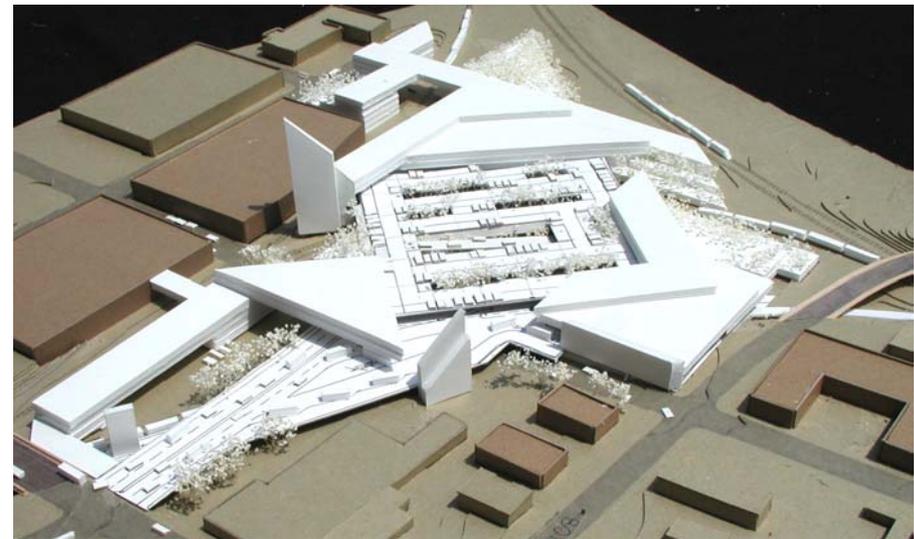


# *Downtown Raleigh Intermodal Facility Phase II Conceptual Study*

Prepared for: The City of Raleigh - The Triangle Transit Authority -  
North Carolina Department of Transportation



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## **FOREWARD**

*It had been the goal of this study to recommend a preferred concept design for an Intermodal Facility in downtown Raleigh, and a strategy for implementing this concept. For a number of reasons, that goal has not been fully realized. However, the study has provided valuable information which, when taken together with the results of several other efforts now underway, will enable the community to work towards a viable Intermodal Facility in the future.*

*The Raleigh Intermodal Facility Study is the second phase of a process that began in 1995. The first study phase in 1996 concluded that there was sufficient travel demand to warrant such a facility in downtown Raleigh when and if a downtown station on the proposed regional rail transit system was in operation. At that time the precise location for that facility was not known. Also, the location of a station for the future intercity rail passenger service was not known. However, a location in the general area of the railroad "wye" was selected as the preferred site.*

*The purpose of this second phase study was to develop a design concept for an intermodal facility that would accommodate the needs of a variety of transportation systems, including the intercity rail passenger system and the regional rail transit system. This report contains information describing the physical space needs of these two modes, as well as the space needs for freight, intercity bus service, local transit systems, airport and other special shuttle systems, taxis and the like. The study identifies the needs to co-locate certain facilities and the pos-*

*sibilities for sharing facilities. Parking needs, as well as space for concessions and other support facilities, have been identified.*

*As the study progressed, NCDOT was able to identify a single preferred site for the future platforms for intercity rail passenger service. TTA was likewise able to identify two likely locations for their future downtown platform. The latter stages of the study accepted the three platform locations and developed two scenarios illustrating how the two rail systems could be served under either combination of NCDOT and TTA platform locations. These scenarios illustrate how parking, concessions, access (pedestrian, bicycle, local transit, auto and rail), freight storage and handling, office and support space could all be accommodated. The study also developed a set of criteria that were used to evaluate the two scenarios.*

*At the conclusion of this study, agreement was not reached on which of the two scenarios were preferable to the three participating parties. The City of Raleigh, TTA and NCDOT decided to finalize the Phase II study, recognizing that the information would be useful for future plan development when consensus on a location is reached. The City of Raleigh has endorsed a "wye" location for the TTA facility and has accepted the NCDOT recommendation for an intercity rail platform west of the "wye". The TTA Board has adopted the "wye" location as the "locally preferred alternative" and has agreed to pursue the City Council's recommendation to examine a more easterly location for the platform and elimination of the grade crossing of Boylan Ave. The NCDOT has expressed its preference for the Morgan Street/Hargett Street location of the regional rail platform.*

*The City has also entered into several other planning efforts that may have an impact on the final decisions to be made with regard to the development of an intermodal facility downtown. A Downtown West Gateway Small Area Plan initiative has begun involving a number of property owners and other interested parties examining the future development on the southern and eastern boundaries of the area identified for the intermodal facility. The city has also begun several planning efforts looking at the future of Fayetteville Street and the needs for a convention facility that may affect decisions related to a future intermodal facility. The NCDOT is continuing planning for the high-speed rail system and other intercity services that will be critical to the success of such a facility. The TTA is continuing to refine its plan for the "wye" station. Each of these efforts, and those of the nearby neighboring communities, should benefit from the information and analyses contained in the Downtown Raleigh Intermodal Facility Phase II Conceptual Study report. Each, in turn, will affect future steps in planning for an intermodal facility in downtown.*

*Each participant in this study continues to believe that such a facility is feasible for the area. The participants have further agreed to continue to work together towards a design and strategy that will enable this critical facility to move forward in a timely manner.*

**George B. Chapman, FAICP  
Chair,  
Intermodal Facility Executive Committee**

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## BACKGROUND

In 1995 the City of Raleigh undertook a study of the need for an intermodal transportation center that would provide terminal or station facilities for the major transit transportation modes serving the region. By combining the modes into a central facility the city would aid those passengers transferring between modes and provide the efficiency of a single facility to serve a variety of transportation systems.

The completed study and its subsequent adoption by the City of Raleigh and incorporation into the comprehensive plan provided acceptance and support of the study's conclusion that the intermodal facility was needed.

The study, furthermore, found that the facility should be located in the railroad "wye" area of the existing tracks on the west side of the downtown. The wye is located at the west end of Martin Street, south of Morgan Street, north of Cabarras Street and east of the Boylan Avenue Bridge. See Figure 1.

The Intermodal facility defined by the initial study included facilities serving intercity rail, intercity bus, regional rail and regional and local bus service. The initial study did not address the arrangement of the facilities or methods of accessing the terminals inside the triangle of freight tracks. Convenient pedestrian connections to downtown and other nearby areas were deemed critical.

In 1999 the City of Raleigh joined with the

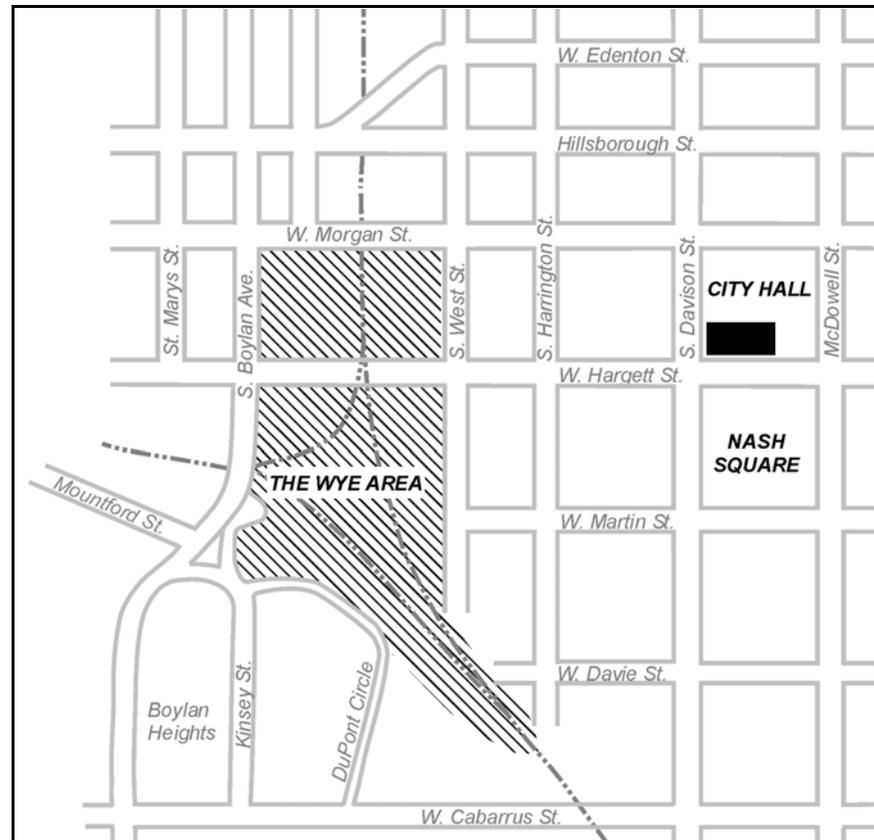


Figure 1. Location Map

Triangle Transit Authority and the North Carolina Department of Transportation to refine the conclusions from the 1995 study. Accordingly, the three agencies each contributed funds to support this planning refinement study.

Each entity also contributed two members to serve on an *Executive Committee* to guide

the study. Members of the Committee are:

### City of Raleigh

George Chapman, FAICP, Director of the Department of Planning and Chair of the Executive Committee

Jimmy Beckom, Transportation Director

### **Triangle Transit Authority**

Juanita Shearer-Swink, FASLA, Senior Transportation Planner

John Roberson, P.E., Chief Engineer

### **North Carolina Department of Transportation**

Allan Paul, Assistant Director, Transit Rail Division

Mike Kozak, Assistant Director, Public Transportation Division

A Steering Committee was appointed to provide a voice in the process for those with an interest in the wye area. Residents, property owners and organizations such as freight and passenger railroads, intercity bus service, business and community interest groups were represented on the Steering Committee.

The planning process approved by the Executive Committee called for a series of steps that moved sequentially through a decision-making regimen. Initially, consultants working with the committees interviewed the participating transportation operators and developed a quantified program of space needs. The required space defined both building space as well as outdoor facilities for pedestrians and the loading and maneuvering of transportation vehicles.

Two important features of the space program called for future intercity passenger train platforms to be located along a tangent

section of track to the west of the Boylan Avenue Bridge. The second feature called for two alternative locations for TTA's regional rail platform, one above the wye on an aerial structure and the second at ground level immediately south of Morgan Street.

Due to the extensive amount of planning and design effort expended by the NCDOT and TTA in locating their proposed platform facilities, the platform locations were accepted as a point of beginning in this process. All of the alternative plans prepared for the facility retained the intercity platforms as determined by NCDOT and the regional rail platform alternatives as determined in the Draft Environmental Impact Statement.

An initial set of four alternatives was developed and evaluated with the Executive Committee. A second set of four alternatives was then developed and tested against a set of criteria. The alternatives were reviewed by both committee's and resulted in a statement of goals and guidelines that better expressed the desires of the transportation mode operators and the public.

An assumption of particular significance has driven the preparation of this study. The layout for tracks determined by TTA for the railroad wye alternative carried the proposed transit tracks and station on an aerial structure over the undisturbed existing freight tracks. Another alternative defined by NCDOT showed the location of the TTA facilities to the north and west sides of the freight track area and relocation of the

freight tracks to accommodate the alternate TTA location. The relocated freight track design developed by NCDOT was accepted as the eventual pattern of freight tracks (Norfolk and Southern and CSX) for the railroad wye plan in this study. If the assumed relocation of the freight tracks does not occur in the future, the plan for the Intermodal Facility based on the wye location for the TTA station will have to be adjusted to recognize the track layout.

### **GOALS**

The City of Raleigh, the Triangle Transit Authority and the North Carolina Department of Transportation have a variety of interests in the Intermodal Facility.

Four goals for the Intermodal Facility reflect the overarching objectives of the three sponsoring agencies.

*Goal 1 – Assist the state, the Triangle Region and local jurisdictions in achieving a functional multimodal transportation system that reduces private vehicle trips and aids in the mitigation of congestion and air pollution.*

*Goal 2 – Support the City of Raleigh in achieving its downtown and neighborhood planning objectives.*

*Goal 3 – Support the Triangle Transit Authority in providing effective regional public transportation including fixed guideway transit, regional bus and ride-sharing.*

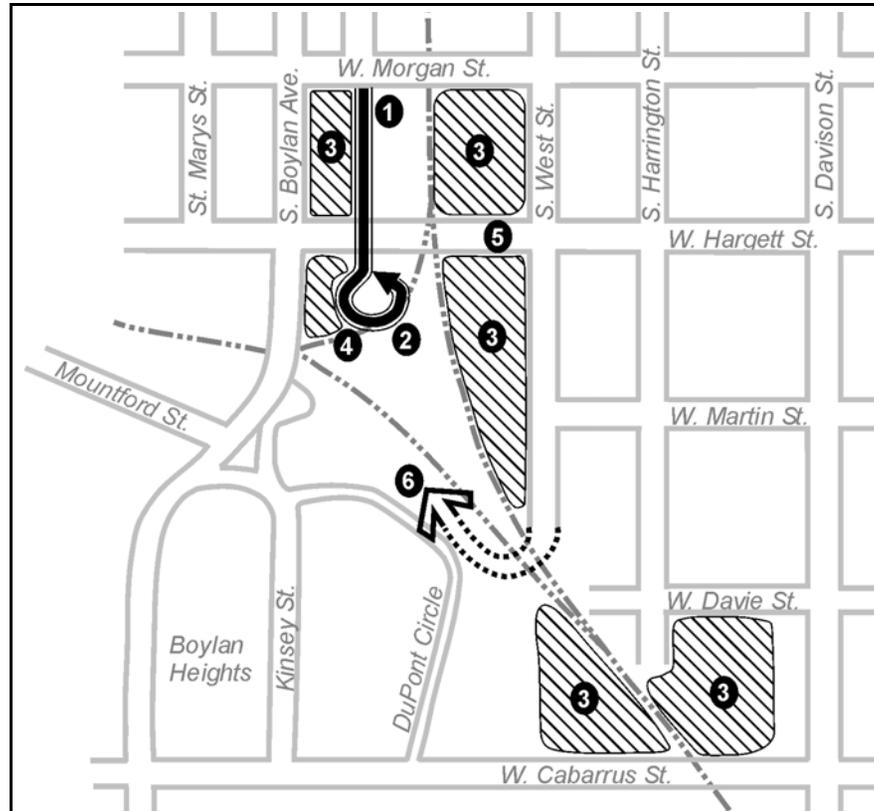
*Goal 4 - Assist the North Carolina Department of Transportation in developing effective intercity rail and bus service for the residents of the state and the Triangle Region.*

*Goal 5 -The location and function of the Intermodal Facility should offer opportunities for joint public/private partnerships and contribute to the investment of private funds in the surrounding areas.*

**GUIDELINES**

The following guidelines have been identified to help achieve the project’s objectives. A depiction of the guidelines are shown in Figure 2.

1. Provide access to the Intermodal Facility from Morgan Street at a point opposite the intersection of Glenwood Avenue.
2. Access to the site from Morgan Street will be on a bridge terminating in the Intermodal Facility. The bridge may be used for access to adjoining property as well to facilitate its redevelopment to a higher density use consistent with redevelopment objectives of the City.
3. The Intermodal Facility will use primarily railroad and industrial type land including the wye property. The location should preserve redevelopment options for private property on streets bordering the site:



**Figure 2. Illustrated Guidelines**

4. Morgan Street, Boylan Avenue, West Street, Martin Street and Cabarrus Street.
5. Hargett Street will remain open as a through public street between West Street and Boylan Avenue.
6. For the “Wye” Intermodal Facility option, a grade separated crossing of the single track on the east side of the wye will be sought.

## **SIGNS OF CHANGE IN THE AREA**

Located on the southwestern edge of the downtown, the Wye area has a collection of old and new structures that reflect the variety of roles played in the community. Buildings include warehouse and industrial structures along Hargett and West Streets that were placed adjacent to the freight tracks to ease the delivery and shipment of goods.

Commercial structures line Hillsborough and Glenwood and have housed numerous retail and personal service establishments over the decades. The residential component of the community is reflected in the stable Boylan Heights neighborhood to the southwest and the revitalized residential enclave to the west of Boylan at Hargett.

Many of the buildings in the area have survived over the years and other new structures have been built as the area continues to adapt to the changing social and economic forces in Raleigh.

The area immediately to the east and northeast of the Wye is undergoing redevelopment. Large, vacant warehouse buildings are being converted to retail and office development. There is also new residential development, although it is so far more limited than the commercial development.

The central business district (CBD) is three blocks east of the Wye and connected by Morgan, Hargett and Martin streets. Intensive office use, moderately intensive retail development, some new residential devel-

opment, and a park (Nash Square) characterize the portion of the CBD within ½ mile of the Wye. The new residential development includes an upper-income, high-rise apartment building and a 12-unit, 2 to 3 story residential development.

There are extensive restaurant and service uses concentrated in Glenwood South. This area includes Glenwood Avenue between Morgan Street on the south and Peace Street on the north. Much of the retail development in this area is higher-end, and consists of sit-down restaurants and bars, with a few antique shops. St. Mary's College is located ½ mile northwest of the Wye, and the Central Prison is located ½ mile west of the Wye.

The area to the south and southwest of the project site is primarily residential and includes the historic Boylan Heights neighborhood. It also has some scattered, low-intensity commercial development (including service/repair businesses).

The area to the east and southeast of the project site in the vicinity of Davie and Cabarrus includes vacant warehouses and limited, low-intensity commercial development. In 1995, there was no residential development in this area. Within the last few years' new residential development was added to the area when a 12-unit housing development was built approximately one block east of the Wye.

The Wye property not used for private railroad company purposes is occupied by the

Amtrak station, parking, vacant warehouses, an auto-related business, and a small amount of industrial use.

## **SUMMARY OF SPACE NEEDS**

During preparation of the space needs element of the work program, information was collected through interviews with the following organizations: Amtrak; the Public Transportation and Rail Divisions, North Carolina Department of Transportation; Community Cab & Wheelchair Service; Capital Area Transit; Carolina Trailways and Greyhound Lines; and the Triangle Transit Authority. In addition, six rental car companies and several shuttle services also provided information.

At this point in the process a preliminary understanding of functional and space needs has been developed. In later steps as construction of the facility nears, functional and space needs of participating transportation mode operators will become more refined.

The following summary highlights the preliminary needs.

**Building Space** (in square feet)

Intercity Rail (Amtrak and NCDOT):	
Terminal	11,190
Train Crew	1,770
Administration	1,900
Intercity Bus:	
Terminal	2,640
Shared Transit Service Center	250
Car Rental and Other Tenants	<u>250</u>
Total Building Space (sq. ft.)	18,000

**Transportation Facilities**

Parking Spaces:	
Intercity Rail	275
Intercity Bus	25
Regional Rail	<u>200*</u>
Total Parking Spaces	500
Bus Bays:	
Intercity Bus	6
Regional Bus	6
Local Bus (CAT)	<u>2-3</u>
Total Bus Bays	14-15
Taxi and Shuttle Space:	
Taxi	10-vehicle queue
Shuttles	additional spaces

**TWO ALTERNATIVE PLANS**

The planning process moved sequentially through two series of alternatives. During this process the planning and development objectives were clarified as the physical options presented by the unique characteristics of the wye-area site were better understood.

The goals and guidelines, noted above, served as the primary contributors to the distribution and connectivity of the Intermodal Facility's components. The two concep-

tual plans resulting from the process are the "Wye" and "Morgan/Hargett Street" alternatives with names associated with the location of the TTA regional rail platform in each option.

Both options focus the Intermodal facilities on structures that would span over the freight and intercity rail tracks that enter and exit the wye from the west, southwest, south and north directions. The primary public activity area of both alternatives occurs at an elevation near the level of Morgan Street and Boylan Avenue that adjoin the site to the north and west.

Primary access to both sites is from Morgan Street at the Glenwood Avenue intersection. The Wye Alternative would have secondary access from Hargett, West and Martin streets. Secondary access to the Morgan/Hargett Street Alternative plan occurs from Hargett Street. In both plans only pedestrians can access the site from Boylan Avenue.

Access from perimeter streets to private development for both alternatives includes vehicles and pedestrians to Martin Street, West Street, Morgan Street and pedestrian-only access from Boylan Avenue.

Both alternatives place the intercity rail station in the southwest corner of the site adjacent to the Boylan Avenue Bridge but facing east into the intermodal complex.

The location and function of the TTA proposed regional rail platform is the primary

variable that defines the different concepts for the two alternatives. In the Wye Alternative the TTA station is located on an elevated guideway that connects to Boylan Avenue to the west and descends to grade to go under the Morgan Street Bridge.

In the Morgan/Hargett Street Alternative the location of the proposed TTA regional platform is at grade to the west of and about at the same elevation as the railroad tracks. The south end of the platform is adjacent to Hargett Street and the north end is next to the Morgan Street Bridge abutment.

The alternative plans are described in greater detail in the following sections of this report.

In the planning process followed for this project, two final conceptual plans were developed. A three dimensional model was built for the two plans to show the basic structure of the transportation components as well as some of the joint privately financed development that could be attracted to the facility in the future.

The privately financed development in the models represent a long range vision for the area. The amount of floor space shown cannot be developed given today's market demands. The model images represent an exploration of urban form that demonstrate how structural complexes can enhance the Intermodal Facility's setting.

Photographs of the model are used in this report to explain the transportation functions of the site as well as the potential staging of construction.

\*Regional rail parking spaces are subject to change as the project is implemented.

## THE WYE ALTERNATIVE

The Intermodal Facility in the Wye Alternative is composed of a four level structure. Plans for two of the four levels are shown in Figures 3 and 4. Figure 5 shows the model for the Wye Alternative including potential development along West Street.

**TTA Facilities** - The TTA rail passenger platform follows a northeast alignment on elevated tracks across the intermodal site. At the northeast end of the TTA platform would be a pedestrian connection to stairs and elevators that allows circulation to the ground facilities (pedestrian access to Martin Street, parking, TTA feeder buses, intercity buses and kiss and ride facilities).

The primary TTA support facilities are located in the southeast part of the complex on property owned by Dillon Supply Company. Support facilities include parking, kiss and ride parking for pickup and drop-off service, and bus bays for TTA feeder buses from the east side of the region. Pedestrian access from Martin Street allows a direct walk into the Nash Square portion of the downtown.

Using the official Triangle Regional Model, TTA has estimated that about 200 parking spaces will be needed at this regional rail station. An at-grade lot occupying the footprint of the Triangle Garage, shown on Figure 3, would provide about 200 spaces. Depending on its design, the Triangle Garage would provide about 100 spaces per level or a total of 350 to 400 spaces if four stories were built.

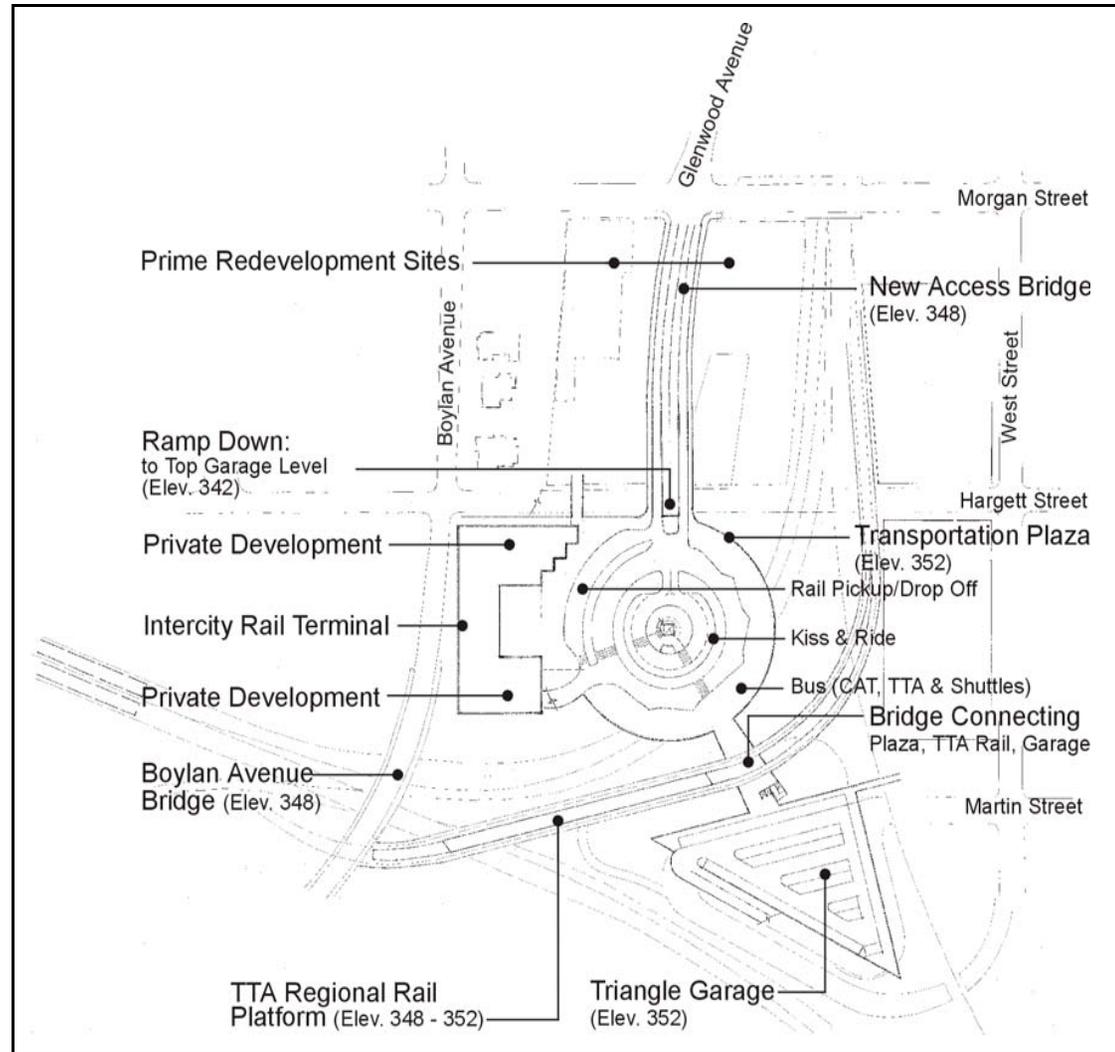


Figure 3. Plaza Level, Intermodal Facility, Wye Alternative

A determination would have to be made by TTA during the initial stage of construction of the regional rail project regarding the extent of parking facilities to be built by TTA. If and when the garage were constructed, the source of financing for the excess capacity beyond TTA's needs would have to be determined.

In the future the demand for parking adjacent to West Street could increase as redevelopment attracts additional patrons and residents to the area.

Figure 6 depicts the essential TTA facilities located south of the elevated platform, plus the Triangle Garage and links to future facilities to be built as part of the Intermodal Facility.

**Intercity Bus** - Adjacent to the ground level TTA bus loading area is the proposed intercity bus station (Figure 7). The two bus systems could both utilize the Martin Street at-grade crossing or the grade separated crossing under the easternmost railroad track at the southeast corner of the Intermodal Facility. The intercity bus station would share the vehicular or bus access into and out of the site but have an independent bus handling area under the TTA rail guideway. Parking and kiss and ride facilities for the intercity bus station would be shared with TTA. Also, parking for the intercity package handling service would be provided as part of the joint parking area.

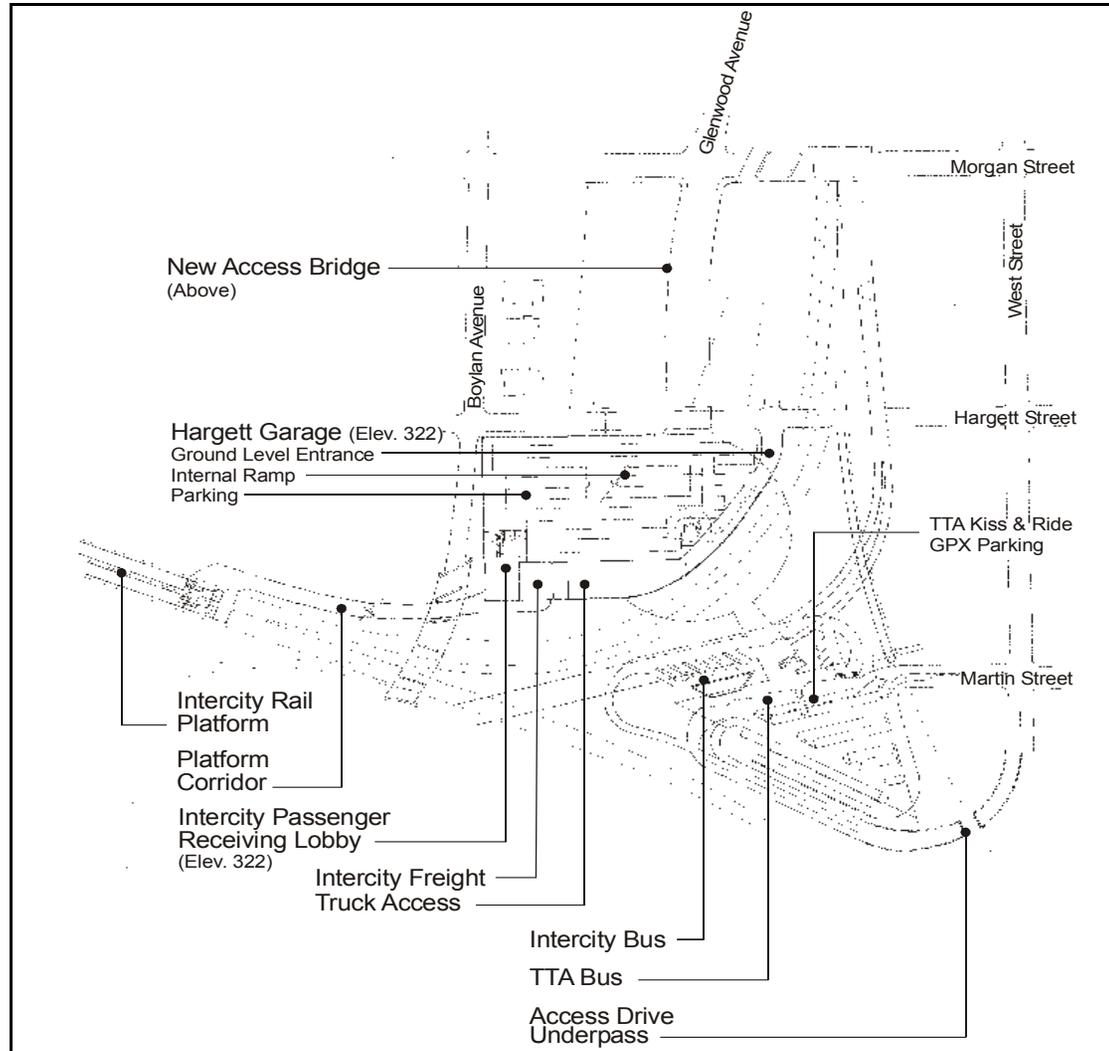


Figure 4. Ground Floor, Intermodal Facility, Wye Alternative

Both intercity bus and TTA would benefit from a direct extension of Martin Street into the site

with a pedestrian and vehicular grade crossing of the easternmost track. This access could be interrupted from time to time but could be bypassed with the proposed grade separated crossing of the same track to the south.

It is assumed that the underpass will not be constructed until necessary to ensure timely and safe access from West and Martin streets to the TTA and intercity bus facilities. For the foreseeable future the ground level access from Martin Street will be used by buses and private vehicles. When the volume of trains using the single easternmost track interferes with the grade level crossing, the alternative route will be opened with construction of the road underpass.

The Transportation Plaza - On the north side of the TTA rail platform would be a pedestrian connection onto an elevated transportation plaza. The plaza would serve as the “front door” of the intercity rail station as well as provide a setting for privately and publicly developed space. Private development could consist of establishments such as food stores, restaurants, day care facilities, car rental outlets and a health club. Public facilities could include a visitors center for out-of-town visitors and a transportation center for the sale of TTA and CAT passes

Intercity Rail - The intercity rail operations would be focused on its station in the southwest part of the Intermodal Facility and its tracks and platform to the west of the Boylan Bridge (Figure 8). The top level of the

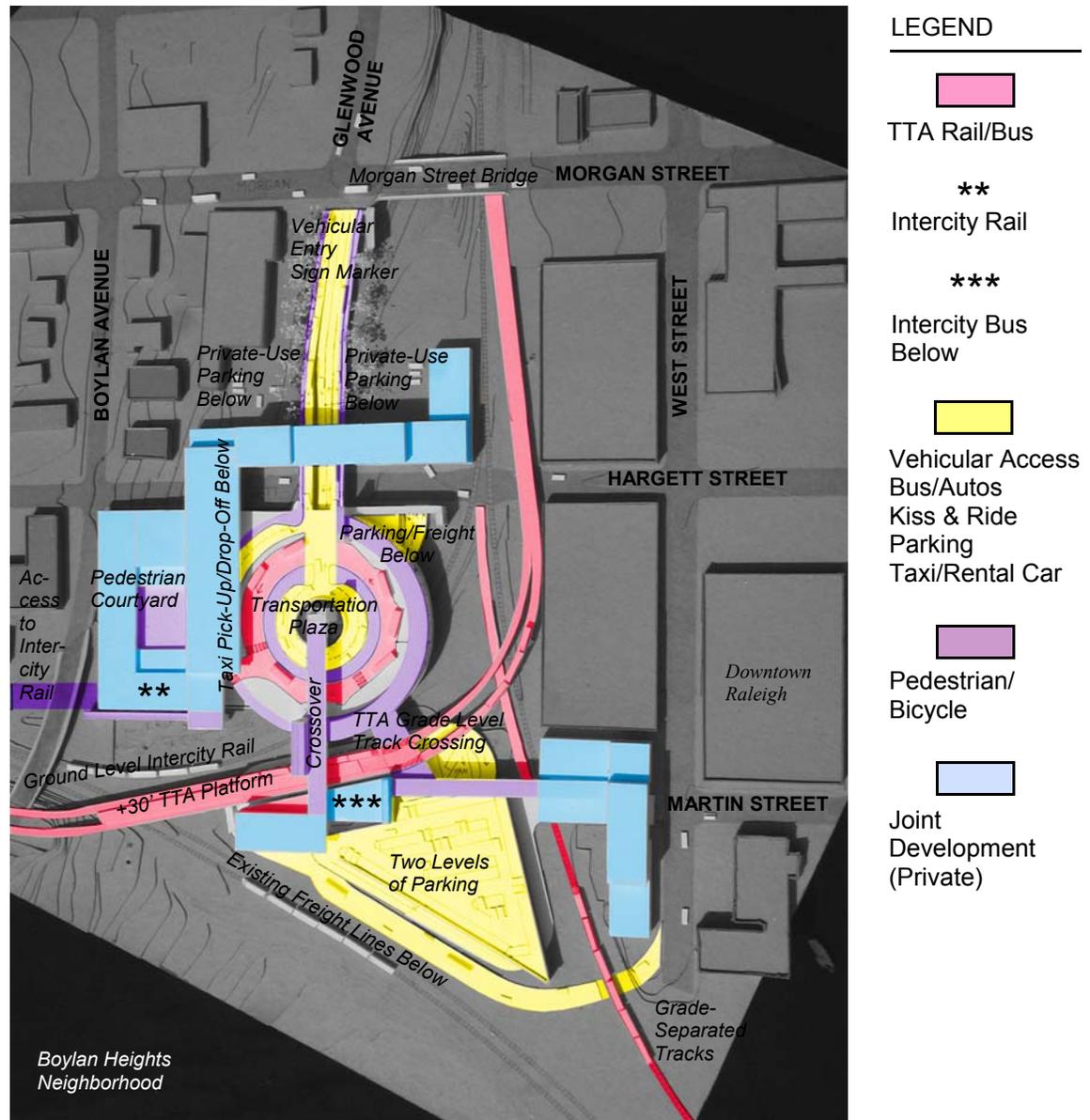


Figure 5. Model For Wye Alternative, Including Potential Development Along West Street

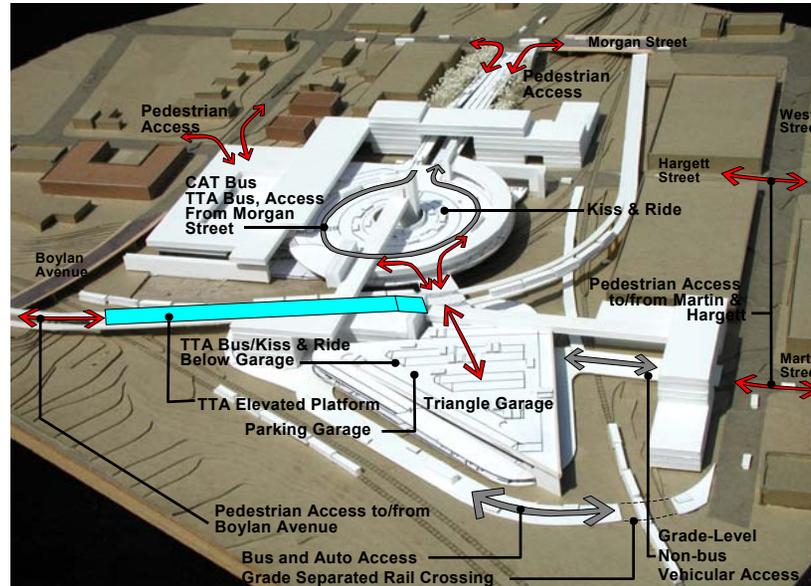
station, the front door, would have direct access to a curved pickup and drop-off area along the edge of the circular transportation plaza. Ticketing, waiting, passenger services and administrative offices would occupy this level of the complex.

Direct elevator, stair and, perhaps, escalator circulation would be provided to the ground level passenger receiving lobby. From the lobby, passengers may have the options of walking, taking a powered shuttle or a moving sidewalk to traverse the platform corridor to the lower level below the platforms. A second set of vertical circulation elements would lift the passengers to the center of the intercity rail platform.

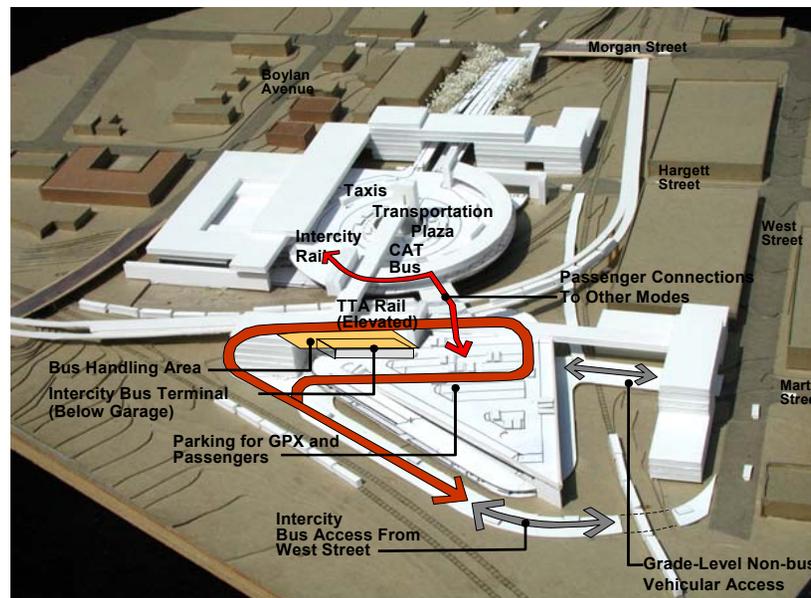
The platform corridor, approximately 460' in length, connecting the receiving lobby and the platforms, would be an enclosed, climate controlled structure that descends from ground level to a position below the active freight rail tracks. This permits the movement of passengers and baggage into a mid-point between the tracks and platforms. If additional platforms are added, the underground access lobby could be expanded to provide passenger access from below.

All baggage check-in (departing passengers) and pickup (arriving passengers) could be provided at the transportation plaza (top) level of the complex. Baggage would then be sorted and ferried to and from the trains using freight elevators and the platform corridor.

Freight pallets and packages transported on



**Figure 6.**  
TTA Operations and Pedestrian Access



**Figure 7.**  
Intercity Bus Operations

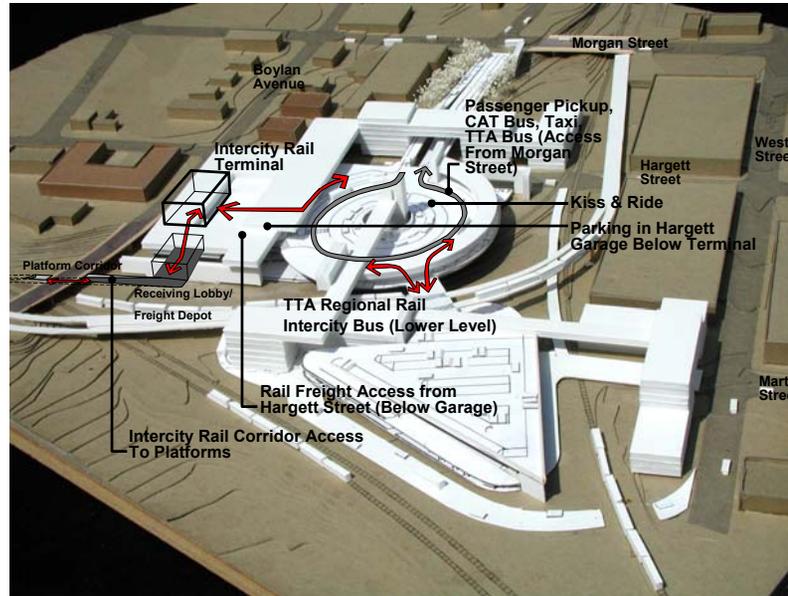
the intercity trains would be removed from the trains and moved to the lower lobby level below the platforms by freight elevator. Then electric powered shuttle vehicles would move the freight carts via the platform corridor to a freight depot adjacent to the passenger-receiving lobby. The ground level depot would be accessible by truck or auto from a drive serving the lowest level of the Hargett Garage.

**Support Transit Services** - The transportation plaza would serve as a bus staging area for CAT shuttles to the Moore Square transfer center as well as a downtown shuttle bus, taxis and shuttles for hotels, tour operations and the airport, if needed. The transportation plaza would also provide some short-term, curbside kiss and ride spaces.

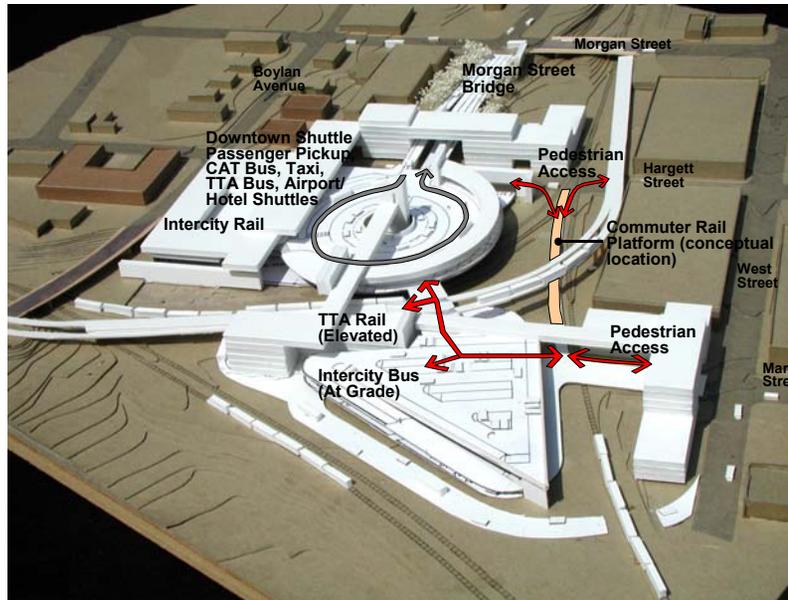
TTA may also want to stage some of its bus operations from the plaza due to its proximity to the regional rail form. The transportation plaza is shown in Figure 9.

**Garage Operations** – Two garages are included in the intermodal complex. The Garage operations are shown in Figure 10.

The Triangle Garage south of the TTA elevated tracks was described earlier in the TTA Facilities description. The Triangle Garage would have two points of access: from the extension of Martin Street and the new grade separated crossing under the east-side tracks. A ramp system on the southwest side of the garage would permit movement between the three floors. The top



**Figure 8.**  
Intercity Rail Operations



**Figure 9.**  
Support Transit Services

level of the garage would be at the same elevation as the TTA regional rail platform and would permit pedestrian movement directly to the platform.

The three level Hargett Garage forms the base of the transportation plaza and the intercity rail station located at the fourth level. Its parking spaces, about 700 to 750, would support intercity rail and joint and/or private development integrated into the intermodal structure as well as private-use buildings on adjacent properties. Three points of access to the Hargett Garage would be provided:

1. From the fourth level transportation plaza via a down ramp next to the intercity rail station;
2. From a depressed ramp in the Morgan Street access bridge to the third level and
3. From Hargett Street to the garage's lowest level.

Private Development – Four potential locations for private development have been identified for this alternative (Figure 11). The height, mass and architectural character of private development would have to be carefully integrated into the settings for the individual sites. For example, it is assumed that no development adjacent to Boylan Avenue, sites one and four, would be higher than three stories above Boylan Avenue.

Some “private development” parcels integrated into or adjacent to the Intermodal Facility may be occupied by existing struc-

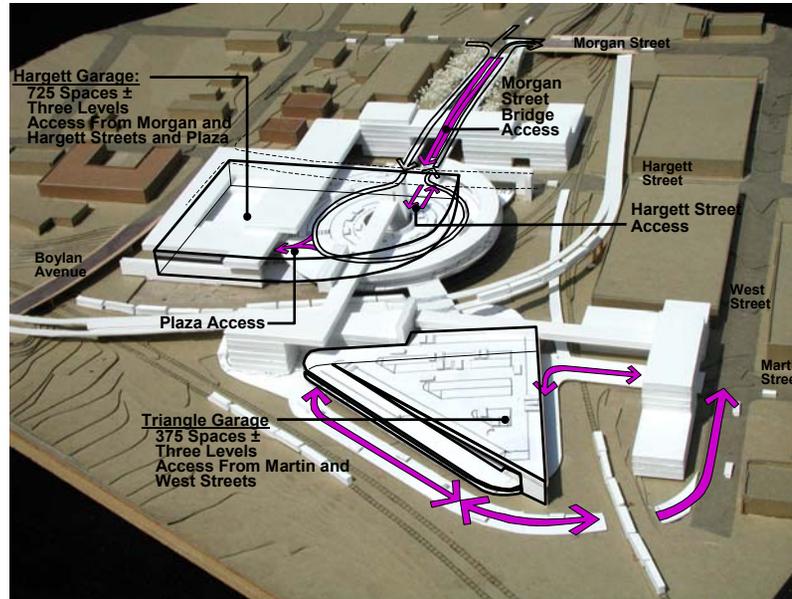


Figure 10.  
Garage Operations

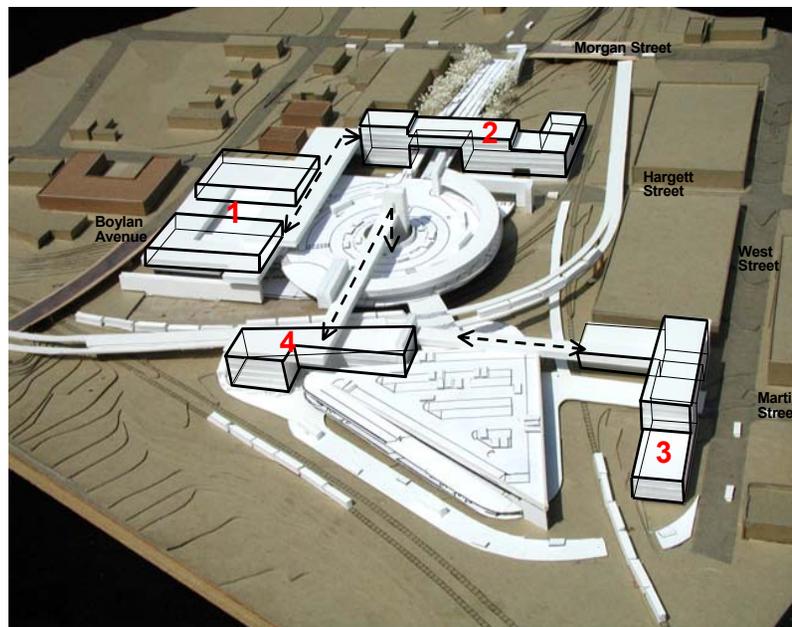


Figure 11.  
Private Development

tures. Decisions regarding the incorporation of such structures into the redevelopment plan or their demolition for new construction is a decision to be made by the private sector working with the land use control procedures implemented by the city of Raleigh.

Development site 1 is on the west side of the transportation plaza adjacent to the intercity rail station and is particularly attractive for development. This location has pedestrian access to both the transportation plaza as well as Boylan Avenue. Parking in the Hargett Garage, below, could provide direct access for occupants and customers.

Development site 2 is the area north of the transportation plaza. The tract north of Hargett and to the west of the access bridge from Morgan Street would benefit from direct access to the bridge at the second or third level of the structure. Parcels to the east of the access bridge may also benefit from improved access, however the parcels are divided by a fiber optic installation that could not be disturbed without considerable expense.

Property on both sides of the Morgan Street access bridge can be developed and linked at an upper level spanning the access bridge as a gateway structure. Access to these developments could benefit from pedestrian connections to the plaza and by secondary access from Hargett Street.

Development site 3 is located on the west side of West Street adjacent to the Triangle Garage. The portion of this area shown on

the study model would be at the south end of the complex. Additional redevelopment could occur on property along West Street to the north and east as well. With careful coordination, a pedestrian bridge could link the upper levels of the private complex with the top level of the Triangle Garage and/or the proposed TTA regional rail service platform.

Development site 4 would be located inside the wye on a site adjacent to the elevated TTA guideway and the at-grade intercity bus station. This site would be accessed from the new grade-separated street proposed for the east side of the wye. Direct pedestrian access to the Triangle garage and the TTA platform would also be possible.

## THE MORGAN/HARGETT STREET ALTERNATIVE

The Intermodal Facility in the Morgan/Hargett Street Alternative is composed of a five level structure. Plans for three of the five levels are shown as Figures 12 and 13. Figure 14 shows the model for the Morgan Street development, including potential development along West Street. While trackwork and platform design in this Morgan/Hargett Alternative are consistent with the Morgan/Hargett Station Alternative in the Phase I Regional Rail DEIS, the access, bus drop-off and park and ride facilities are different.

**TTA Facilities** - The TTA platform in this alternative would be located at ground level between Morgan and Hargett Streets. TTA trackwork to the north would continue under the existing Morgan Street Bridge. South of the platform, the TTA tracks would cross Hargett Street at ground level, continue southwards along the west side of the railroad wye and then turn towards the west, passing under the Boylan Avenue Bridge and then along the north side of the existing freight tracks and future intercity rail platform.

Pedestrian access to the south end of the TTA platform could occur from Hargett Street and from the north end via stairs and an elevator to the existing Morgan Street Bridge.

The TTA bus handling area would be part of

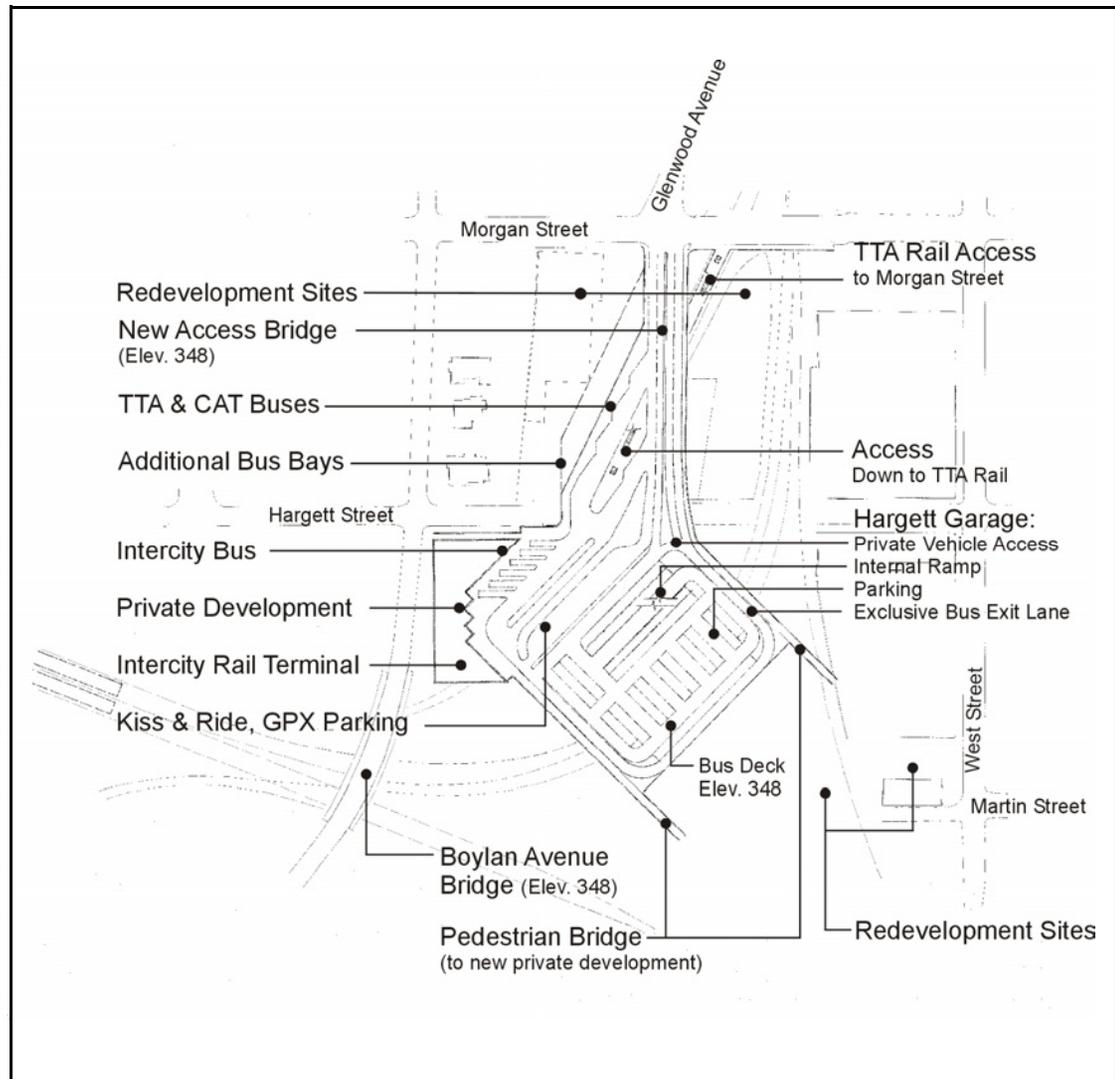


Figure 12. Plaza Level, Intermodal Facility, Morgan/Hargett Street Alternative

the newly proposed Morgan Street access bridge (Figures 15 and 16). Approximately six bus bays could be located adjacent to the entering lanes on the access bridge. Pedestrian access would also be provided from the bus deck by stairs and an elevator to the center of the TTA platform. A second tier of the bus bay structure could be added as needed for a net gain of three additional bus bays. The widening of the bus bay structure could be incorporated into a non-residential structure on this parcel.

Buses circulating into the TTA bays would enter from Morgan Street and stop at the sawtooth bays. Exiting buses would enter the fourth level of the Hargett Garage and follow a perimeter bus-only lane around the outer edge of the structure to the access bridge and then to the traffic signal at Morgan Street.

Parking for private vehicles for TTA customers would be provided in the Hargett Garage, probably in its ground-level section.

**Intercity Bus** – In the Morgan/Hargett Street Alternative, the intercity bus facilities are on the fourth level of the five level Hargett Garage Figure 17). Due to the routing of the TTA tracks along the west side of the Intermodal Facility, the ground level acreage along Hargett is divided into three usable, but small, parcels: the land between Boylan and the TTA tracks, between the TTA tracks and the intercity passenger and freight tracks and the area east of the intercity/freight tracks. Space and a high level of access for the intercity bus can be provided

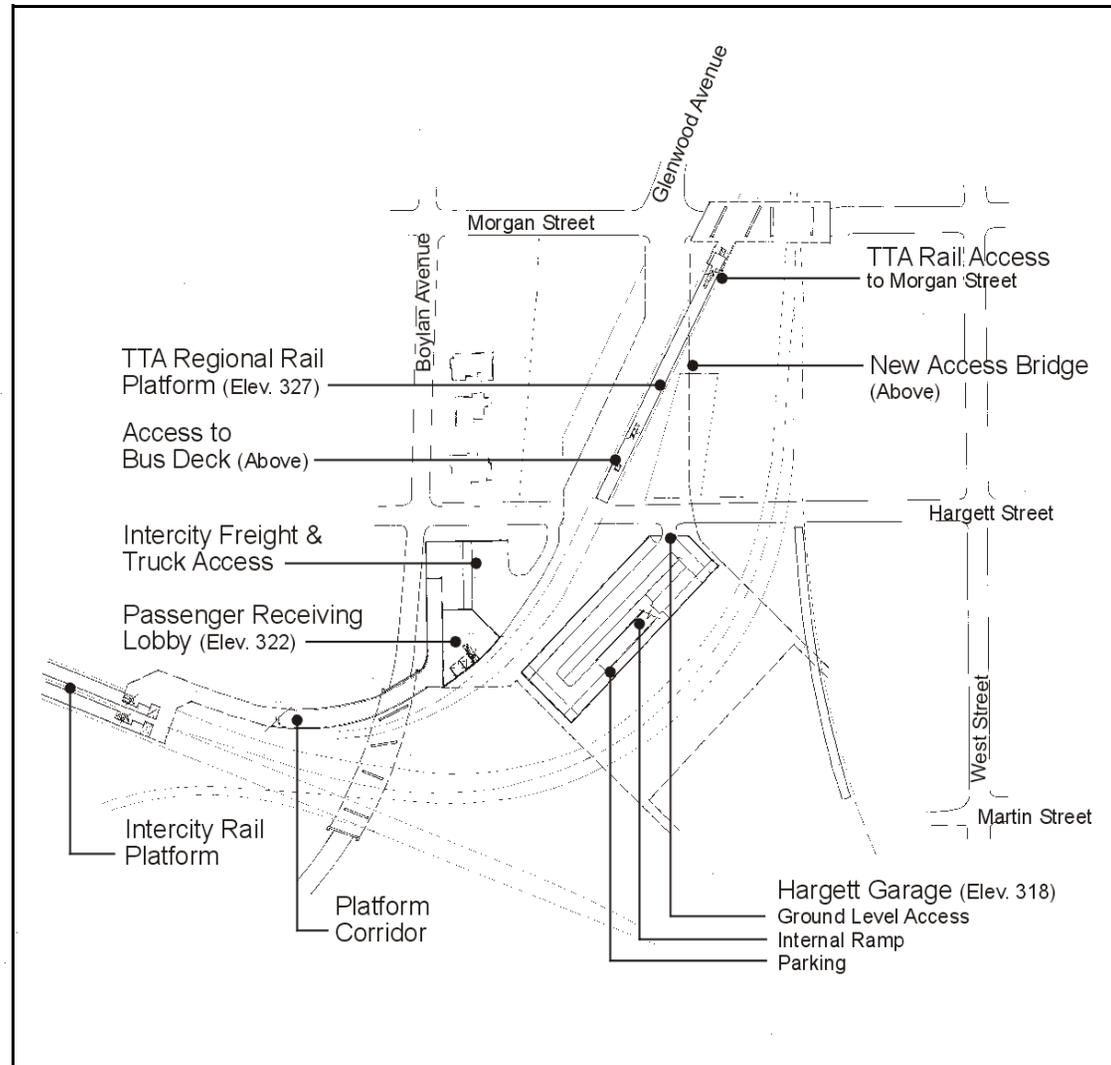


Figure 13. Ground Floor, Intermodal Facility, Morgan/Hargett Street Alternative

only at the fourth level of the garage.

The intercity bus station, ticketing, waiting and administrative support functions, would be adjacent to the garage deck at the fourth level. Buses would enter from Morgan Street on the access bridge and pull into the 45-degree angle stalls next to the station. Exiting buses would back out of the bay and follow the same route as the TTA buses by entering the perimeter bus-only lane to exit the site at Morgan Street.

**Intercity Rail** – Like the Wye Alternative, the intercity rail operations would be focused on its station in the southwest part of the site. In this alternative the intercity rail station would be near the intercity bus station on the fourth level of the Hargett Garage. A pickup and drop-off lane would be provided for private vehicles in the garage adjacent to the rail station. Passenger ticketing, waiting, support services and administrative functions would be accommodated at the fourth level.

Access to intercity rail platforms would be handled in a manner very similar to the routing and arrangement of facilities described in the Wye Alternative. Passengers would move to the ground level passenger-receiving lobby by elevators and stairs and, perhaps, escalators. At the ground level they could board a powered shuttle, moving sidewalk or walk via the platform corridor to the platform.

The platform corridor would be about 460' in length and would move passengers safely

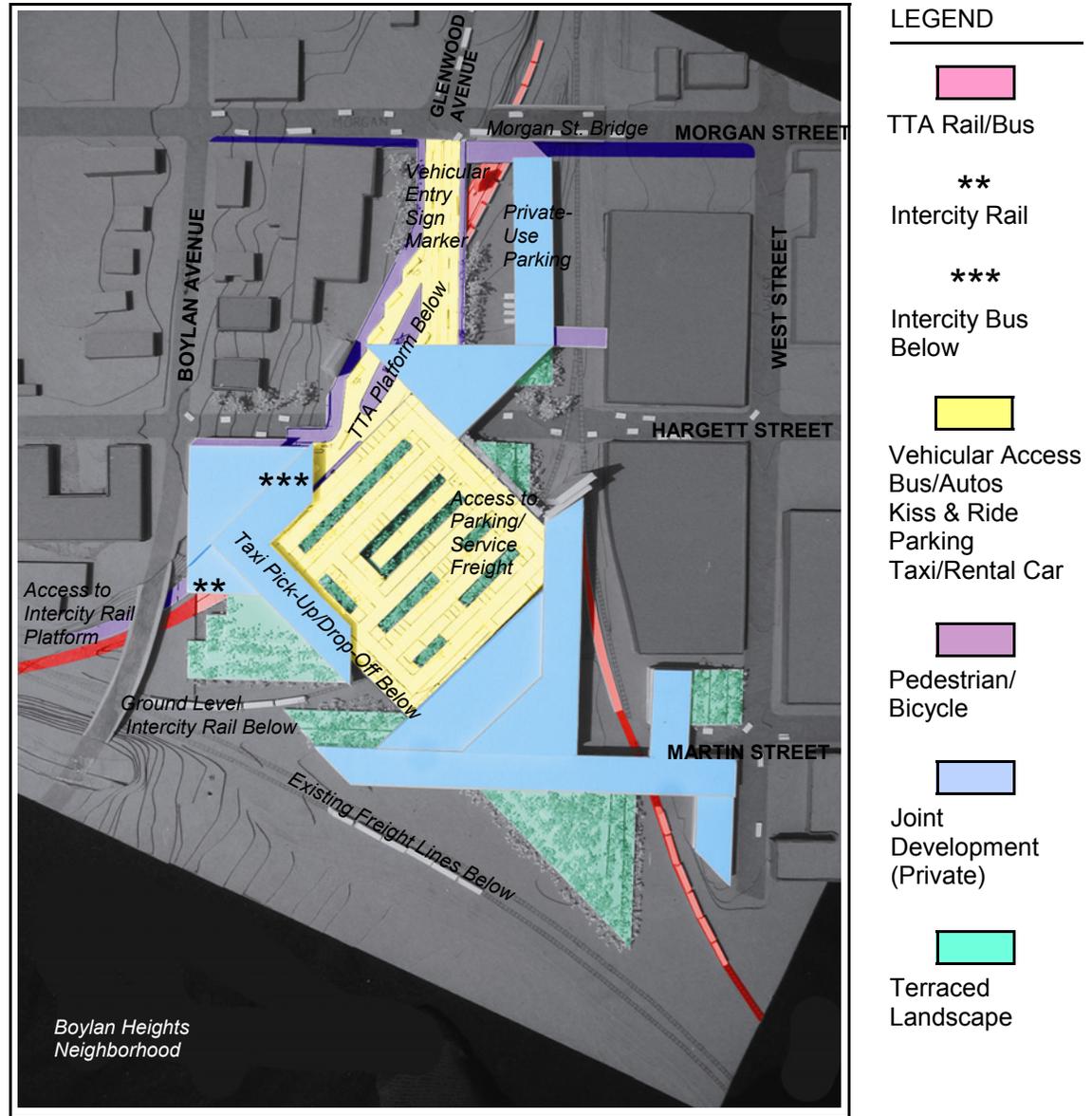


Figure 14. Model For Morgan/Hargett Street Alternative, Including Potential Development Along West Street

under the TTA and intercity rail tracks.

Passenger baggage and freight would similarly be accommodated like the Wye alternative with baggage check-in and pickup at the fourth level and freight handled at the ground level freight depot. The freight depot component would have truck and auto access from Hargett Street. Intercity rail operations are shown in Figure 18.

Support Transit Services – The space available for the support services, CAT buses, hotel and tourist shuttles and taxis, will be somewhat constrained in this option as compared to the Wye Alternative. If the additional bus bay lane is not constructed CAT and TTA buses will have to be carefully scheduled in their use of the facility. Dwell time, the idle period buses use to wait for the arrival of a TTA or intercity train, would likely be limited to accommodate the bus flow through the terminal.

If the additional bus bay is constructed, the scheduling will be less constrained but facilities will still lag behind the capacity of the two-level Wye Alternative (the ground level TTA and intercity bus area plus the spaces on the transportation plaza).

Taxis and kiss and ride spaces will be provided under cover at the fourth level of the garage, yet not in as great a supply as in the Wye Alternative. If additional spaces are provided, the number of private parking spaces in the garage would be reduced accordingly.

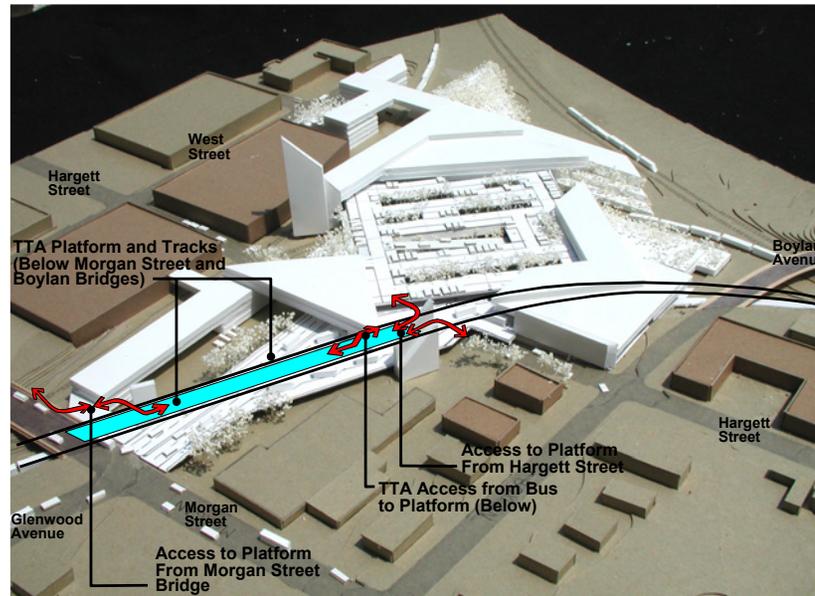


Figure 15. TTA Operations and Pedestrian Access

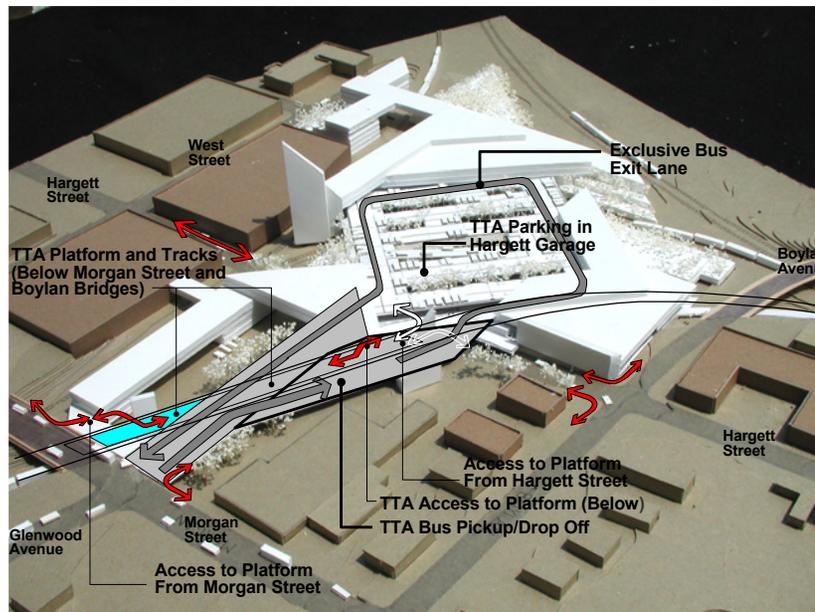


Figure 16. TTA Operations and Pedestrian Access (con't)

Support transit operations are shown in Figure 19.

**Garage Operations** – The Hargett Garage would be the sole parking place at the Intermodal Facility (Figure 20). About 900 spaces would be provided in the five garage levels. The lowest level would be below the current elevation of Hargett Street. The first, second and third levels would have relatively few spaces, about 130 each because they would be constructed between the TTA and relocated intercity/freight tracks. The fourth level would have about 170 spaces with about 360 on the fifth level.

Primary access to the garage would be from the access bridge that connects the facility to Morgan Street at its intersection with Glenwood Avenue. A secondary access drive would be from Hargett Street. There would be no vehicular access to Boylan Avenue.

**Private Development** – Four potential locations for private development have been identified (Figure 21). Like the Wye alternative, the height, mass and architectural character of private development would have to be carefully integrated into the settings for the individual sites.

Development site 1 would be on the west side of the complex between the intercity bus and rail stations and would provide pedestrian access to/from Boylan Avenue. This site could meet some of the retail shopping needs of passengers and the surrounding community.

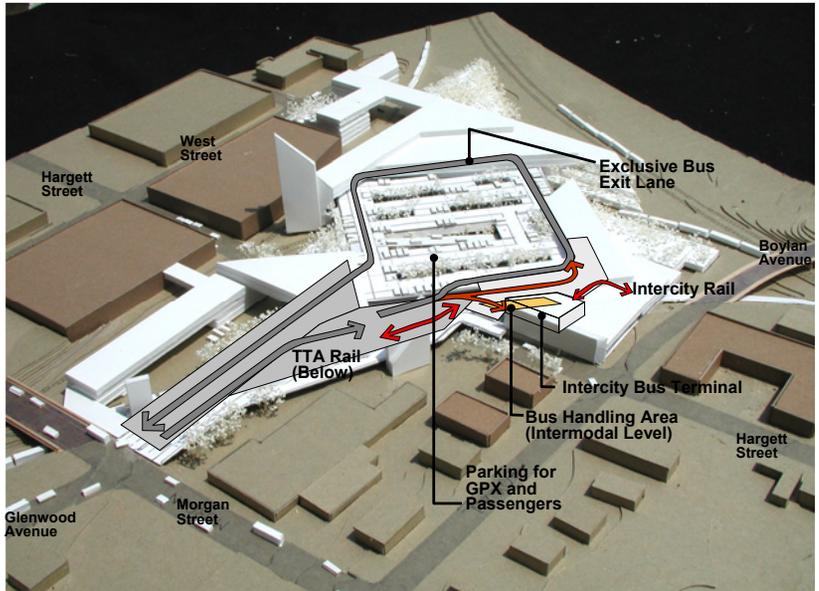


Figure 17. Intercity Bus Operations

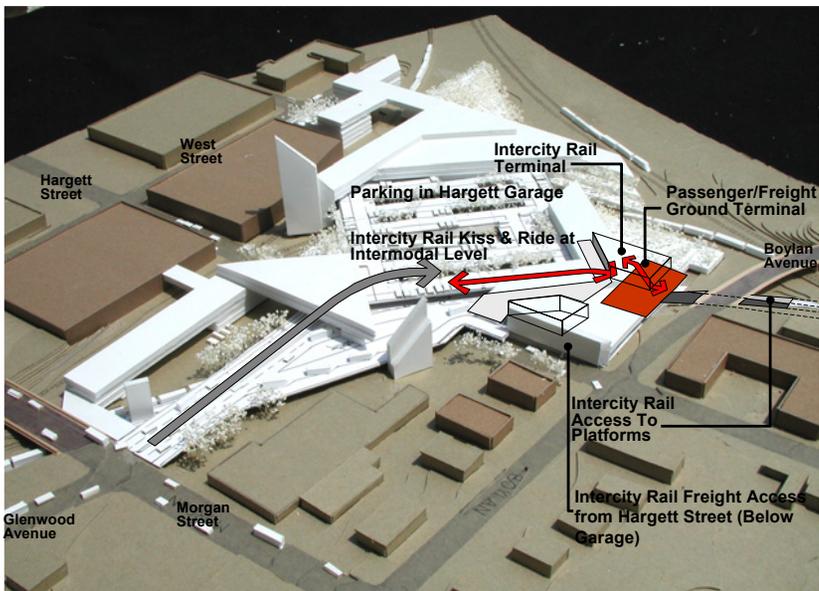
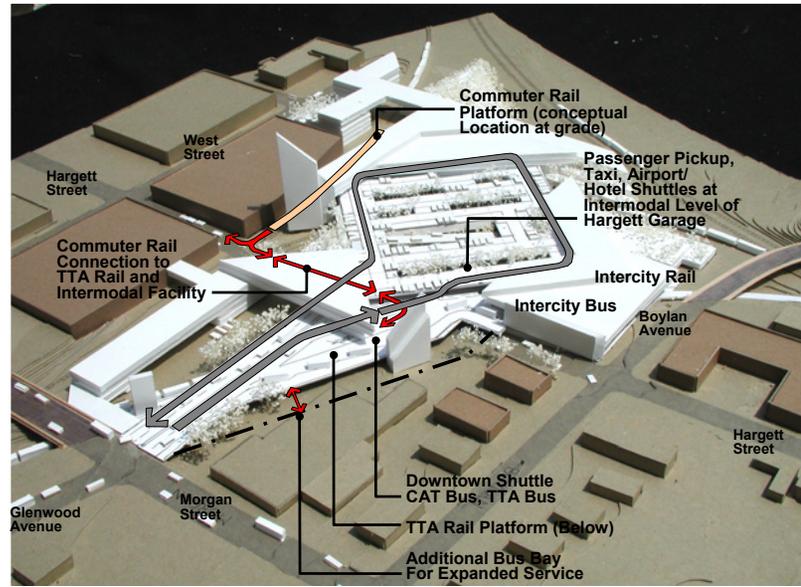


Figure 18. Intercity Rail Operations

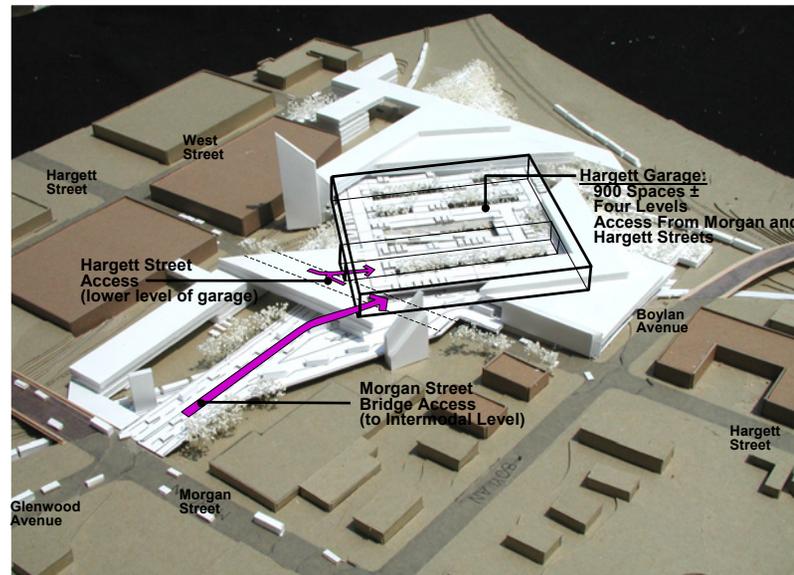
Development site 2 consists of parcels to the north of the Intermodal Facility. The fiber optic establishment located east of the access bridge from Morgan Street could not be disturbed without considerable expense. The conceptual model shows the private development spanning both the exiting half of the access bridge and Hargett Street.

Development site 3 is located on the south side of the complex occupying the existing wye property. Private developers or a government entity would have to resolve the ground level access to the private development inside the wye. A grade separated crossing of the single track may be feasible to permit unobstructed access to the property. Otherwise, access could be provided from Martin Street with its grade crossing of the single east-side track.

Development site 4 is located on both sides of Martin Street east of the potential commuter rail single track and west of West Street. This property could be combined with additional redevelopment tracts to the north and to the east side of West Street. Careful coordination of development on site 4 could lead to construction of an overhead pedestrian bridge spanning the single track and tying into site 3 and the Hargett Garage.



**Figure 19.**  
**Support**  
**Transit**  
**Services**



**Figure 20.**  
**Garage**  
**Operations**

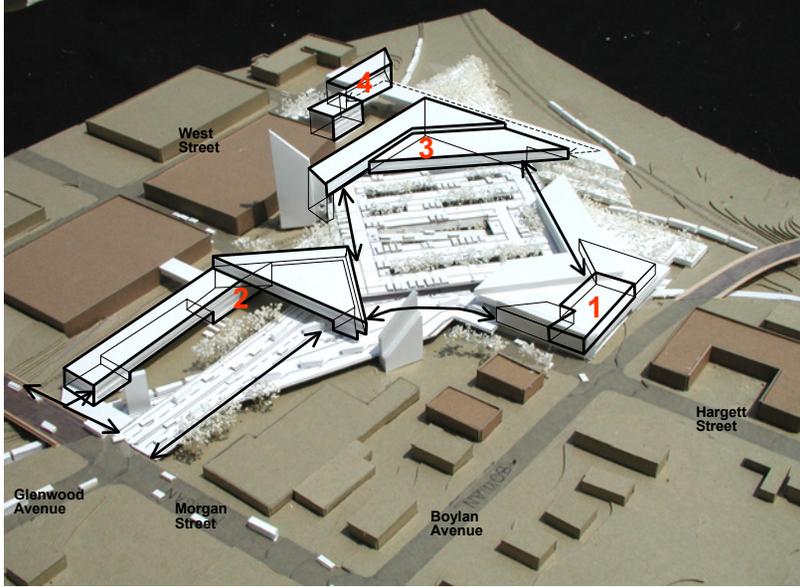


Figure 21. Private Development

## SEQUENCE OF CONSTRUCTION

Due to the arrangement of transportation facilities in the two alternative plans, the sequence of construction would vary. In both alternatives it was assumed the project would be divided into major elements which could be constructed separately as implementation funds became available. Several elements could be combined if the different agency funds became available at or near the same time.

### Wye Alternative

#### Step 1: Assemble Property and Build Base TTA Station and Access

Due to the advanced stage of planning by TTA, it was assumed their facilities would be constructed first. Step 1 includes tracks, station platform, vertical circulation, parking lot, regional bus handling facilities and the new underpass of the north-south track (Figure 22). The TTA base facilities would be located on the existing wye property acquired from its private owner.

A decision regarding the timing of construction of the grade-separated crossing (underpass) and the Triangle Garage would have to be made along with the designation of the funding entity. The underpass would benefit TTA and the intercity bus station initially by providing an unobstructed bus and private vehicle crossing (underpass) of the east-side track. TTA and the intercity bus operation could probably develop enough on-site parking in a surface lot to avoid early

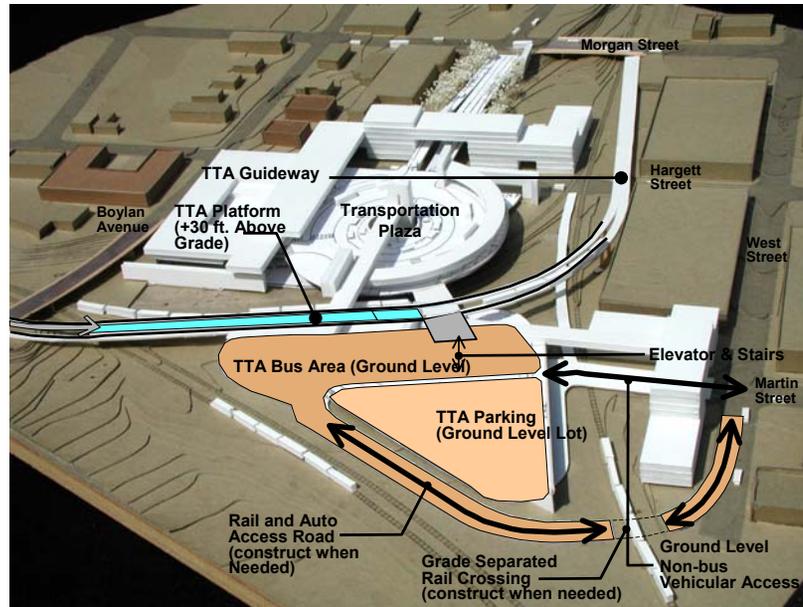


Figure 22.  
Step 1, Assemble  
Property and Build Base  
TTA Station and Access

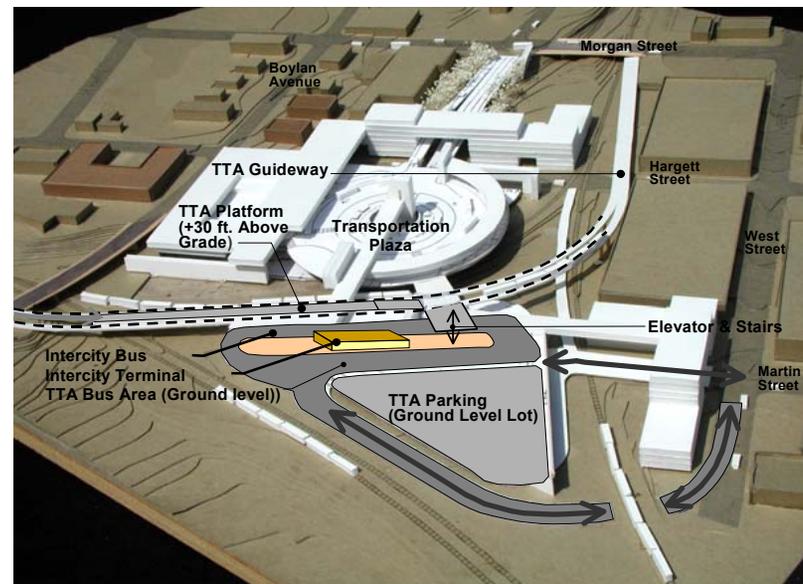


Figure 23.  
Step 2, Add Intercity Bus  
Facilities

construction of the garage. Eventually, if the garage were built, the underpass would also indirectly support redevelopment of private property along West and Martin streets, and perhaps, private development within the wye, as suggested by the conceptual model.

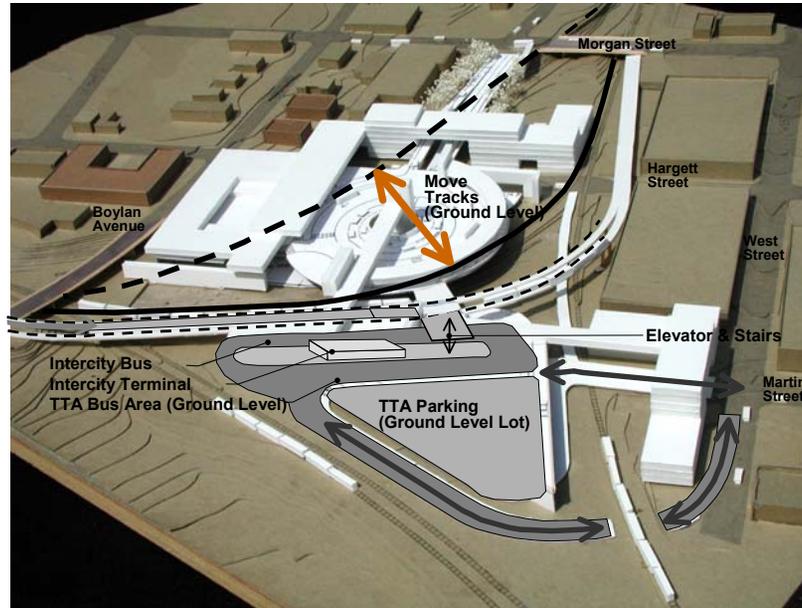
In this sequence of construction analysis, it was assumed the Triangle Garage would be delayed until after construction of the Hargett Garage.

**Step 2: Construction of Intercity Bus Facilities**

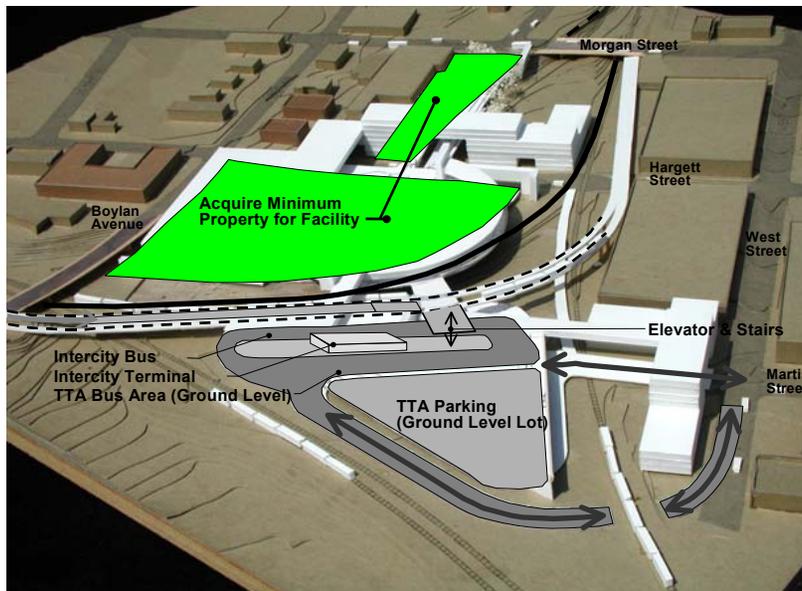
The intercity bus facility could be constructed in Step 1 or delayed to a later date. In fact, the introduction of intercity bus into the Intermodal Facility would not be necessarily dependent on or supportive of any other physical intermodal components. The intercity bus could be added at the time the funds for its construction become available. This analysis assumes the intercity bus station would be constructed with TTA's construction program (Figure 23).

**Step 3: Relocation of Norfolk Southern and CSXT Tracks**

Any subsequent progress on the Intermodal Facility for the Wye Alternative would be contingent on the relocation of the Norfolk Southern and CSXT tracks from their current west side location into a more compact arrangement of tracks (Figure 24). By relocating the two freight and one "high speed" track, land along the west limit of the facility would be made more usable for the intercity rail and Hargett Garage construction.



**Figure 24.**  
**Step 3, Relocate and Parallel North-Westbound Railroad Tracks**



**Figure 25.**  
**Step 4, Assemble and Clear Property for Intermodal Facility**

Step 4: Assemble and Clear Property for Intermodal Facility

Following the rail relocation effort, property acquisition for construction of the Hargett Garage and access bridge from Morgan Street could be completed (Figure 25). The garage and access bridge are integral components that would be constructed together. Along with the garage would be its upper deck where the transportation plaza and the pedestrian bridge to TTA would be located.

Step 5: Construction of Hargett Garage/Plaza, Morgan Bridge and Intercity Rail Terminal and

Step 6: Construction of Triangle Garage

The intercity rail station, passenger-receiving lobby and freight facilities would likely be constructed as an integral part of the garage structure (Figures 26 and 27). The platform corridor and intercity rail platform would require adjustment of the existing railroad tracks to permit construction of the under ground portion of the platform corridor and to provide a pocket amid the tracks for the platform. The intercity rail construction would require adjustments of the mainline tracks west of the Boylan Bridge.

Step 7: Construction of Future Commuter Rail Service to South Wake County

In addition to use of the transportation plaza for support transportation services (CAT, shuttles and taxis), a place would be retained for a future commuter rail platform along the east-side track (Step 7, Figure

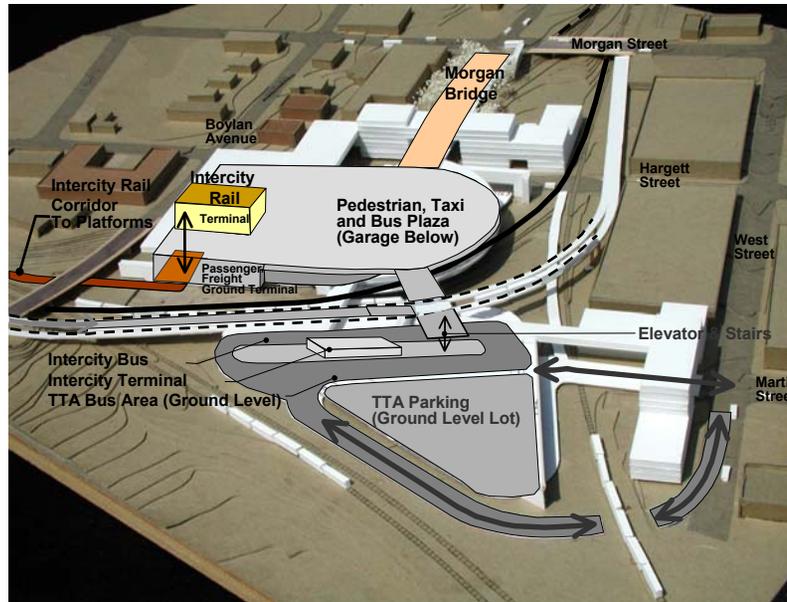


Figure 26.  
Step 5, Construct Hargett Garage/Plaza, Morgan Bridge and Intercity Rail Terminal

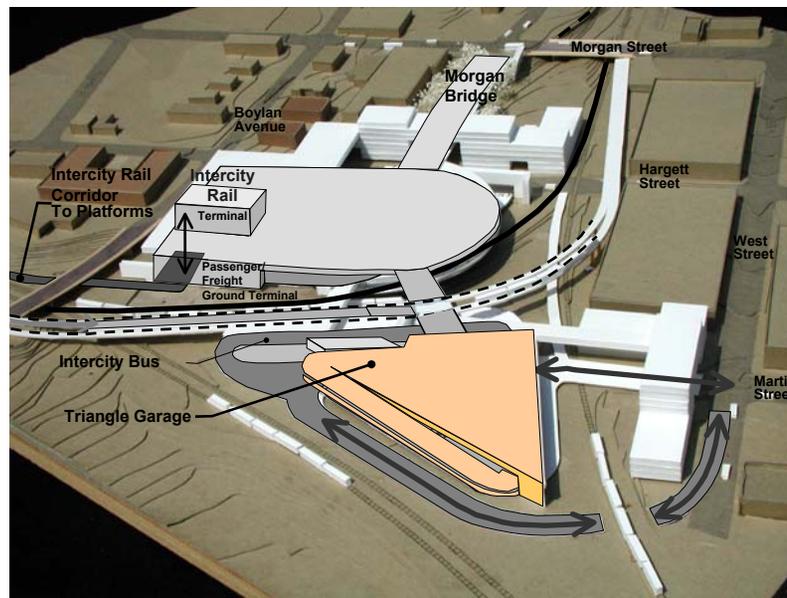
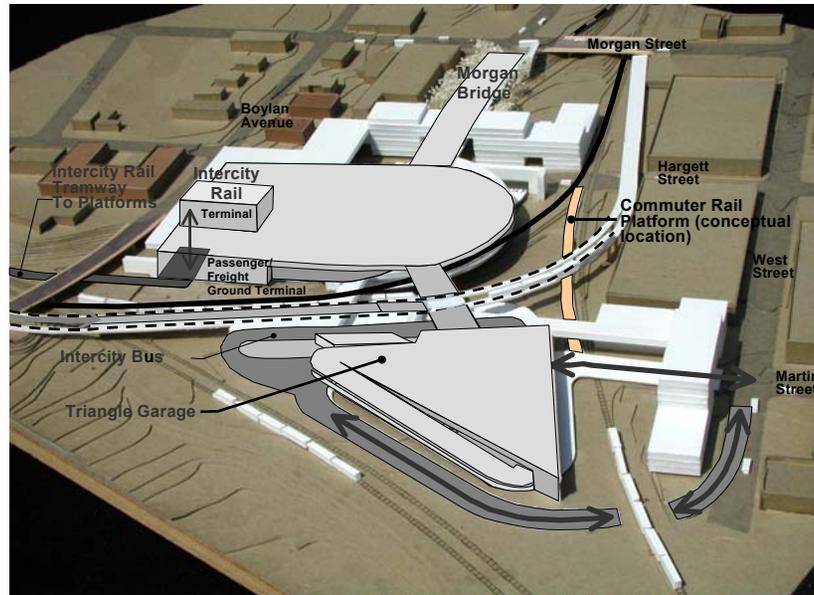


Figure 27.  
Step 6, Construct Triangle Garage

27). Passengers using the commuter rail service from the south and southeast portions of Wake County would be able to walk to nearby jobs in the downtown or to board a shuttle on the plaza. Passengers would also be able to transfer to the TTA regional rail for access to jobs along TTA's service corridor.



**Figure 28.**  
**Step 7, Construct**  
**Future Commuter Rail**  
**Service to South Wake**  
**County**

Morgan/Hargett Street Alternative

Step 1: Assemble Property and Relocate Freight Rail Tracks

Step 1 of Morgan/Hargett Street Alternative includes relocating railroad tracks to enhance space utilization, increase train operating efficiencies and accommodate the TTA tracks. Property acquisition would be required to provide for the relocation of the Norfolk Southern and CSXT tracks to the east side of the wye and land for the Hargett Garage (Figure 29).

If the Intermodal Facility construction schedule is to maintain the timing of TTA improvements, an early start for a major portion of construction must occur at the same time.

Step 2: Construction of TTA Station, TTA Bus Ramp, Hargett Garage and Morgan Bridge

This step includes construction of a major portion of the entire Intermodal Facility at the onset of project implementation (Figures 30 and 31). This includes the TTA bus bays which are part of the access bridge from Morgan Street to the Hargett Garage, as well as TTA's platform below the access bridge. TTA parking would be located in the Hargett Garage which must, therefore, be constructed in Step 2.

Step 3: Construction of Intercity Rail Terminal and Intercity Bus Terminal

Step 3 includes the intercity bus and rail facilities (Figure 32). In contrast to the Wye

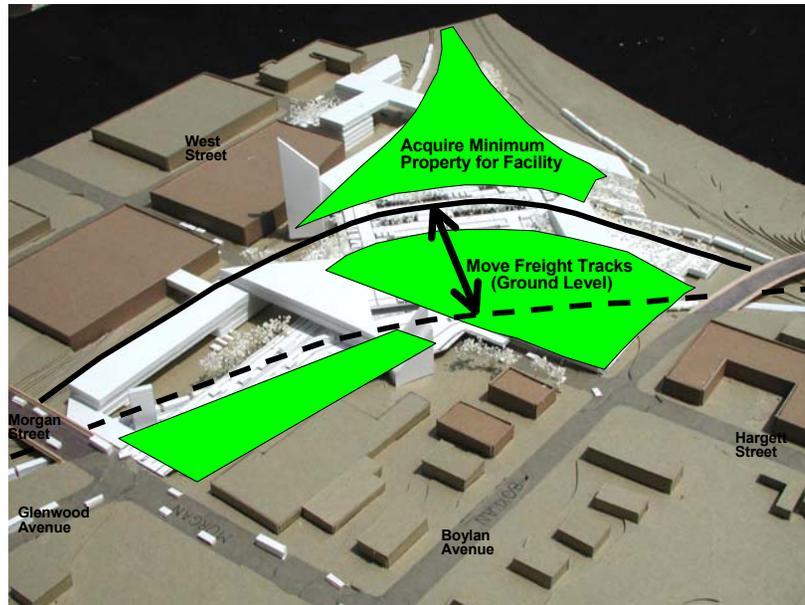


Figure 29.  
Step 1, Assemble Property and Relocate Freight Rail Tracks

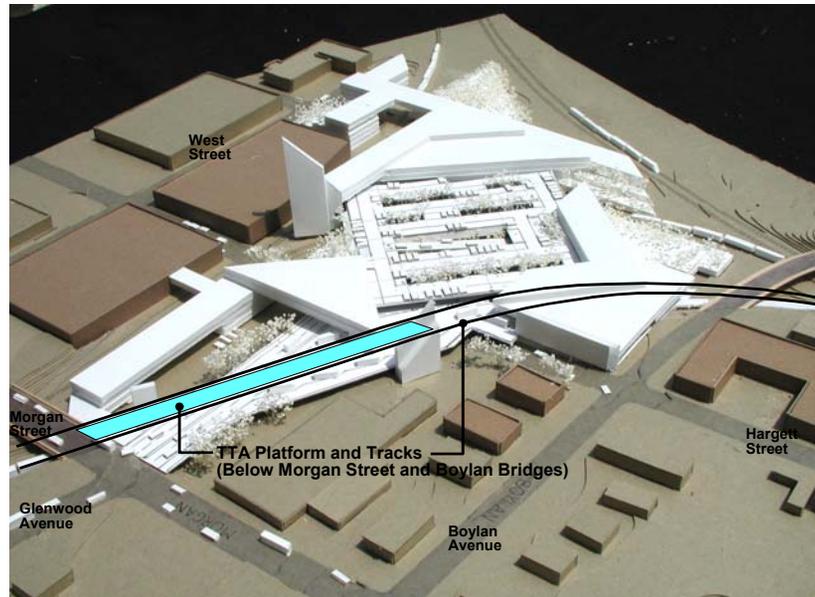


Figure 30.  
Step 2, Construct TTA Station, TTA Bus Ramp, Hargett Garage and Morgan Bridge

Alternative, the intercity facilities are less integrated into the garage structure and could be delayed, if desired. In addition to the station construction adjacent to the garage and Boylan Avenue, the intercity rail construction would require adjustments of the mainline tracks west of the Boylan Bridge to accommodate underground construction of the tramway corridor and a pocket for the train platform.

Step 4: Construction of Future Commuter Rail Service to South Wake County

In addition to use of the transportation plaza for support transportation services (CAT, shuttles and taxis), a place would be retained for a future commuter rail platform along the east-side track (Figure 33). Passengers using the commuter rail service from the south and southeast portions of Wake County would be able to walk to nearby jobs in the downtown or to board a shuttle on the plaza. Passengers would also be able to transfer to the TTA regional rail for access to jobs along TTA’s service corridor.

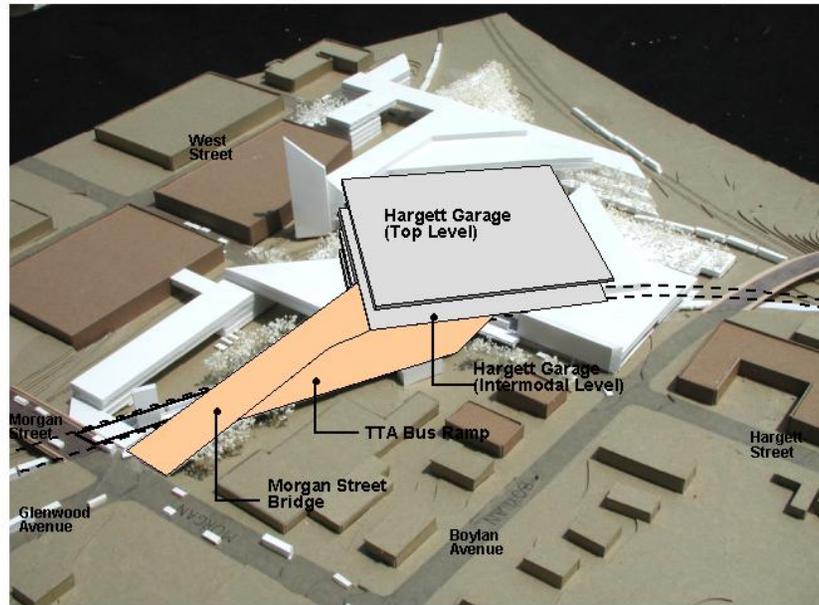


Figure 31. Step 2, Continued

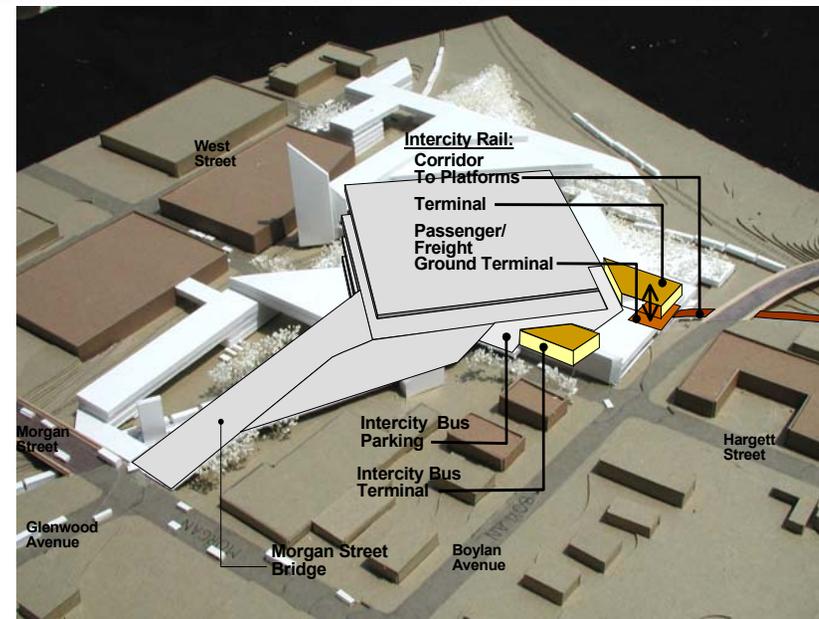
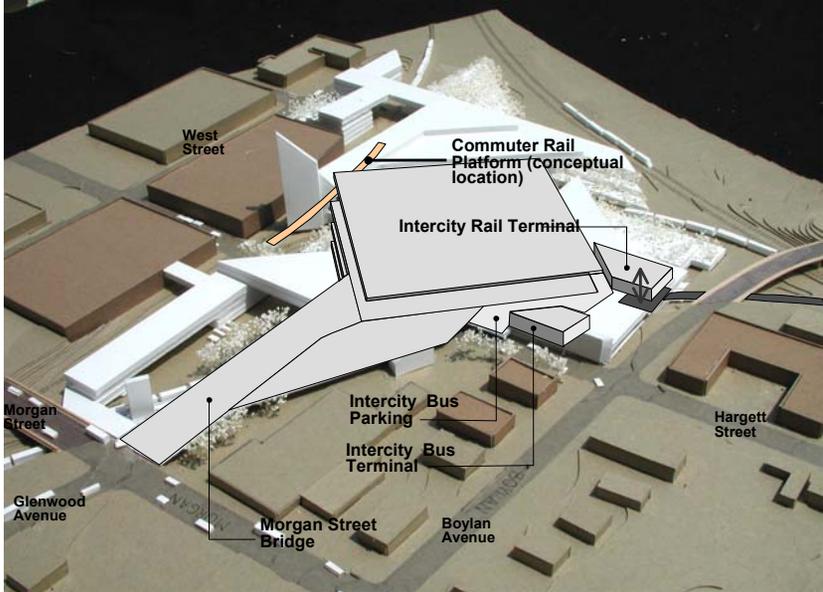


Figure 32. Step 3, Construct Intercity Rail Terminal and Intercity Bus Terminal



**Figure 33. Step 4, Construct Future Commuter Rail Service to South Wake County**

## EVALUATION OF ALTERNATIVES

The Intermodal Facility study has paralleled development of the Draft Environmental Impact Study performed by TTA for the initial segment of the proposed regional rail system. The intent of this evaluation is to focus on the Intermodal Facility and the variations between the two alternatives defined in this study. This evaluation does not address the effects of the regional rail project including the location of the platform and tracks and traffic impacts on Boylan Avenue resulting from the grade crossing of the street by TTA tracks. Nor does this study address the effects of the decision by NCDOT to place the intercity rail platform to the west of the Boylan Bridge.

A series of criteria were identified to measure the effectiveness of the Intermodal Facility alternative plans in achieving the goals identified for the Intermodal Facility. The six principle criteria and their sub-criteria are:

### 1. Accessibility of the Site for:

- Vehicles
- Pedestrians
- Buses

### 2. Accommodation of the Space/Function for:

- Intercity Rail
- Regional (TTA) Rail
- CAT Bus
- Regional (TTA) Bus
- Intercity Bus
- Taxi
- Shuttles

### 3. Support Development (Redevelopment, Joint Development):

- Access to Development sites
- Support Reuse of Difficult Sites
- Integration With Intermodal Facility

### 4. Impact on Adjoining Neighborhoods:

- Limit Increased Traffic
- Limit Increased Noise
- Improved Accessibility for Neighborhood

### 5. Contribute to Urban Form (This criteria cannot be evaluated until more detailed plans are prepared.):

- Avoid structures that would visually disrupt the adjoining historic Boylan Heights neighborhood.
- Provide Visual Focal Point for Transportation Center
- Tie Together Downtown and Residential Enclaves

### 6. Contribute to Passenger Flow Between Modes:

- Intercity Rail/Intercity Bus
- TTA Rail/Intercity Bus
- Intercity Rail/TTA Rail

The following description summarizes the ability of the alternative plans to satisfy the criteria. The following table characterizes the impacts.

### Criteria 1. Accessibility of the Site (vehicles, pedestrians and buses)

The Wye Alternative provides access to three east/west streets (Martin, Hargett and Morgan) and three north/south streets (West, Glenwood and Boylan-pedestrians), traffic would be spread between four different access points. The Morgan/Hargett Street Alternative provides access to two east/west streets (Hargett and Morgan) and two north/south streets (Glenwood and Boylan-pedestrians) with three access points.

An assumption of particular significance has driven the preparation of this study. The layout for tracks determined by TTA for the railroad wye alternative carried the proposed transit tracks and station on an aerial structure over the undisturbed existing freight tracks. Another alternative defined by NCDOT showed the location of the TTA facilities to the north and west sides of the freight track area and relocation of the freight tracks to accommodate the alternate TTA location. The relocated freight track design developed by NCDOT was accepted as the eventual pattern of freight tracks (Norfolk and Southern and CSX) for the railroad wye plan in this study. If the assumed relocation of the freight tracks does not occur in the future, the plan for the Intermodal Facility based on the wye location for the TTA station will have to be adjusted to recognize the track layout.

**Criteria 2. Accommodation of the Space/Function (rail, bus, taxi and shuttles)**

In general, both alternatives accommodate the seven modal systems using the Intermodal Facility and as listed in the sub-criteria. Two variations from this generality were noted.

First, when considering pedestrian access only to and from the TTA rail platform, the Morgan/Hargett Street Alternative performed better than the Wye Alternative. The Morgan/Hargett Street Alternative provided direct pedestrian access to both Hargett and Morgan streets for the walk into the downtown or the adjoining neighborhoods. The Wye plan provided direct access to Martin Street, westbound only access to Boylan and less direct access to Hargett Street.

Second, the Wye Alternative has a greater capacity for bus, taxi and shuttle vehicles because it provides facilities at ground level under the Triangle Garage as well as around the perimeter of the transportation plaza. The Morgan/Hargett Street Alternative would have up to nine bus bays and a limited space for shuttles and taxis. As the space for shuttles and taxis expand at the fourth level of the Hargett Garage, the space for kiss and ride and or general parking would be reduced. The displaced parking spaces would be considered prime parking spaces located at the same level as the intercity rail and bus systems.

The TTA regional bus system and the CAT

connector bus and downtown circulator would benefit from the greater capacity of the Wye Alternative. Depending on the optimum route to and from the Intermodal Facility, the bus operators could schedule buses to use either the Hillsborough to Glenwood to Morgan route or Martin Street for access to the transportation plaza or the lower level bus facility.

**Criteria 3. Support Development (Redevelopment, Joint Development)**

Both alternatives will enhance and improve access to adjoining property to help stimulate redevelopment in the railroad/industrial area. On a relative scale, however, the Wye Alternative plan would provide improved access and serve as a greater supporter of redevelopment.

The access bridge from Morgan to the Hargett Garage would be a key access way for both alternative plans and could serve as an upper level connector to properties adjoining the bridge. The path of the Wye access bridge passes property to the east and west that could tie into the bridge for enhanced access. The Morgan/Hargett Street Alternative, on the other hand virtually eliminates vehicular access to property to the west of the bridge due to the location of the bus bays. Access to the east side of the bridge would still be possible for the Morgan Street plan.

The Wye Alternative also offers opportunity to successfully integrate development on adjoining property into the Intermodal facil-

ity. The open character of the transportation plaza and the top level of the Triangle Garage offer bases for anchoring pedestrian bridges to development to the north, south and east of the complex.

The Hargett Garage as the centerpiece of the Morgan/Hargett Street Alternative offers a platform for connections to the east and south. Although a walk located outside the garage could connect the adjoining private uses along West Street and in the wye, the pedestrian environment of walking next to the fourth level of a five level garage would be less positive than the pedestrian experience in the Wye plan.

**Criteria 4. Impact on Adjoining Neighborhoods**

The impact of the alternatives on the adjoining neighborhoods was found to be indistinguishable when anticipating increases in traffic volumes, noise levels and improved circulation between the neighborhoods and the downtown.

While marginally more traffic will use the Morgan/Glenwood intersection in the Morgan/Hargett Street Alternative, the intersection is removed from the residential enclaves and should present neither noticeable change in the neighborhoods nor increases in noise levels. Similarly, both alternatives were found to promise an improved pedestrian path over the existing freight railroad tracks that presently separate the Boylan Avenue residential areas from the downtown.

**Criteria 5. Contribute to Urban Form**  
*(This criteria cannot be evaluated until more detailed plans are prepared.)*

The expenditure of public funds on the Intermodal Facility is viewed as an opportunity to contribute to the urban form of the city and thus help achieve the second goal of the study.

**Criteria 6. Contribute to Passenger Flow Between Modes**

This criteria examines the flow of passengers between the principal modes.

The final criteria would be better satisfied by the Morgan/Hargett Street Alternative plan. The adjacent location of the intercity rail and bus facilities would substantially enhance circulation between the two systems for transferring passengers. In contrast, the Wye Alternative would require a change of level and a walk of about 475 feet for the same transferring passengers.

In the Morgan/Hargett Street Alternative, connections between the TTA rail platforms and the two intercity systems require a change of level and a walk of 300 and 400 feet. The Wye Alternative places the TTA and intercity rail at the same level about 300 feet apart and the TTA platform directly over the intercity bus station. The net accessibility of the TTA platforms to the intercity systems in the Wye plan do not quite offset the superior level of accessibility between the two intercity systems in the Morgan plan.

In addition to the flow of passengers between the principal modes, the flow of TTA regional rail passengers between the rail platform and buses, both local and regional, would be considered.

The Morgan/Hargett Street Alternative would require TTA passengers to move between the at-grade rail platform and the bus staging area located one level (about 23 feet) above. This direct connection provides access to six to nine bus berths. The Wye Alternative includes two separate areas for local and regional bus berths, six located immediately adjacent to the rail platform and an additional six located at-grade (about 30 feet) below the platform. An effective means of scheduling the location of local and regional buses between the two sets of bus berths would have to be established and communicated so that the rail passengers would know the location of the desired bus.

Both alternatives provide an effective connection between the regional rail platform and local and regional bus berths.

**Table 1. Evaluation of Alternative Plans**

CRITERIA	Wye Alternative		Morgan Street Alternative	
	Summary Score	Comments	Summary Score	Comments
<b>1. Accessibility of Site</b>				
Vehicular Access (General Traffic)	+	Access from 3 e/w and 2 n/s streets.	0	Access from 2 e/w and 1 n/s streets.
Pedestrian Access	+	Access to 4 streets.	+	Access to 3 streets (Private development can provide access to Martin Street).
Bus Access	+	Access from West, Martin, Morgan and Glenwood.	+	Access from Morgan and Glenwood.
<b>2. Accommodation of Space/ Function</b>				
Intercity Rail	+	Both alternatives are arranged with the same spatial organizational components.	+	Both alternatives are arranged with the same spatial organizational components.
Regional (TTA) Rail	++	Accommodated very well.	++	Accommodated very well plus additional direct ground level pedestrian access to CBD on Hargett.
CAT Bus	++	Access to adequate spaces on Transportation Plaza.	+	Access to spaces on bus bay platform.
TTA Bus	++	Access to bays at both bus areas.	+	Access to spaces on bus bay platform.
Intercity Bus	+	Central site, adequate bus facilities.	+	Central site, adequate bus facilities.
Taxi	+	Access to adequate spaces on Transportation Plaza.	+	Adequate space, may reduce K & R area.
Shuttles	+	Access to adequate spaces on Transportation Plaza.	+	Space at a premium for shuttles (can be expanded by reducing parking space in Hargett Garage).
<b>3. Support Development (Redevelopment/Joint Development)</b>				
Access to Development Sites	+	Improves access to area north of Hargett.	0	Land north of Hargett reduced by bus bays.
Support Reuse of Difficult Sites	+	Improves access.	+	Improves access.
Integration with Intermodal Facility	+	3 of 4 parcels easily served.	+	3 of 4 parcels easily served.
++ Most Satisfactory    + More Satisfactory    0 Satisfactory    - Unsatisfactory				

**Table 1. Evaluation of Alternative Plans (continued)**

CRITERIA	Wye Alternative		Morgan Street Alternative	
	Summary Score	Comments	Summary Score	Comments
<b>4. Impact on Adjoining Neighborhoods</b>				
Limited Increased Traffic	+	Traffic pattern would not impact neighborhoods.	+	Traffic pattern would not impact neighborhoods.
Limited Increased Noise	+	Reduced traffic congestion reduces noise.	+	Increase in traffic, but away from neighborhoods.
Improved Accessibility	+	Enhanced pedestrian movement options.	+	Enhanced pedestrian movement options.
<b>5. Contribution to Urban Form (cannot be evaluated at this time)</b>				
Avoid Structures that Would Visually Disrupt the Adjoining Historic Boylan Heights Neighborhood  Provide Visual Focal Point for Transportation Center  Tie Together Downtown and Residential Enclaves				
<b>6. Contribution to Passenger Flow Between Primary Modes</b>				
Intercity Rail/Intercity Bus	-	Level change and distance detract.	++	Adjacent terminals support transfers.
TTA Rail/Intercity Bus	+	Level change, adequate connection.	0	Level change and distance detract.
Intercity Rail/TTA Rail	+	Same level, adequate connection.	0	Level change and distance detract.

++ Most Satisfactory    + More Satisfactory    0 Satisfactory    - Unsatisfactory

An economic consulting firm, Basile, Baumann Prost & Associates (BBPA), assisted with the study and concluded the following.

The Wye Alternative plan evaluated by BBPA requires the relocation of the Norfolk Southern and CSX freight tracks. If the

tracks are not relocated the following comments would be modified to match the characteristics of the new wye plan developed for the modified Intermodal site. The following comments by BBPA discuss the Wye Alternative and Morgan/Hargett Street Alternative.

*There are opportunities for joint development on the intermodal station site, evidenced by the revitalization of nearby areas including Glenwood South and the successful development of proximate restaurants, bars, small offices, residential units, and galleries. The station and accompanying restaurants and residential units will*

serve as a connection between Glenwood South to the north and the area east of the Wye. The intermodal station will enhance the area's joint development potential by providing excellent access to transit for employees, residents, and customers.

There are distinct joint development advantages to the Wye Alternative. The Wye Alternative with the transportation plaza is aesthetically more appealing with better site visibility, critical to making the station both a gateway to the downtown area and a transition between Glenwood South and the edge of the downtown to the east. In addition, the Wye alternative provides for better transit access.

The Morgan/Hargett Street Alternative has the following disadvantages:

- Limited visibility at build-out
- Poorly defined front entrance
- Impacted negatively by bus movements
- Relationship to the joint development residential site west of the access bridge would be impacted negatively by intersecting bus ramps

The Wye Alternative offers the following advantages:

- Better site visibility
- More developable acreage for private use
- Attractive plaza as centerpiece

BBPA's observations consisted of the following:

The Wye Alternative has potential joint development opportunities on both the proposed station site and the tract immediately north of the station and west of the access bridge.

Combining the parcels of land shown on the proposed Wye Alternative plan adjacent to Boylan Avenue forms a land area that could accommodate a building floor plate of approximately 33,000 SF, which could be used to construct a two story mixed-use, intermodal facility with joint development. Based on the transportation program and market and development analyses, BBPA suggests the following space use for the facility and the number of square feet allocated to each use:

- 33,000 square feet of office (2<sup>nd</sup> level)
  - 14,000 square feet of transit facility
  - 5,000 square feet of service retail
  - 1,000 square feet of public service space (tourist information, police substation, consumer office, etc.)
  - 13,000 square feet daycare/health club/community offices
- Total of 66,000 square feet

BBPA also recommends further investigation into the feasibility and desirability of developing a daycare facility on the site (approximately 13,000 SF).

In addition, BBPA suggests that the site immediately north of the station and west of the access bridge could be used for resi-

dential development, possibly including high-end condominiums and moderately-priced apartments. It is estimated the site can accommodate 60 dwelling units (2.45 acres at 25 dwelling units per acre = 60 units).

The Morgan/Hargett Street Alternative has fewer joint development opportunities than the Wye Alternative because the bus ramps impinge upon the area available for development and the more limited site visibility. It is estimated that on-site floor plates under the Morgan alternative are roughly 20,000 square feet in size. BBPA suggests a similar mix as in the Wye Alternative. There would, however, not be enough room for a daycare facility and there would be less office development than in the Wye Alternative. Below are the uses for the facility and the number of square feet allocated to each use:

- 20,000 square feet of office (2<sup>nd</sup> level)
  - 14,000 square feet of transit facility
  - 1,000 square feet of public service space
  - 5,000 square feet of retail
- Total of 40,000 square feet

In addition, about 40 residential dwelling units could be accommodated on the site north of the intermodal facility and west of the access bridge, representing 25 units per acre on a 1.62 acres site.

**IMPLEMENTATION STRATEGY**

The Downtown Raleigh Intermodal Facility is a complex project that assembles numerous transportation modes. The facility would aid passengers transferring between modes and substantially increase accessibility of the facility's site area. The site, adjacent to downtown Raleigh, sits atop active freight rail lines and in between an area undergoing active redevelopment to the east, north and west and a stable residential neighborhood to the south. The challenge of the planning process is to blend the individual needs of the key stakeholders and to devise a plan that contributes to each group.

The plan must be more than the physical

arrangement of facilities as described in this study. In the next stage of planning process, the tough implementation issues must be addressed as well as refinement of the design and cost of the facilities at a level more detailed than possible in this study.

The development of an implementation strategy has several steps to successfully negotiate before the Intermodal Facility can become a reality.

Determine key development parameters for the facility's site

The resolution of two key issues will assist in answering the major form questions for the Facility.

- Both alternative plans depend on the relocation of the Norfolk Southern tracks. The Wye Alternative described in this study calls for the track relocation to make a usable ground area as the first floor for the Hargett garage. The Morgan/Hargett Street Alternative calls for the same relocation to provide a path for the ground-level TTA regional rail lines. The current TTA options as part of their regional rail program call for the freight tracks to remain untouched by the construction of the base TTA improvements in the Wye Alternative. TTA's plans for the Morgan/Hargett Street Alternative reflect the same track arrangement as envisioned by this study. If, as a result of negotiations with the Norfolk Southern, the tracks cannot be relocated, an entirely new development plan must be devised for the Intermodal Facility.
- The planning process for the TTA regional rail system is approaching a critical stage where the basic components of the system will be determined. The selection of the alignment and station configuration of the regional system through the downtown area will determine if the Wye or Morgan site will be utilized.

**Transportation Stakeholders by Mode**

Mode Category	Operating Entity	Local Service	Regional Service	Intercity Service
<b>Rail</b>				
	NCDOT			✓
	Amtrak			✓
	TTA		✓	
<b>Bus</b>				
	Greyhound			✓
	TTA		✓	
	CAT	✓		
<b>Taxi</b>				
	Numerous Local Companies	✓	✓	
<b>Shuttle Buses</b>	Numerous Operators, Hotels, etc.	✓	✓	
<b>Rental Cars</b>	Numerous Companies	✓	✓	✓

Develop management and implementation plan

As project planning and design moves forward, a management and implementation plan must be prepared by the central agencies involved in the Intermodal Facility and determine the:

- Roles and responsibilities of the City of Raleigh, the Triangle Transit Authority and the North Carolina Department of Transportation,
- Roles and responsibilities of the respective governing legislative bodies and boards,
- Role of private business and the residents of Raleigh and the region
- Timing of improvements,
- Implementation management entity,
- Effective political and financial support from the local, regional, state and federal levels of government,
- Roles and responsibilities of other transportation providers, regulatory agencies and financial sources. The participation of Amtrak, Greyhound, CAT, shuttle and taxi operators and the tourism/visitor service industry representatives are additional important participants in the intermodal process.
- Means of interacting with local redevelopment and land regulatory agencies plus state and local environmental agencies must be identified.

Develop funding strategy

The Facility will require the commitment of capital construction funds plus the dedication of ongoing operating funds. Both types of funding are critical to building and operating a successful Facility. Preliminary cost estimates range from \$50 million to \$75 Million. The actual cost will be determined as the key issues are resolved and the project plans are finalized.

- Potential sources of capital funds include the State of North Carolina, Department of Transportation; TTA and its regional rail system's programmed funds; the City of Raleigh's garage revenue-bond funding mechanism and its redevelopment powers in assembling private land; and earmarked funding through federal transportation funding programs.
- Potential sources of operating funds include dedicated funds from the participating transportation operators, rental proceeds from private business establishments occupying space owned by the Facility, and a portion of long-term land leases or tax revenues generated from the redevelopment of adjacent properties that benefit from improved access through the Facility.

The resolution of these management and implementation issues represent critical milestones in moving toward creation of a functional Intermodal Facility. Finally, and

arguably most important, the strong support of both private business investors and citizen users of the facilities are critical to the success of the facility. Support of the business community in general and the citizens living and working in proximity to the facility will also be essential. By working with both groups, answering their questions and mitigating their concerns through adjustments to the plan, a successful project can be realized.

## LESSONS LEARNED

The following items are offered as a preliminary list of lessons learned thus far from the development of the conceptual plans for the Wye and Morgan/Hargett Street sites.

1. The assessment of the two alternative plans as measured by the criteria indicates that both the Wye Alternative and the Morgan/Hargett Street alternative would satisfy goals set for the facility in different ways.

The Morgan/Hargett Street plan gets a slight nod for achieving Goal 6, *Contribute to Passenger Flow Between Modes*, while Goal 4 *Impact on Adjoining Neighborhoods*, was satisfied equally well by both alternatives.

2. Compared to the other beneficiaries or major tenants in the Intermodal Facility, TTA's plan to begin operation in 2007-2008 indicates a time sensitive schedule. TTA may, therefore, be the first or one of the first components in the Intermodal Facility to be constructed. The Wye site would permit TTA's early construction and operation of transit service without major disruption of subsequent construction activities for the other tenants of the Intermodal Facility. The Morgan Street site would require a commitment to begin construction of several components of the Intermodal Facility along with the TTA facilities. The Morgan/Hargett Street alternative would provide TTA with bus handling and

parking space needed for its operation after the major round of construction.

3. In both alternative plans, parking in addition to the needs of the Intermodal Facility can be provided. The additional parking – estimated to be up to 400 to 500 spaces – would be used to support redevelopment activity in proximity to the site.
4. The centerpiece of the Intermodal Facility on both sites is the Hargett Garage. It will be necessary to coordinate the structural design of the Hargett Garage with the final location of the “high speed” and freight rail tracks. The coordination may require an adjustment of the garage structural system and track placement and/or curve radii as an affordable structural system is designed.
5. As planning and design for the facility continues, attention should be given to development of a set of design guidelines for the private development that may occur adjacent to the structure. The form, bulk, height, use and floor area of private development should be examined along with limits set by existing zoning controls. The intent of the guidelines would be to ensure the successful integration of the development into the fabric of the existing business and neighborhood environment of the site. The guidelines may distinguish between property rebuilt as joint development on land owned by the agency(ies) that implement the Intermodal Facility

and adjacent property under private ownership.

6. Both alternatives contemplate the construction of project elements which are essential to the Intermodal Facility over railroad rights-of-way, potentially using air rights. Further progress cannot be made on the Intermodal Facility cannot be made until Norfolk Southern, CSX and the North Carolina Railroads determine the feasibility and circumstances under which they would permit the use of or convey the necessary air rights to implement the affected project elements of the Raleigh Intermodal Facility.
7. While their construction sequences differ, both alternatives contemplate the relocation of Norfolk Southern and CSX tracks to the east side of the railroad wye and the acquisition of Norfolk Southern right-of-way. The Draft Environmental Impact Statement (DEIS) Phase I Regional Rail comments from Norfolk Southern Railroad to TTA dated July 19, 2001 more fully discuss this issue and are attached as Appendix A.

**APPENDIX A**

This appendix contains parts of the correspondence sent by the Norfolk Southern Railway Company (NSR) to the Triangle Transit Authority (TTA) on July 19, 2001. The correspondence package provides comments by NSR on the Draft Environmental Impact Statement (DEIS) report prepared by the Federal Transit Authority (FTA) and TTA for the initial segment of the regional rail project. Included in this appendix are copies of the transmittal cover letter, the first page of the NSR comments and a portion of page 7 that addresses comments pertaining to the downtown Raleigh, or Wye, part of the TTA project. The portions of the NSR correspondence that are not included in this appendix relate to the agreement between the North Carolina Railway Company (NCRR) and NSR and various other comments and observations for the 16-mile TTA project.



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July 19, 2001

via Airborne Express  
Mr. John Roberson, P.E.  
Chief Engineer  
Triangle Transit Authority  
50 Park Drive, Suite 206  
Research Triangle Park, NC 27709

RE: Phase 1 Regional Rail System, Durham and Wake Counties, North Carolina  
Draft Environmental Impact Statement  
Comments of Norfolk Southern Railway Company

Dear Mr. Robertson:

Please find enclosed and accept for consideration the comments of Norfolk Southern Railway Company on the Draft Environmental Impact Statement of the Phase 1 Regional Rail System, Durham and Wake Counties, North Carolina.

Very truly yours,

James R. Paschall

encl. cc w/encl.:  
Mr. Alex McNeil  
Community Planner  
Federal Transit Administration Region IV  
61 Forssooth Street NW  
Suite 17 T 50  
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Mr. David Paulson, Esq.  
Smith, Helms, Mullis & Moore  
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Charlotte, NC 28202

Mr. Scott M. Saylor, President  
North Carolina Railroad Company  
3200 Atlantic Avenue, Suite 110  
Raleigh, NC 27604

COMMENTS OF NORFOLK SOUTHERN RAILWAY COMPANY

ON

DRAFT ENVIRONMENTAL IMPACT STATEMENT  
OF APRIL 2001 ON

PHASE 1 REGIONAL RAIL SYSTEM  
DURHAM TO RALEIGH TO NORTH RALEIGH

prepared by

U. S. DEPARTMENT OF TRANSPORTATION  
FEDERAL TRANSIT ADMINISTRATION

and

TRIANGLE TRANSIT AUTHORITY  
co-operating agency  
FEDERAL RAILROAD ADMINISTRATION

Norfolk Southern Railway Company (NSR) is a Class I rail carrier, as defined by the Surface Transportation Board pursuant to Title 49, Subtitle IV of the U.S. Code, providing freight transportation service in 22 Eastern and Midwestern United States, including North Carolina, and in the District of Columbia and the Province of Ontario, Canada.

Under a Trackage Rights Agreement entered into July 27, 1999 pursuant to a Master Agreement also dated July 27, 1999, NSR has the exclusive right to operate freight trains, locomotives, cars and equipment over all of the railroad lines and property owned by the North Carolina Railroad Company (NCRR) on the date of the Agreements. The NCRR lines include a railroad line segment located in the right-of-way proposed for use for a large part of the proposed Regional Rail System of the Triangle Transit Authority (TTA). TTA's proposed Regional Rail System is the subject of the Draft Environmental Impact Statement of April 2001 (DEIS) as to which NSR offers the comments below. The term of the NCRR/NSR Trackage Rights Agreement ends December 31, 2014, subject to two 15-year renewal terms at the option of NSR.

NSR has been notified that NCRR will agree to allow TTA to lay tracks for its system on the right-of-way between downtown Raleigh and Duke Hospital in Durham. All details and conditions have not been worked out, however, as all agreements necessary for TTA's use of a portion of the right-of-way are not completed. The NCRR/NSR Agreement permits NCRR to allow TTA to use the property, subject to certain conditions. These conditions include preserving NSR's right to use the property without cost or expense or interference caused by any passenger train operator or other third party operator. Thus, NCRR must require TTA to design, construct and operate the system and agree to certain conditions in accordance with the NCRR/NSR Agreements. These comments are made with these principles in mind.

incremental margin of safety, would nonetheless add a margin of safety for both maintenance and operation. It would clearly put the line outside the area where track work while operations are being conducted would be subject to regulation. It would also provide some margin for error in construction so that further inspection would be less likely to find that the track centers are in fact less than 25 feet apart.

Alternative B1 has many of the same objectionable features as Alternative A. It also is a single track plan with significant relocation of freight track, less than 25 feet of track center separation, and obstacles to future development of both the freight and intercity passenger tracks and TTA's system itself.

The preferred alternative plan still may have two areas where track centers less than 26 feet are proposed. These locations are at Alston Avenue in Durham and in downtown Morrisville. We believe these clearance or separation exceptions can be eliminated and that no exception should be made to the minimum track center distance. If the proposed bridge over Alston Avenue and the freight main line realignment proposed by NCDOT were completed prior to TTA's construction of their tracks in the area, the Alston Avenue problem could be eliminated. In Morrisville, the close track centers are the result of Highway 54 being on the north side of the corridor and the Morrisville Fire Department being on the south side. NSR suggests that TTA pursue relocation of the fire department from its close proximity to the right-of-way before such time as double track is necessary for both the freight and intercity trains, as well as the regional rail trains. In the meantime, we recommend that the existing freight main track be at the proper clearance or separation of 26 feet from the nearest TTA track.

NSR supports the plan for Boylan Junction in downtown Raleigh as shown in Alternative B2. TTA's proposed flyover would leave the existing tracks in the area as they are presently configured. The track reconfiguration proposed in Alternative C would be an impediment to both NSR and CSXT during its construction and would adversely impact freight train operations by increasing the costs of operation and risks associated with adjacent operations. (See also P-354 and P-355.) The track reconfiguration plan would replace an efficient diamond where NSR's Raleigh-Fuquay Varina line crosses CSXT and NCR/NSR today with a series of crossovers and operation over CSXT. The effect apparently would be to cause NSR to be required to operate over a section of track under CSXT control. NSR would give up necessary operating control and flexibility for both Raleigh-Fuquay and Raleigh-Greensboro trains. NSR would be subjected to delay and costs of delay and would lose the ability to control the operations in the area. The potential benefits are not only not worth these trade-offs. They also are contrary to the principle under the NCR/NSR Agreement that the TTA construction and operation should not increase NSR costs or hinder its operations. Thus, we urge that the flyover plan be accepted.

The remainder of the preferred design essentially follows Alternative C, which