approximately 4% from 2000 to 2007.

Seymour Johnson Air Force Base, with over 6,500 employees, is the largest employer in Wayne County, followed by Wayne Memorial Hospital. Industry, manufacturing, education, and public administration account for most of the remaining large employers in Wayne County.

Overwhelmingly, the County is self-contained in commuting terms, with 82% of residents remaining in the County to work. This is not surprising for a rural County with a central city. Most commuting across the County line is to or from the adjoining Counties, which again is unsurprising. There are also a number of Wayne County residents that commute to Wake County and other parts of the Triangle Region. There is slightly more in-commuting (to work in Wayne County) than out-commuting (to work outside Wayne County), probably reflecting Goldsboro's size and regional importance.

3.2 Goldsboro Union Station: Historical Context

From the Goldsboro News-Argus[1,2]:

In 1840, the Wilmington-to-Weldon railroad was built, at the time the longest railroad in the world at 162 miles, according to historian William Powell. The mid-point of the line intersected the Raleigh-to-New Bern stage route in Wayne County, about two miles east of Waynesborough, then the county seat.

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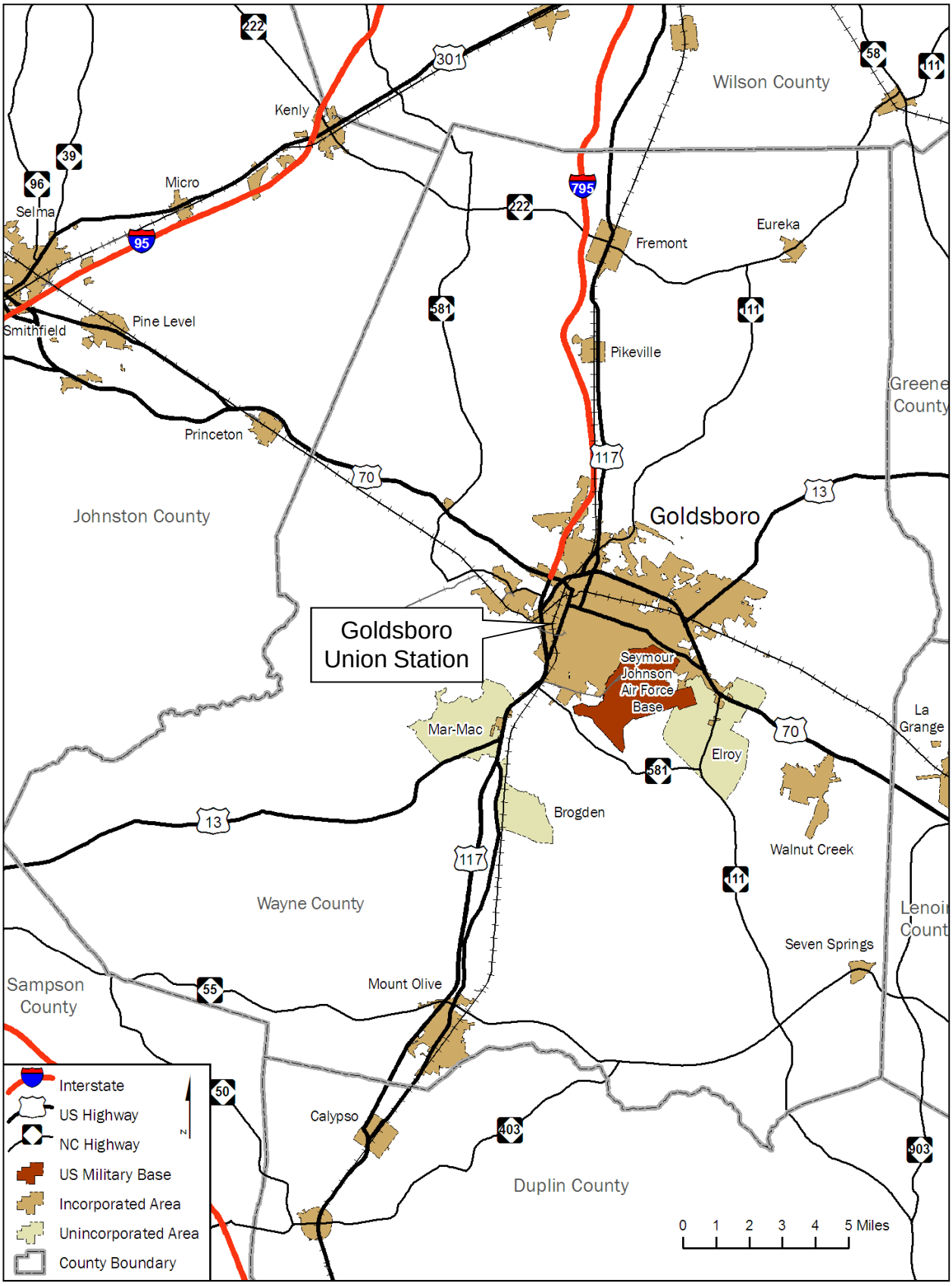
[1] http://www.newsargus.com/news/archives/2005/07/11/the_background_on_the_railroad/

[2] http://www.newsargus.com/news/archives/2007/08/17/the_trains_are_coming_back_to_goldsboro/

Figure 3.1: Regional Context



In 1858 the Atlantic and North Carolina Railroad was completed between Goldsboro, New Bern, and Beaufort Harbor. The Wilmington-to-Weldon railroad became the Atlantic Coast Line railroad in 1900.

- 1909 – Union Station, designed by Wilmington architect Joseph Leitner, who was, at the time, the architect for the Atlantic Coast Line, is opened for business. The cost of construction was $72,024.
- 1950 – Atlantic and East Carolina Railway Company (former Atlantic and North Carolina Railroad) rail passenger service between Goldsboro and Morehead City is discontinued.
- 1964 – Southern Railway discontinues Greensboro to Goldsboro passenger service.
- 1968 – Seaboard Coast Line discontinues Rocky Mount-Goldsboro-Wilmington passenger service. Union Station is closed and sold to Goldsboro Building Supply.
- 1977 – The station is placed on the National Register of Historic Places.
- 2007 – Purchased by NCDOT Rail Division.
- 2009 – Goldsboro Union Station conveyed to the City of Goldsboro.

From the *Goldsboro Downtown Master Plan*[3]:

The railroads were key to the development of the city, with the juncture of two railroad lines in the town making the community key to supplying troops in the civil war. At one time the railroad tracks extended farther down Center Street into the retail area (as they still do in many other communities such as Rocky Mount) until 1926, when the tracks were removed to above Ash Street. Although the importance of the railroad to the economy has been eclipsed, there is renewed interest in bringing passenger and commuter rail back to Goldsboro, and this could become a revitalization tool in the future.

Figure 3.2 and Figure 3.3 provide historical views of Union Station.

[3] *Goldsboro Downtown Master Plan*, Allison Platt & Associates / Strategy 5 (June 5, 2007).

Figure 3.2 Historic Aerial Photo of Goldsboro Union Station (1959)

Figure 3.3 Historic Postcard of Goldsboro Union Station (Undated)

3.3 Goldsboro Union Station: Transportation Context

Transit service within the City of Goldsboro and Wayne County is principally operated by Gateway Transit. This is a unified agency that provides service throughout the County. This includes fixed-route (and complementary ADA) service, mainly within Goldsboro, and demand-responsive service elsewhere in the County. Gateway Transit also provides out-of-county medical trips.

Gateway Transit currently operates from a transfer point at Beech Street and Madison Avenue, east of downtown. This facility, which is a converted former fire station, is poorly-located, offers a poor quality of service to riders, and has operational difficulties. Gateway Transit therefore requires a new transfer point.

Greyhound Lines, Inc. provides inter-city bus service to Goldsboro. The existing terminal is a privately-operated facility on North John Street, north of downtown. Greyhound's business model includes a preference for leasing space in downtown multi-modal centers, rather than the traditional model of owning a standalone 'Greyhound depot'. This matches the wider public policy goals of providing seamless transportation connections and revitalizing downtowns.

There is currently no passenger rail service to Goldsboro, although there are plans to introduce service as described in Section 3.4. Two freight railroads meet in Goldsboro: 1) the CSX north-south line, extending to Wallace in the south and connecting with its main line at Wilson and 2) the North Carolina Railroad (NCRR) main line, which runs east-west through Goldsboro. These lines are shown in more detail in Figure 4.2.

NCDOT identified Goldsboro Union Station as not only a site in need of rehabilitation in view of its historic importance but also as the best site for a multi-modal center that would meet Gateway Transit's and Greyhound's needs in addition to supporting rail service.

3.4 Passenger Rail Studies and Policy

3.4.1 Overview

In recent years, several studies have examined the potential for passenger rail service to or through Goldsboro and other locations in Wayne County. These have addressed inter-city service between Raleigh and Wilmington (including a route via Goldsboro) and commuter service from Goldsboro to the Triangle region.

3.4.2 National Context

Although NCDOT's passenger rail program is recognized as one of the most active in the nation, much still depends on federal policies and funding streams. In 2009, the national-level policy context for inter-city passenger rail improved substantially. Both the executive and legislative branches of government have shown renewed interest in passenger rail. Recent legislation has included increased funding of Amtrak, the introduction of new grant programs for passenger rail services and planning, and the inclusion of substantial rail funding in the economic stimulus package. Although high-speed rail has taken most of the

headlines, these developments will also benefit plans for conventional corridors such as would serve Goldsboro.

3.4.3 Statewide Rail Plan and Inter-City Studies

Service to Goldsboro is part of NCDOT's statewide rail plan (Figure 3.4), principally as a result of Goldsboro's location on one of the potential routes from Raleigh to Wilmington.

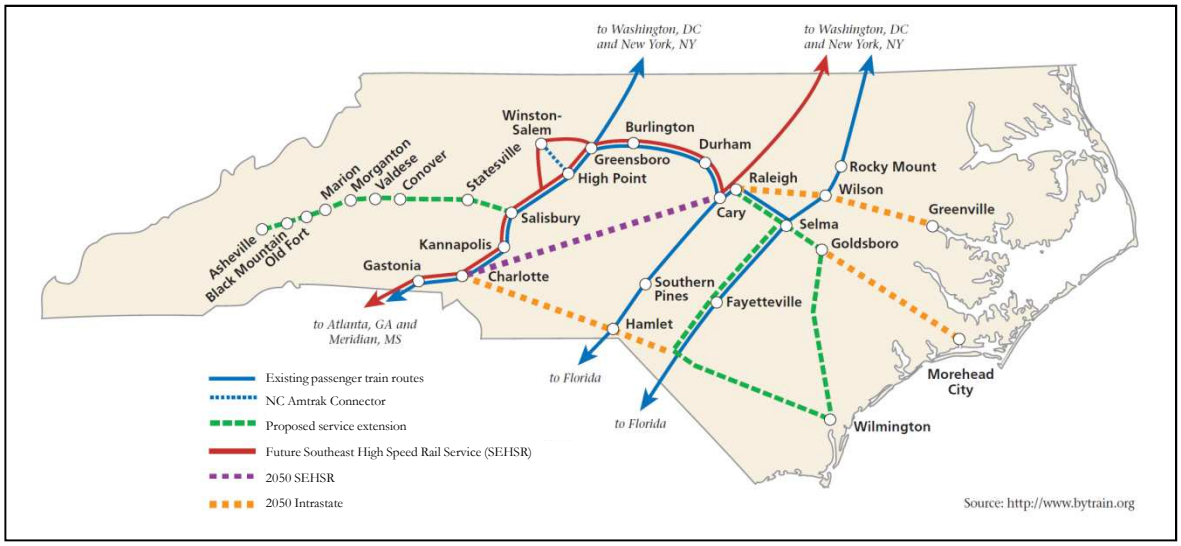
In May 2001, NCDOT published the *Southeastern North Carolina Passenger Rail Feasibility Study*, which examined three potential routes between Charlotte or Raleigh and Wilmington. The results showed strong public interest in service between Wilmington and the northeastern States, and between Wilmington and Raleigh. The study endorsed routes between Wilmington and Raleigh via Goldsboro or Fayetteville, with potential connections to northeast cities. The Wilmington to Charlotte route was dropped from further analysis, due to low interest and low ridership projections.

The next step was to define the preferred options in more detail. This was done in the *Southeastern North Carolina Passenger Rail Study* (a slightly different title from the previous study), which reported in 2005. Figure 3.5 shows the routes evaluated in that study. It concluded that both of the Raleigh to Wilmington route options (via Goldsboro and Fayetteville) held promise, but the availability of public funding would determine when and what service was implemented. The Wilmington-Rocky Mount route (also via Goldsboro) had the lowest ridership projections and was recommended to be dropped from further analysis.

The current expectation for inter-city rail in Wayne County is therefore that one of the two planned Raleigh-Wilmington corridors would serve the county.

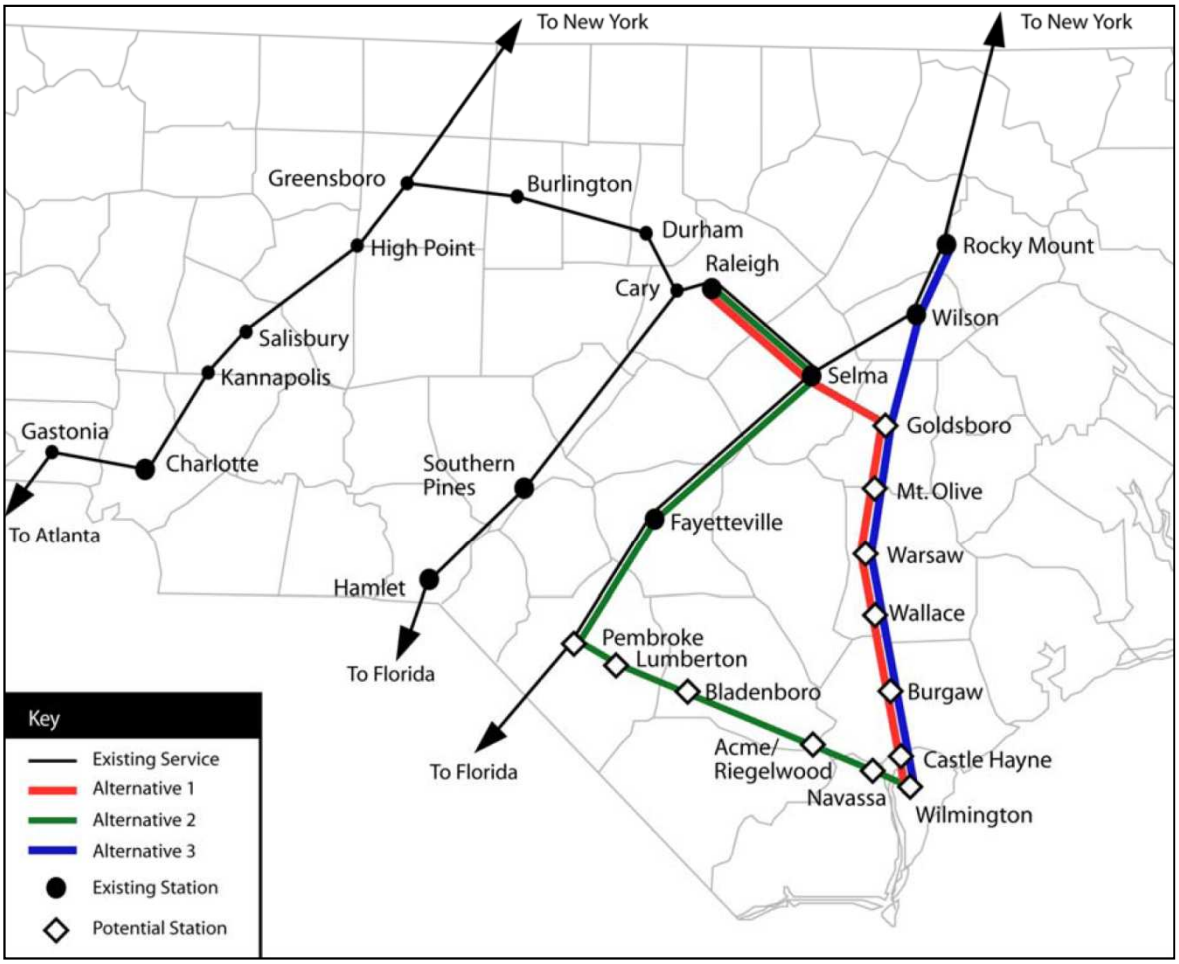
Most recently, the 2009 Statewide Rail plan has included some additional corridors (shown in dotted orange in Figure 3.4), including service eastwards from Goldsboro to Morehead City. These additional corridors should be seen as long-term aspirations.

Figure 3.4 Existing, Planned and Anticipated Inter-City Passenger Rail Services



Source: NCDOT 2009 Rail Plan Executive Summary

Figure 3.5 Routes Evaluated in the 2005 Southeastern NC Passenger Rail Study



Source: Southeastern North Carolina Passenger Rail Study

3.4.4 Commuter Studies: Eastrans Commuter Rail Feasibility Study (2004)

The first study to examine potential commuter service between Wayne County and the Triangle region was the *Eastrans Commuter Rail Feasibility Study* [4] in 2004. This study examined corridors from Goldsboro and Wilson to Raleigh. Services would operate on weekdays only, with morning peak period trains into Raleigh and evening peak period trains from Raleigh. The study looked at a low-cost alternative and a high-cost alternative for each corridor.

In the low-cost alternative, the only station in Wayne County would be at Goldsboro (at the NCRR wye at the north end of Center Street). In the high-cost alternative, the Goldsboro station would be at Goldsboro Union Station (GUS) and there would also be a station at Princeton (in Johnston County, but convenient for the western part of Wayne County). This approach to the Goldsboro station location reflected the anticipated costs involved in serving GUS – not just track work, but also renovation of the building and site (considered more significant than the track issues). The study acknowledged that if service to Wilmington were implemented before the commuter service, that approach could be revisited.

In the low-cost alternative, with minimal upgrades to track conditions, the estimated travel time from Goldsboro to Raleigh was between 67 and 76 minutes (to Boylan and Government Center, respectively). In the high-cost alternative, track improvements would reduce these timings to 63 minutes and 72 minutes respectively.

The study concluded that commuter rail service was feasible in both corridors, if substantial capital investments in the hundreds of millions of dollar range were made. Ridership projections were beyond the scope of that study, but estimates were made of the ridership necessary for the project to become competitive for federal funds. From Goldsboro to Raleigh, 300 daily riders (i.e., 600 daily trips) would be required under the low-cost alternative, representing about a 10% market share on that flow. The high-cost alternative required much higher numbers.

3.4.5 Commuter Studies: North Carolina Railroad Shared Corridor Commuter Rail Capacity Study (2008)

NCRR is the state-owned company that owns the rail corridor from Morehead City through Goldsboro to Raleigh, Greensboro and Charlotte. Freight trains on the corridor are operated by Norfolk Southern (NS) under a long-term lease. The lease makes provisions for existing passenger rail services on the corridor, as well as potential new services if certain conditions are met – principally that the services will not interfere with NS freight operations.

In response to public and political interest in possible commuter rail service, NCRR commissioned the *Shared Corridor Commuter Rail Capacity Study* [5] in 2008. The study examined the 143-mile Greensboro to Goldsboro section of the corridor, including the branch to Carrboro. The study was focused on understanding the infrastructure improvements that

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[4] *Eastrans Commuter Rail Feasibility Study,* Wilbur Smith Associates for the Town of Knightdale (April 2004).

[5] *Shared Corridor Commuter Rail Capacity Study,* HNTB for the North Carolina Railroad Company (October 2008).

would be necessary to allow these services to be introduced without slowing or delaying freight trains. It was not a ridership study, nor a detailed station location study.

The study assumed four overlapping commuter train routes (Figure 3.6). One of these (the Red Line) would run from Goldsboro to Raleigh and Durham, terminating at University Station Road west of Durham (for connections to/from services on the Carrboro branch). The travel time between Goldsboro and Durham would be just over two hours. The Red Line service was assumed to consist of four morning trains from Goldsboro, four evening trains back to Goldsboro, and a mid-day round trip. The stations in Wayne County would be in Goldsboro, at the NCRR depot in Goldsboro, and potentially the Pinewood area, as well as potentially the Princeton area (in Johnston County, but convenient for western parts of Wayne County). Layover facilities (for overnight storage) would be provided in Goldsboro.

The study concluded that commuter services are feasible, but would need substantial capital investments to minimize the impact on freight services. The estimated capital cost for the entire package, including vehicles, was approximately $1 billion in 2010 dollars, which represented $7 million per mile.

In March 2009, NCRR announced that it would undertake a ridership study to assess potential demand for commuter rail service, and this study is under way. This represents the next step in the planning process.

The current expectation for commuter rail in Wayne County is that service may eventually be provided to the Triangle region. Stations would be at Goldsboro and potentially in the Rosewood area. A potential station in the Princeton area would be in Johnston County but would also be convenient for part of Wayne County.

Figure 3.6 Routes Evaluated in the NCRR Commuter Capacity Study

Source: North Carolina Railroad Co.

3.5 Downtown Master Plan

The Goldsboro Downtown Master Plan[6] is an important factor in the development of the GUS site.

The plan's overall goal is economic revitalization, and all changes and improvements contained in the plan are part of an overall strategy to enhance downtown Goldsboro's role as the economic engine of the city and the region.

GUS is seen as being a key anchor at one end of Walnut Street, which in turn is seen as a "primary retail" street (Figure 3.7). These streets have the highest level of design and the greatest level of detail. They are intended to encourage pedestrians to shop, stroll, sit, and enjoy the downtown.

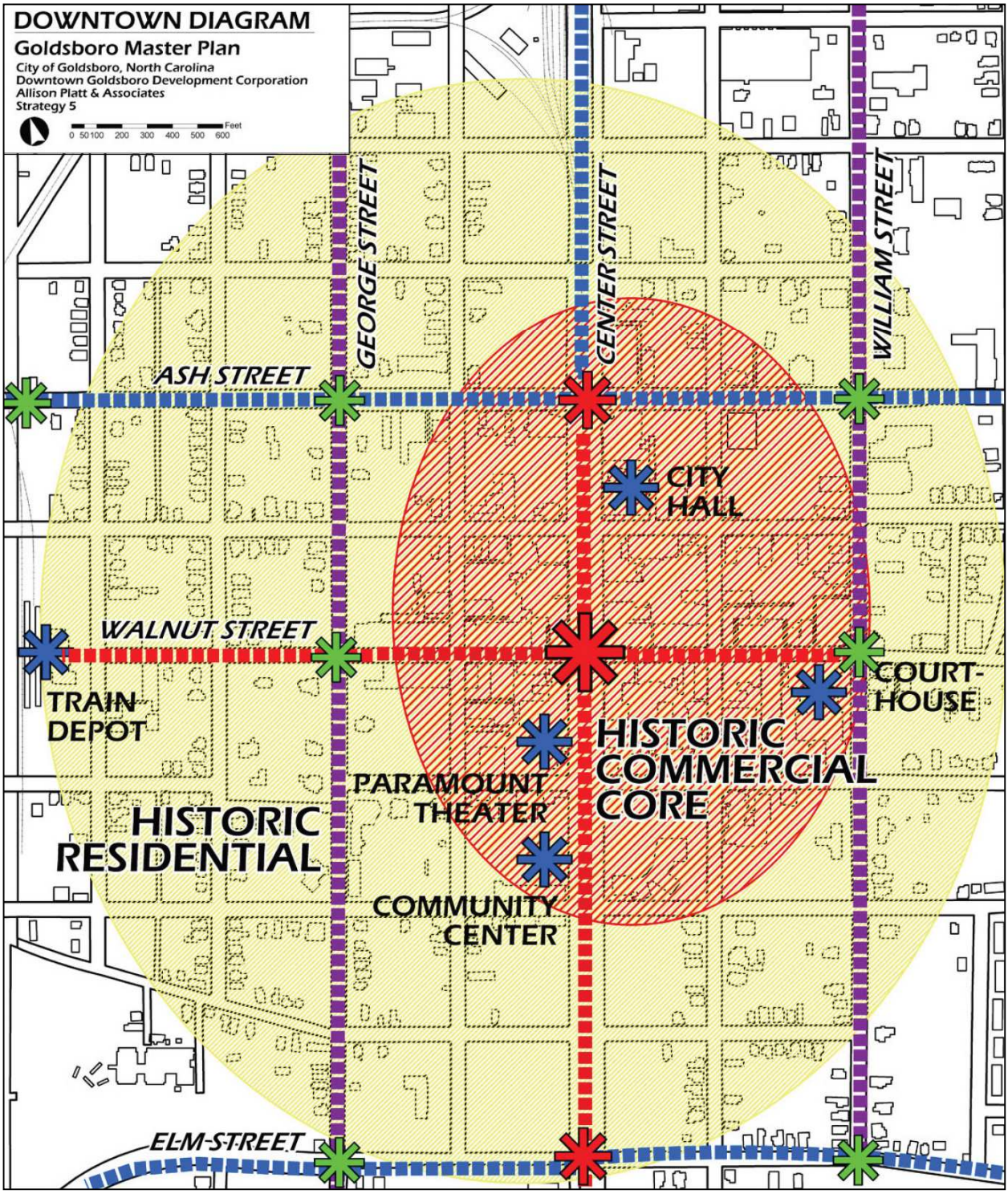
The GUS area itself was one of several that were given special attention in the plan. Figure 3.8 is an excerpt from the overall plan, and Figure 3.9 is the plan's illustration of GUS. Key proposals included:

- Restoration of the station building.
- A hub for buses and taxis immediately to the north of the station and connected to it by a covered walk.
- A bus access and egress road along the east side of the railroad between Mulberry and Ash Streets. This was to allow the buses to come and go directly from Ash Street without the need for them to drive through the residential or commercial streets of the downtown.
- A new parking garage south of the historic station. Surface parking would be provided until rail ridership justified the cost of a garage.
- Restoration of the Terminal Hotel, across the road from the station. Although no longer suitable for use as a hotel, it was seen as a potential pub/restaurant location. New commercial buildings were also shown to the east of the Terminal Hotel.

The plan also included a possible location for a civic center, east of the parking garage. However, this is no longer anticipated in this location.

[6] *Goldsboro Downtown Master Plan,* Allison Platt & Associates / Strategy 5 (June 2007)

Figure 3.7: Downtown Diagram



The red dashed lines indicate primary and secondary retail streets; blue indicates image/vehicular streets; the purple shown on George and William Streets indicates they serve as routes into and through the downtown, but their treatment will vary with use. All the rest of the streets are mostly residential. Blue asterisks show downtown destinations, and green asterisks show gateways and decision points (for signage).

Source: Figure 3.4 of the Goldsboro Downtown Master Plan

Figure 3.8: Downtown Master Plan – Goldsboro Union Station Area

Source: Figure 4.10 of the Goldsboro Downtown Master Plan. Note that the Civic Center is no longer anticipated to be in this location.

Figure 3.9: The Downtown Master Plan's Vision for Goldsboro Union Station

Source: Figure 4.9 of the Goldsboro Downtown Master Plan. Note that the Civic Center is no longer anticipated to be in this location.

4 Rationale for Selecting Goldsboro Union Station for Rail Service

4.1 Introduction

This section of the report explains the rationale for selecting Goldsboro Union Station (GUS) as the future passenger rail station in Goldsboro. It also addresses the North Carolina Railroad (NCRR) wye, north of downtown, which has on occasion been suggested as a potential alternative location.

Figure 4.1 shows aerial views of the two locations. Figure 4.2 shows how they relate to Goldsboro's railroad geography.

4.2 Background to Goldsboro Union Station

GUS is Goldsboro's historic passenger station. It is located a few blocks west of downtown, alongside the north-south CSX railroad line. The site consists of two city blocks and includes the historic station building, platforms and adjoining areas, but not the railroad line itself.

NCDOT proposes to construct short new connections (in some cases, reinstating historic connections) that will link GUS with both the adjoining CSX line and the nearby NCRR line. Trains from any direction will then be able to serve GUS directly. Figure 4.3 shows these connections diagrammatically, and Figure 4.4 shows the conceptual track plan.

NCDOT has recently finished stabilization of the historic depot, and is preparing to begin its rehabilitation for interim community use. Other parts of the site will be used for a bus transfer facility and for parking for station users. This document presents the site layout accepted by the stakeholders, which provides a basis for both the building restoration and (later) detailed design of the bus facilities.

Figure 4.1: Goldsboro Union Station and Wye Site Locations

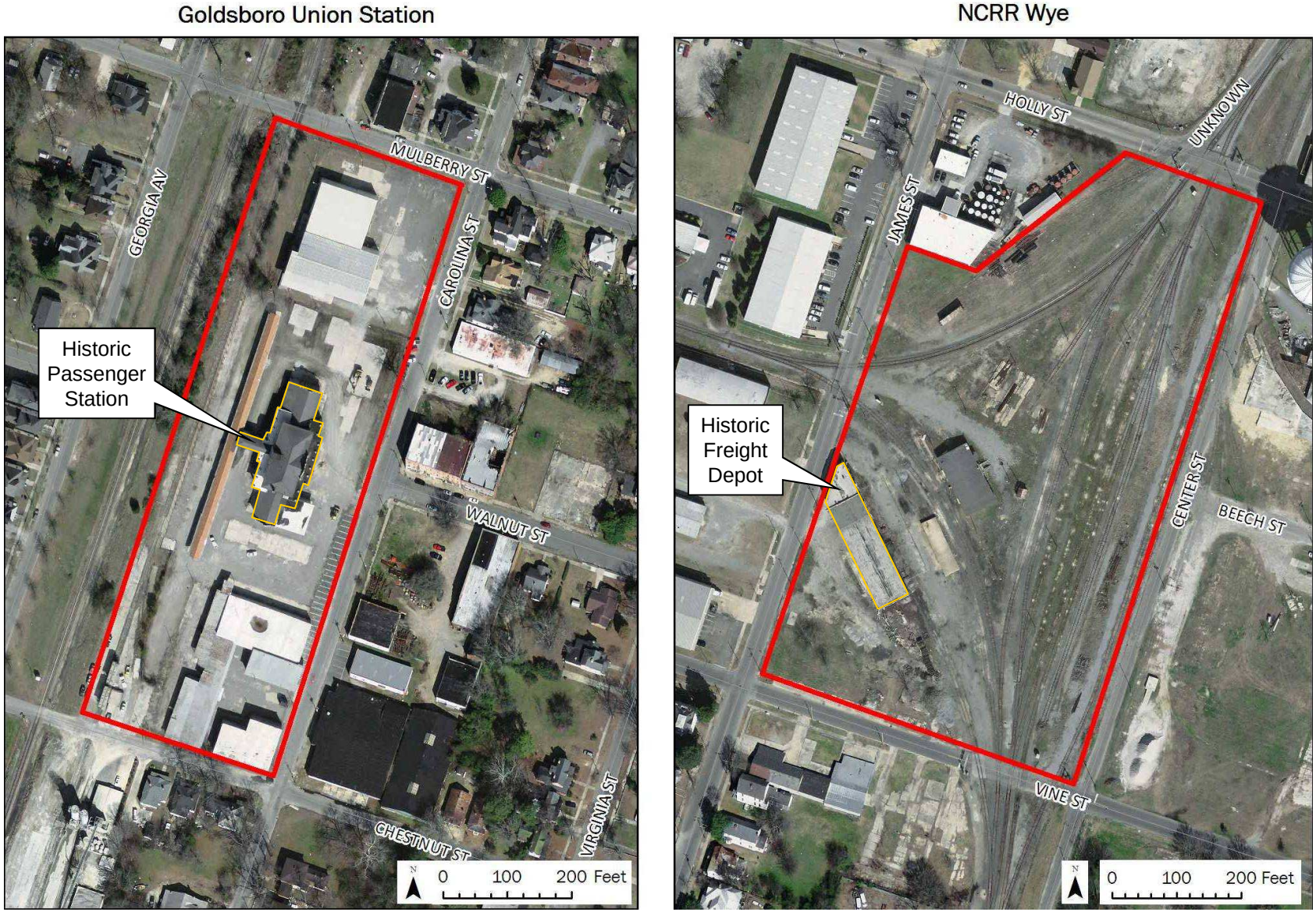


Figure 4.2: Existing Railroads in Goldsboro

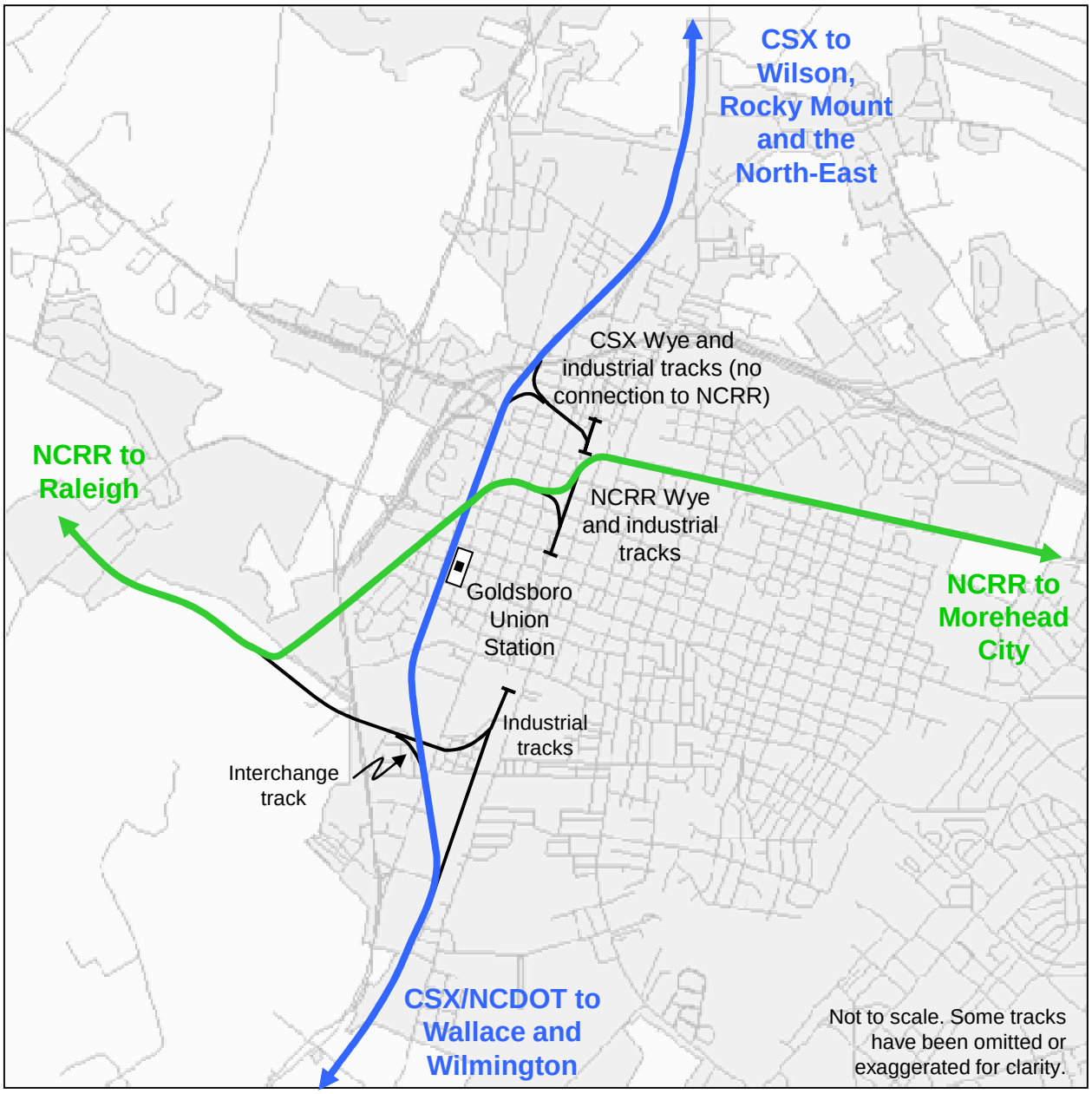
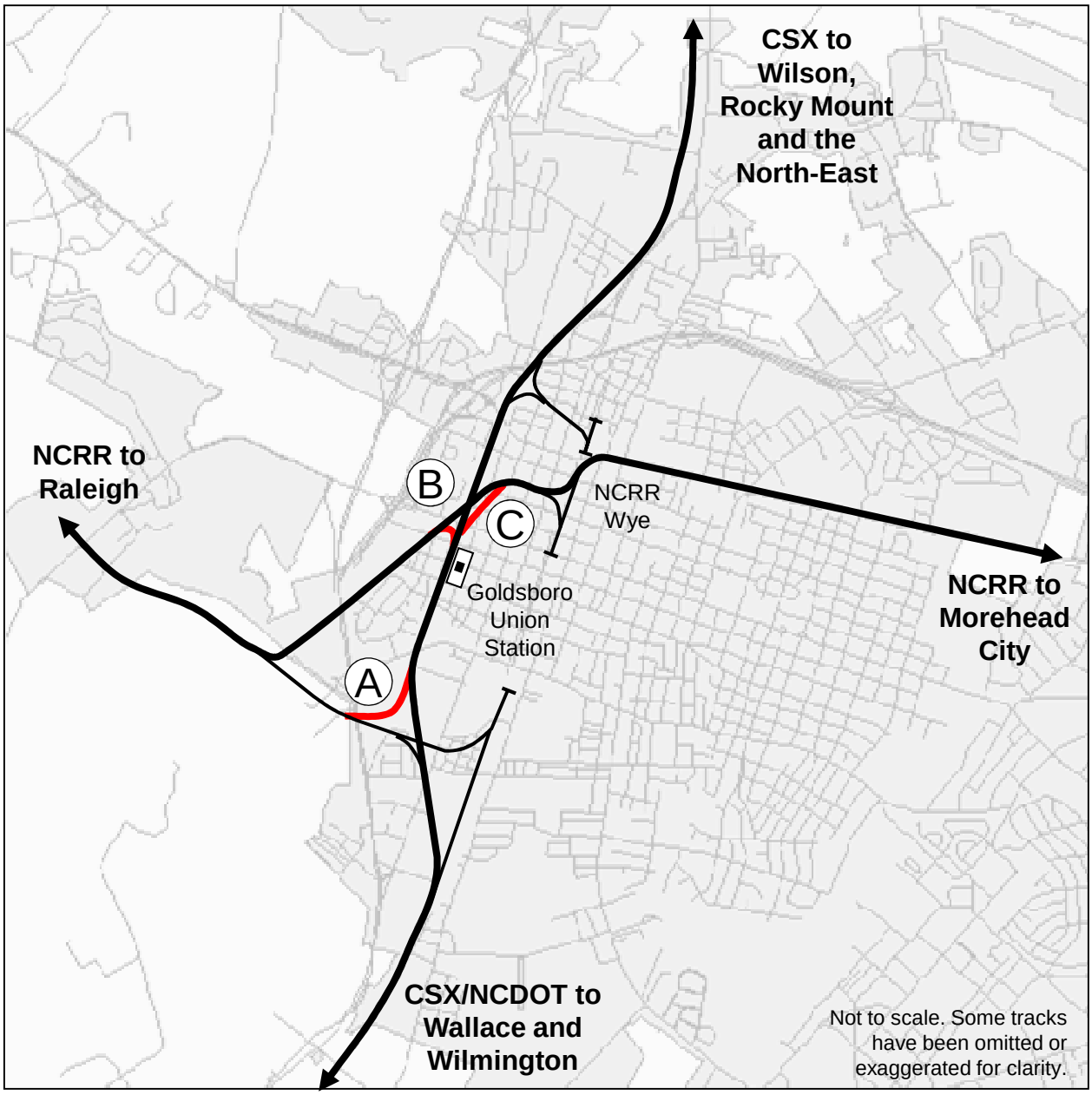


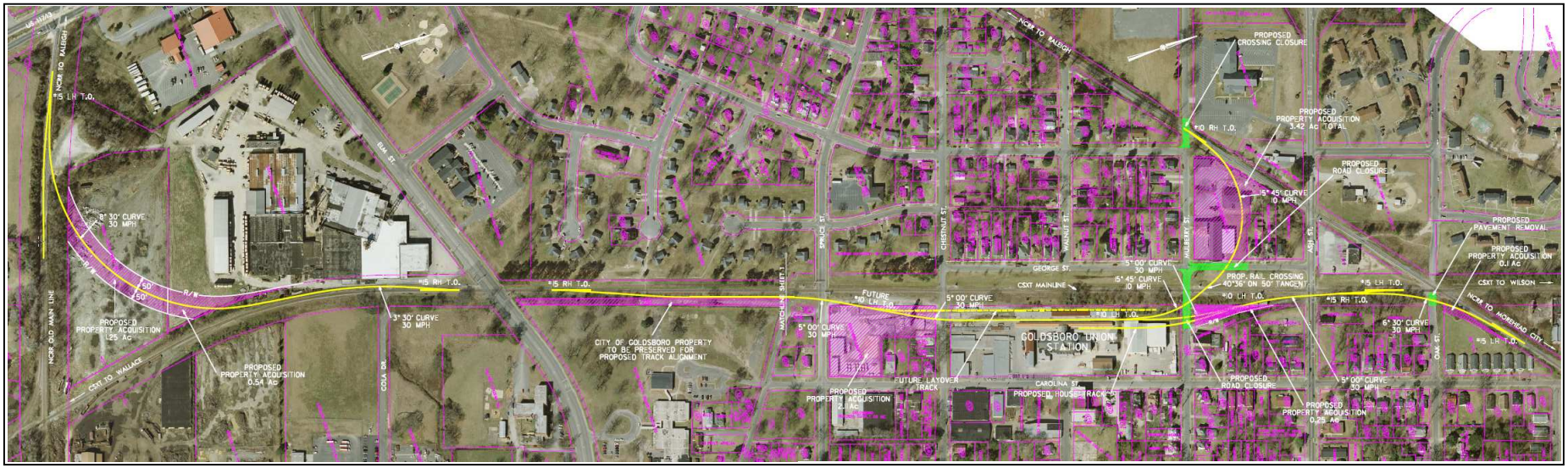
Figure 4.3 Proposed Connections for Passenger Services



Proposed connections A, B and C are designed to facilitate service to Goldsboro Union Station.

An alternative station at the NCRR wye would also require connection C and possibly connection B, in order to accommodate the planned routes.

Figure 4.4: Proposed Track Connections in Goldsboro



Source: NCDOT Rail Division (conceptual drawings, September 10, 2009).

4.3 Background to the Wye Site

The NCRR wye, bounded by Center, Vine, James, and Holly Streets, is used for freight car switching to serve local industrial customers. The NCRR main line forms the tightly-curved north-west leg of the wye. The other two legs extend south with a switching lead track along Center Street as far as Ash Street. The north-south leg has several sidings adjoining. The tightly curved west-south leg adjoins the historic freight depot, which is currently disused.

The wye was considered as a potential station site in the *Eastrans Commuter Rail Feasibility Study* in 2004. The Eastrans study focused on how an initial commuter rail service between Goldsboro and Raleigh could be established. It accepted that GUS was the preferred station location in Goldsboro, but acknowledged that there would be costs involved in serving GUS – not just track work, but also renovation of the building and site. These costs were considered more significant than the track costs. For that reason, the study also suggested a low-cost option with a new, minimal station at the NCRR wye. The study acknowledged that the wye site would only be appropriate for the commuter service, and that introduction of service to Wilmington would require a switch to GUS.

4.4 Railroad Operations

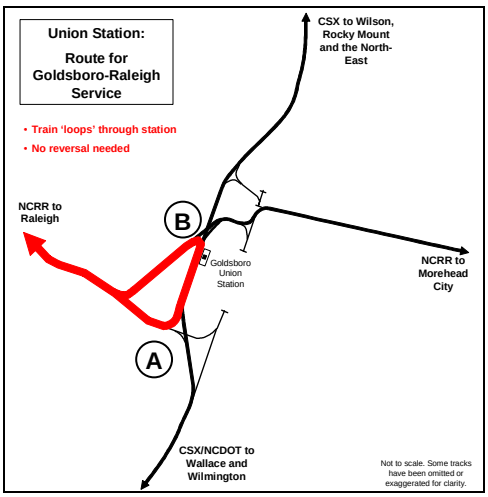
A key factor in the operational practicality of a station is the ability to run trains through the station, rather than needing reversals or backing movements, which add time, cost and complexity to operations. This section describes the train movements that would be required at each of the two station locations in order to accommodate the planned train services.

4.4.1 Routes for Planned Train Movements at Goldsboro Union Station

With the proposed connections, GUS will be able to accommodate all the planned train services without requiring reversals or backing movements. The following:

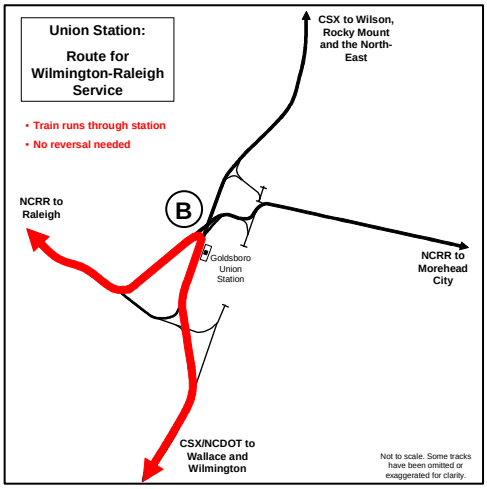
Raleigh-Goldsboro: new connections A and B provide a loop which enables trains to run through GUS and return to Raleigh without reversing (Figure 4.5). This is a particularly flexible arrangement, as passenger trains have four options: to run either way around the loop without reversing, or to run either way into GUS and reverse direction.

Figure 4.5 Raleigh-Goldsboro: Route Using GUS



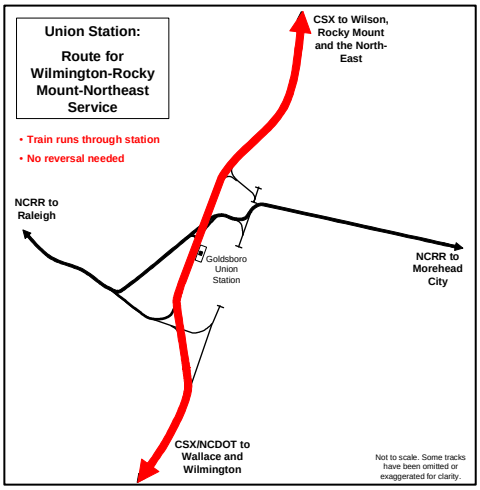
Raleigh-Wilmington: trains would use connection B from the NCRR line to the CSX line, running through GUS (Figure 4.6).

Figure 4.6 Raleigh-Wilmington: Route Using GUS



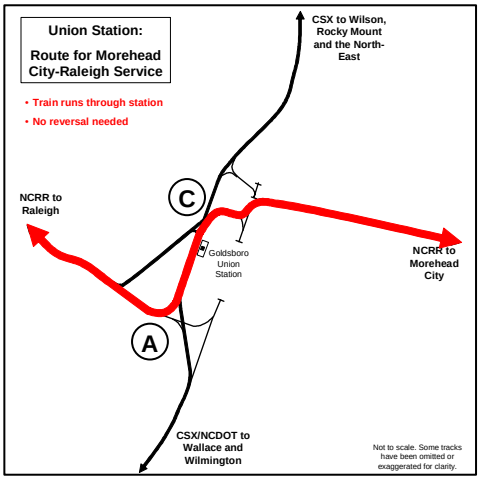
Rocky Mount/Northeast-Wilmington: trains would remain on the CSX corridor, taking a platform track through GUS (Figure 4.7).

Figure 4.7 Rocky Mt-Northeast-Wilmington: Route Using GUS



Raleigh-Morehead City: trains would use connections A and C to run from the NCRR line into GUS and out again to the NCRR line (Figure 4.8).

Figure 4.8 Raleigh-Morehead City: Route Using GUS

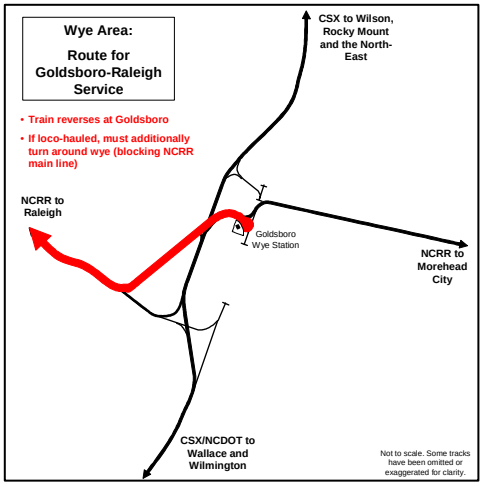


4.4.2 Routes for Planned Train Movements at the Wye

The equivalent operations at the wye would be:

Raleigh-Goldsboro: Trains would run directly along the NCRR line into the wye (Figure 4.9). With push-pull[7] operations, a train would arrive at Goldsboro and then simply leave the station in the reverse direction. With locomotive-hauled operations, a train would, after unloading passengers, turn around at the wye (the railroad equivalent of a three-point turn), backing twice to reach the station and now pointing in the proper direction for departure.

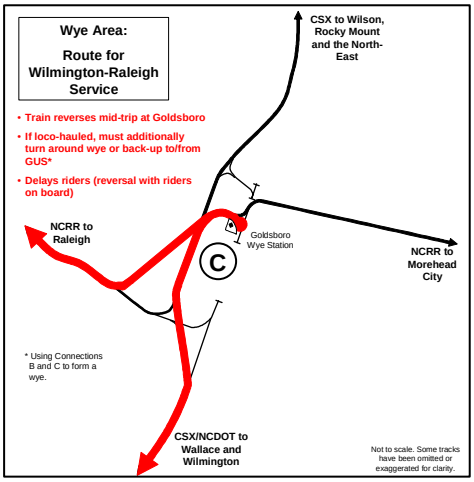
Figure 4.9 Raleigh-Goldsboro: Route Using Wye



[7] With **push-pull** equipment, one end of the train has the locomotive, and the other end has a driving cab in the passenger car (known as a 'cab control car'). When traveling in one direction, the engineer drives from the locomotive, which is pulling from the front. When traveling in the other direction, the engineer uses the driving cab, and the locomotive is pushing from the rear. There is no need for the train to turn around in order to reverse direction. This type of equipment is commonly used on commuter trains and on some inter-city corridor services. With **locomotive-hauled** equipment, there is no cab control car. The engineer is always in the locomotive, which is always at the front. This means the entire train needs to be turned around in order to reverse direction – like making a three-point turn or a circle in an automobile. This type of equipment is commonly used on long-distance trains and some inter-city corridor services, including NCDOT's Piedmont service.

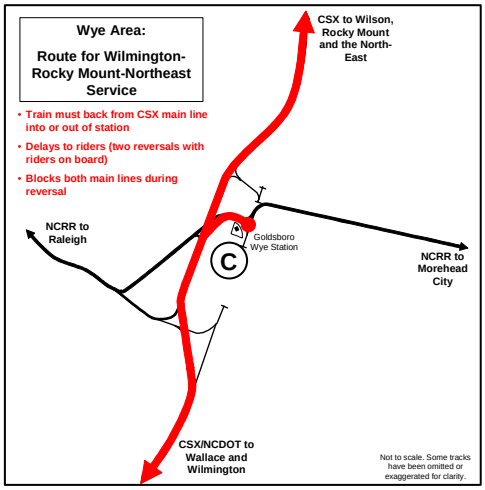
Raleigh-Wilmington: Trains from Raleigh would run directly along the NCRR line into the wye station (Figure 4.10). To continue to Wilmington, they would leave the station, turn on the wye, and take connection C to reach the CSX line. Trains to Raleigh would follow the same route in the opposite order. A push-pull train would simply reverse at the station. Because Goldsboro is a mid-point on this route, the wye turns would take place with riders on board.

Figure 4.10 Raleigh-Wilmington: Route Using Wye



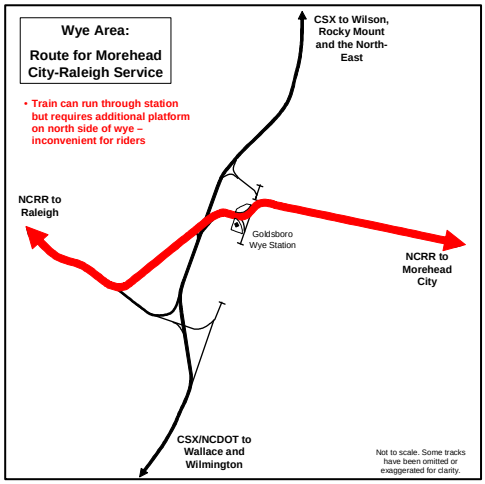
Rocky Mount/Northeast-Wilmington: Trains would use connection C or an alternative connection to move between the CSX and NCRR lines (Figure 4.11). A train to Wilmington would run south past the connection, then back through the connection into the wye station. It would then run forward through the connection and continue directly southward. A train from Wilmington would run directly through the connection into the wye station, then would back the same way onto the CSX line again, then continue northwards. Because Goldsboro is a mid-point on this route, the backing movements would take place with riders on board.

Figure 4.11 Rocky Mt-Northeast-Wilmington: Route Using Wye



Raleigh-Morehead City: These trains could run directly through the wye station if an additional platform were provided on the north-to-west leg (Figure 4.12). However, this is less than ideal, because (a) it requires riders to cross the west-south leg to go between the station facilities and the platform, and (b) the platform would be concave, which is strongly discouraged for safety reasons. Alternatively, these trains could use the regular platform, but with one backing movement into or out of the station. Because Goldsboro is a mid-point on this route, the backing movements would take place with riders on board.

Figure 4.12 Raleigh-Morehead City: Route Using Wye



Connection C is therefore required for both station options. Connections A and B are only required for GUS.

From the rider's point of view, reversals and (particularly) backing movements with riders on board would increase the journey time and make rail service less competitive. Operationally, these reversals and backing movements (whether loaded or empty) and their associated safety procedures would not only take time that could be used in service or as buffer against delays, but in some cases would block one or both main lines for a period. In addition, backing movements are generally discouraged for safety reasons.

4.5 Station Concepts and Operations

The conceptual site plan for GUS is described in detail in Section 9 of this report. The GUS site is a purpose-built passenger station that is ideal for accommodating passenger trains. The site can accommodate trains up to 1,400 feet long without blocking highways or freight movements. Initially one platform track would be provided, and additional platform tracks can be added later if required. The platform tracks would be dedicated to passenger operations, and trains standing at the platform would not interrupt freight trains or switching operations. The platforms would be straight, which is highly desirable for safety and operational reasons[8]. They could also be adjusted for level boarding if required in the future (this is not possible on shared tracks because of the need to accommodate freight car clearances, and is difficult on curved tracks because of vehicle overhangs). The remainder of

[8] Straight platforms are strongly preferred for safety and convenience during boarding and alighting. Straight platforms allow optimum clearances between the platform and the train, and allow staff on or beside the train to monitor the entire length of the train during boarding and alighting. Convex platforms (on the inside of a curve) are second best, because of the clearance issues and because any obstructions on the platform (people, columns, etc.) can restrict visibility along the length of the train. Concave platforms (on the outside of a curve) are strongly discouraged, because of both clearance issues and the definite lack of visibility (staff at one end of the train cannot see along to the other end).

the GUS site is available for a bus transfer facility and for surface parking, as described in Section 9 of this report.

For purposes of comparison, a brief design exercise was undertaken to illustrate how the Wye site might function and to help understand the opportunities and constraints. The wye area was not designed for a passenger station, and its layout makes it difficult to provide efficient facilities. It is assumed that the existing freight operations will need to continue with as little disruption as possible. The most likely solution would be a convex-curved platform on the south-west leg of the wye, between the tracks and the old freight depot. As noted above, curved platforms are undesirable for safety and operational reasons. The platform would serve either the existing wye track or a new platform track formed by extending an existing dead-end track. The latter option, if found to be feasible, would be preferable, as a train standing at the platform would then not interrupt freight switching operations. The station would be able to accommodate a train about 550-600 feet long without blocking highways, or slightly longer if the Vine Street crossing could be closed. An additional platform could serve the north-west leg, but this would be less convenient for riders and standing trains would block the NCRR main line. The old freight depot would be rehabilitated to provide the passenger facilities. The area between the depot and the Vine/James intersection would be available for drop-off, taxis, ADA parking, and bus stops. However, there is no convenient location on-site for long-stay parking and (if required) a bus transfer facility; these would require either purchase of adjoining commercial property, or use of existing but inconveniently-located railroad property.

4.6 Riders' Experience

Parking: Providing ample parking is a key factor in attracting riders. Most riders in North Carolina reach the station by car and park at the station. This is also likely to be true in Goldsboro for both long-distance and commuter riders. GUS can accommodate a surface parking lot of more than 100 spaces on-site, directly alongside the station building, and the lot can be converted to a deck in the future if required. A station at the wye would likely require the purchase of adjoining commercial property in order to provide an equivalent parking lot. With such a purchase, the same level of parking as at GUS could be provided, including the potential for a deck in the future. However, the parking at the Wye site would be across a street or across a track from the station building, rather than directly alongside as at GUS.

Journey time: As described above, GUS allows trains to run directly in and out of Goldsboro in any direction. The wye station would allow Raleigh-Goldsboro trains to run directly in and out of the station, albeit with a reversal or (if locomotive-hauled) a turn between arrival and departure. However, trains on the other three proposed routes would require at least one backing movement with riders on board. This would add to journey times and make the rail service less competitive with driving on those routes. This confirms the Eastrans study's conclusion that the wye is a reasonable station site for a Raleigh-Goldsboro service but that GUS is preferable if and when additional services are introduced.

Multi-modal connections: GUS has enough space for the Gateway Transit bus transfer facility and Greyhound facility to be provided on-site. This means that riders will be able to transfer easily between any bus route and a train. An equivalent facility could be provided

close to the wye station, but would likely require purchase of additional adjoining property. As with parking, the transfer facility would likely be across a street from the station building, rather than directly alongside as at GUS. If a transfer facility could not be accommodated in this way, the wye station could still be served by buses, but only as one of many competing demands on the routes and schedules.

Gateway Transit is currently considering establishing its maintenance and operations depot at a commercial site one block north of the wye, on land which it would purchase (see Section 10 of this report). If that proposal goes ahead, the wye station would have an operational advantage as a location for the bus transfer facility: it would reduce by approximately 0.6 miles the empty ('deadhead') mileage between the transfer facility and the maintenance depot at the start and end of service.

4.7 Downtown Master Plan and Revitalization Objectives

The downtown Master Plan sees Walnut Street as a key 'retail street' through the historic core area from GUS to the courthouse (Figure 3.7). Although GUS without train service would still be able to make a contribution to this axis, the presence of train service will bring important vitality and activity, which in turn would spur revitalization efforts along this key axis.

A station at the wye site could also make a contribution to downtown revitalization. In this case, the likely effect would be to act as a spur to revitalization along James Street north from downtown, and more generally in the James/Vine area. The master plan sees James Street as a residential street and Center Street as a key 'image street'. Wayfinding and streetscape efforts could ultimately aim to promote either of these streets as the key link between the station and downtown.

4.8 Feasibility

GUS is a highly feasible location. It is an existing station site with initial design and rehabilitation work well advanced. The City already owns the GUS site itself and is working with NCDOT to progress the rehabilitation. Achieving rail service to GUS will require:

- Coordination and agreements with the freight railroads (CSXT, NCRR & NS). This is a relatively common need and is expected to be straightforward.
- Purchase of the property needed to construct the new connections.

The GUS site includes space for ample parking as well as a bus transfer facility, without the need to purchase additional property.

The wye area is owned by NCRR (the State of North Carolina is the sole shareholder of NCRR). It has the advantage of being able to provide an initial passenger station on NCRR land. Little or no additional property purchase would be required in order to establish an initial Raleigh-Goldsboro service, and minimal additional purchase would be required to establish other services using connection C as described above. However, it is an active freight railroading site and inserting workable passenger facilities is likely to become increasingly difficult as the amount of rail service increases beyond a simple one-platform

commuter stop. A bus transfer facility, and anything beyond a minimal amount of parking, will likely require acquisition of existing commercial property nearby.

4.9 Overall Comparison

Both GUS and the wye could work well for establishing an initial passenger service. They both also have the potential to provide a multimodal transportation center and to contribute to downtown revitalization.

Both locations would require additional property purchase in order to provide the full range of facilities. GUS has land on-site to provide bus, rail and parking facilities, but requires additional property to make the railroad connections into and out of the station. The wye requires less property to make the railroad connections (because it only requires connection C), but requires additional property to provide adequate parking and a bus transfer facility.

GUS has major advantages over the wye:

- It can accommodate dedicated platform tracks that work well for station operations. The wye, by contrast, would have platform tracks shoehorned in around freight switching operations. The more passenger service is added, the more difficult it becomes to operate at the wye.

- For safety and operational reasons, straight platforms are strongly preferred; these are feasible at GUS, but not at the wye.

- GUS can accommodate all the planned train services without needing any reversals or backing movements. The wye would require a reversal and/or backing for three of the four planned services, in some cases mid-trip with riders on board and potentially blocking both main lines during the maneuvers. GUS therefore provides greater operational convenience as well as reduced journey times. The latter is an important factor in making rail service attractive to riders and eligible for funding.

5 Lessons Learned From Existing Transportation Centers

At the first Steering Committee meeting, the study team led a discussion on development and operation of existing multimodal transportation centers (MMTCs), particularly those within North Carolina. This was aimed at familiarizing the Steering Committee with MMTC concepts, as well as highlighting lessons for Goldsboro. This section of the report summarizes the key lessons that have emerged from existing centers. In particular, the experiences of the following centers were considered: Rocky Mount, NC; Wilson, NC; Cary, NC; Greensboro, NC; Spartanburg, SC; and Greenville, SC.

The most common objectives for transportation centers are to improve transfers (between buses and/or between different modes) and to assist downtown revitalization efforts. Most centers studied were designed to meet these objectives.

Other reported objectives included providing rest areas for bus drivers, enhancing the public image of transit, reducing accident risks, and (more generally) improving transit service quality or convenience. Increased ridership is sometimes an objective, but not always. Operational objectives are rare – the focus is mainly on improving the passenger experience.

In cities with existing rail service, the rail station mostly (but not always) becomes the site of the bus transfer center. Rocky Mount (Figure 5.1) is a good example of this. The cities with potential future rail service often give priority to sites that better serve the existing bus riders to/from downtown, rather than future rail station sites.

The scale of the facilities can match the scale of the service. A center can be relatively small, as in Cary, or relatively large, as in Greensboro. However, centers should be planned with future service expansion in mind. Some transit systems (including Spartanburg, SC, shown in Figure 5.2) have outgrown their centers, just a few years after opening.

A variety of site layouts are in use. Some centers have 'all-in-one' facilities, with rail in the same building as other modes. Others have split layouts, with separate buildings for rail and bus services (such as Rocky Mount, Greensboro and Wilson). Vehicular circulation needs careful planning, to minimize conflicts with pedestrians and conflicts between cars and buses.

Many, but not all, centers include a ticketing/information desk, a news-stand and a café. Some centers have a particularly wide range of facilities. Shared use on-site is helpful in fostering a lively and safe environment for visitors and ensuring that the center is economically viable. Indeed, there is potential synergy with other facilities that a community might need. These may range from simply a community meeting room to a full set of non-transit facilities (one center has a bank, a day care center and other users), making the transportation center very much a community resource.

The centers usually 'work', and few operational problems have been reported. However, there is a very clear difference between the most attractive and welcoming centers and those which are less so. In particular, placing facilities underneath a parking deck is undesirable. 'Lightness' and quality pay dividends for attractiveness. Spartanburg is a good example of the

level of quality that can be achieved (Figure 5.2). Re-using a historic building involves costs and challenges for construction, but can also provide an attractive center for passengers.

Staff presence, security and upkeep are also important in keeping the center attractive and in improving passenger satisfaction. It is common to have either a police sub-station on-site or dedicated security staff. The presence of non-transit-users, such as local youths or homeless people, has sometimes been reported as a problem, but active management can generally avoid this.

The centers' objectives are usually reported to be achieved – particularly the objectives of improving the quality and convenience of transit services. Existing riders generally appreciate the improved quality of service offered by a center. However, ridership does not always increase.

Finally, staff involved with centers have generally reported that neighborhood issues are rarely a problem, and that communities appear to have welcomed their new centers.

Figure 5.1 Existing Multimodal Center in Rocky Mount, NC

There are many parallels between Rocky Mount's existing multi-modal center and Goldsboro's proposed center. In Rocky Mount, the historic passenger station (A) was restored to house both Amtrak facilities (B, C) and a range of offices for public and private organizations in the community (C). The historic platform canopy was restored (D).

The bus facilities were provided alongside the historic passenger station, using the former express parcels building (E). New slips were built for city and Greyhound buses. Goldsboro will be slightly different as a new building will be constructed for the bus facilities.

Figure 5.2 Existing Multimodal Center in Spartanburg, SC

This is the bus transfer facility in downtown Spartanburg, SC. Although it is not located at the city's railroad station, these pictures are included to illustrate a new-build bus facility with a similar layout to that proposed in Goldsboro.

The bus bays are arranged around the building on an central 'island' (A). The spacious waiting area (B) faces directly onto the bus bays, with large, full-height windows and doors. The interior fit-out is of a high quality. An open-plan reception/ticketing desk is at one end of the waiting area (C), and the Greyhound ticketing/baggage desk is at the opposite end (left of camera in B).

The additional space on the second floor houses a range of facilities, including a Police substation.

6 Functional Requirements and Space Needs

6.1 Introduction

This section summarizes the transportation operators' functional requirements for their facilities at GUS. Some areas, such as ticket windows and secure offices, will be dedicated to each transportation operator. These are listed as 'exclusive' facilities. Other areas, such as public restrooms, can be shared between the operators. These are listed as 'shared' facilities. The space needs are simply estimates for planning purposes. At a later stage of design, more detailed estimates would be needed. The more detailed estimates would reflect the chosen site layout, as well as taking specific account of building codes and ADA requirements.

6.2 Gateway Transit

Existing Service: Gateway Transit currently operates four fixed-routes within Goldsboro, plus two commuter routes between Goldsboro and other Wayne County towns. These routes use 25' and 28' cutaway buses. Outside of Goldsboro, Gateway Transit operates demand-responsive service with 18'-22' conversion vans.

Short-Term Plans: Gateway Transit plans to add a fifth fixed-route within Goldsboro. This route will use a 35' urban bus. There is additional desire to create a regional commuter route between Goldsboro and Johnston and Wake Counties (this may be replaced with rail service in the long-term). This service would likely be a 35' urban bus or 45' motor coach.

Long-Term Plans: There is also potential for an additional commuter route within Wayne County between Goldsboro and jurisdictions to the north and east. This service would begin with a 25' cutaway bus. Ultimately, Gateway Transit plans to add a sixth fixed route within Goldsboro and will replace all cutaway buses with 35' urban buses. Gateway Transit would like to provide a sufficient waiting area for 75 passengers.

Gateway is also interested in preserving space at the bus transfer facility for additional busses, beyond those needed for its long-term plans, so as not to limit service opportunities in the future.

Table 6.1 Gateway Transit Space Requirements

Amount	Function	Area (sq ft)	Notes
Building – Exclusive			
1	ticket window	90	
1	secure office	180	
1	employee break room	150	
Building – Shared			
1	passenger male bathroom	150	3 stalls
1	passenger female bathroom	200	4 stalls
1	indoor waiting area	1,125	75 passengers @ 15 sf/passenger
1	vending/telephone/ATM area	50	
1	custodial closet	50	
1	tele/elec/mech room	100	
Site – Exclusive			
9	40' bus bays	n/a	to accommodate maximum urban bus size
2	22' conversion van bays	n/a	
4	employee parking spaces	n/a	
Site – Shared			
4	passenger short-term parking spaces	n/a	
2	taxi parking spaces	n/a	
2	passenger drop-off parking spaces	n/a	
1	outdoor waiting area	375	25 passengers @ 15 sf/passenger
1	trash/recycling area	n/a	
	Covered sidewalk space for loading next to bus/van slips/bays	n/a	
	Covered walkway connecting bus terminal to Union Station	n/a	
	Covered bicycle parking	144	12 bicycles
	Sidewalks connecting to pick-up/drop-off area and short- and long-term parking	n/a	

6.3 Greyhound

Existing Service: Greyhound currently operates service through Goldsboro, with eight departures daily and a maximum of two buses scheduled to be at the station at any one time. At peak travel times, such as holiday weekends, Greyhound may operate additional buses, which results in 3 buses at the station at any one time. Greyhound uses 45' motor coaches and prefers to pull-in and back-out of bus slips. Greyhound also operates package and baggage service. Current ridership in Goldsboro is 50 passengers per day. Current package service is 15 packages per week.

Short-Term Plans: Greyhound does not plan to add new service routes to Goldsboro.

Long-Term Plans: Greyhound would like Gateway Transit to operate rural feeder service from Goldsboro to surrounding communities. It is unclear at this time how many routes

would be operated or the size of the vehicles. Gateway Transit would also operate the ticket, package, and baggage service at the bus terminal.

Technical requirements: Dedicated employee bathrooms are not required. Greyhound currently prefers its bays to be built without a curb. This is for operational reasons associated with the increasing use of kneeling buses in its fleet. Greyhound supplied the study team with updated drawings of its specific layout requirements, and these have been used in the site layout drawings as appropriate.

Table 6.2 Greyhound Space Requirements

Amount	Function	Area (sq ft)	Notes
Building – Exclusive			
1	ticket window	90	
1	secure office	180	
1	baggage/package room	100	
Building – Shared			
1	passenger male bathroom	150	3 stalls
1	passenger female bathroom	200	4 stalls
1	indoor waiting area	1,125	75 passengers @ 15 sf/passenger
1	telephone/ATM area	50	
1	custodial closet	50	
1	tele/elec/mech room	100	
Site – Exclusive			
3	45' motor coach slips		
3	employee parking spaces		
2	loading spaces near baggage room		
2	short-term passenger parking spaces		
Site – Shared			
1	trash/recycling area		
1	outdoor waiting area		
	Covered sidewalk space for loading next to bus slips		
	Covered walkway connecting bus terminal to Union Station		
	Sidewalks connecting to pick-up/drop-off area and short- and long-term parking		

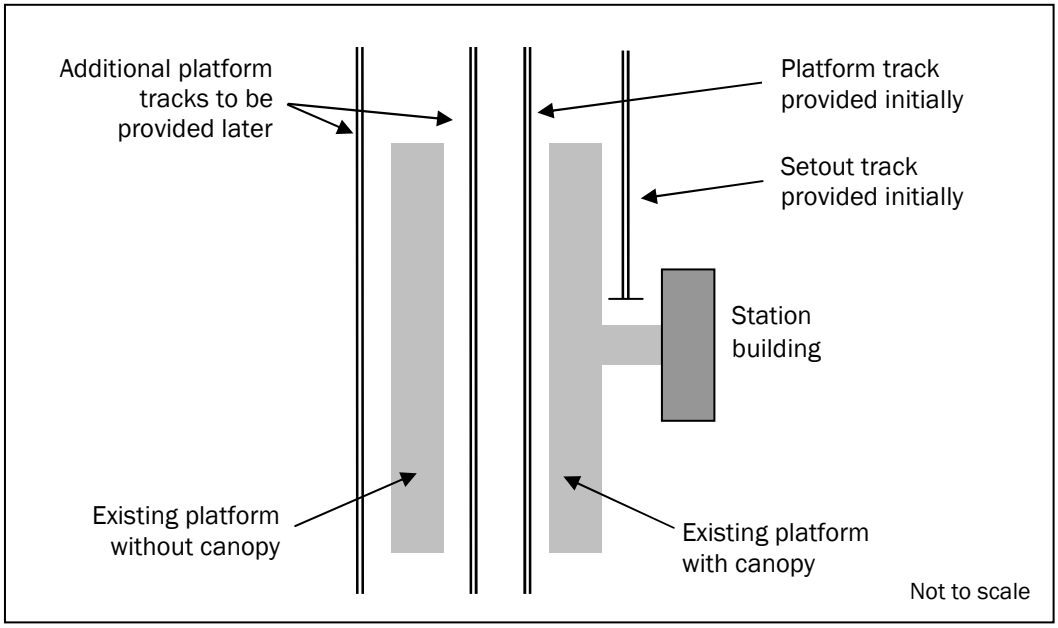
6.4 Rail Services

Commuter Rail Plans: There are plans to create a commuter rail service in the future between Goldsboro and Raleigh. The service would have three morning and one noon trains from Goldsboro to Raleigh, and one noon and three evening trains from Raleigh to Goldsboro.

Intercity Rail Plans: NCDOT RD also has plans for eventual intercity service between Raleigh and several eastern NC cities including Wilmington and Morehead City. There is also a possibility of service between Wilmington and Rocky Mount.

Other Factors: The likely platform arrangement and phasing would be as shown in Figure 6.1. A 600-foot main platform would be required; future additional platforms need only be 400 feet long. This reflected the likely train lengths of 5-6 cars plus locomotive for inter-city trains, and 3-4 cars plus locomotive for commuter trains. GUS would need water and power connection for light servicing of the commuter trains.

Figure 6.1 Potential Platform Layout at Goldsboro Union Station



Commuter service would likely require 200-250 parking spaces initially. Inter-city service would require another 75-100 spaces. Ultimately a deck could be provided if required to accommodate parking growth.

Commuter service would (as is typical) not require any waiting area. It might require a staffed ticket office, or just ticket machines. The addition of inter-city rail would require a waiting area. NCDOT envisaged that, as a minimum, one of the two existing waiting rooms in the GUS building could fulfill this role. The combination of commuter and inter-city service would probably require use of the entire building in order to handle the anticipated number of people. Likely one half of the building would be for waiting, and the other half would be for ticketing, restrooms, and other uses.

GUS was originally designed with separate waiting rooms at each end, and a single ticket counter (facing onto both sections) in the center. In the restorations at Rocky Mount, High Point and Selma, where stations have been similarly configured, the ticketing position had been moved to one end of the building to provide a single, more flexible waiting area.

Historically, ticketing and baggage were handled separately – this is why GUS and similar stations have a separate baggage room. Nowadays, the two functions are handled together. NCDOT therefore envisaged ticketing at the north end, adjoining the historic baggage area. Not all of the historic baggage area would be needed for baggage today.

The north wing could be adapted for an interim use and then transition to rail ticketing/baggage use when required. The south wing has a breezeway to the tracks. This would be ideal for allowing regular commuters (who do not need a ticket) to proceed straight to their trains, or it could be infilled to provide a fully climate-controlled facility throughout.

Historically there were restrooms at each end of the building. Only one set of restrooms would be needed in the future. The other end could be used as a visitor center if required. At High Point, the historic ticket counter is used for visitor information, and this could also be a good approach for Goldsboro.

Table 6.3 Passenger Rail Space Requirements

Amount	Function	Area (sq ft)	Notes
Building – Exclusive (Main Portion, Ground Floor)			
1	ticket window	90	
1	secure office	180	
1	baggage/package room	350	
1	employee break room	150	
1	indoor waiting area	4,945	Remaining ground floor area, could hold 325 passengers @ 15 sf/passenger (or 780,000 annual passengers per Amtrak standards)
1	passenger male bathroom	150	3 stalls
1	passenger female bathroom	200	4 stalls
1	vending/telephone/ATM area	50	
1	food kiosk	100	
1	visitor booth	90	
1	elevator and stairs	200	
Building – Exclusive (Main Portion, Second Floor)			
Amount	**Function**	**Area (sq ft)**	**Notes**
1	elevator and stairs	200	
	Remaining space for offices	3,275	
Site – Shared			
2	taxi parking spaces	n/a	
1	trash/recycling area	n/a	
	Covered walkway connecting bus terminal to Union Station	n/a	
	Sidewalks connecting to pick-up/drop-off area and short- and long-term parking	n/a	

6.5 Interim Community Use of Historic Station

The historic station building will be used by the City of Goldsboro for events and community use until it is required for passenger rail service. The City anticipates that the building will host public events such as meetings and receptions. Storage and food preparation rooms, along with service access, would be needed to support these events. In addition, the Goldsboro Police Department would like to have two staff offices and one investigation office located within Union Station; these are expected to be accommodated on the second floor, along with additional City or related office space.

Table 6.4 Community Space Requirements

Amount	Function	Area (sq ft)	Notes
Building – Exclusive (Second Floor)			
3	Goldsboro Police offices	450	
1	custodial closet	75	
1	storage room	150	
1	food preparation room	150	
1	tele/elec/mech room	100	
	Remaining space	350	
Site – Exclusive			
1	outdoor waiting area	2,700	already exists
6	employee parking spaces	n/a	
3	Goldsboro Police parking spaces	n/a	
100-150	passenger short-term/public event parking spaces	n/a	
200-250	passenger long-term parking spaces	n/a	
4	passenger drop-off parking spaces	n/a	
2	event truck parking spaces	n/a	
	Covered bicycle parking	288	24 bicycles

6.6 Summary of Building Space Requirements

Table 6.5 summarizes the anticipated building space use in the historic station.

Table 6.6 summarizes the building space requirements for the bus transfer facility. The total requirement for the bus facilities is 2,095 sq ft.

Table 6.5 Building Space Use for Historic Station

User	Building Space (sq ft)
Main ground floor – community, later rail	6,505
Mail Room –community	1,275
2nd floor – Police and offices	3,475
Total – Historic Station	**11,255**

Table 6.6 Building Space Needs for Bus Facilities

User	Building Space (sq ft)
Gateway Transit	420
Greyhound	370
Shared between Gateway Transit and Greyhound	1,675
Total – Bus Facilities	**2,095**

7 Goldsboro Union Station Site Design Considerations

7.1 Introduction

This section describes some of the key design considerations that affect the possible site layouts. The specific locations described in this section are highlighted on Figure 7.1.

7.2 Key Site Features

Site topography and layout: The site is relatively flat. It slopes upwards from south to north, with the north end being about nine feet higher than the south end. This can be ignored for the purposes of conceptual layout. The key feature is, of course, the historic station itself (marked **A** on Figure 7.1). A modern metal building (**B**) remains at the north end of the site, but this is expected to be removed in due course (it may be useful as storage during station rehabilitation work).

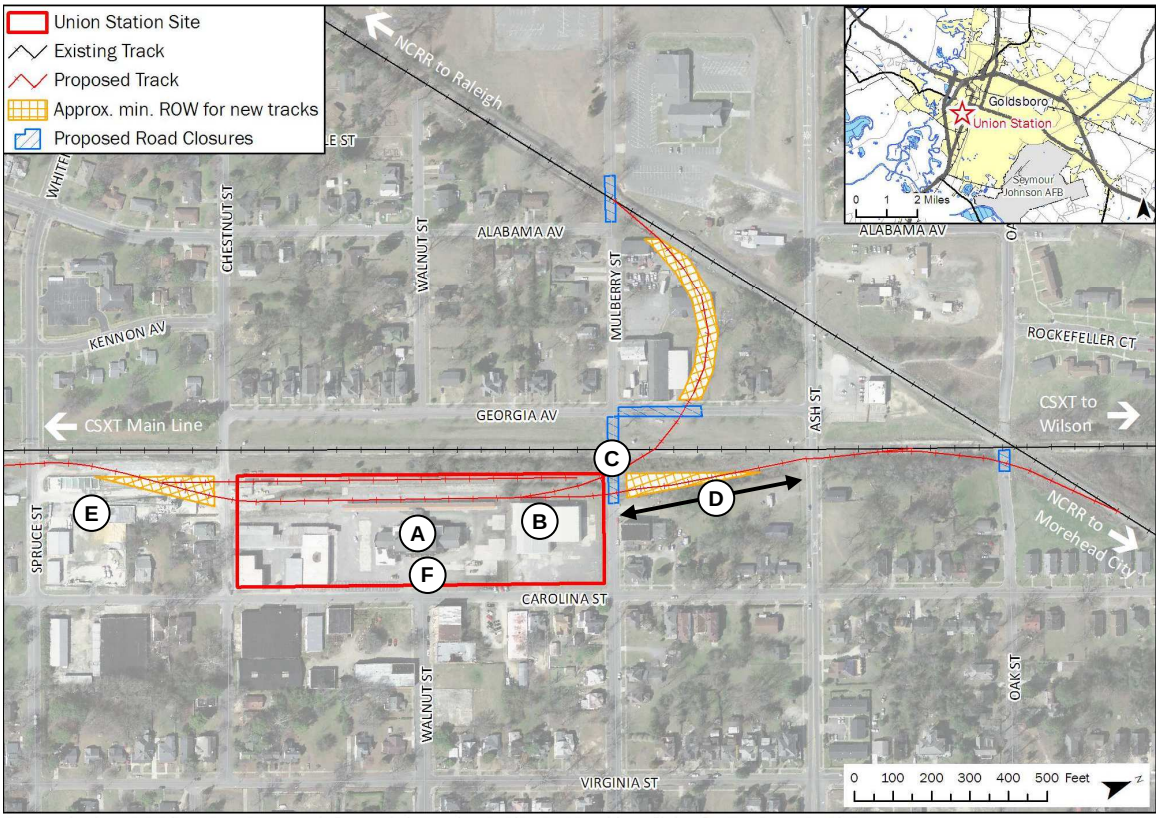
Streets and Grade Crossings: Access could potentially be from Carolina Street, Mulberry Street or Chestnut Street. NCDOT proposes to close the Mulberry Street grade crossing (**C**) in association with the new track connections to GUS. The part of Mulberry Street alongside the site would become a dead end. However, the Downtown Master Plan proposes a connection between Mulberry Street and Ash Street for transit access (**D**).

Setbacks: The site is zoned GB (general business). The required building setbacks are 20 feet on Carolina Avenue, 15 feet on Mulberry Street and Chestnut Street, and 25 feet alongside the railroad. However, the zoning code allows exceptions in areas where existing development pre-dates the setback requirements and comes closer to the street. This is the case on all three of the street frontages opposite the site, with several buildings directly adjoining their property lines. The existing setbacks are 90 feet to Carolina Avenue, 385 feet to Mulberry Street, and 385 feet to Chestnut Street.

Surrounding land uses and anticipated future developments: The site is surrounded by a mixture of commercial and residential uses to the north, east and south. This includes the cement plant on Chestnut Street (**E**). The railroad line forms the west side of the site. Anticipated future developments, including rail connections, have already been described in this report.

Drop-off loop: A key goal was to provide a drop-off loop (**F**) for the historic station. The original site layout had two separate loops which met at the front of the building (Figure 3.2). This is no longer considered feasible because of the need to accommodate other functions on site and because a simpler, easy-to-understand circulation is preferred. In traffic engineering terms, the ideal is to form a four-leg intersection with Walnut Street, but this makes it difficult to provide more than a very short loop. In architectural terms, the ideal is a loop that is symmetrical about the Walnut Street axis. The chosen solution will therefore inevitably be a compromise between meeting contemporary requirements and matching the original design.

Figure 7.1 Goldsboro Union Station – Key Site Features



Proposed tracks and ROW are shown for ease of reference but are not part of the Goldsboro Union Station Multimodal Center Study.
The ROW shown represents approximate minimum required to accommodate proposed tracks. It is indicative and does not represent specific purchase proposals.

8 Bus Facility Design Development

8.1 Introduction

Early in the study process, the Steering Committee decided that the bus-related facilities (waiting, ticketing, restrooms, etc.) should be housed in their own permanent building, rather than using all or part of GUS on either an interim or a permanent basis. It was also decided that the bus transfer facility should be located on the northern portion of the site, closer to Ash Street, which provides access to all portions of the City. Along with the identified space needs, this set the framework for developing the layout of the bus facilities.

A range of options was developed for the layout. These options were aimed at understanding what the site could accommodate in different configurations, and the necessary trade-offs between conflicting goals. They were sketched approximately to scale, but only in enough detail to illustrate the layouts and the key outcomes. All the schemes were compatible with the proposed drop-off loop in front of the historic station, and were compatible with surface or structured parking at the south end of the site. All schemes left space for a house track at the north end of the site. Some of the schemes provided room for additional bus bay expansion in the longer-term.

It is assumed that for efficiency reasons, the Gateway Transit and Greyhound facilities should be in the same building (particularly if Gateway Transit also becomes the Greyhound ticket agent). This essentially means that all the bus facilities (whether serving Gateway Transit, Greyhound or both) need to be close to the Greyhound bays. It is possible to have separate buildings, but there would be a loss of efficiency (e.g. duplicated restrooms, separate staffing needs).

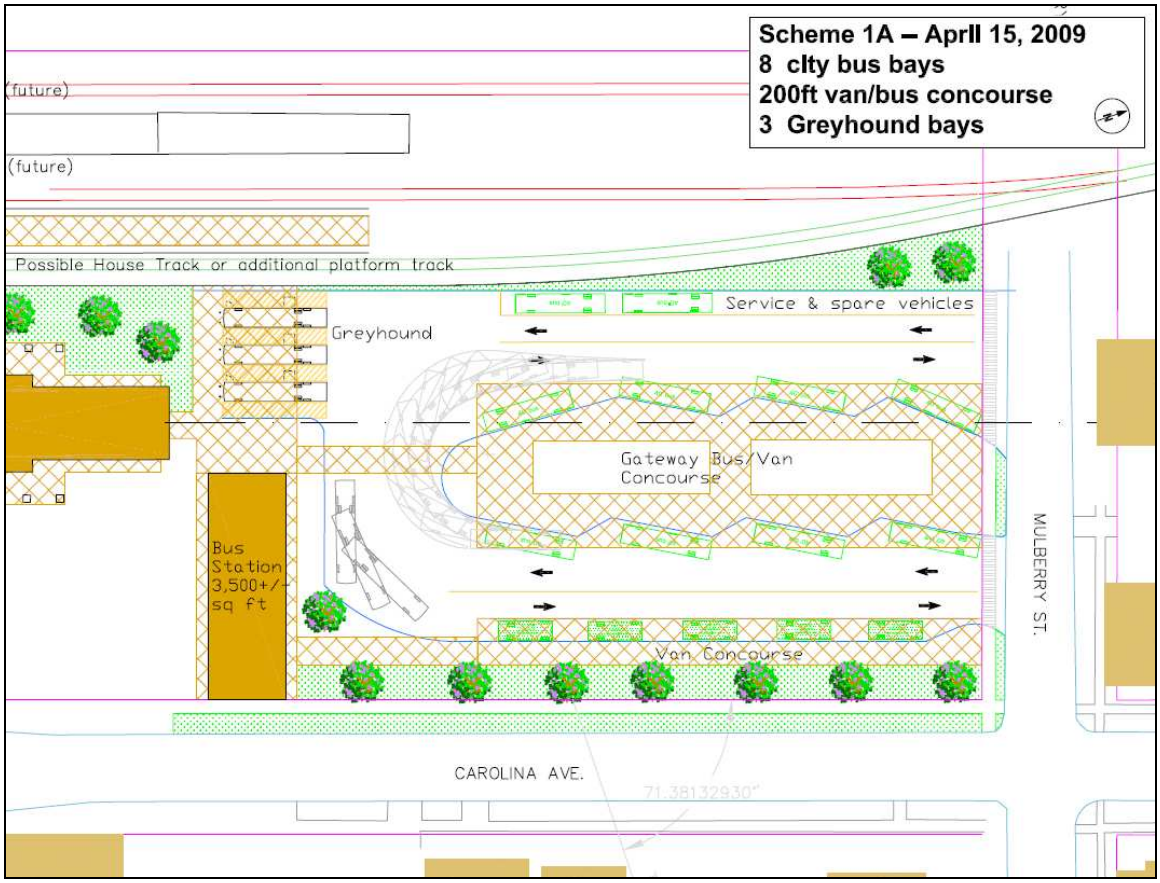
8.2 Bus Facility Scheme 1A

In Scheme 1A, a new building is constructed alongside GUS, as per the downtown master plan, and would accommodate the bus-related facilities. Bus circulation is around a two-way loop. Inside the loop is a central concourse for Gateway Transit, accommodating eight buses or vans in sawtooth formation. Outside the loop, close to the bus facilities building, is a 200-foot concourse that can be used flexibly for vans or buses; this could be converted to sawtooth formation in the future if required. Greyhound bays are located in the corner between the bus building and GUS. Parking space (not for loading/ unloading riders) is available alongside the house track (innermost railroad track) for layover/spare vehicles, service vehicles and/or employee parking. If the house track was not required, this parking space could be increased.

Table 8.1 Evaluation of Bus Facility Scheme 1A

Bus Bays	Pros	Cons
• 8 Gateway Transit bus bays • 200ft of bus/van concourse • 3 Greyhound bays	• Bus-to-bus transfer is very easy (all buses are together) • Useful flexible space for vans/buses • Excellent space for spare/service/ employee vehicles (200ft)	• Access between buses and facilities (bus building or GUS) requires crossing a wide two-way drive aisle

Figure 8.1 Bus Facility Scheme 1A



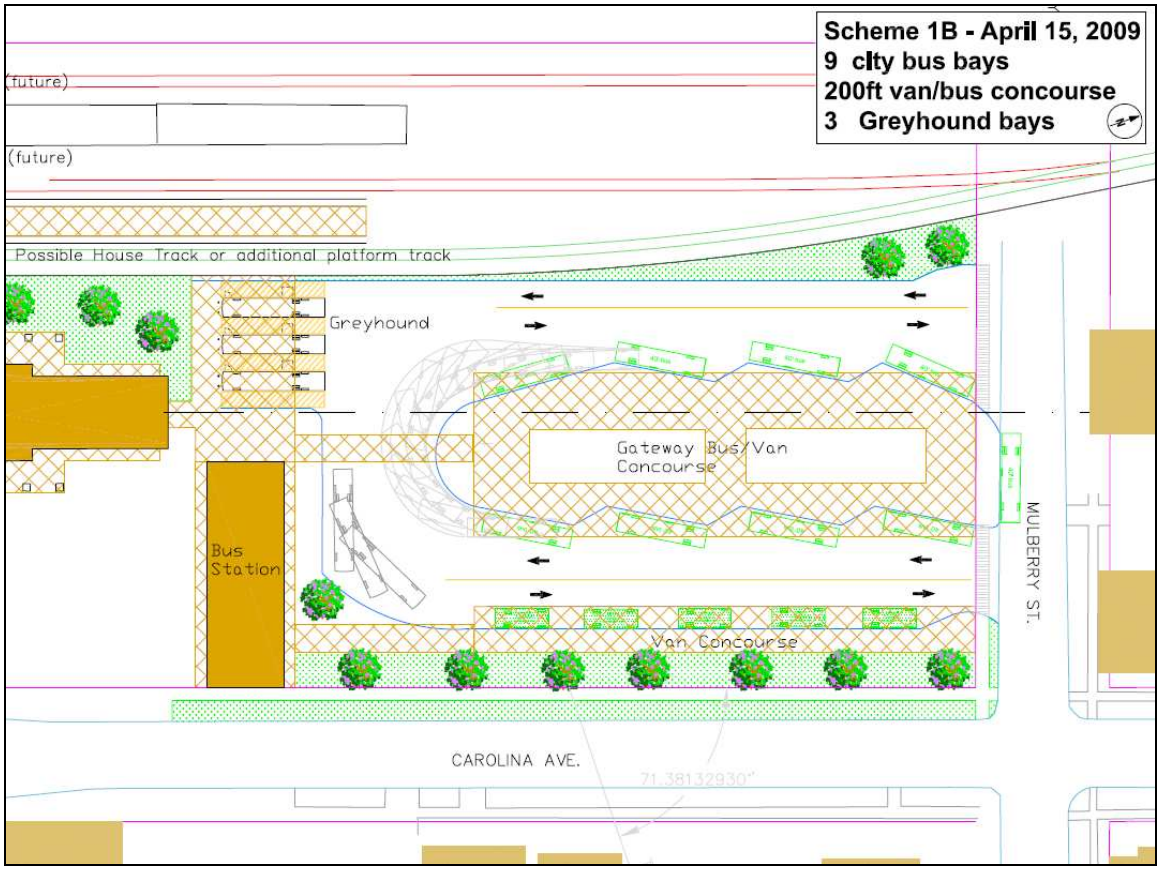
8.3 Bus Facility Scheme 1B

Scheme 1B is similar to scheme 1A, but with the geometry adjusted to allow an additional bus bay on Mulberry Street. The disadvantages of this change are that the parking space for spare/service vehicles is lost (but the van concourse could be used instead), and some Greyhound backing maneuvers will conflict with clockwise Gateway Transit bus maneuvers.

Table 8.2 Evaluation of Bus Facility Scheme 1B

Bus Bays	Pros	Cons
• 8-9 Gateway Transit bus bays (the 9th bay is on-street and therefore less desirable) • 200ft of bus/van concourse • 3 Greyhound bays	• Bus-to-bus transfer is very easy (all Gateway Transit buses are together) • Useful flexible space for vans/buses	• Access between buses and facilities (bus building or GUS) requires crossing a wide two-way drive aisle • Greyhound buses backing out will interfere with buses/vans running clockwise on the driveway

Figure 8.2 Bus Facility Scheme 1B



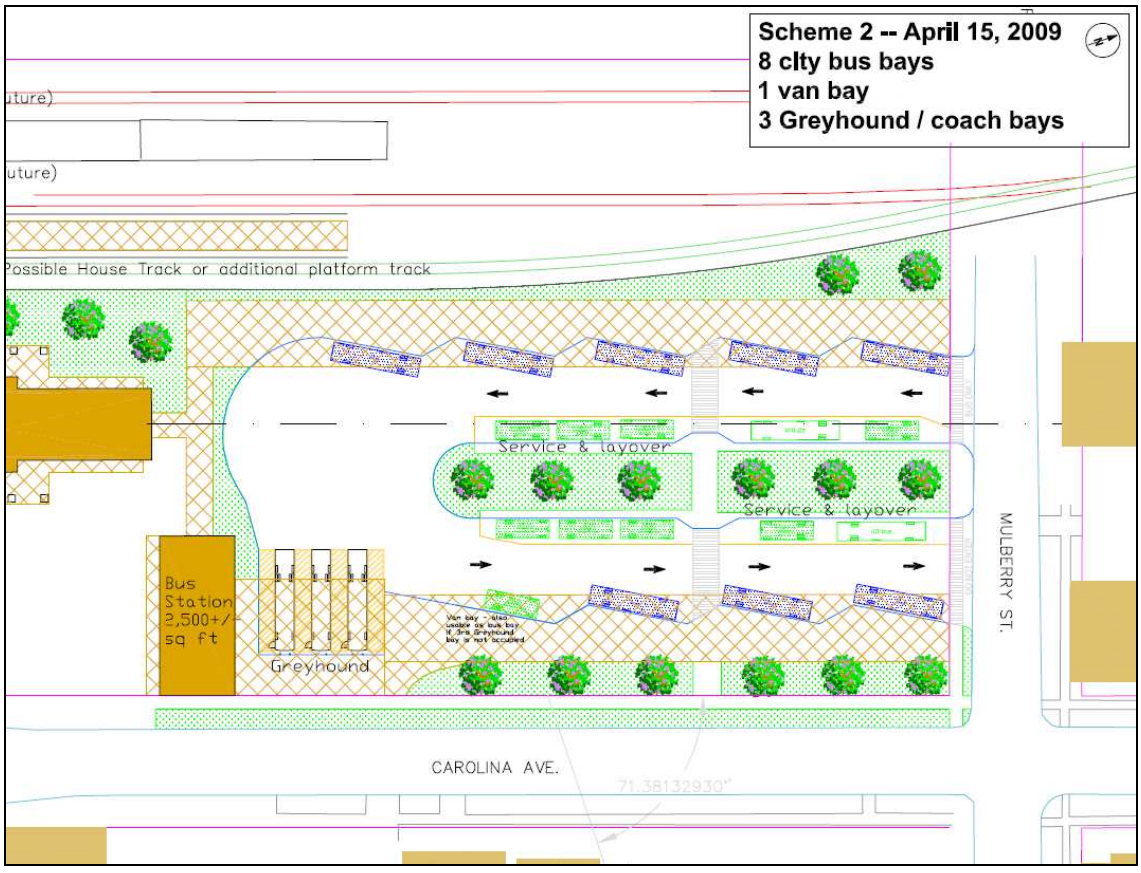
8.4 Bus Facility Scheme 2

Scheme 2, and all the remaining schemes, use one-way circulation for buses. In this scheme, the Gateway Transit buses are arranged on the outside of the driveway and the Greyhound buses are at the front of the site, alongside the bus facilities building. This means the Gateway Transit bus bays are split into two groups, at the front and rear of the site, with crosswalks between. The large area of pavement near the building is required for turning in and out of bays, but could be reduced if the bay closest to GUS was eliminated. The space inside the loop is available for layover/service parking and landscaping.

Table 8.3 Evaluation of Bus Facility Scheme 2

Bus Bays	Pros	Cons
• 8-9 Gateway Transit bus bays (the 9th bay is usable with constraints) • 3 Greyhound bays	• No need to cross driveways when walking between buses and building or GUS • Strong landscaping opportunities • Excellent space for spare/service/employee vehicles (>300ft) • Carolina Avenue is ideal curbspace for Greyhound rider pick-up/drop-off – reduces pressure on main drop-off loop.	• Some bus-to-bus transfers require a walk across the bus driveways or around the edge of the loop

Figure 8.3 Bus Facility Scheme 2



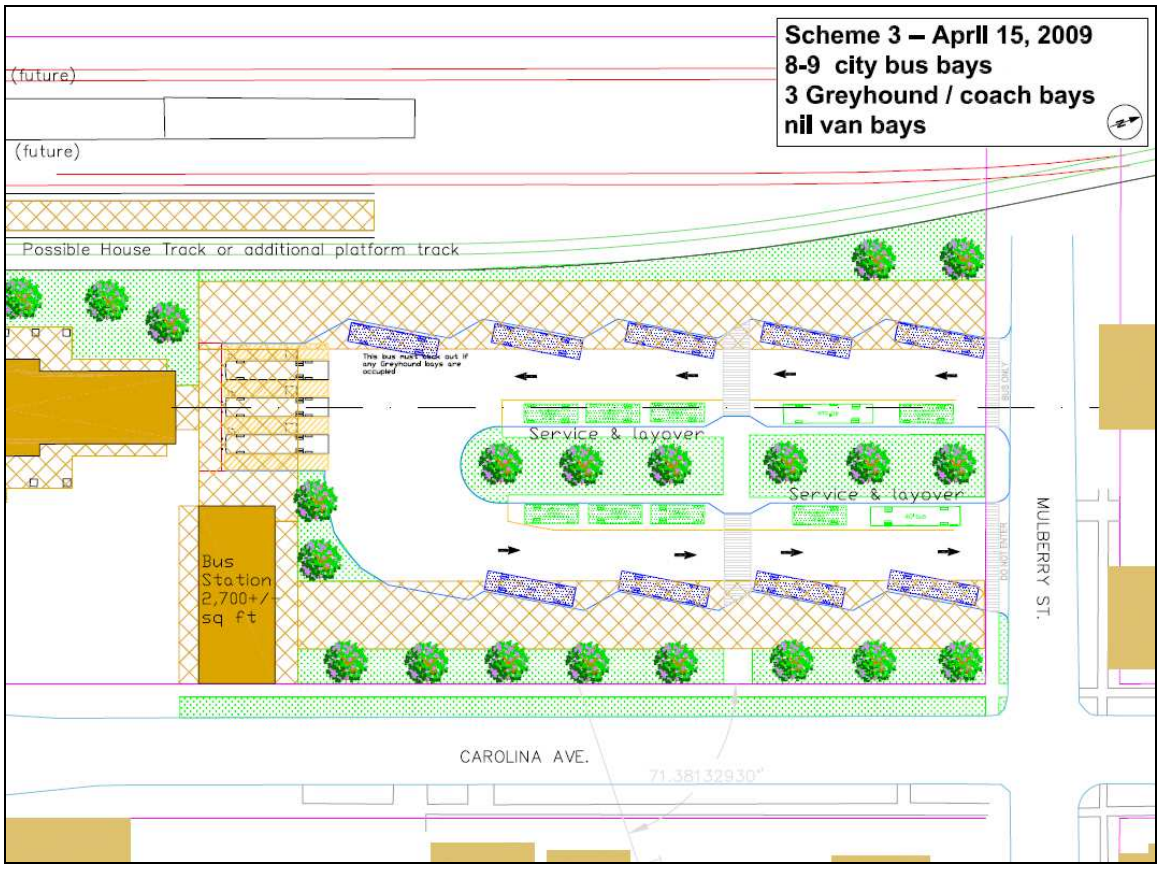
8.5 Bus Facility Scheme 3

Scheme 3 is similar to scheme 2, but moves Greyhound alongside GUS.

Table 8.4 Evaluation of Bus Facility Scheme 3

Bus Bays	Pros	Cons
• 8-9 Gateway Transit bus bays (the 9th bay is usable with constraints) • 3 Greyhound bays	• No need to cross driveways when walking between buses and building or GUS • Strong landscaping opportunities • Excellent space for spare/service/employee vehicles (>300ft)	• Some bus-to-bus transfers require a walk across the bus driveways or around the edge of the loop

Figure 8.4 Bus Facility Scheme 3



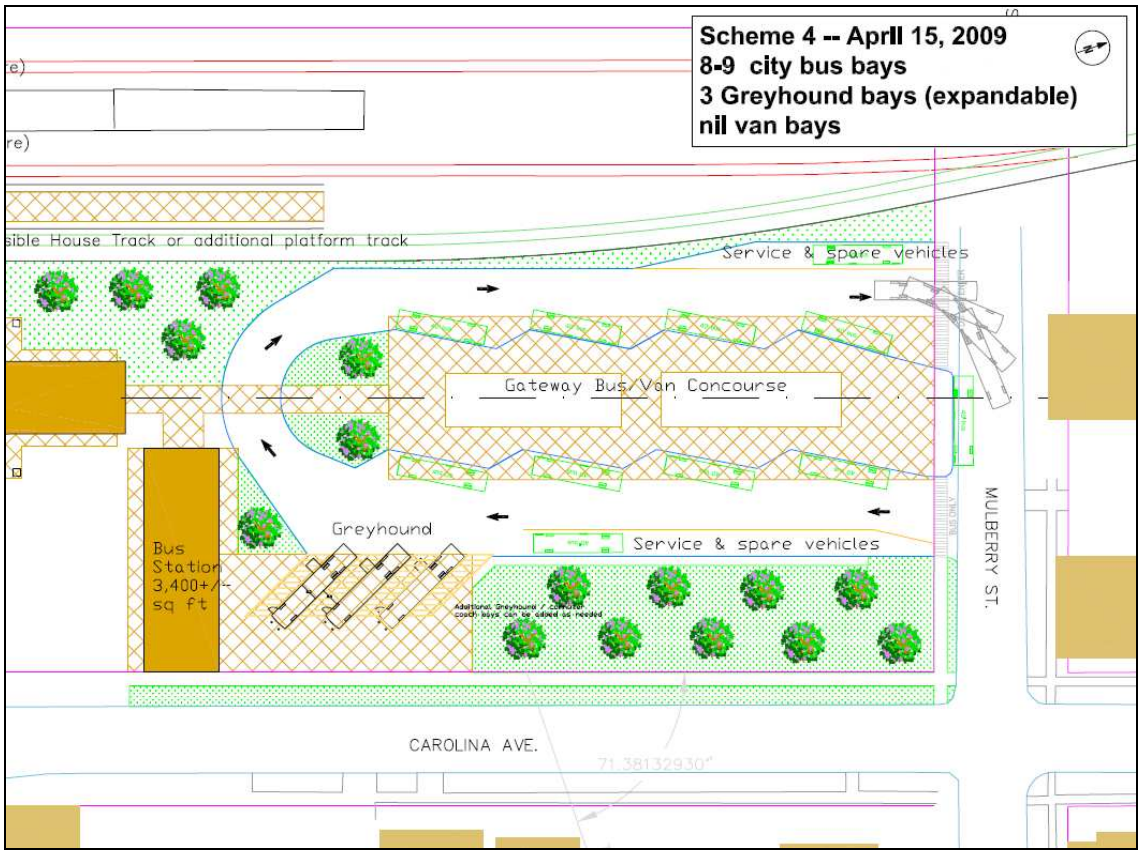
8.6 Bus Facility Scheme 4

This scheme restores the concept of having the Gateway Transit buses around a central island, for easiest bus-bus transfer. Walking to/from the building or GUS requires crossing a driveway, but this time it is only a one-way driveway. The Greyhound bays are at the front of the site, alongside the bus building, and in this scheme additional Greyhound bays could be built as required (even if not required for Greyhound, they could be used by other motor coach services such as commuter routes). In this scheme, the Gateway Transit bus concourse is on the same axis as GUS, which is architecturally desirable.

Table 8.5 Evaluation of Bus Facility Scheme 4

Bus Bays	Pros	Cons
• 8-9 Gateway Transit bus bays (the 9th bay is on-street and therefore less desirable) • 3 Greyhound bays (greatly expandable)	• Bus-to-bus transfer is very easy (all Gateway Transit buses are together) • Greyhound/motor coach bays are easily expandable • Excellent space for spare/service/employee vehicles (200ft) • Carolina Avenue is ideal curbspace for Greyhound rider pick-up/drop-off – reduces pressure on main drop-off loop, compared to having Greyhound bays behind GUS.	• Need to cross driveway between Gateway Transit buses and bus facilities building, or between Gateway Transit buses and GUS

Figure 8.5 Bus Facility Scheme 4



8.7 Bus Facility Scheme 5

This scheme is similar to scheme 4 but places the Greyhound bays within the same island as Gateway Transit. This frees-up the entire Carolina Avenue frontage for landscaping treatment. The bus facilities building would be placed within the island. The building alongside GUS would be available for other complementary purposes.

The scheme is drawn with three Greyhound bays as per the specification, but there is space to build four, with a minor shift in the building location, and this would be worth doing at the outset.

With Greyhound using part of the island, there is only room for 6-7 Gateway Transit buses around the island. However, the site can be expanded to 10-11 Gateway Transit buses in the future by building an additional bus concourse (or a flexible bus/van concourse), as shown in Figure 8.7.

Table 8.6 Evaluation of Bus Facility Scheme 5

Bus Bays	Pros	Cons
• 6-7 Gateway Transit bus bays, expandable to 10-11 • 3-4 Greyhound bays	• Bus-to-bus transfer is very easy (all Gateway Transit buses are together) • Bus facilities are very close to the Gateway Transit buses – no need to cross driveways between buses and facilities • Excellent space for spare/service/employee vehicles (300ft) • Carolina Avenue frontage is very flexible – can be landscaped initially, then later used for additional bays or building development.	• Need to cross driveway between GUS and bus building, or between city streets and bus building. • Greyhound rider pick-up/drop-off is poor (limited curb space on Mulberry Street) • Transit building hidden at rear of site, so does not add to visibility of transit

(drawings are on next page)

Figure 8.6 Bus Facility Scheme 5

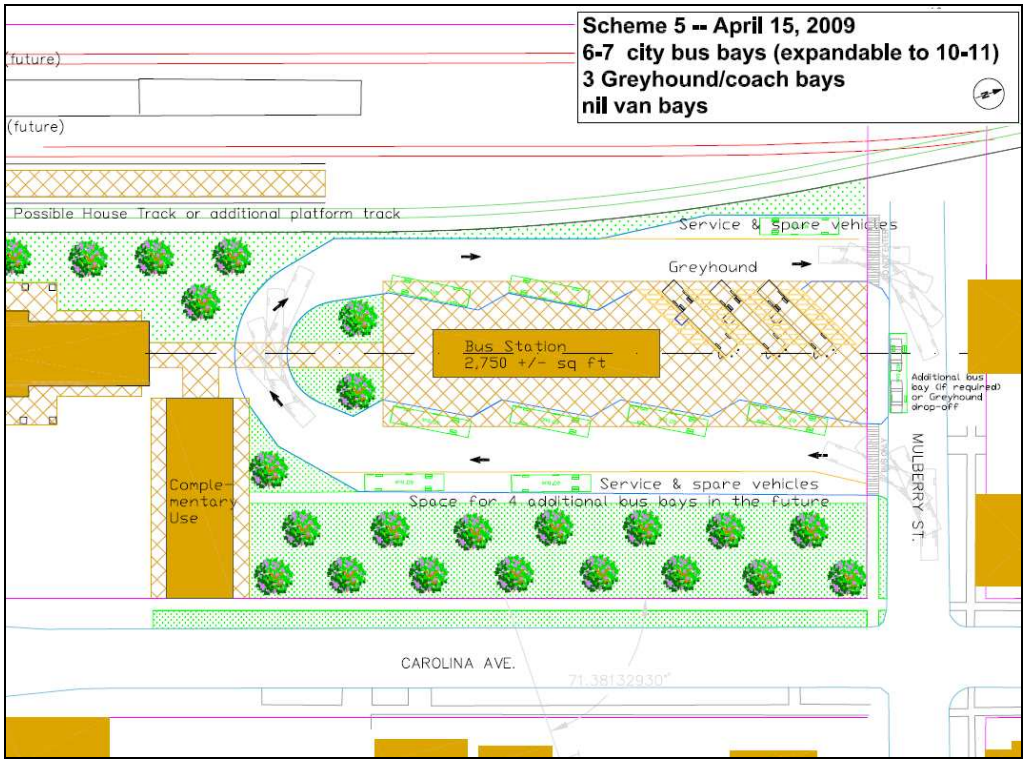
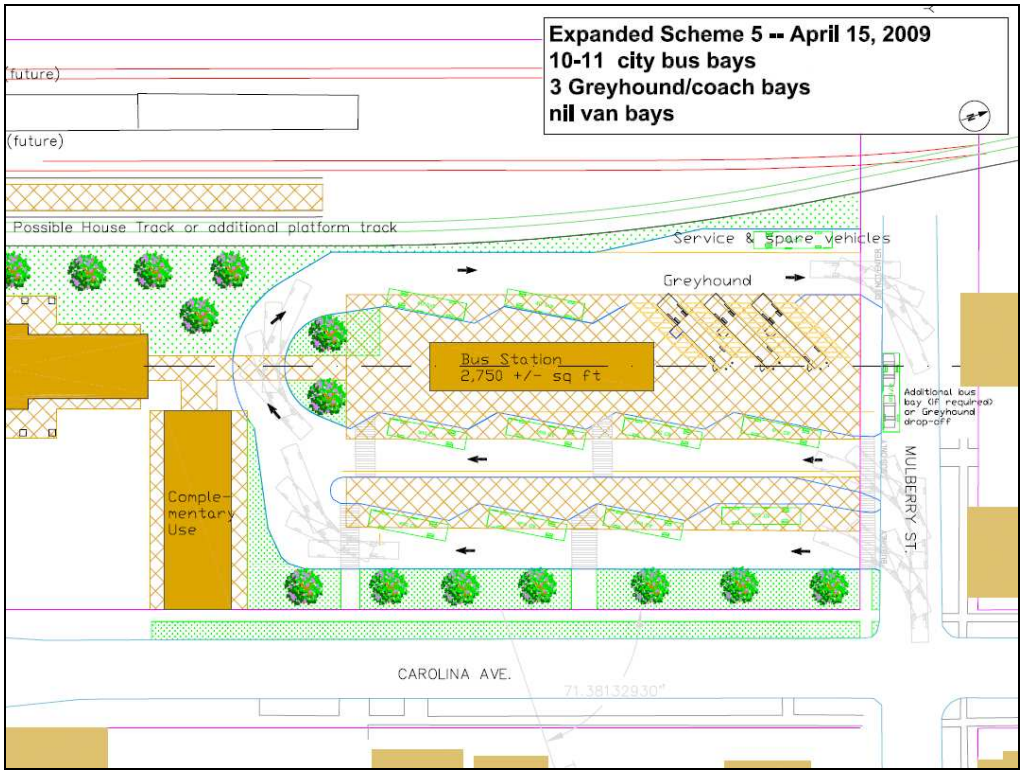


Figure 8.7 Bus Facility Scheme 5 – Expanded



8.8 Bus Facility Scheme 6

Scheme 6 is a variant of Scheme 5. The Gateway Transit/Greyhound island is extended closer toward GUS, to accommodate two extra buses. The proposed building alongside GUS is reduced in size to allow this. There is also a positive side-effect of providing a high-quality pedestrian entrance to the bus facilities directly from the drop-off loop (in other schemes, the equivalent pedestrian route has been no more than a cut between the buildings).

As with Scheme 5, the site can be expanded in the future by building an additional bus concourse (or a flexible bus/van concourse), as shown in Figure 8.9. The advantage over scheme 5 is that Gateway Transit can operate up to 9 buses in a pulse, rather than 7, before needing the additional concourse. The scheme is drawn with three Greyhound bays as per the specification, but there is space to build 4, with a minor shift in the building location, and this would be worth doing at the outset. This is shown as Scheme 6B in Figure 8.10.

Table 8.7 Evaluation of Bus Facility Scheme 6

Bus Bays	Pros	Cons
• 8-9 Gateway Transit bus bays, expandable to 12-13 • 3-4 Greyhound bays	• Bus-to-bus transfer is very easy (all Gateway Transit buses are together) • Bus facilities are very close to the Gateway Transit buses – no need to cross driveways • Excellent space for spare/service/ employee vehicles (300ft) • Carolina Avenue frontage is very flexible – can be landscaped initially, then later used for additional bays or building development.	• Need to cross driveway between GUS and bus building, or between city streets and bus building. • Greyhound rider pick-up/drop-off is poor (limited curb space on Mulberry Street) • Transit building hidden at rear of site, so does not add to visibility of transit

Figure 8.8 Bus Facility Scheme 6

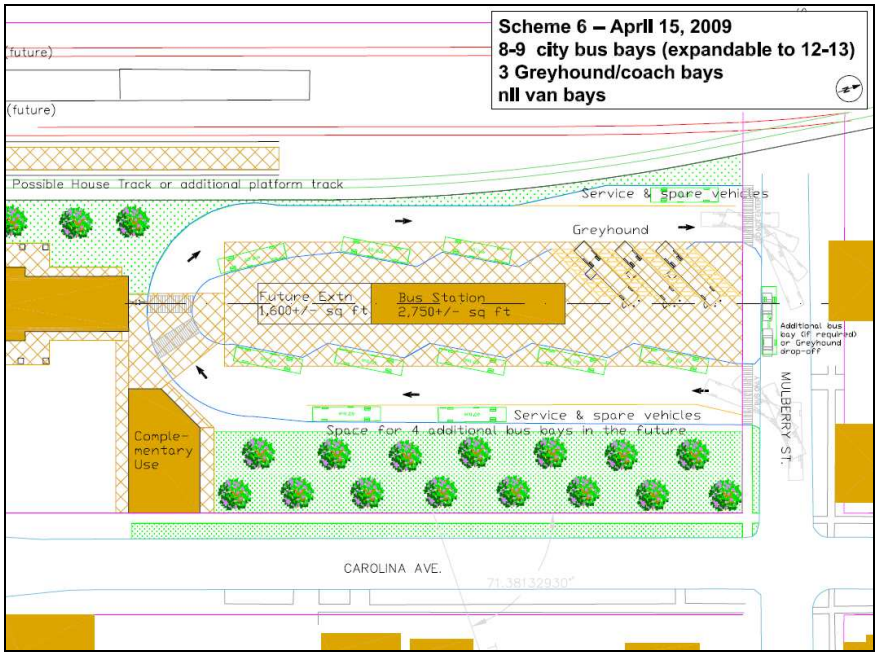


Figure 8.9 Bus Facility Scheme 6 – Expanded

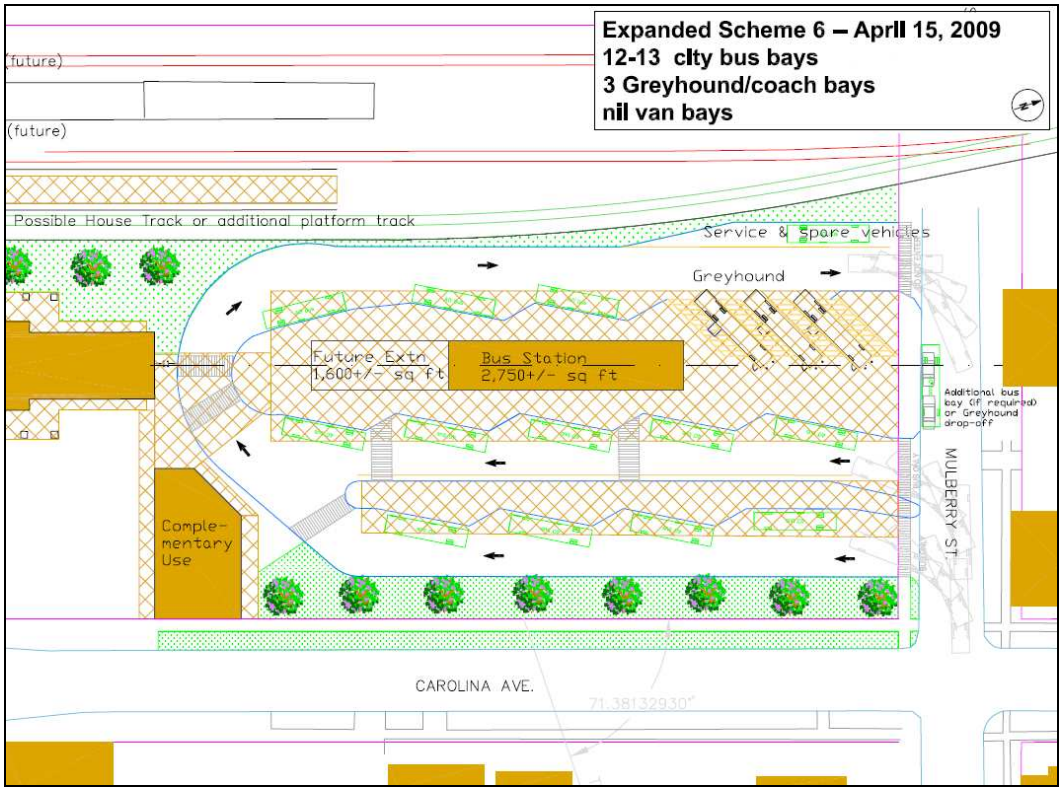
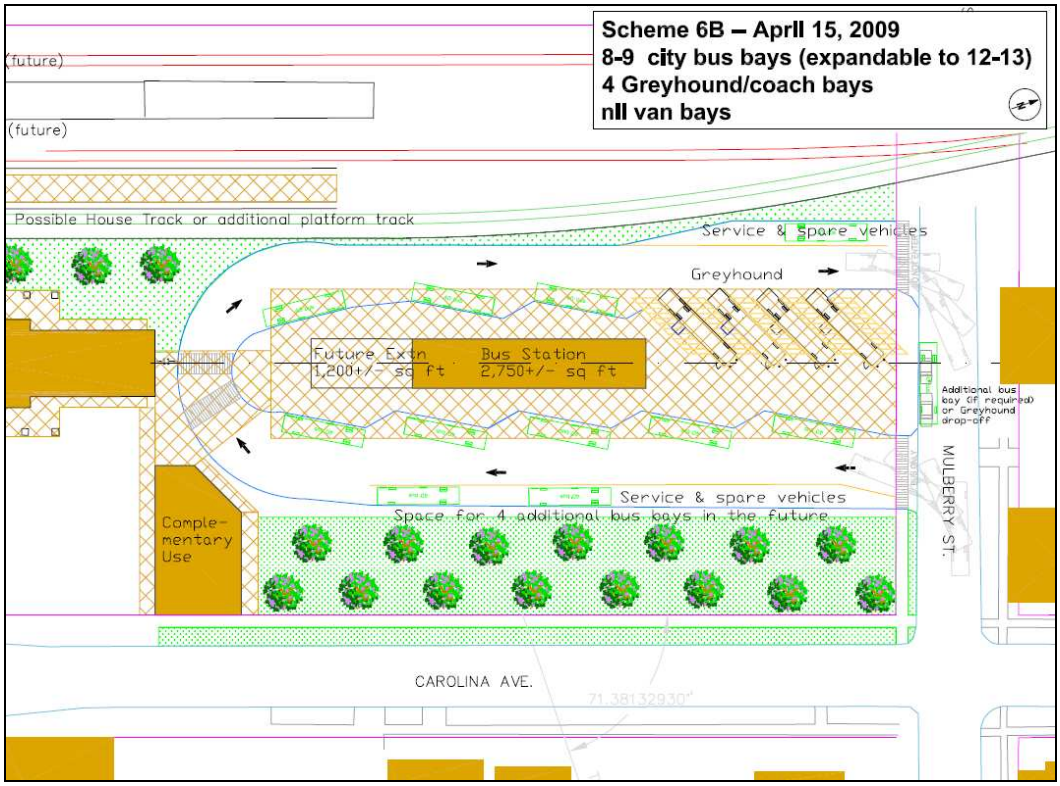


Figure 8.10 Bus Facility Scheme 6B



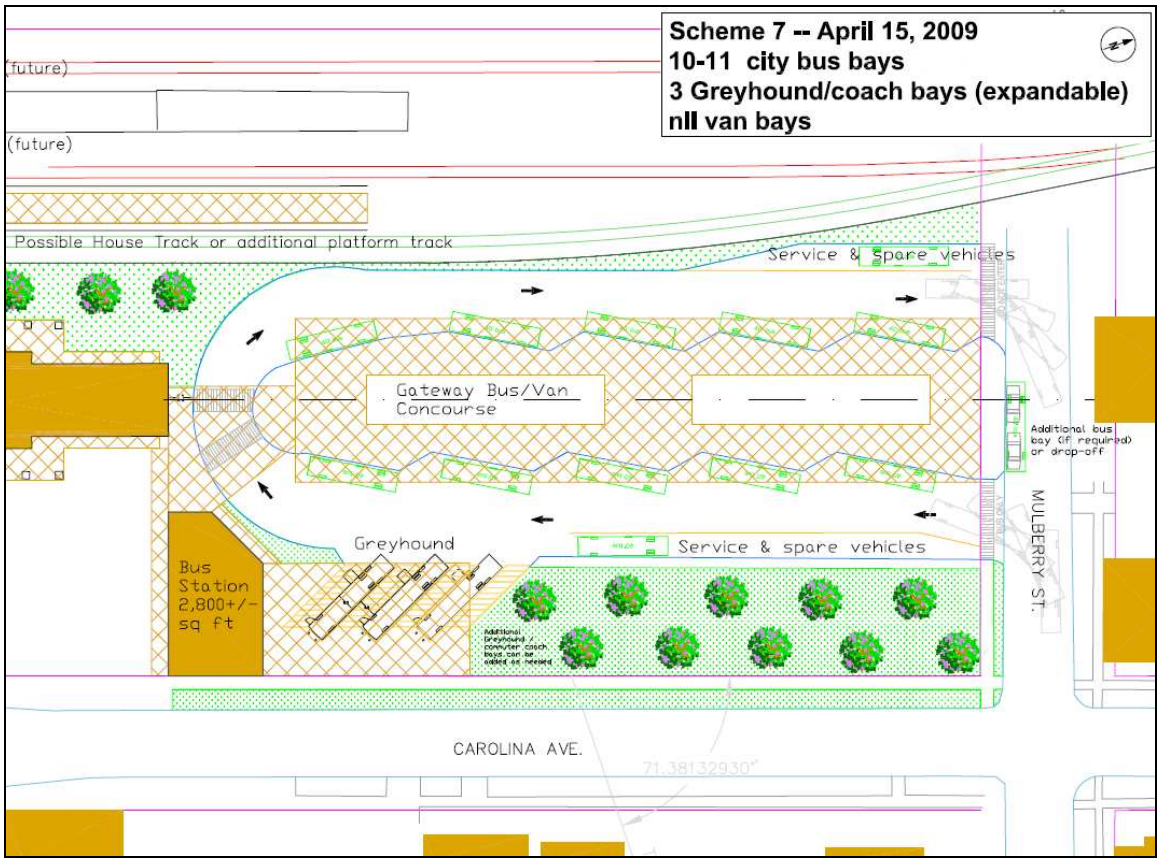
8.9 Bus Facility Scheme 7

Scheme 7 retains the extended island used in scheme 6, but returns Greyhound to the Carolina Avenue frontage. The building alongside GUS would house the bus facilities. This change provides Greyhound riders with the advantages already seen from having the Greyhound bays close to the drop-off loop and Carolina Avenue. It also means that Gateway Transit can accommodate 10-11 buses around the island. However, the future expansion concourse could only be a small one.

Table 8.8 Evaluation of Bus Facility Scheme 7

Bus Bays	Pros	Cons
• 10-11 Gateway Transit bus bays (expandable to a limited extent, perhaps to 12-13) • 3-4 Greyhound bays (expandable)	• Bus-to-bus transfer is very easy (all Gateway Transit buses are together) • Excellent space for spare/service/ employee vehicles (>200ft) • Greyhound/motor coach bays are easily expandable • Carolina Avenue is ideal curbspace for Greyhound rider pick-up/drop-off – reduces pressure on main drop-off loop, compared to having Greyhound bays behind GUS.	• Need to cross driveway between Gateway Transit buses and GUS/bus building

Figure 8.11 Bus Facility Scheme 7



8.10 Bus Facility Scheme 8

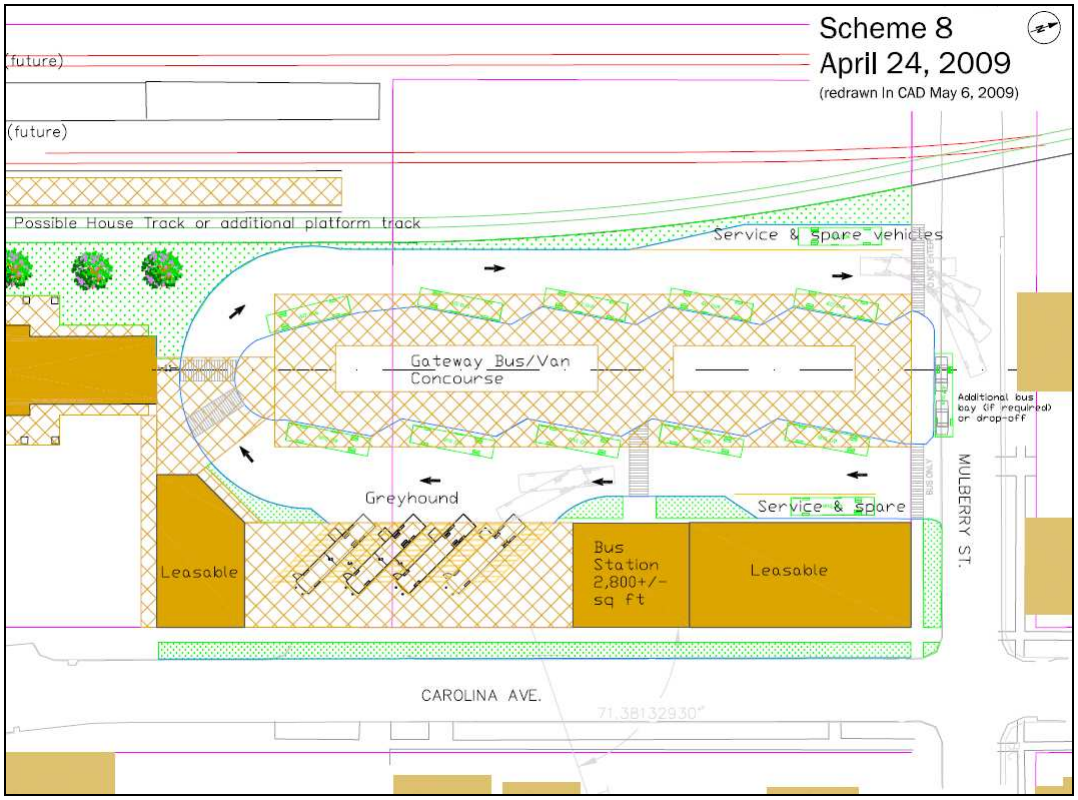
Schemes 8 and 9 are both developments of Scheme 7. They were prepared in response to a suggestion that the bus facility building could be placed further north along Carolina Avenue, closer to Mulberry Street.

Scheme 8 does just that, leaving the Greyhound bays in approximately the same location as Scheme 7. Additional leasable space can be built on the remainder of the Carolina Avenue frontage between the bus facilities building and Mulberry Street, in order to complete the street frontage, or it could be left as a landscape area. With this scheme, there is no possibility of a future expansion concourse for additional Gateway Transit buses. However, the west side of Carolina Avenue, outside the bus facilities building, could act as additional bus bays.

Table 8.9 Evaluation of Bus Facility Scheme 8

Bus Bays	Pros	Cons
• 10-11 Gateway Transit bus bays (not expandable) • 3-4 Greyhound bays (not expandable)	• Bus-to-bus transfer is very easy (all Gateway Transit buses are together) • Some space for spare/service/ employee vehicles • Carolina Avenue is ideal curbspace for Greyhound rider pick-up/drop-off – reduces pressure on main drop-off loop, compared to having Greyhound bays behind GUS.	• Need to cross driveway between Gateway Transit buses and GUS/bus building • Any Gateway Transit expansion beyond 10-11 bays would have to be on-street on Carolina Avenue.

Figure 8.12 Bus Facility Scheme 8



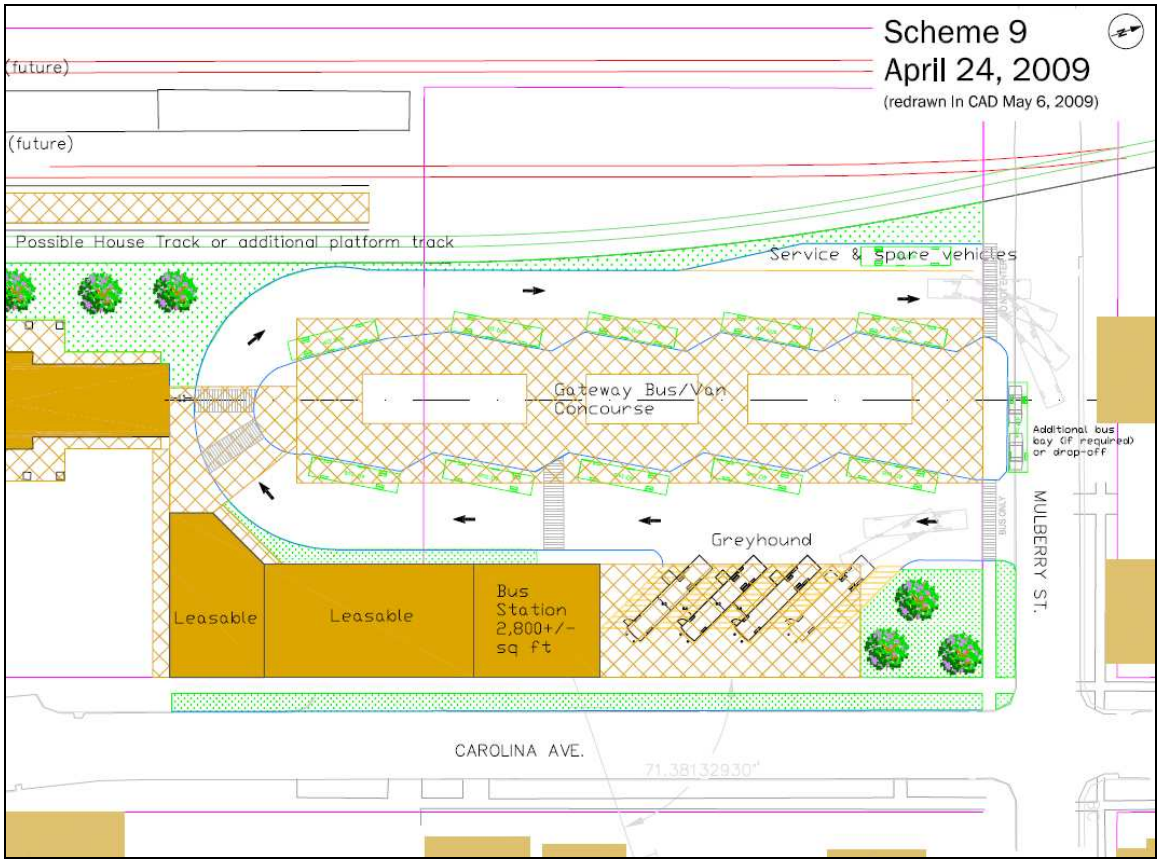
8.11 Bus Facility Scheme 9

Scheme 9 is a refinement of Scheme 8. The Greyhound bays are moved north of the bus facilities building. This provides a short, clear line-of-travel between the Greyhound waiting area and the doors of the buses, without walking around the front of the bus as in Scheme 8. The leasable space is moved to the south side of the bus facilities building, and the service/spare vehicle space opposite the north-east corner of the island is eliminated. Otherwise, Scheme 9 is similar to Scheme 8.

Table 8.10 Evaluation of Bus Facility Scheme 9

Bus Bays	Pros	Cons
• 10-11 Gateway Transit bus bays (not expandable) • 3-4 Greyhound bays (not easily expandable)	• Bus-to-bus transfer is very easy (all Gateway Transit buses are together) • Carolina Avenue is ideal curbspace for Greyhound rider pick-up/drop-off – reduces pressure on main drop-off loop, compared to having Greyhound bays behind GUS. • Access between Greyhound buses and building is better than in Scheme 8.	• Need to cross driveway between Gateway Transit buses and GUS/bus building • Any Gateway Transit expansion beyond 10-11 bays would have to be on-street on Carolina Avenue.

Figure 8.13 Bus Facility Scheme 9



8.12 Recommended Options for the Bus Facility

Schemes 6 and 7 appear to be the two most satisfactory options. They are the best solutions for the key goal of providing an attractive, efficient transfer center. They are also both good solutions in terms of their urban form and their relationship with GUS. Table 8.11 shows how they differ from each other.

The Steering Committee agreed on Scheme 6 (specifically, Scheme 6B with the fourth Greyhound bay) as the preferred option.

Table 8.11 Comparison of Bus Facility Schemes 6 and 7

Issue	Scheme 6	Scheme 7
Greyhound location	On island	At front of site
Building locations/uses	New building alongside GUS would be for complementary use. New building on island would house bus facilities.	New building alongside GUS would house bus facilities
Gateway Transit bays	8-9 initially, 12-13 with expansion	10-11 initially, approximately 12-13 with expansion
Greyhound/ motorcoach bays	3 or 4 (not easily expandable)	3 or more (easily expandable)
Other advantages	• Provides more layover/service space • Gateway Transit bus facilities are directly alongside bus bays • Easy transfers between Greyhound buses and Gateway Transit buses • Greater landscape area on Carolina Avenue frontage	• Bus building on street frontage provides more visibility • Greyhound rider drop-off/pick-up is much more convenient.

9 Recommended Site Layout

9.1 Recommended Site Layout and Remaining Design Issues

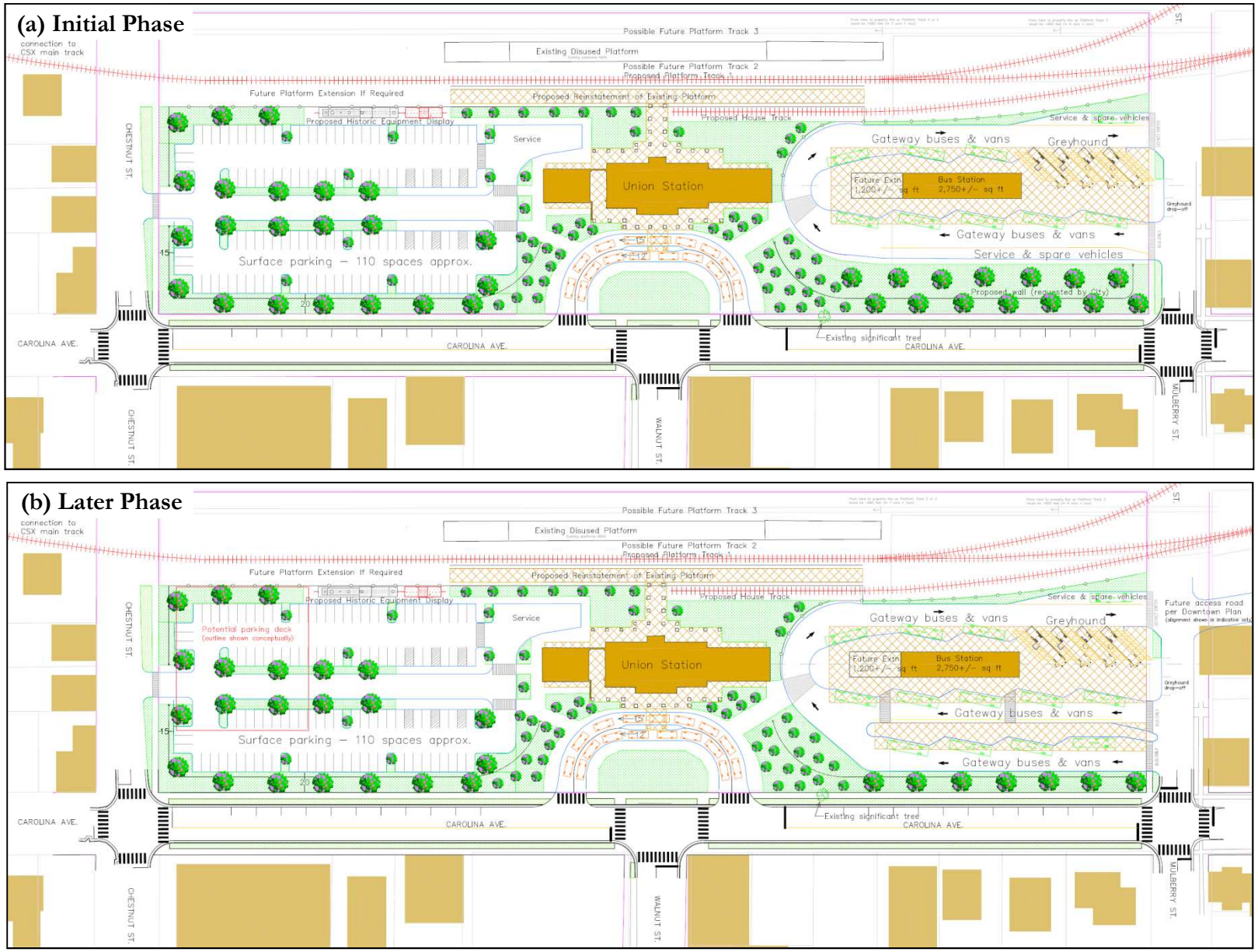
The recommended site layout includes:

- Restoration of the GUS building as the centerpiece of the site. Initially it will be used for events and community purposes, and can later be converted to passenger rail facilities.
- Construction of a bus transfer facility at the north end of the site. This has provision for later expansion.
- Construction of a new driveway in front of GUS, to serve as a drop-off loop for all the functions on the site.
- Construction of a surface parking lot at the south end of the site. This includes service access to the rear of the GUS building. A parking structure can be built on this part of the site, replacing the surface lot, if required in the future.
- Providing on-street parking on the west side of Carolina Avenue, with the existing curb lines broadly retained.

The recommended site layout is designed to allow change and expansion as required in the future. This includes expansion of the bus facilities, conversion of the historic station from community use to passenger rail service, construction of an additional building alongside the station for complementary use, and construction of a parking deck to provide additional parking. These potential changes are independent of each other, and can be made as required, in any sequence. For ease of reference, however, the drawings and description are split into an initial phase and a final layout.

Figure 9.1 shows the recommended site layout, in terms of both an initial phase and the ultimate development of the site. Key features are discussed in the following sections.

Figure 9.1 Recommended Site Layout s for Goldsboro Union Station



Railroad geometry is approximate. Landscape treatment is shown illustratively and does not represent a full landscaping plan. Landscape design should be sensitive to historic sightlines.

9.1.1 Key Design Features – Initial Phase

Figure 9.1(a) shows the recommended site layout, with the initial phase of development complete on all parts of the site. The landscaping shown is purely indicative and does not represent a full landscaping plan. Two driveway layouts are shown, with or without a replica portico. Key features include:

1. Rehabilitated historic station building.

2. Service access to GUS (employees, delivery trucks, catering vans, etc.).

3. Drop-off loop, serving GUS and bus transfer facility.

4. Bus transfer facility. The bus bays surround a central building and canopy that is aligned on the same axis as GUS. There is space for eight Gateway Transit bus/van bays in sawtooth formation and four Greyhound (or other motor coach) bays in echelon formation. (Although the site specification requires only three Greyhound bays, there is space, which would otherwise be wasted, for a fourth bay at minimal additional cost.) The building combines Gateway Transit and Greyhound facilities, for maximum efficiency, and allowing individual staff to serve both operators if required. The building is shown as approximately 2,750 sq ft, in line with the identified space requirements, but there is room for additional 1,200 sq ft of expansion if required.

5. Two on-street short-stay spaces. These are provided primarily for package express or luggage pick-up/drop-off.

6. Space for service vehicles, spare buses, and layovers.

7. House track, available for equipment set-off and/or special events, with potential access from the GUS function rooms and lawn.

8. Historic equipment display.

9. Surface parking lot with approximately 110 spaces. This lot will serve events at GUS and, later, parking for rail passengers. ADA parking will be at the north end, closest to GUS. The central access driveway between the two halves of the lot is provided to separate service vehicles from parking maneuvers.

10. Pedestrian improvements including sidewalks and crosswalks are assumed to be part of the design. As described above, the future cross-section of Carolina Avenue remains to be decided as part of the next stage of design. Short-stay parking and taxis will be accommodated by a combination of the GUS driveway and on-street spaces.

9.1.2 Key Design Features – Later Phase

Figure 9.1 (b) shows the recommended site layout, with the later phase of development complete on all parts of the site. Again, the landscaping shown is purely indicative and does not represent a full landscaping plan. Later phases of development, if required, could include:

11. A dedicated connection from Mulberry Street to Ash Street, for transit vehicles only. This was shown in the Downtown Master Plan, and is principally aimed at diverting bus traffic away from the residential part of Carolina Avenue.
12. Expansion of the bus transfer facility with an additional concourse and four additional bus bays.
13. Construction of a parking deck to provide additional parking capacity. This may be needed if Goldsboro succeeds in attracting heavy commuter rail ridership. The outline is shown conceptually and does not represent a specific deck layout.

9.2 Parking Requirements

The recommended site layout includes approximately 20-22 on-street parking spaces directly adjoining the site on Carolina Avenue and Mulberry Street. These spaces, along with the drop-off loop, are expected to fully meet the need for short-stay parking and drop-offs.

In addition, the recommended site layout includes a surface parking lot with approximately 100-110 spaces. This is primarily intended to serve people attending functions at GUS, and later to serve rail passengers' parking needs. It will also accommodate employee parking and non-passenger visitor parking.

Table 9.1 estimates the minimum and maximum amount of off-street parking that would be allowed under the City's Unified Development Ordinance (UDO). The 100-110 spaces planned exceeds the maximum in the UDO, but the UDO does not appear to recognize the particular needs of passenger rail stations. There is provision for the City to grant a variance from the maxima, and this procedure may be needed.

Bicycle parking is included in the functional requirements, but has been omitted from the site plans for clarity. Covered bicycle parking should be provided in convenient locations at both the historic station and the bus transfer point.

Figure 9.2 Key Design Features

Railroad geometry is approximate. Landscape treatment is shown illustratively and does not represent a full landscaping plan. Landscape design should be sensitive to historic sightlines.

Table 9.1 Parking Requirements in the Unified Development Ordinance

Function	Amount	Use per UDO Table 6-1	Minimum - Formula	Minimum - Result	Maximum - Formula	Maximum - Result	See Note
Bus transfer facility – initial layout	2,800 sq ft 12 loading ramps, Assume 5 employees	Bus terminals	1 space per 400 ft of gross floor area, plus 1 space per employee and 1 space per loading ramp	7 + 5 + 12 = 24 spaces	1 space per 200 sq ft of gross floor area, plus 1 space per employee	14+5+12= 19 spaces	1
Bus transfer facility – with expanded building and additional bus bays	4,000 sq ft 16 loading ramps, Assume 5 employees	Bus terminals	1 space per 400 ft of gross floor area, plus 1 space per employee and 1 space per loading ramp	10 + 5 + 16 = 31 spaces	1 space per 200 sq ft of gross floor area, plus 1 space per employee	20+5+16 = 36 spaces	1
Police	450 sq ft Assume max 3 officers on shift	Police station	1 space per officer on shift, plus 1 space per 300 sf of office	5 spaces	1 space per officer on shift, plus 1 space per 150 sf of office	6 spaces	
Upstairs offices	3,475 sq ft	Government offices	1 space per 300 sf	12 spaces	1 space per 150 sf	23 spaces	
Passenger rail service	Assume 3 employees	Rail terminals and facilities	1 space per employee, plus 2 visitor spaces, plus 1 space for each vehicle stored on site	3+2+0=5	2 spaces per employee, plus 2 visitor spaces, plus 1 space for each vehicle stored on site	6+2+0=8	2
Interim community use of GUS	5,230 sf Main Portion of Building 325 sf community uses in mail room Total 5,555 sq ft	Community centers – public	1 space per 250 sq ft GFA	22 spaces	1 space per 150 sq ft GFA	35 spaces	
Total (with rail service)				46 (53 with expanded bus facility)		56 (73 with expanded bus facility)	
Total (with interim community use of GUS)				63 (70 with expanded bus facility)		83 (100 with expanded bus facility)	

Note 1: For the initial bus transfer facility, the maximum exceeds the minimum, because the requirement for 1 space per loading ramp only appears in the minimum.

Note 2: The formulae for rail terminals and facilities do not appear to be intended for passenger stations, as there is no allowance for passengers' parking requirements.

10 Gateway Transit Operations and Maintenance Center

10.1 Background

Gateway Transit currently has no dedicated operations and maintenance center. Vehicles are stored at the existing transfer point, a converted fire station, which also acts as the operational base. All but the most routine maintenance is performed by a private garage under contract, and vehicles are fueled at a commercial fueling station.

Although these arrangements are enough to keep Gateway Transit operations going on a day-to-day basis, they are unsatisfactory and inefficient, and will become increasingly so as Gateway Transit increases the number and size of vehicles it operates. A dedicated operations and maintenance center is therefore one of Gateway Transit's highest investment priorities.

A potential site for the center had been identified as a result of the rail planning work undertaken for GUS. The proposed track connections at the north end of GUS would require purchase of properties between the CSX and NCRR main lines, north of Mulberry Street. The parts of these properties not required for the track itself could become the Gateway Transit operations and maintenance center. Its close proximity to the proposed transfer center at GUS would be an advantage.

As part of this study, the suitability of this location, known as the Georgia Avenue site, was reviewed. This process began with establishing the site and building-space requirements for the center. The suitability of the Georgia Avenue site was then evaluated. For size and other reasons, the site was found to be unsatisfactory. Attention therefore turned to two other possible sites.

10.2 Site and Building Requirements

Table 10.1 estimates the maintenance facility site and building requirements, based on discussion with Gateway Transit staff.

Table 10.1 Space Requirements for the Operations and Maintenance Center

Amount	Function	Area (sq ft)	Notes
Building – Administration			
1	Lobby/Waiting Area	100	Waiting for 8 people
1	Reception Counter	100	
1	General Manager Office	200	
1	Operations Manager Office	150	
1	Conference/Training Room	500	Room for 20 people
1	Training Storage Room	100	
1	Copy/Production Room	150	
1	File Room	150	
1	Maintenance Manager Office	150	Located near garage
1	Reference Library	150	Located near garage
Building – Dispatch/Call Center			
1	Dispatch Counter	100	
1	Dispatch Office	150	
1	Dispatch Storage Room	100	
Building – Driver Areas			
1	Break Room	200	Room for 12 people
1	Vending/Kitchenette	100	
1	Locker Alcove	100	
1	Wellness Room	400	Weights, treadmill
1	Men's Restroom/Showers	200	2 stalls, 2 showers
1	Women's Restroom/Showers	200	2 stalls, 2 showers
Building – Shop Spaces			
3	Maintenance Bays/Lifts	1,200	1 bus or 2 vans
1	Common Work Area	100	Extra space
1	Electronics Shop	150	
1	Battery Shop	150	
1	Tire Shop	150	
1	Brake Shop	150	
1	Tool Crib	150	
1	Equipment Storage	150	
Building – Shop Spaces			
1	Parts Counter	100	
1	Shipping & Receiving	100	
1	Bench Stock	100	
1	Parts Storage	200	
1	Lube/Compressor Room	400	
Building – Other			
1	Custodial Room	100	
1	Telecommunications Room	50	
1	Mechanical Room	50	
1	Electrical Room	50	
1	Emergency Generator	50	
Site – Fuel			
1	Gasoline and Diesel Fueling Position	1,100	

Amount	Function	Area (sq ft)	Notes
Site – Wash			
1	Automatic Bus Washer	1,600	
1	Water Reclamation	400	
1	Vacuum Equipment Room	200	
Site – Van Parking			
28	Van Parking Spaces	270	
Site – Bus Parking			
12	Urban Bus Parking Spaces	480	
Site – Personal Vehicle Parking			
5	Employee Parking Spaces	200	
30	Visitor Parking Spaces	200	

10.3 Evaluation of Georgia Avenue Site

Existing Conditions: Figure 10.1 shows the existing Georgia Avenue site. It is bounded by Georgia Avenue, Ash Street, the NCRR track, and Mulberry Street. Georgia Avenue itself is within the CSX right-of-way, but the other two streets are on city right-of-way. To the south, opposite Mulberry Street, is a residential neighborhood. To the north and west, opposite Ash Street and the NCRR line, are commercial properties.

Railroad Proposals: Figure 10.2 shows how one of the proposed track connections would cut through the site. The track would likely be on a low fill through the site. This would leave the remainder of the site in two parts: a southern part facing Mulberry Street, and a northern part facing Georgia Avenue. Both parts would be approximately 1 acre to 1.2 acres in size, depending on the final design of the rail right-of-way. Georgia Avenue would be closed to through traffic on this block, but parts of the street could be retained for access. In addition, Mulberry Street would be closed at the grade crossing between Georgia Avenue and Carolina Street, and also at the grade crossing west of Alabama Avenue.

Site Design Factors The center would likely only use the northern part of the site. This is because:

- The center is more compatible with the commercial land uses around the northern part than the residential uses around the southern part.
- The northern part provides better vehicle access to main roads and the proposed transfer center, without needing to drive through the residential neighborhood.

There is little practical value in using the southern part for any of the center's functions, because of the need to cross the new track. The southern part is more appropriately used as a green buffer separating the residential area from the track and the center, and for storm water management.

Size and Layout: Figure 10.3 and Figure 10.4 show two conceptual layouts for the site. Each of these aims to meet the building and vehicle-storage space requirements while also providing an efficient layout. However, the limited size and unusual shape of the site mean that compromises would be necessary. In particular:

- To accommodate the required number of vehicles, extensive backing into parking spaces and/or parking more than one vehicle deep would be required.

- There is no room on-site for employee and visitor parking, which would need to be accommodated nearby (on Georgia Avenue, on the unused part of the CSX right-of-way, or on an adjoining property).

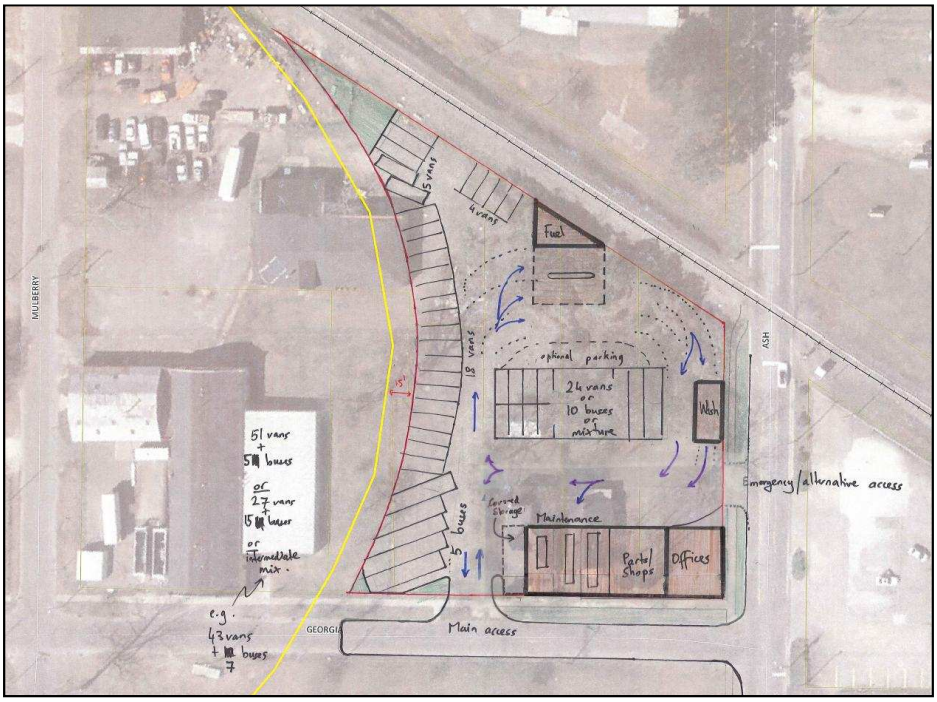
Conclusion: For these reasons, the Steering Committee agreed that the Georgia Avenue site was unsuitable for the center.

Figure 10.1 Georgia Avenue Site – Existing

Figure 10.2 Georgia Avenue Site – Railroad Proposals

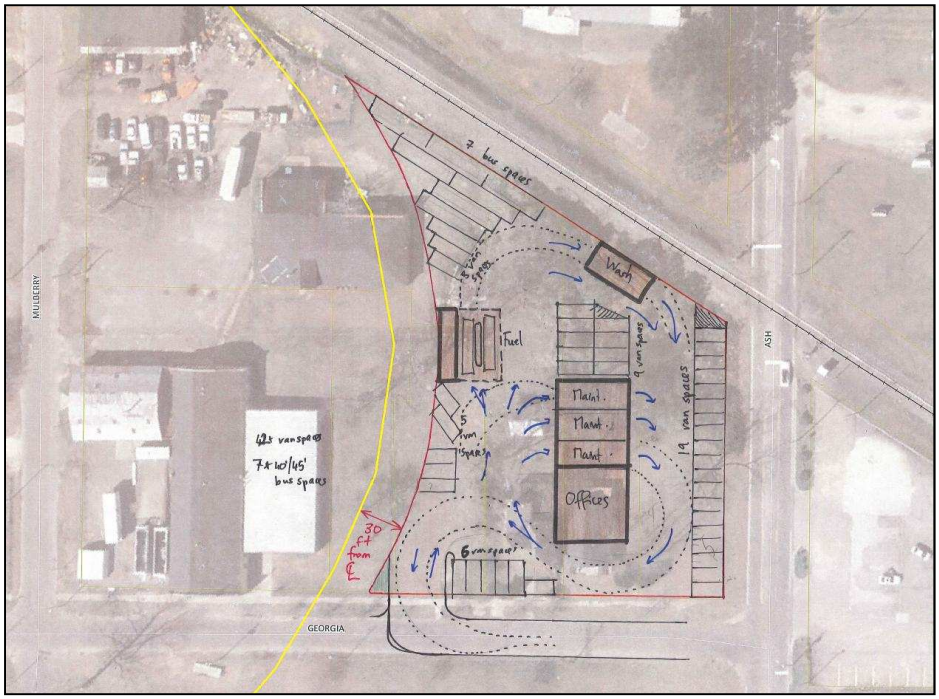
Source: NCDOT Rail Division.

Figure 10.3 Georgia Avenue Site – Layout A



Note: employee and visitor parking is not shown, but is assumed to be provided on railroad right-of-way alongside Georgia Avenue (bottom edge of sketch).

Figure 10.4: Georgia Avenue Site – Layout B



Note: employee and visitor parking is not shown, but is assumed to be provided on railroad right-of-way alongside Georgia Avenue (bottom edge of sketch).

10.4 Potential Alternative Sites

The Steering Committee identified two more potential sites for the center. These were:

- A site on the south side of Vine Street, between Center Street and John Street (known as the Vine/John site)
- A site on the south side of Grantham Street, between James Street and the NCRR right-of-way. This site (known as the W. P. Rose site) includes the former W. P. Rose Supply Company and a former cement plant.

10.4.1 Vine/John Site

Existing Conditions: Figure 10.5 shows the Vine/John site. It includes approximately the half of the block bounded by Center Street, Vine Street, John Street, and Oak Street. The southern part of the block is active commercial property. The proposed site, which is the northern part of the block, is currently vacant, but may have been residential in the past. It consists of seven privately-owned parcels.

Site Design Factors: The site and the adjoining parcels on the block are zoned GB (general business), for which the required building setbacks are 20ft (front), 15ft (side) and 25ft (rear). There are also yard/landscaping setbacks: 5ft from adjoining parcels and 8ft from the street. The existing surface is mostly pervious (grassy with extensive trees). No major utility constraints are apparent at this stage. The site is nearly flat, draining to the south on John Street. The adjoining land uses are commercial to the south, railroad to the west, vacant to the north, and mixed commercial/residential to the east. The current Greyhound station is opposite the site on John Street.

Size and Layout: Figure 10.6 shows the conceptual site layout. The size is large enough to broadly meet the space requirements while maintaining the required setbacks (although a variance from the vehicular shading requirement would likely be needed), and the shape allows for an efficient layout and workflow. Access would be from Center Street and John Street. Employee and visitor parking can be accommodated on-site.

Figure 10.5 Vine/John Site - Existing

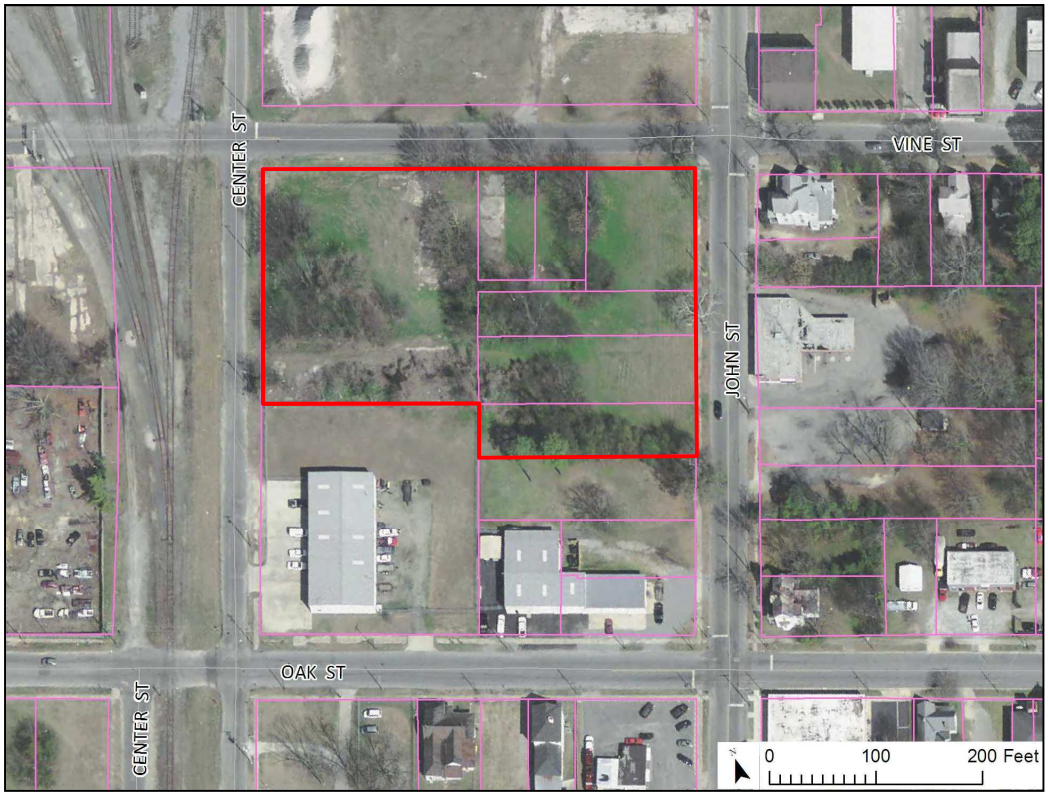
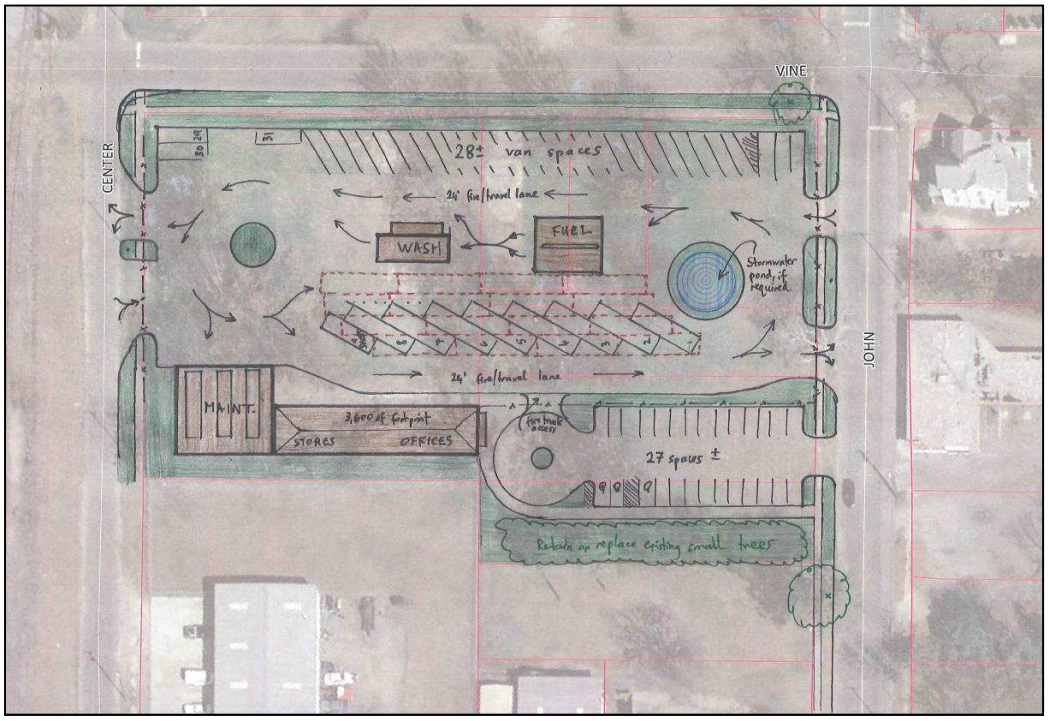


Figure 10.6 Vine/John Site Layout



10.4.2 W. P. Rose Site

Existing Conditions: Figure 10.7 shows the W. P. Rose site. It includes approximately the two-thirds of the block bounded by Grantham Street, James Street, Holly Street, and the unnamed street within the NCRR right-of-way. The site consists of the northern part of this and includes the former W. P. Rose Supply Company and a former cement plant. Key feature include:

- An existing 1970s office building (Figure 10.8) and adjoining warehouse that appear to be in sound condition.
- A number of other buildings that appear to be of little value.
- The cement loading facilities, including a conveyor, control cabin, and the remnants of storage bins.

The site includes a house on James Street that is believed to be occupied by a former site employee. The adjoining parcels include a church on the south-west corner of the block, and vacant railroad-owned land on the south-east corner of the block.

Site Design Factors: The site is zoned I-2 (general industrial) The adjoining vacant railroad-owned parcel is also zoned I-2, and the adjoining church property is zoned O&I-1 (office and industrial), for which the required building setbacks are 30ft (front), 15ft (side) and 20ft (rear). There are also yard/landscaping setbacks: 20ft from the adjoining O&I-1 parcel, 5ft from the adjoining I-2 parcel, and 8ft from the streets. Apart from the buildings, the existing surface is partly concrete or asphalt, and partly a weedy gravel. No major utility constraints are apparent at this stage. The site is nearly flat, draining to the north-east toward Grantham Street. Artificial drainage has been installed on the site. In very wet weather, Grantham Street floods alongside the north-east corner of the site.

Re-use of Existing Buildings: A key factor on this site is the presence of the existing office and warehouse buildings. These appear to be suitable for conversion to Gateway Transit offices and maintenance bays, respectively. This potentially represents a major saving of both cost and time. However, re-use of these buildings imposes constraints on the site layout as discussed below. A key decision is therefore whether to re-use the buildings or to rebuild from scratch.

Size and Layout – New-Build Option: Figure 10.9 shows a conceptual layout (known as Scheme 4) with new-build. The bus parking/fueling/washing area is placed on the northern part of the site, away from the church and the existing house. The layout and workflow are very similar to what was shown for the Vine/John site, and are similarly efficient. The target for bus/van parking space is met. Vehicular access is from James Street and from the un-named street alongside the railroad. On the southern part of the site, the existing house is assumed to be maintained. A limited visitor/ADA parking area can be accommodated alongside the office building, but employee parking will need to be accommodated elsewhere.

Size and Layout – Re-Use Option: Figure 10.10 shows an alternative scheme (known as Scheme 5) that adapts the existing office and warehouse buildings for office and maintenance use respectively. The existing parking area in front of the office building, at the Grantham Street / James Street corner, is retained for employee and visitor parking, although additional employee parking might need to be found elsewhere (possibly on-street). Bus access would be from James Street and from Grantham Street, with an emergency entrance on the un-named street within the railroad right-of-way. The parking/fuel/wash areas and driveways are fitted around the existing buildings, with the result that the workflow is less efficient than with the new-build option. In particular, two-deep parking will likely be required in order to accommodate the target number of vehicles while respecting the landscape buffer requirements. However, in early years, with fewer vehicles in the fleet, this will be less of a problem.

For ease of reference, Figure 10.11 shows some early design sketches (before taking account of landscape buffer requirements) that illustrate alternative layouts.

Size and Layout – Any Option: The usability of the site would be greatly improved if (a) the existing house were not required to remain, and/or (b) the adjoining railroad-owned parcel could be purchased. The latter, in particular, would benefit the new-build scheme by allowing employee parking on-site, and would likely benefit the re-use scheme by allowing a more efficient site layout.

In all cases, the tower of the existing cement loading area could be adapted as a historic/arts landmark feature – possibly to meet the 'enhancement' requirement if federal funds are used.

Figure 10.7 W. P. Rose Site - Existing

Figure 10.8 W. P. Rose Site – View South-West from Grantham St at James St

Figure 10.9 W. P. Rose Site Layout – New-Build (Scheme 4)

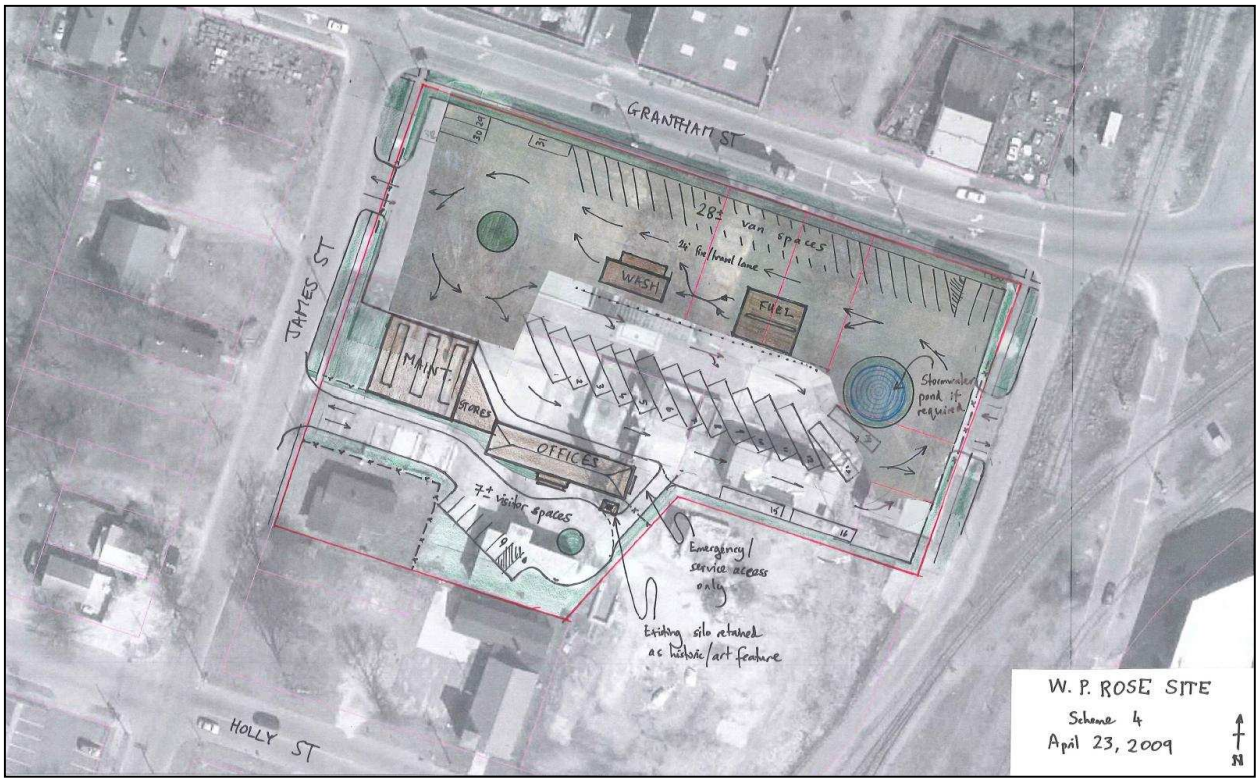


Figure 10.10 W. P. Rose Site Layout – Adapt Existing Buildings (Scheme 5)

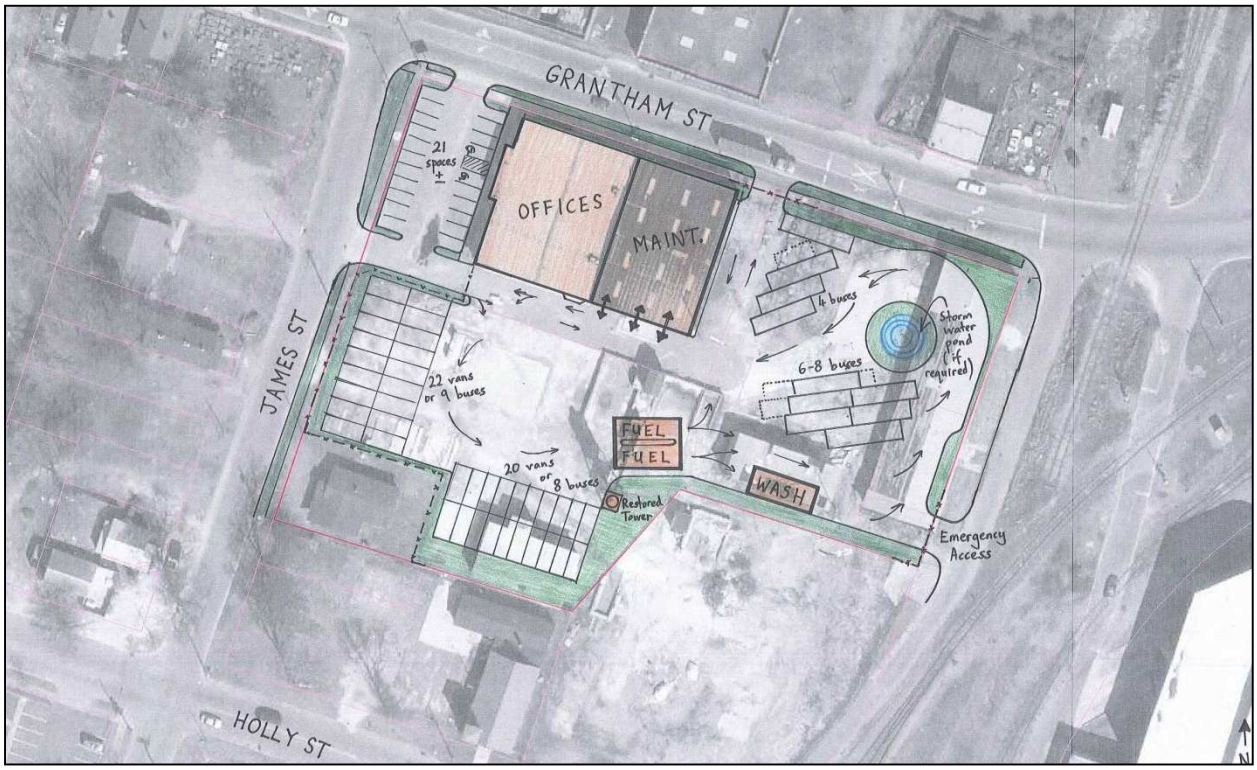


Figure 10.11 W. P. Rose Site Layout – Alternative Design Sketch 1

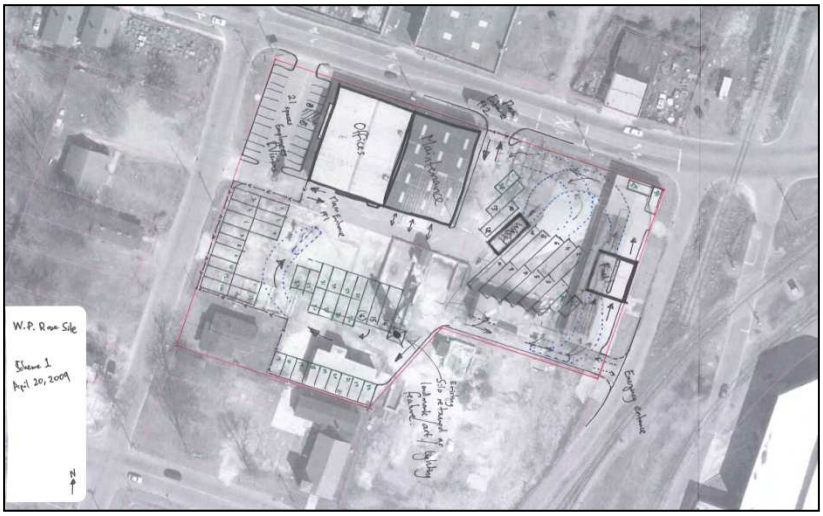
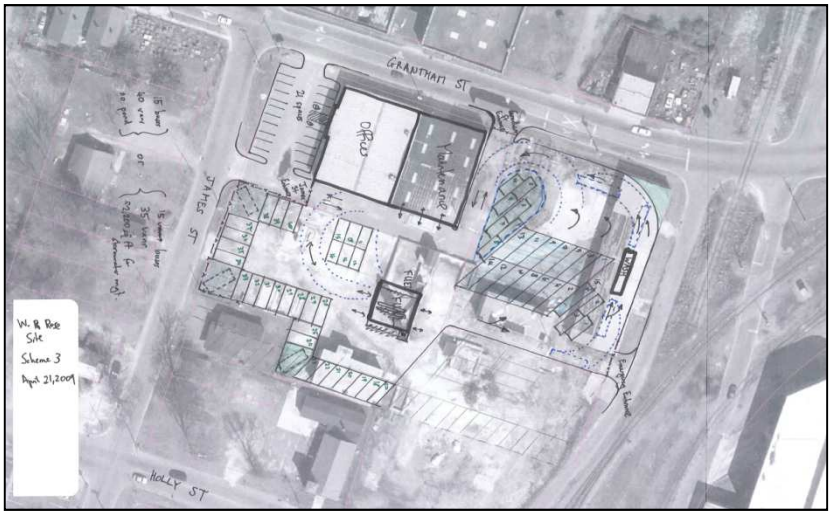


Figure 10.12 W. P. Rose Site Layout – Alternative Design Sketch 2

Figure 10.13 W. P. Rose Site Layout – Alternative Design Sketch 3



10.4.3 Recommended Site

Both the Vine/John site and the W.P. Rose site are suitable locations for the center. They are broadly equal in terms of layout and location (the Vine/John site is slightly better as it is closer to the future transfer point). However, the W.P. Rose site has two major advantages: the landowners are interested in a sale, and the existing buildings appear to be very suitable for conversion to Gateway Transit's use. These two factors together mean that Gateway Transit would likely be able to move into the W.P. Rose site more quickly than the Vine/John site. This is important as Gateway Transit requires a maintenance base urgently. The disadvantage is that re-use of the existing buildings makes it more challenging to provide an efficient site layout that accommodates the target number of vehicles, compared to the new-build option. However, this is an acceptable trade-off. For the foreseeable future, Gateway Transit will have fewer vehicles than the long-term planning target, and it may be possible to acquire additional adjoining land in the future.

The Steering Committee therefore agreed that the preferred option was to adapt the existing buildings on the W.P. Rose site. Gateway Transit is now engaged in discussions with the landowners and with NCDOT to make progress with this site.

Further evaluation will be required on environmental issues and on how to accommodate additional employee parking.