3.0 AFFECTED ENVIRONMENT

3.1 Transportation Systems and Facilities

This section describes existing and planned transportation systems and facilities in the study area, explains how the No-Build and Build Alternatives would potentially benefit or adversely affect them, describes means to avoid or minimize potential adverse effects, and identifies evaluations to be undertaken during subsequent analyses.

Topics covered within this section include travel patterns, transit services, the roadway network, freight rail services, transit and passenger rail services, bicycle and pedestrian routes, and transportation planning. Separately, a *Technical Memorandum on Transportation Systems and Facilities* provides further detail regarding these topics.

3.1.1 Methodology

The transportation elements discussed here include publicly owned and operated systems and private railroads. These systems include City of Atlanta streets, roadways maintained by GDOT, public transit (local bus service, commuter bus service, and MARTA heavy rail), railroads (freight and passenger), and pedestrian and bicycle networks. Planned transportation systems include additional modes not already present in the Atlanta area, such as SC, LRT, and passenger rail[8].

3.1.1.1 Assessment of Effects of Transportation Systems and Facilities

Consistent with the Tier 1 EIS approach, the potential effects of the alternatives on transportation systems and facilities were assessed at a general level using existing information. This evaluation of effects recognizes the need for a more detailed analysis to refine the design and evaluations in subsequent phases of the project.

This section addresses the effects of the No-Build Alternative and of the Transit and Multi-Use Trails elements of the Build Alternatives outside of the MARTA Station Connectivity and Infill Station Alternative areas. As described in Section 2.3.5, decisions regarding Alternatives in those areas will be evaluated in subsequent analysis.

The assessment measured the ability of each alternative to provide transportation benefits, such as the numbers of connections to bus routes, travel-time savings, and other factors. Qualitative measures that compare the relative merits of the Alternatives were used where quantitative measures are either inappropriate or unavailable. Examples of qualitative measures are potential effects at roadway crossings and along in-street running sections.

3.1.1.2 Sources of Data

Primary data sources include field reconnaissance, assessment of conditions not available from secondary sources, and input from public and private entities having jurisdiction over transportation facilities in the study area. Secondary sources include studies and plans available from MARTA including past Atlanta BeltLine studies, ARC including the *Regional Freight Mobility Plan* and traffic data from the regional travel

[8] Passenger rail is an electric or diesel propelled railway for urban passenger train service consisting of local short distance travel operating between adjacent cities and towns, or between a central city and adjacent suburbs.

demand model, Georgia Regional Transportation Authority (GRTA), Atlanta Regional Transit Implementation Board (TIB), the City of Atlanta, GDOT including the *State Rail Plan*, and other agencies. All traffic data is from the ARC unless otherwise indicated.

3.1.2 Travel Patterns

3.1.2.1 Affected Environment

Travel patterns in central Atlanta and the Atlanta BeltLine study area were analyzed in the *Atlanta BeltLine Feasibility Wrap-Up Report* prepared by MARTA in March 2005 with a focus on home-based work (HBW) trips (commute trips from home to work). The report confirms findings of the *Atlanta BeltLine Baseline Conditions Assessment* (2004). The Atlanta region already has numerous employment centers, leading to a HBW travel pattern with a number of significant employment destinations rather than a single primary central business district destination. Currently, the strongest HBW pattern is from the northern suburbs to Downtown and Midtown in central Atlanta and to Buckhead, which is north of central Atlanta and the study area.

The existing regional transportation system for both roadways and transit is radial. Other transportation projects currently being studied, as described in the No-Build Alternative, also are essentially radial. However, findings in *Envision6* (ARC 2007) indicate that many HBW trips both originate and end within the City of Atlanta, that the average automobile trip beginning in the city is 5.5 miles in length, and that 35 percent of all trips that begin in the city end in the city.

As reported by ARC in the *2008 Transportation Fact Book*, approximately 12 percent of total daily person trips in the region are work trips, compared with approximately 84 percent that are non-work trips. Study area examples of non-work destinations include major shopping centers at Lindbergh, Ansley, and the West End Mall, parks including Piedmont Park and Maddox Park, schools, and community facilities. Most of these trips, regional and within Atlanta, use private vehicles or public transit services. For some areas, public transit is efficient and convenient, but other areas are underserved, as described in the following discussions by zone.

Land use planning in the city is focused on development of activity centers in the study area and central Atlanta, as shown in Figure 1-4, and discussed in Chapter 1.5 and in Section 3.2. The circumferential path of the Atlanta BeltLine that connects many activity centers currently is underserved, but the number of trips is expected to rise as density increases in the activity centers and increased roadway congestion substantially affects travel in the foreseeable future as discussed in Section 3.1.4.2.

Northeast Zone

The northeast zone has been the focus of much of the recent land development in the city. Projections to 2030 indicate that it will have the largest increases of all zones in terms of population growth and employment, and be second to the southeast in the increase of housing units. Detailed socioeconomic data can be found in Section 3.4. Existing major travel generators include Piedmont Park and the Atlanta Botanical Garden, the Carter Center, Ansley Mall, Martin Luther King Jr. National Historic Site, Lindbergh Center, and City Hall East.

Thirteen MARTA local bus routes serve this zone. Most bus routes are radial and provide feeder service to MARTA rail stations while others access Downtown or Midtown. An exception is Route 6 Emory that connects Lindbergh Center and Inman

Park/Reynoldstown MARTA rail stations parallel with the BeltLine study area, but aligned largely outside the study area to the east. With the exception of Route 6, there is no direct access between the MARTA rail stations in the northeast except via MARTA rail with a transfer at Five Points MARTA rail station in Downtown.

In addition to accessing central Atlanta directly or via transfers at MARTA rail stations, two bus routes access the southeast zone, one the southwest zone, four the northwest zone, and four operate only in the northeast zone.

In 2030, heavy roadway congestion is projected for at least one link in all the arterial streets north of Ralph McGill Boulevard, for Highland Avenue, Freedom Parkway, and for Irwin and Hilliard Streets in the immediate vicinity of the interstate. Many of the 12 bus routes would operate on streets projected to have heavy congestion.

Southeast Zone

The southeast zone has experienced recent land development. Projections to 2030 indicate the second largest increases in population and employment growth in the study area, and the highest increase of housing units. Existing travel generators include Glenwood Park and Oakland Cemetery. Grant Park and Zoo Atlanta are nearby but not in the study area.

The southeast zone is not the least affluent of the zones, but in 2000 nearly a quarter of households were below poverty and had no automobile, while 15.5 percent of the workers used transit for their work trip.

Fifteen MARTA local bus routes serve the southeast zone. All routes are radial with some providing feeder service to MARTA rail stations while others directly access Downtown.

In addition to accessing central Atlanta directly or via transfers at MARTA rail stations, two bus routes access the northeast zone, five the southwest zone, and eight operate only in the southeast zone. One bus route accesses the northwest zone. The only transit connection between either King Memorial or Inman Park/Reynoldstown and the West End MARTA rail station is via a transfer at Five Points MARTA rail station as there is no connecting bus route. Except in the areas north of Glenwood Avenue and between McDonough Boulevard and Metropolitan Parkway, a route using the arterial street network would be circuitous owing to a lack of an effective roadway grid.

In 2030, anticipated heavy roadway congestion in the northern portion of the zone is a result of access points to I-20 and the constraints of crossing the freight railroad right-of-way (ROW), and in the southern and western portions of the zone on north-south radial streets parallel to I-75/85. Several of the seventeen bus routes would operate on streets projected to have heavy congestion including two that operate on I-20 or its access system.

Southwest Zone

The southwest zone enjoyed employment growth between 2000 and 2008 compared to a loss of jobs in the other study area zones, the city, and the county. Projections to 2030, however, indicate modest population and employment growth, and increase in housing units. Existing travel generators include Historic Westside Village and West End Mall. Outside the study area, but nearby, is a concentration of four institutions of higher learning.

The southwest zone is the least affluent in the study area with nearly a third of households below poverty and with no automobile. Over a quarter of workers used transit for their work trip in 2000.

Seven MARTA bus routes serve the southwest zone. All bus routes are essentially radial with some providing feeder service to the MARTA rail stations while others directly access Downtown or connect MARTA rail stations outside the study area with Five Points MARTA rail station. There is no direct access to the northern portions of the study area except via MARTA rail. Route 68 Donnelly connects West End and Ashby MARTA rail stations and crosses a portion of central Atlanta in relatively straight lines rather than following the curve of the study area.

In addition to accessing central Atlanta directly or via transfers at MARTA rail stations, one bus route accesses the northeast zone, five the southeast zone, one the northwest zone, and one operates only in the southwest zone.

In 2030, heavy roadway congestion is projected for the corridors of Murphy Avenue, Ralph David Abernathy Boulevard, Cascade Road, and Joseph E. Lowery Boulevard from Lee Street to I-20. Bus routes will operate on streets projected to have heavy congestion.

Northwest Zone

Projections to 2030 indicate that the northwest zone will have population and employment growth rates below the southeast zone, but above the southwest, and only a small increase in housing units as large areas are occupied by industrial uses and rail facilities. The northwest zone contains the largest contiguous portion of the Atlanta BeltLine TAD. Existing major travel generators include Piedmont Hospital, Maddox and Washington Parks, King Plow Arts Center, and the Atlantic Station development.

The northwest zone is less affluent than the northeast, and had a similar profile in 2000 with nearly a fifth of households below poverty and with no automobile, while 12.4 percent of the workers used transit for their work trip. This last figure is slightly less than the northeast, which is unexpected because there are marginally more households in poverty and without an automobile.

Fourteen MARTA bus routes provide service in the zone. Except for Route 6 discussed above, all bus routes are radial with some providing feeder service to MARTA rail stations while others directly access Downtown or Midtown.

In addition to accessing central Atlanta directly or via transfers at MARTA rail stations, four bus routes access the northeast zone, one the southeast zone, one the southwest zone, and nine operate only in the northwest zone.

In 2030, heavy roadway congestion is projected for all radial arterials except West Marietta Street, for Bellemeade Avenue and Deering Road because of traffic entering or exiting the interstate system, and the Marietta Boulevard/Huff Road intersection. Seven of the 14 bus routes would operate on streets projected to have heavy congestion.

3.1.2.2 Effects on Travel Patterns

No-Build Alternative

As described in the *Technical Memorandum on Transportation Systems and Facilities*, the No-Build Alternative includes the Atlanta Streetcar, Lindbergh/Emory High Speed Transit, SR 13/Buford Highway BRT, and the Memorial Drive BRT that would facilitate some in-city HBW and non-work trips within their geographic area of influence, and other transit projects that would serve radial trips. However, none of these projects individually or in aggregate would facilitate circumferential trips among the study area activity centers, major travel generators, and MARTA rail stations, or collect trips from the study area to deliver passengers to and from the MARTA rail system. Moreover, the projects in aggregate would not address the project need to increase transportation options in the study area to provide more travel connections, or improve travel efficiency. As will be described in Section 3.1.7, a number of bicycle and pedestrian network improvements are planned, but substantial gaps in bicycle and pedestrian networks between activity centers and other destinations will remain, requiring other modes to make many trips. Thus, the project need to expand bicycle/pedestrian options within the study area in a systematic way that provides connections to activity centers, major travel generators, MARTA rail stations, and recreational facilities would not be met by the No-Build Alternative.

Build Alternatives

The mostly short trips between neighborhoods, commercial, employment, activity centers, and MARTA rail stations, especially those with one or both ends in the study area, would be facilitated by the Transit Build Alternatives. The Transit Build Alternatives also would serve regional HBW trips not destined for Downtown or Midtown by connecting the various radial routes with each other and the study area activity centers with a circumferential service. By doing so, the Build Alternatives would provide an alternative to travel by personal vehicle, thereby potentially reducing roadway congestion in central Atlanta.

The *Detailed Screening Analysis* (MARTA, January 2007) for the Atlanta BeltLine evaluated the travel benefits of Alternative B3, the predecessor to the Build Alternatives in this EIS. This and other benefits of B3 identified in the 2007 analysis apply to the Transit Build Alternatives, as they are refinements of B3. Using the regional travel demand model, the analysis determined that B3, and therefore the Transit Build Alternatives, would have an estimated:

- annual ridership of 26.41 million
- annual new ridership of 6.43 million
- annual travel-time savings of 1.65 million hours
- more direct rail transit travel with 6,376 fewer daily transfers at the Five Points MARTA rail station
- a slight reduction of the average number of transfers per regional transit trip
- a daily reduction of 113,000 vehicle miles traveled

These data indicate the Transit Build Alternatives would provide an improvement in study area-wide travel patterns, overall travel–time savings, and a reduction in vehicle miles traveled compared with not undertaking a Build Alternative.

The Atlanta BeltLine transit element seeks to sustain the regional economy by serving the travel patterns forecast to result from Atlanta's planned redevelopment program of dense, urban, transit-oriented development ringing central Atlanta rather than to meet existing travel demands or to cure existing capacity constraints in transportation. Further, while it will provide some reduction of congestion as discussed in Section 3.1.4, this is not a focus of the project need.

Each Transit Build Alternative would connect existing and proposed activity centers and would redirect over 6,000 daily trips from the radial corridors to a circumferential one. This is shown by the number of transfers eliminated at the Five Points MARTA rail station as stated above. These transfers represent trips that follow radial lines often because that is the only route to a destination.

Travel performance measures were used to evaluate the performance of the No-Build and Transit Build Alternatives, including travel-time savings, number of transfers, population and employment near stations, and service to various underserved groups. Due to the similarities in alignment and operating plan, the Transit Build Alternatives results apply to both the LRT and SC modes.

Travel-time savings: measures the estimated change in travel times between various origins and destinations determined by comparing the estimated transit travel times for the alternatives for the same trips, as shown in Table 3-1.

Table 3-1: Preliminary Travel Times and Travel-Time Savings

Transit Trip		Average Travel Time by Alternative (minutes)				Travel-Time Savings Build vs. No-Build Alternative (minutes)		
Origin	**Destination**	**No-Build**	**All A- CSX Howell Jct./ B- Howell Jct.**	**All C- CSX Marietta Blvd./ D- Marietta Blvd.**	**All F- Atlantic Station**	**All A- CSX Howell Jct./ B- Howell Jct.**	**All C- CSX Marietta Blvd./ D- Marietta Blvd.**	**All F- Atlantic Station**
Grant Park	Cascade Avenue at Ralph David Abernathy Boulevard	48	28	28	28	20	20	20
Cascade Avenue at Ralph David Abernathy Boulevard	Joseph E Boone (Simpson Road)	66	10	10	10	56	56	56
Lindbergh Center	Joseph E Boone (Simpson Road)	37	26	25	24	11	12	13
Boulevard Heights	Ansley Mall	99	27	27	27	72	72	72
Brookwood	Ansley Mall	54	n/a	n/a	20	n/a	n/a	34
Colonial Homes	Ansley Mall	56	24	24	n/a	32	32	n/a

Notes: The Transit Build Alternatives generally following the CSX freight rail corridor would not serve Brookwood; the F- Atlantic Station Transit Build Alternatives would not serve Colonial Homes.
Source: AECOM

The trips shown were selected as typical locations where travel time could be estimated. The No-Build Alternative travel time estimates are based on the existing transit service while those for the Transit Build Alternatives were derived from the preliminary operating plans based on route length, walk time to access stations, the number of stations, dwell times at stations, typical vehicle acceleration and deceleration rates, vehicle speeds, and

estimates of congestion delay along in-street running segments. Assumptions include 12-minute headways, 30-second train holds at each station, and allowable speed of 55 miles per hour with actual speeds being lower. It also is assumed that the travel times would be the same for LRT and SC. For the trips evaluated, all the Transit Build Alternatives would provide an improvement in travel time compared with the No-Build Alternative.

Number of Transfers: evaluates the Transit Build Alternatives relative to the number of transfers that would be required to make the trips in Table 3-1. The Transit Build Alternatives would require none while the No-Build Alternative would require an average of three per trip.

Population and Employment within ½-Mile of Potential Transit Stations: evaluates the Transit Build Alternatives based on the projected population to be served. Table 3-2 shows that the population within ½-mile of the proposed Atlanta BeltLine stations is similar for all Build Alternatives in 2008 and 2030, and that the Build Alternatives would serve substantially higher projected population and employment than the No-Build Alternative. The A- CSX Howell Junction and B- Howell Junction Alternatives would serve the largest concentration of employment in 2008, but by 2030 all of the transit alternatives serve nearly the same numbers.

Table 3-2: Population and Employment within ½-mile of the Proposed Transit Stations

Transit Alternative	Population		Employment	
	2008	2030	2008	2030
No-Build	54,776	79,874	65,256	80,474
All A- CSX Howell Jct. / B- Howell Jct. Alternatives	110,915	139,755	100,102	116,345
All C- CSX Marietta Blvd. / D- Marietta Blvd. Alternatives	110,205	137,941	87,681	116,799
All F- Atlantic Station Alternatives	110,040	143,496	98,594	115,898

Source: ARC 2008 Regional Forecasts and Geographic Information Systems (GIS)

Access for Underserved Groups: evaluates the potential to improve mobility for low-income, minority, and disabled populations, populations over age 65, and zero-car households within ½-mile of proposed transit stations. Table 3-3 shows that each A- CSX Howell Junction and B- Howell Junction Alternative shows slightly more improvement in access to transit for transit-dependent and low-income populations while each F- Atlantic Station Alternative would provide slightly more improvement for minority populations.

Table 3-3: Transit-Dependent, Low-Income, and Minority Populations within ½-mile of the Proposed Transit Stations - 2000

Transit Alternative	Transit-Dependent			Low-Income Population	Minority Population
	Zero-Car Households	Population over Age 65	Disabled Population		
No-Build	5,850	3,777	9,368	11,700	28,272
All A- CSX Howell Jct. / B- Howell Jct. Alternatives	10,199	8,031	18,895	21,882	60,561
All C- CSX Marietta Blvd. / D- Marietta Blvd. Alternatives	10,079	8,005	18,724	21,784	59,864
All F- Atlantic Station Alternatives	9,909	7,718	18,641	21,666	60,671

Source: U.S. Census Bureau, Census 2000

Also, each Transit Alternative generally following the CSX freight rail corridor would serve both Piedmont Hospital, a 481-bed facility with over 4,000 employees, over 900 physicians, and over 300,000 patients per year, and the Shepherd Center, a 132-bed facility with over 1,200 employees and over 14,000 patients per year. Other destinations serving the transit-dependent population for both work and non-work trips are highlighted by reviewing the lists of schools, churches, and community facilities in Section 3.3.

Each Build Alternative would serve twice the population of underserved groups of the No-Build Alternative.

3.1.3 Transit Services

3.1.3.1 Affected Environment

Existing transit services include all MARTA heavy rail lines, six MARTA rail stations, 36 local MARTA bus routes, and GRTA Xpress regional commuter bus service between Lindbergh Center MARTA rail station and Gwinnett County. Figure 3-1 shows existing transit services in the study area zones and central Atlanta. Table 3-4 lists MARTA rail stations and connecting bus routes by zone.

Table 3-4: MARTA Rail Stations

MARTA Rail Station	Study Area Zone	Line	Average Daily Entries	Connecting Bus Routes
Lindbergh Center	northwest and northeast	Red and Gold	8,402	5, 6, 27, 30, 39
Inman Park/Reynoldstown	northeast and southeast	Blue and Green	2,973	4, 6, 34, 107
King Memorial	northeast and southeast	Blue and Green	2,087	21
West End	southeast and southwest	Red and Gold	7,990	67, 68, 71, 81, 95
Ashby	southwest and northwest	Blue and Green	2,244	68
Bankhead	northwest	Green	2,376	26, 50, 58

Source: MARTA

3.1.3.2 Effects on Transit Service

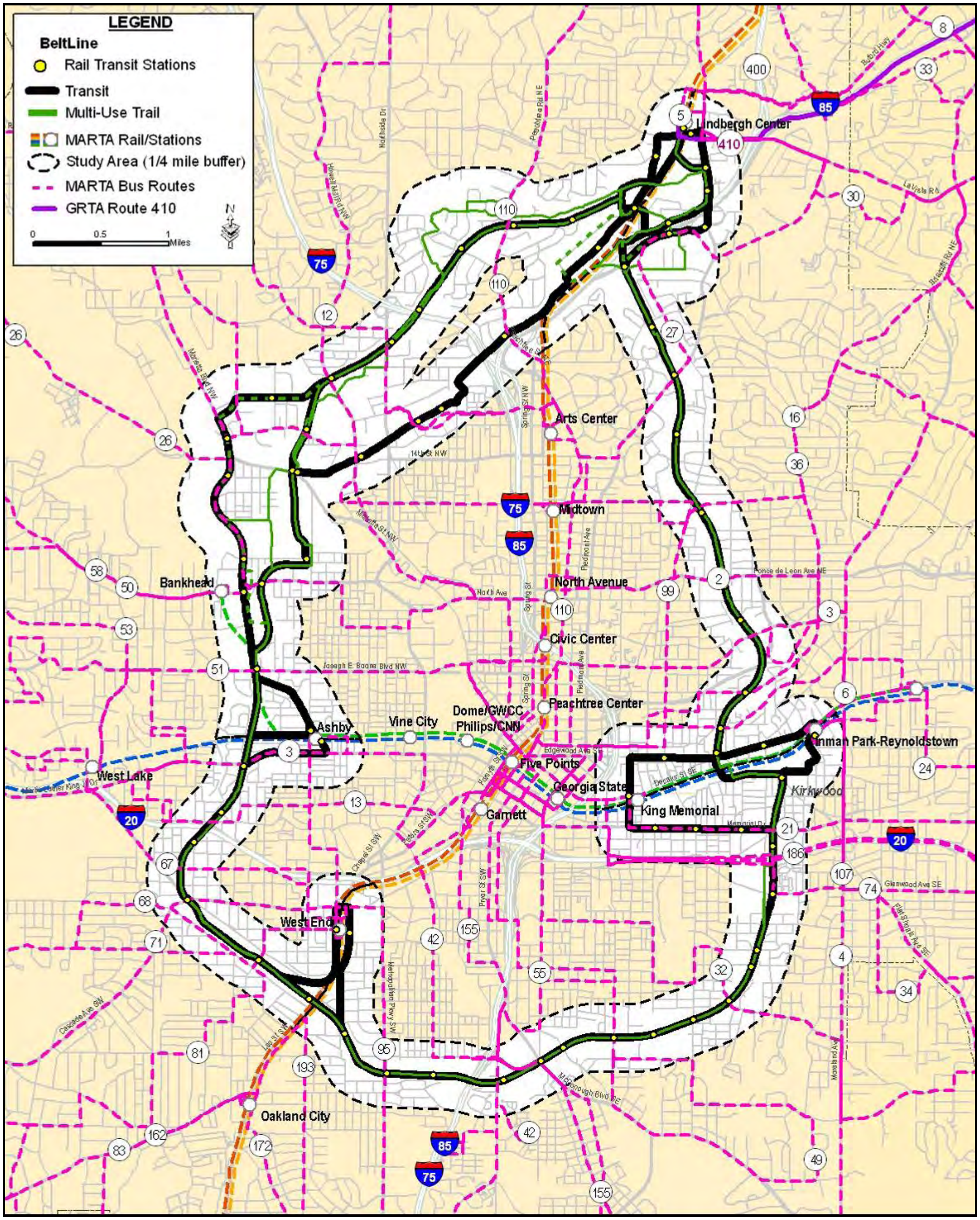
No-Build Alternative

The No-Build Alternative would not affect existing MARTA rail or local bus services or GRTA commuter bus service.

Build Alternatives

The Transit Build Alternatives would enhance existing and planned transit service by providing connecting service between radial transit routes that cross the Atlanta BeltLine and new service where it is currently unavailable. This expanded network would attract new ridership on the existing transit services as discussed in the following sections.

Figure 3-1: Existing Transit Service



Source: MARTA, GRTA

Note: The Atlanta BeltLine is not considered to be existing transit service, but for reference it is shown on this map. The MARTA service route data is current to September 2010.

MARTA Rail Service

The Atlanta BeltLine transit element would supplement the existing MARTA rail network by providing cross-town and circumferential transit service. Figure 3-1 shows the Atlanta BeltLine overlaid onto the existing MARTA rail lines and the stations for each. The Transit Build Alternatives were evaluated to determine their potential to serve the largest number of MARTA rail stations with direct connections. All Transit Build Alternatives potentially serve a MARTA rail station or an infill station in the vicinity: Lindbergh Center, Inman Park/Reynoldstown or King Memorial, West End, and Ashby. Additionally, each C- CSX Marietta Boulevard and D- Marietta Boulevard Alternative would serve the Bankhead Station. The Transit Build Alternatives would intersect rather than duplicate MARTA rail service. As discussed earlier, an important aspect of the Build Alternatives is their ability to reduce transfers at the Five Points MARTA rail station. Each Transit Build Alternative would function equivalently in that regard. The circumferential route of the Build Alternatives would benefit MARTA rail service by reducing transfers and transit congestion in central Atlanta.

The Trail Build Alternatives would benefit the MARTA rail system by improving bicycle and pedestrian access to and from stations.

MARTA Bus Service

The Transit Build Alternatives would enhance the MARTA local and GRTA Xpress bus networks by providing connecting service at proposed Atlanta BeltLine stations.

The Transit Build Alternatives were evaluated to estimate the number of local bus connections, which are defined as the cumulative number of connection operations made by bus routes during the peak periods with potential stops at the proposed Atlanta BeltLine stations. Assuming the bus routes and schedules implemented in September 2010, the Transit Build Alternatives would serve up to 141 local bus connections in the study area. In the northwest zone, each C- CSX Marietta Boulevard and D- Marietta Boulevard Alternative would connect with 21 routes; each A- CSX Howell Junction and B- Howell Junction Alternative would connect to 15 routes; and each F- Atlantic Station Alternative would connect 19 routes. A similar evaluation of express bus connections provides no distinction between Transit Build Alternatives as all would provide six express bus connections. No bus routes provide circumferential service; therefore, the Atlanta BeltLine transit element would not duplicate MARTA bus service.

Localized effects on existing bus routes may occur in the in-street running segments of the Atlanta BeltLine if the roadway and transit configuration increases congestion. Potential adverse effects include MARTA buses experiencing potential delays from Atlanta BeltLine vehicles and changes to the traffic signal system. Conversely, operational accommodations for the Atlanta BeltLine could see an overall travel-time savings along bus routes if the buses operate in the Atlanta BeltLine transit lanes and utilize the signal system.

Atlanta BeltLine vehicles might temporarily block travel when at stations, causing potential delays for local bus service, but potential effects would depend upon the frequency of stops, the dwell time, and the locations of local bus stops. A small subset of MARTA bus riders may experience adverse effects that result from potential changes in routes or headways, but the potentially beneficial effects of the Transit Build Alternatives for riders in general would offset these limited potential adverse effects.

The Trail Build Alternatives would beneficially affect the MARTA bus system by improving bicycle and pedestrian access to and from bus stops along trail routes.

Other Transit Service
The Transit Build Alternatives would benefit existing commuter bus services by providing connecting service. As these routes generally have a radial pattern connecting central Atlanta with suburban locations, the Atlanta BeltLine would complement their service by providing a circumferential transit link that would enable riders to access additional activity centers. When operating in segments of in-street running, the same potential adverse and beneficial effects on commuter bus services may occur as with the local bus routes.

The Trail Build Alternatives would beneficially affect other transit services by improving bicycle and pedestrian access to and from stops along trail routes.

Planned Transit Services
The Transit Build Alternatives were also evaluated to determine their potential to directly connect to No-Build Alternative transit projects illustrated in Appendix Figure 2.2-2 in Appendix D and to planned passenger rail service. The Transit Build Alternatives would connect to approximately 24 planned transit and passenger rail projects, while the No-Build Alternative would connect to 14 planned projects. The Atlanta BeltLine and the planned services would be mutually complementary wherever the services share a station and would not conflict except potentially as discussed in Section 3.1.6.2.

The measure evaluating the potential to connect to other transit projects also considers the capability of the mode technology selected for the Atlanta BeltLine to be compatible with the technologies proposed for other projects. Final determinations as to the technologies for many of these planned projects have not been made with the exception of the first phase of the Atlanta Streetcar, which will be a streetcar mode. Thus, performance by the Transit Build Alternatives has been measured qualitatively based on the typical operational characteristics of LRT and SC, the modes under consideration. As described in Chapter 2.0, the choice between LRT and SC is typically made based on specifically desired operating characteristics. The Atlanta BeltLine corridor is being developed in a manner that preserves the option for proposed LRT projects connecting to counties surrounding the City of Atlanta to operate within the corridor. For this reason, the conceptual design of the Build Alternatives reflects the more conservative rail infrastructure and geometrical requirements of LRT.

The Trail Build Alternatives would beneficially affect planned transit services by improving bicycle and pedestrian access to and from stops and stations along the trail route.

The potential effects of the Transit Build Alternatives on proposed passenger rail services are discussed in Section 3.1.6.

3.1.4 Roadway System

3.1.4.1 Affected Environment

The existing roadway network in the study area, depicted in Figure 3-1, consists of a radial interstate system superimposed on an arterial and local street system, portions of which are laid out in a grid. The arterial and local street system enables radial travel as well as travel patterns between destinations within the city. The local street pattern was developed over time through cumulative expansions that were influenced by terrain, land use, and successive urban design theories. Today's roadway network of grid and non-grid streets substantially influences travel patterns.

Appendix E of *Connect Atlanta*, the City of Atlanta's Comprehensive Transportation Plan, contains a figure entitled Map 8 Roadway Segments at LOS F [ARC 2005 Model Year]. It shows that the number of vehicles using many principal roadways, especially the interstate system, equal or exceed the roadway's maximum capacity, a condition commonly referred to as "gridlock."

The 2008 *Final Technical Report* by the Transit Planning Board (TPB) found that congestion in Atlanta costs the region nearly $2 billion per year, roughly $1,127 per commuter. The ARC *Envision6 Needs Assessment Report*, Section 3, issued in 2005, projects that by 2030, if no transportation improvements are implemented, the annual cost per person will rise to approximately $2,400.

Figure 3-2 presents the projected year 2030 roadway congestion in the study area. A map of regional roadway congestion in 2030 can be found in the *Technical Memorandum on Transportation Systems and Facilities*. ARC measures the traffic congestion levels using volume-to-capacity (V/C) ratios. A V/C ratio is the volume of automobiles traveling on a roadway relative to the capacity available on the roadway in terms of travel lanes available. A V/C ratio of 1.0 indicates a volume of traffic that is equal to the design capacity of the roadway. The level of congestion is measured by three categories of severity: Low (V/C ratio of 0.10 to 0.69); Moderate (V/C ratio of 0.70 to 1.00); and High (V/C ratio over 1.00).

Congestion substantially affects travel patterns and efficiency. The *Atlanta BeltLine Baseline Conditions Assessment* (2004) projected that the number of trips in congested conditions in the study area will increase from 58.9 percent of trips in the year 2000 to 70 percent in 2030. It identified the need for faster, more convenient and more reliable transit service, bicycle and pedestrian connections, and better utilization of the MARTA rail system, especially between the existing and planned activity centers.

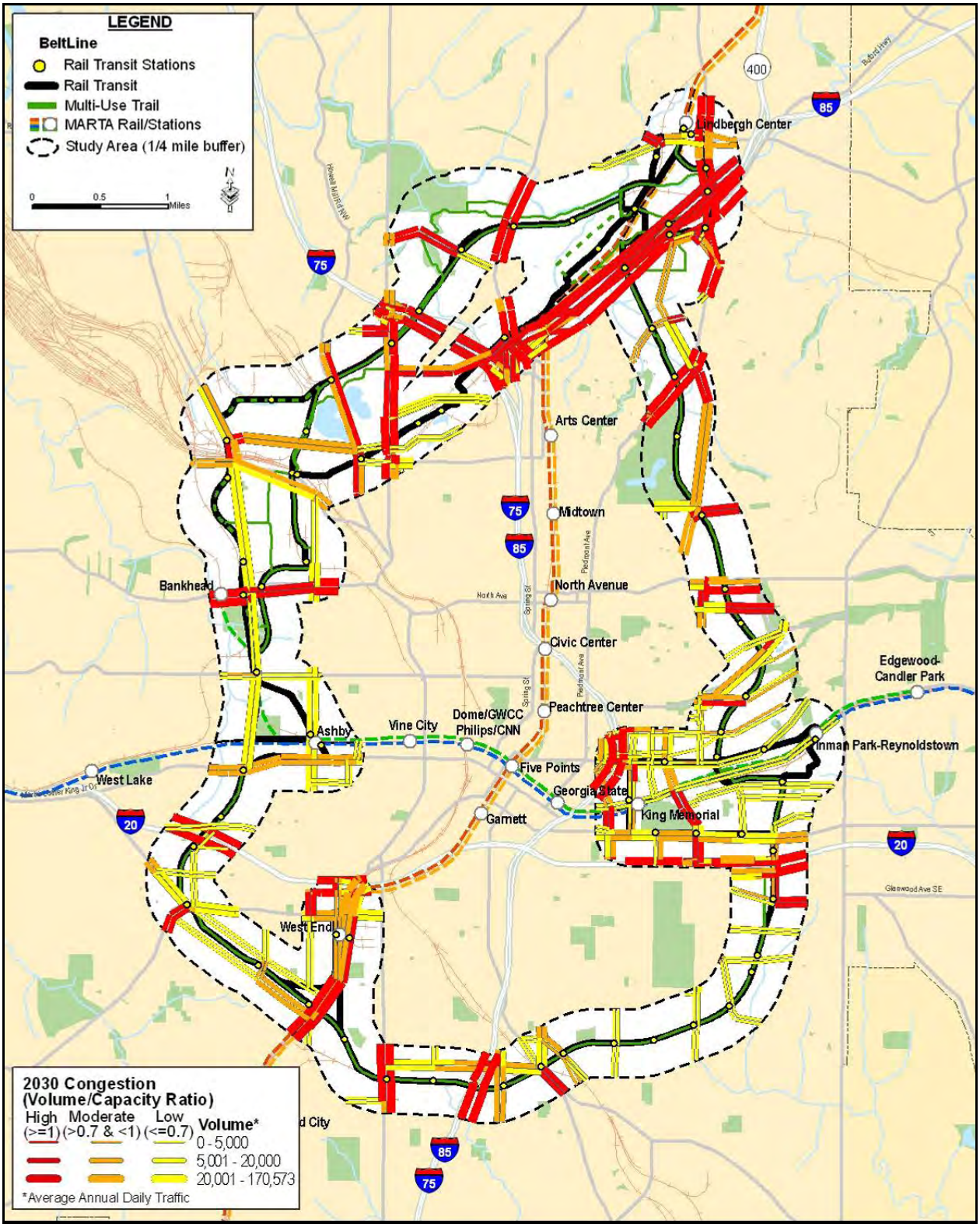
3.1.4.2 Effects on the Roadway System

No-Build Alternative

Roadway projects in the No-Build Alternative would provide maintenance and limited operational upgrades, as well as capacity improvements in some areas to reduce congestion. The projects are intended to provide localized operational improvements and congestion relief. However, no study area-wide project or combination of projects to address roadway congestion problems is planned. Several transit projects in the No-Build Alternative, including the Atlanta Streetcar, SR 13 (Buford Highway) BRT, and Memorial Drive BRT would operate in-street and could increase congestion.

As discussed in Section 3.1.2.2, the No-Build Alternative transit projects would attract riders that may otherwise travel by car. However, given the radial service areas of those projects, most travelers with origins and destinations in the study area would not be provided with an alternative to the use of private vehicles.

Figure 3-2: 2030 Roadway Volumes and Congestion Levels



Source: ARC

Build Alternatives

Diversion of HBW and non-work trips by the Build Alternatives may slow the growth of congestion on the roadways serving the study area. Over time, congestion may be reduced on some of these roadways, which would allow the roadways to better serve future travel patterns without changing their characteristics or capacity.

Since all the Transit Build Alternatives would operate partly in public road ROW, the effect of the alternatives on roadways depends on how safely and efficiently the Atlanta BeltLine vehicles are able to share roadways with other transit modes and general traffic. The principal concerns in this regard are as follows:

- At-grade crossings in which the transit vehicle enters or exits a roadway or crosses it at-grade; and
- In-street running in which the transit vehicle operates in a travel lane of a roadway, which it shares with other transit modes and general traffic or from which general traffic, and possibly other transit modes, have been removed.

The potential effects of the Build Alternatives on the general roadway traffic are discussed below in each of these areas. Further analysis and design refinement would be undertaken in Tier 2 analysis to avoid or minimize potential effects on roadway operations. The MARTA Station Connectivity and Infill Station Alternative areas will be assessed in subsequent analysis.

At-Grade Crossings

At-grade crossings are found in the northeast and southeast zones for all the Transit Build Alternatives, but not in the southwest zone. In the northwest zone, F- Atlantic Station Alternatives have 16 at-grade crossings; the C- CSX Marietta Boulevard and D-Marietta Boulevard Alternatives have five; and the A- CSX Howell Junction and B-Howell Junction Alternatives have four. At most locations, at-grade crossings would have a minor effect on roadway operations, but at some locations, forecast congestion and nearby intersections would require careful design to avoid or minimize adverse effects on roadway operation.

For example, as discussed above, roadway operations would be delayed when the traffic stops for turning or passing LRT or SC vehicles. The proposed crossings would require sufficient queuing space for traffic, both at the crossing and at adjacent intersections to allow unhindered BeltLine transit vehicle movement and safe and efficient roadway operations. Potential reconfiguration of the roadway and adjacent intersections to accommodate the Build Alternatives would have potential effects on traffic operations. Table 3-5 summarizes the potential effects of the at-grade crossings.

In-street Running Segments

As discussed in Section 2.3.5, conceptual engineering analyses for the Atlanta BeltLine examined transit geometry (curve radii, grades, and clearances), track configuration, and safety needs in all four zones as well as MARTA Station Connectivity and Infill Station Alternative Areas. The outcome of these analyses is that either mode can be accommodated throughout the corridor.

Table 3-5: Potential Effects of At-Grade Crossings

Zone	Alternative	Street	Potential Effects on Roadway/Projected 2030 Congestion
Northeast	All Build Alternatives	Atlanta Botanical Garden	Minor effects
		Monroe Dr. (near Kanuga St.)	Intersection queues extend into Atlanta BeltLine crossing; high congestion
		Irwin St. / Lake Ave.	Low to moderate congestion
Southeast	All Build Alternatives	Memorial Dr.	Intersection and signal may require modification; low to moderate congestion
		Glenwood Ave.	Likely increase to moderate to high congestion
		Boulevard	Minor effects; low to moderate congestion
		Milton Ave.	Minor effects; low to moderate congestion
		Allene Ave.	Minor effects; low to moderate congestion
Northwest	All Build Alternatives	Joseph E. Boone Blvd.	Minor effects; low to moderate congestion
	All A- CSX Howell Jct./ B- Howell Jct. Alternatives	Private commercial road near Ashby St. and Bedford St.	Minor effects; low to moderate congestion
		Private commercial road	Minor effects; low to moderate congestion
		Jefferson St.	Intersection queues from Joseph P Lowery Blvd. could extend into crossing; low to moderate congestion
	All C- CSX Marietta Blvd./ D- Marietta Blvd. Alternatives	Marietta Blvd. and Elaine Ave.	Minor effects; low to moderate congestion
		Ellsworth Industrial Dr./Elaine Ave.	Minor effects; low to moderate congestion
		Fairmont Ave.	Current low congestion will increase
		English St.	Minor effects; low to moderate congestion
	All F- Atlantic Station Alternatives	Private commercial road near Ashby St. and Bedford St.	Minor effects; low to moderate congestion
		Private commercial road	Minor effects; low to moderate congestion
		Jefferson St.	Intersection queues from Joseph P Lowery Blvd. could extend into crossing; low to moderate congestion
		Private commercial loading dock area	Major impacts to truck movements at loading docks
		Private commercial access road.	Left turn queues can extend beyond left turn bay. Minor effects; low to moderate congestion
		Access Rd. between 17th and 18th St.	Minor effects; low to moderate congestion
		Mecaslin St	Minor effects; low to moderate congestion
		18th St./ 20th St./ State St. intersection	Reconfiguration of intersection to accommodate turn of rail vehicle. Minor effects; low to moderate congestion
		Atlantic Dr.	Minor effects; low to moderate congestion
		Loring Dr.	Minor effects; low to moderate congestion
		Alden Ave.	Minor effects; low to moderate congestion
		Standish Ave.	Minor effects; low to moderate congestion
		Peachtree St.	Likely increase to moderate to high congestion
		Ottley Dr.	Minor effects; low to moderate congestion
		Armour Dr.	Minor effects; low to moderate congestion

Note: Potential effects measured outside of the MARTA Station Connectivity and Infill Station Alternative Areas.

The in-street portion of this analysis assessed the feasibility of operating within existing roadways. The outcome of the in-street analyses is that either mode can be accommodated in in-street portions of the project corridor, but SC would have fewer impacts along streets and other constrained segments due to the smaller typical vehicle size. SC is typically a more flexible mode for in-street operations as it can navigate tighter curves, negotiate grades and has a smaller operating envelope.

All Transit Build Alternatives would operate an in-street running segment on Bill Kennedy Way, while the C- CSX Marietta Boulevard and D- Marietta Boulevard Alternatives would have an in-street running section on Marietta Boulevard and Elaine Avenue. The F-

Atlantic Station Alternatives would operate on in-street running segments along 18th and 20th Streets in Atlantic Station, Deering Road, and Ottley Drive in the Armour area. Table 3-6 summarizes potential effects. Figure 3-3 and Figure 3-4 illustrate the locations along the C- CSX Marietta Boulevard, D- Marietta Boulevard, and F- Atlantic Station Alternatives of potential in-street running and grade crossings outside of the MARTA Station Connectivity and Infill Station Alternative areas.

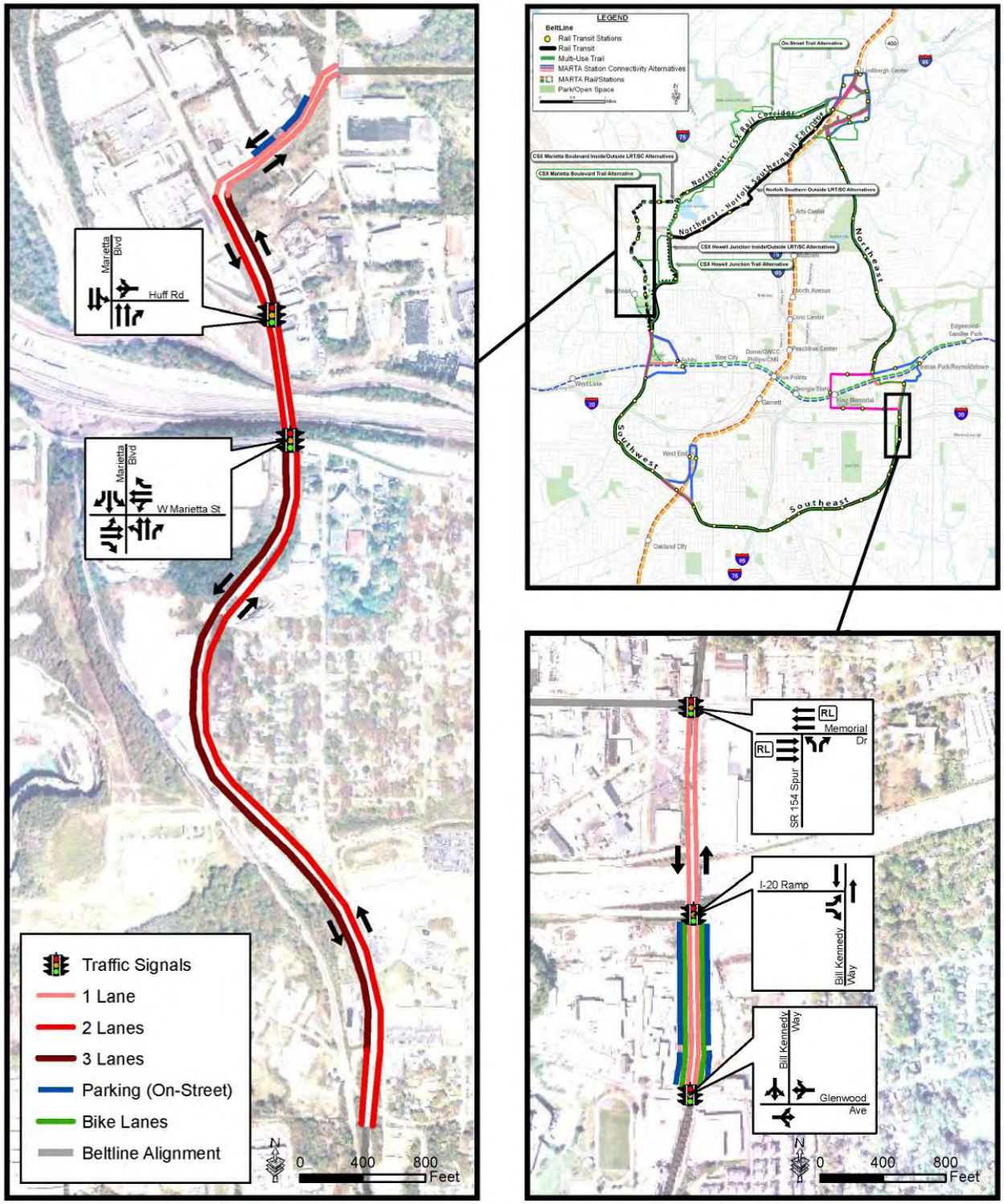
Table 3-6: Potential Effects, Proposed In-Street Sections

Zone	Alternatives	Street	Potential Effects on Atlanta BeltLine Transit Performance	Potential Effects on Roadway/ Projected 2030 Congestion
Southeast	All Build Alternatives	Bill Kennedy Way	Long travel times and unreliable operations	High congestion forecast; potential removal of on-street parking; dedicated lane potentially infeasible at I-20 bridge; eliminates bicycle lane
Northwest	All C- CSX Marietta Blvd./ D- Marietta Blvd. Alternatives	Marietta Blvd.	Adverse effects unlikely	Adverse effects unlikely
		Elaine Ave.	Adverse effects unlikely	Moderate adverse effects
	All F- Atlantic Station Alternatives	18th St.	Slower travel times from retail and residential parking lot egress and entrance congestion	Congestion from retail and residential parking lot egress and entrance. Reconfiguration of intersection at18th St./ 20th St. to accommodate turning radius of transit vehicle.
		20th St.	Slower travel time from queuing on access road in and out of Atlantic Station	High congestion likely from access into and out of Atlantic Station.
		Deering Rd.	Adverse effects unlikely	Adverse effects unlikely
		Ottley Dr.		
		Armour Dr.		

Note: Assuming shared travel lanes, and potential effects measured outside of the MARTA Station Connectivity and Infill Station Alternative Areas. There are no in-street running sections in the northeast or southwest zones.

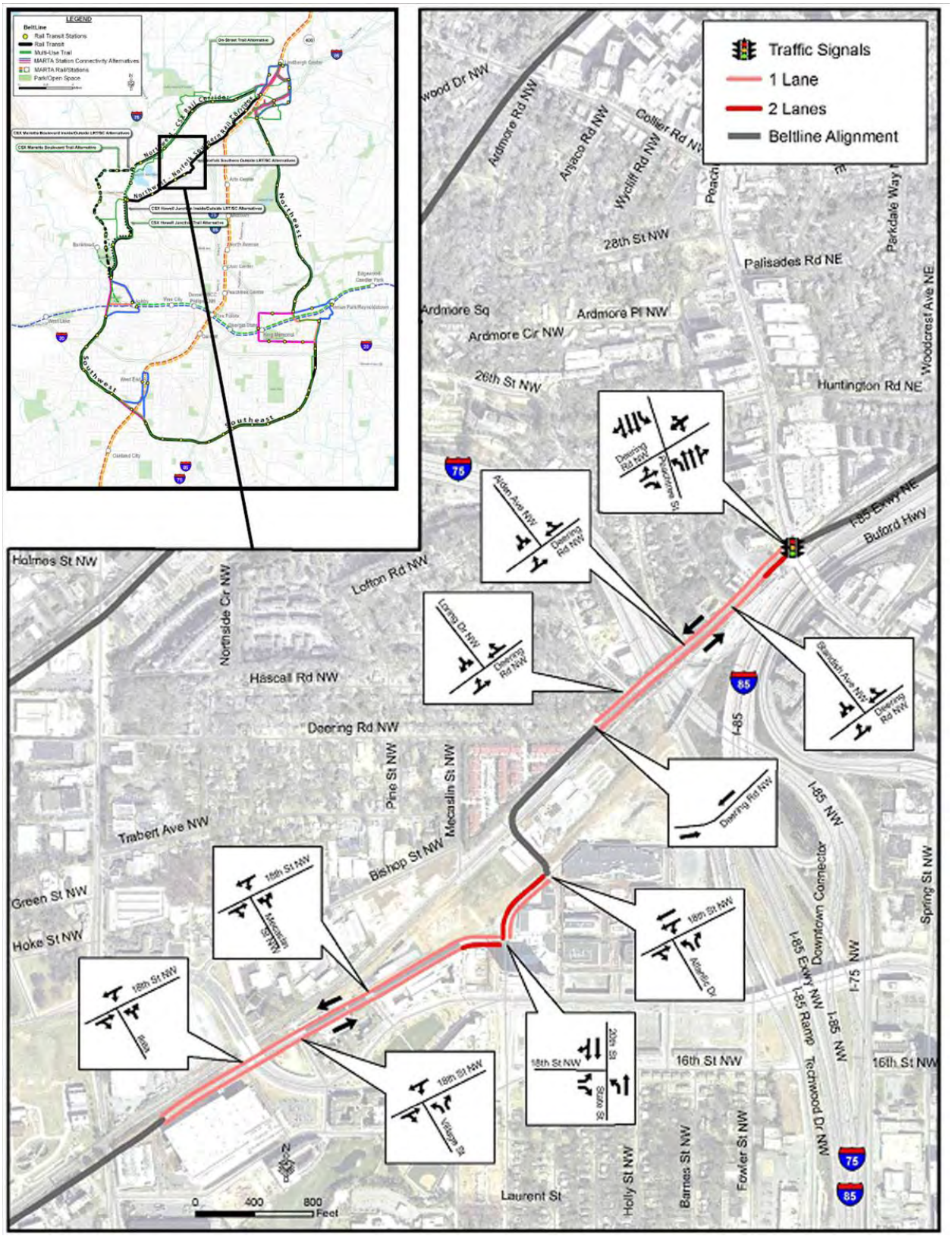
In mixed-traffic, moderate effects could be caused primarily by transit vehicles at stations. Greater effects could occur on cross-streets at intersections with transit signal priority, on both streets at intersections where the transit vehicles make turns because of the turning radius, and where the alignments enter and exit in-street running.

Figure 3-3: In-Street Sections – C- CSX Marietta Boulevard, D- Marietta Boulevard, and All Build Alternatives



Source: AECOM Analysis

Figure 3-4: In-Street Sections – F- Atlantic Station Alternatives



3.1.5 Freight Rail

3.1.5.1 Affected Environment

Active and inactive freight rail corridors are present throughout the study area, some forming the basis for the proposed Atlanta BeltLine Corridor. As shown on Figure 3-5 GDOT and the Atlanta Development Authority (ADA) are the principal owners of the inactive corridors, and CSX and Norfolk Southern operate and own or lease the active freight lines. Figure 3-6 depicts the approximate volumes of freight rail traffic and the route used by Amtrak. Section 3.1.6 provides discussion of Amtrak passenger rail service. Table 3-7 summarizes the important characteristics of the active freight rail corridors based on information available from MARTA, GDOT, a 2006 field survey and assessment of the freight rail corridors conducted by MARTA (MARTA *Rail Freight Analysis Report, Inner Core BeltLine/C-Loop Alternatives Analysis 2006*), and other sources as noted.

Table 3-7: Characteristics of Active Freight Rail Corridors

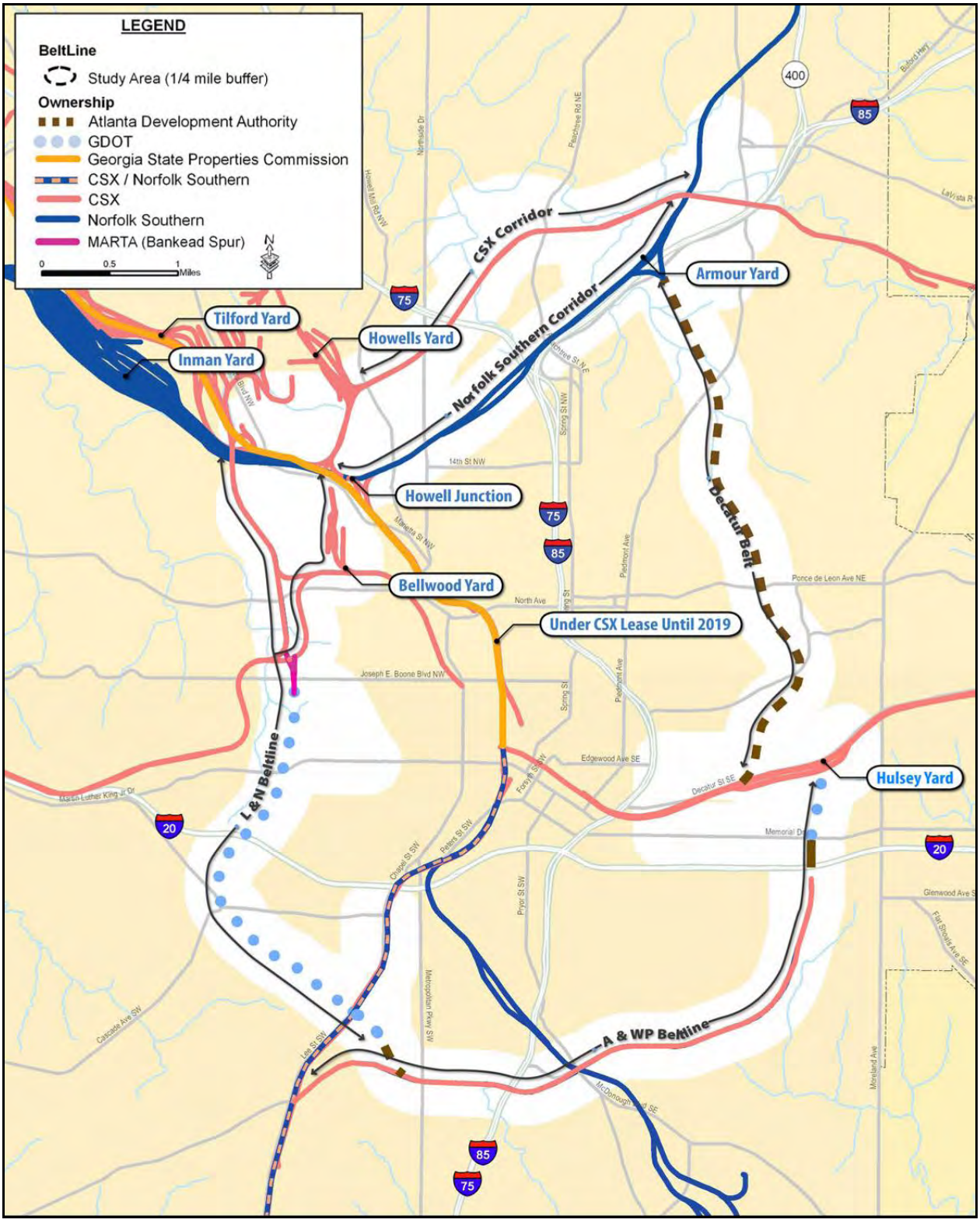
Zone	Owner	Alternative	Railroad Corridor	Freight Activity*
Southeast	CSX	All Build Alternatives	A&WP	2-3 trains per week
Northwest	CSX	A- CSX Howell Jct./ B- Howell Jct. Alternatives	CSX Bellwood Yard / CSX Northside	34-59 trains per day / 15-34 trains per day
		C- CSX Marietta Blvd./ D- Marietta Blvd. Alternatives	CSX Tilford Line / CSX Northside	15-34 trains per day / 15-34 trains per day
	Norfolk Southern	F- Atlantic Station Alternatives	Norfolk Southern Northside	15-34 trains per day, over 35 on western segment

Source: GDOT estimates
Note: There are no active freight rail corridors in the northeast or southwest zones.

The *Atlanta Regional Freight Mobility Plan* (ARC, February 2008) reviewed existing and projected conditions for all freight modes through 2030. It notes that Atlanta is a critical junction and logistics point for freight rail in the southeastern U.S., and that it is an important operations center for CSX. All freight modes are important to the regional economy, but freight rail is consequential to providing an alternative to trucks in central Atlanta. In 2005, freight rail tonnage was 130 million tons. The plan projects that by 2030 freight rail tonnage would increase by 37 percent and carloads by 53 percent.

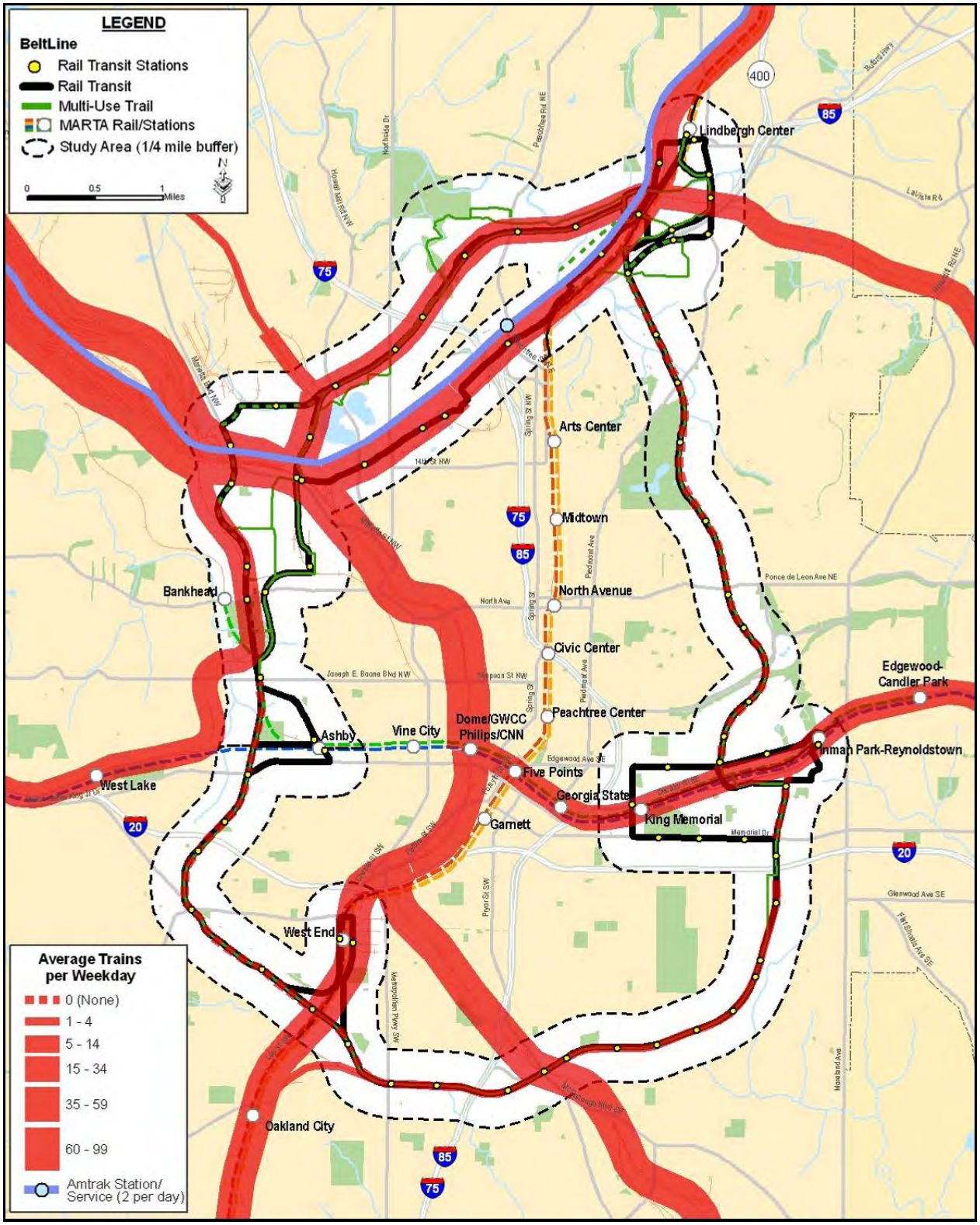
This plan includes 11 rail projects of which three are in the study area. The principal one is the improvement to Howell Junction, the major pinch point of the regional freight rail corridors. No cost has been estimated for this project because of its anticipated complexity. There also are two crossing improvement projects on Norfolk Southern routes estimated at $2 million each.

Figure 3-5: Freight Rail Corridors and Facilities



Source: GDOT

Figure 3-6: Freight and Amtrak Rail Traffic Volumes



Source: GDOT2005

Communication with public and private entities having jurisdiction over transportation facilities in the study area, including GDOT, CSX, and Norfolk Southern, identified several studies and discussions that are underway that have been considered in the evaluation of the No-Build and Build Alternatives. First, GDOT is currently preparing a Tier 1 EIS for a project that would establish high-speed passenger rail service between Atlanta and Chattanooga. Although a definitive alignment has not been selected, one alternative would potentially use a portion of the Norfolk Southern corridor in the northwest zone. Second, potentially relocating Amtrak to the Atlantic Station area of the Norfolk Southern corridor has been discussed for some years, but concepts are as yet unformed. The third is GDOT's aforementioned Howell Junction study to determine how to separate CSX and Norfolk Southern operations in the congested Howell Junction property that it owns. However, no specific project has been identified to date. The fourth is CSX and Norfolk Southern's potential for future expansion of their corridor capacity in the northwest zone.

The following subsections describe by zone the existing freight rail corridors that are the basis for the proposed Atlanta BeltLine Build Alternatives.

Decatur Belt - Northeast Zone
The ADA owns the inactive Decatur Belt between the Norfolk Southern Armour Yard and the CSX Hulsey Yard. The Decatur Belt includes all former Norfolk Southern property from near the junction of the wyes to Armour Yard in the north to DeKalb Avenue in the south.

Tracks are present in the corridor only from Armour Yard south to Montgomery Ferry Road. The ROW width varies from 200 feet at the Armour Yard wye and around Ralph McGill Boulevard, but narrows to as little as 40 feet beyond Airline Street.

A&WP BeltLine - Southeast Zone
The A&WP BeltLine begins at the CSX Hulsey Yard and runs south to Confederate Avenue and west to the CSX mainline near the intersection of Sylvan Road and Murphy Avenue. The ROW is approximately 100 feet wide, varying at several locations. The line is double-tracked from Glenwood Avenue to Boulevard and single-tracked from there to Murphy Avenue.

CSX owns most of the A&WP Beltline, except as noted below, and the line is still active along most of its length. CSX periodically delivers hopper cars to a customer between Berne Street and Glenwood Avenue.

GDOT owns the segment of the A&WP Beltline from just south of Wylie Street to Memorial Drive; the City of Atlanta owns the short segment from the old A&WP station on Memorial Drive to approximately Glenwood Avenue that is now Bill Kennedy Way, a surface street.

L&N Beltline - Southeast Zone
The inactive L&N Beltline is owned by GDOT. It begins near the western end of the southeast zone at a turnout from the A&WP BeltLine owned by ADA located between Metropolitan Parkway and Allene Avenue. It continues into the southwest zone.

L&N Beltline - Southwest Zone
The inactive L&N Beltline, owned by GDOT, begins in the southeast zone as described above and runs through the southwest zone and into the northwest zone. The ROW is generally 100 feet wide, but it widens to nearly 300 feet between Lawton Street and Cascade Avenue. In the north near Lena Street, there are no tracks.

L&N Beltline - Northwest Zone
The northwest zone has a complex network of active freight rail lines. Beginning in the south at Lena Street, the inactive L&N Beltline owned by GDOT extends northward to the MARTA Proctor Creek Line.

CSX Corridor - Northwest Zone
The CSX corridor consists of two active elements, the mainline (also known as the Abbeyville Subdivision) that extends north from the Tilford and Howell Yards to the Lindbergh area, and a line (A&WP Subdivision) that enters the study area in the vicinity of Joseph E. Boone Boulevard and turns north to Tilford and Bellwood Yards. The ROW contains a single-tracked mainline with a major siding track from Howell Yard up to East Switch at I-75. The ROW width ranges from 60 to 100 feet.

Norfolk Southern Corridor - Northwest Zone
The Norfolk Southern Corridor runs east from Inman Yard just outside of the study area to Howell Junction and then northeast to Armour Yard and continues to the northeast past Lindbergh Center. The segment between Howell Junction and Lindbergh Center is used by Amtrak. East of the I-75/85 interchange the MARTA Red and Gold Lines share the corridor; the Brookwood Amtrak station is at the intersection of Peachtree Street. From the Howell Junction Tower to Lindbergh Center, the Norfolk Southern corridor is double-tracked.

Howell Junction – Northwest Zone
Howell Junction is the major pinch point in the regional freight rail system as it is where the CSX and Norfolk Southern freight corridors come together at grade. At the junction, mainline Norfolk Southern tracks connecting the Inman Yard and the Corridor pass through a CSX interlocking to cross the CSX tracks from Tilford Yard traveling toward the south on a corridor leased from the Georgia State Properties Commission.

3.1.5.2 Effects on Freight Rail Corridors

No-Build Alternative

The No-Build Alternative includes a mix of transportation improvements to existing facilities and new transportation projects. Two projects, the Lindbergh/Emory High Speed Transit project and the Atlanta to Lovejoy Commuter Rail project would potentially use or cross freight rail corridors within the Lindbergh and West End BeltLine Connectivity Areas, respectively. Detailed assessment of the extent of potential impacts of the No-Build projects on freight rail corridors would occur during environmental analysis for those projects.

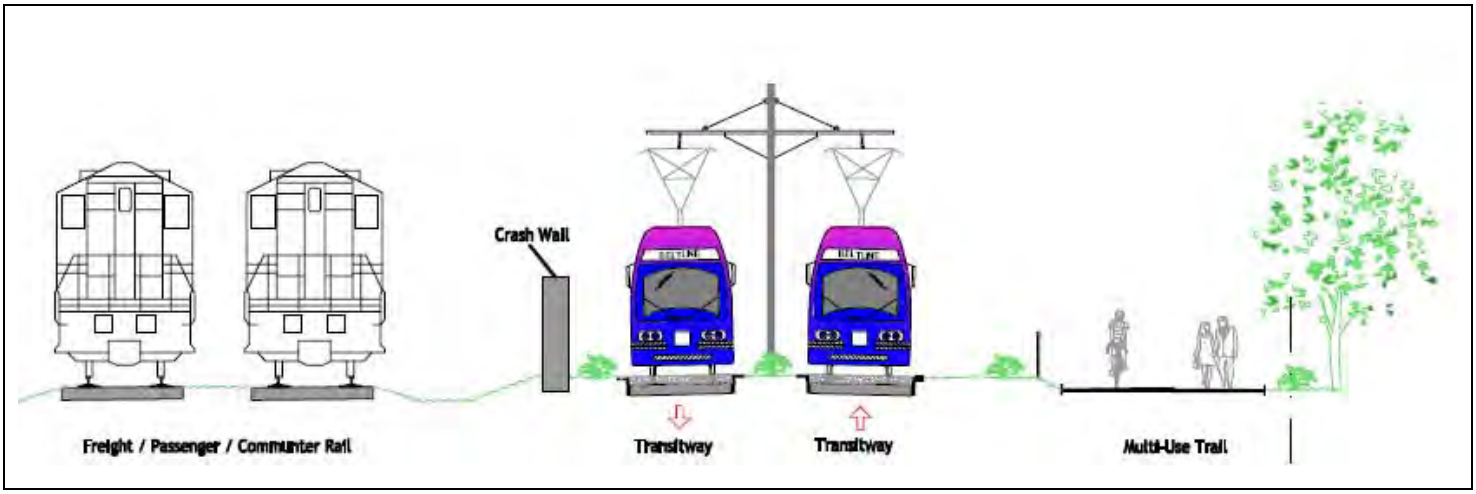
Build Alternatives

All of the Transit Build Alternatives are planned to share the CSX corridors with active freight railroads in the southeast zone. As a result, the Build Alternatives have the potential to affect active existing and future freight operations and infrastructure. The A- CSX Howell Junction and C- CSX Marietta Boulevard Transit Build Alternatives are planned to share one or more of the CSX corridors in the northwest zone. The B- Howell Junction and D- Marietta Boulevard Transit Build Alternatives would not share active CSX freight rail ROW in the northwest zone.

As described in Section 3.1.5.1, the active freight rail ROWs vary in width, and train movements range from two or three trains per week to almost 60 trains per day. The Atlanta BeltLine segments that contain co-aligned transit and multi-use trail elements

have a 57-foot wide typical section. At station locations, the width could be as much as 75 feet. In addition, the ROW must continue to accommodate the freight movements and a buffer or barrier between the freight tracks and the Atlanta BeltLine of a width not yet determined. In some segments, the Atlanta BeltLine ROW could vary and the width required in the freight ROW could be reduced as discussed in Chapter 2.5.4. Figure 3-7 is a sketch of the typical section for the Build Alternatives in an active freight rail ROW.

Figure 3-7: Typical Section of Transit and Trails Elements in Freight Rail ROW



*Dimensional relationships among modes are not defined. Drawing is not to scale.

The F- Atlantic Station Alternatives are not anticipated to use Norfolk Southern ROW. Consequently, effect on Norfolk Southern operations would be avoided or minimized. Moreover, the Ottley Drive route of the F- Atlantic Station Alternatives would avoid using the Atlantic Station area properties that could be considered for the Amtrak location at some future time.

As use of railroad ROW to construct and operate a grade separated transit structure crossing Howell Junction could affect operations in the most constricted location in the freight rail network, long term solutions to freight, heavy rail, and transit operations at Howell Junction are being studied. Solutions could be so complex that the *Regional Freight Mobility Plan* did not estimate the construction cost. This is the most likely location for the realization of the concern expressed in the plan that interference is the greatest inhibitor of future improvements to both freight and passenger rail operations and cites the Atlanta BeltLine as the example.

To reduce effects on freight rail operation, various changes in the Build Alternative typical section would be considered including locating stations outside the ROW, using a barrier in place of a buffer between the freight rail and the transit and/or between the transit and the trails, and locating the trails element outside of the ROW. Relocating the freight rail tracks within the ROW would also be considered. The latter could result in effects on freight rail operations including the disruption of freight rail activities during construction, such as a reduced schedule or volume of operations, or the diversion of some freight rail activities to other rail corridors. Potentially, similar effects could be permanent.

As the active freight rail corridors in the study area are privately operated, the extent of allowable disruption, the monetary cost of the disruption, and the mitigation of effects both during and after construction must be determined and minimized through in on-

going consultation with the freight railroads. Therefore, an accurate assessment of potential effects of the Build Alternatives on active freight corridors would depend on the outcome of discussions between the project sponsors and the private railroads for shared use of the corridor.

3.1.6 Passenger Rail

3.1.6.1 Affected Environment

Amtrak provides intercity passenger rail service in Atlanta via the *Crescent.* The *Crescent* travels between New Orleans and New York City at a rate of two trains per day. Amtrak operates on the Norfolk Southern Corridor and uses the Brookwood station at Peachtree Street and I-85. Relocating Amtrak to the Atlantic Station area has been discussed for some years, but concepts are as yet unformed.

Various conceptual planning efforts for expanded statewide passenger rail services have examined proposals for new services that would serve Atlanta. *GDOT's Intercity Rail Passenger Plan (1995)* identified long-range priorities for passenger routes across the State of Georgia using existing rail corridors with Atlanta as a hub. GDOT prepared the *Georgia State Rail Plan* in 2009. The plan updated GDOT's passenger and freight rail programs, with a refined document expected in 2011.

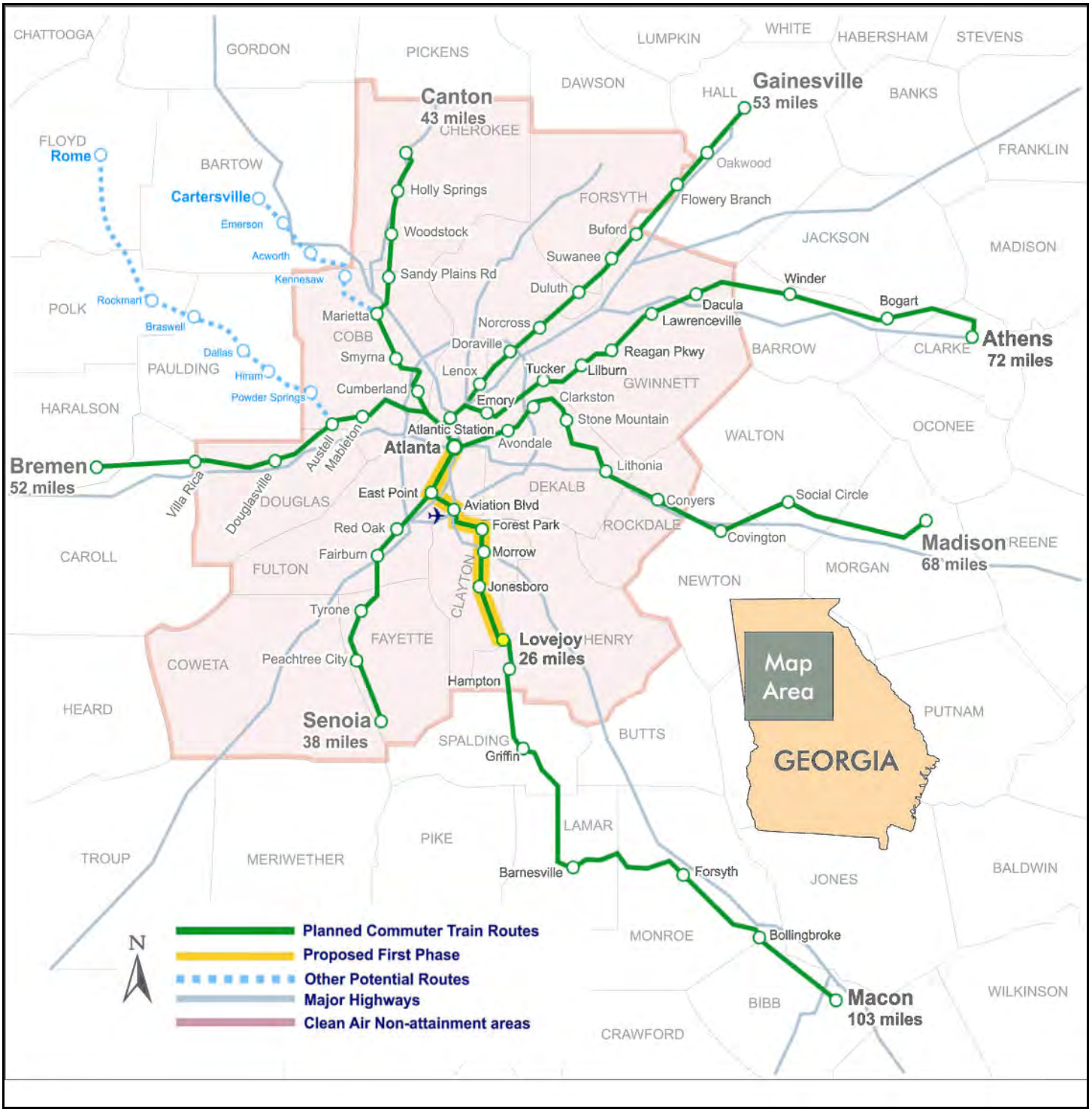
Currently there is no commuter rail service in the region. Shown in Figure 3-8 and in TPB's *Concept 3*, are the seven proposed commuter rail routes that would operate from the proposed Multi-Modal Passenger Terminal (MMPT), a new station near the Five Points MARTA rail station. The MMPT would serve commuter rail, intercity rail, high-speed rail, and regional bus transit. In the 2009 *State Rail Plan*, the first priority route runs along the CSX/Norfolk Southern tracks to Lovejoy, GA with a planned extension to Macon. This route parallels the MARTA Red and Gold Lines and crosses the study area near the West End MARTA rail station. Six other routes would serve Canton, Gainesville, Athens, Madison, Senoia, and Bremen.

Atlanta is on the federally designated high-speed rail Southeast Corridor. GDOT, in coordination with several Southeastern States, is studying high-speed rail service from Macon, GA, to Greenville, SC, and Charlotte, NC via Atlanta.

In addition, there is a proposed statewide Intercity Passenger Rail Service priority list with the route to Macon via Lovejoy and Griffin as the first priority. Second priority routes all extend the commuter rail services from Atlanta to Augusta via Madison, to Columbus via Griffin, and to Greenville, SC via Gainesville and Toccoa.

GDOT, FHWA, and FRA are currently preparing a Tier 1 EIS for a project that would establish high-speed passenger rail service between Atlanta and Chattanooga, TN. Although a definitive alignment has not been selected, the project would cross the Atlanta BeltLine within the northwest zone.

Figure 3-8: Proposed Commuter Train Routes



Source: GDOT, downloaded June 25, 2010

3.1.6.2 Effects on Passenger Rail

No-Build Alternative

The No-Build Alternative would not affect existing passenger rail operations.

Build Alternatives

Some of the Build Alternatives would share segments of existing railroad corridors with existing and planned passenger/commuter rail service. Overall, however, most new passenger/commuter rail services would not parallel rail corridors proposed for use by the Atlanta BeltLine.

No commuter rail or intercity passenger service is proposed to operate along the length of the CSX Corridor – thus, there would be no conflict with the CSX Alternatives.

However, four passenger/commuter rail proposed projects would use the Western Trunk from Howell Junction into downtown Atlanta. The commuter rail lines to Bremen, Canton, Athens and Gainesville, along with Amtrak, would pass through the Howell Junction; possibly conflicting with the A- CSX Howell Junction, B- Howell Junction, and F- Atlantic Station Alternatives. The C- CSX Marietta Boulevard and D- Marietta Boulevard Alternatives would avoid these potential conflicts.

The proposed passenger/commuter rail lines to Athens and Gainesville would use the Norfolk Southern Corridor to access the MMPT in downtown Atlanta. The F- Atlantic Station Alternatives would parallel the Norfolk Southern Corridor between approximately the Armour Yard and Howell Junction, and would not conflict with these proposed passenger rail operations. Likewise, no conflict is anticipated between the Atlanta BeltLine and the Crescent Amtrak service connecting New Orleans and New York via Atlanta, which operates on the Norfolk Southern Corridor.

The A- CSX Howell Junction, B- Howell Junction, and F- Atlantic Station Alternatives could affect the potential alignment of the Atlanta – Chattanooga High Speed Ground Transportation (HSGT) project being considered by GDOT. A portion of the Norfolk Southern Corridor, west of the Atlanta BeltLine, is being considered as one of several potential HSGT alignments. A potential point of conflict would be at Howell Junction.

The Ottley Drive route of the F- Atlantic Station Alternatives would avoid using the Atlantic Station properties considered for a future Amtrak Station.

From a ridership market perspective, the Transit Build Alternatives would not compete with the proposed commuter and intercity passenger rail as the Atlanta BeltLine provides local service while passenger rail service is a regional or long-distance function. The Build Alternatives also would have potentially beneficial ridership demand effects on future commuter rail service if commuter rail services include stations at junctions with the Atlanta BeltLine transit alignment. The Transit Build Alternatives potentially would benefit passenger rail service if joint stations are developed providing transfer opportunities between the various services and modes. Connections that can be provided between the Atlanta BeltLine transit and trails and passenger rail services support the project need to increase transportation connections, travel efficiency, and reduce travel demand by personal vehicle.

MARTA will coordinate with GDOT and Amtrak as the Atlanta BeltLine project advances to assess opportunities, constraints, and solutions regarding these respective operations and projects, as described in Section 3.1.9.

3.1.7 Pedestrian and Bicycle

3.1.7.1 Affected Environment

The quality of sidewalks, crosswalks, and pedestrian signals throughout the study area ranges from satisfactory to poor. Many sidewalks are cracked or overgrown, and several crosswalks are dysfunctional or non-existent. A cursory assessment of sidewalks by the City of Atlanta Department of Watershed Management suggests that only about 60 percent of City streets have sidewalks relative to street length. As thorough and accurate data regarding existing pedestrian infrastructure is unavailable, only a qualitative assessment is possible.

Pedestrian Facilities

The quality of sidewalks, crosswalks, and pedestrian signals in the study area ranges from satisfactory to poor. A cursory assessment of sidewalks by the Atlanta Department of Watershed Management suggests that about 60 percent of streets have sidewalks relative to street length. As collecting current, accurate data for existing pedestrian facilities is outside the scope of this Tier 1 EIS, a qualitative assessment was undertaken. Many sidewalks are cracked or overgrown, and many crosswalks are dysfunctional or non-existent.

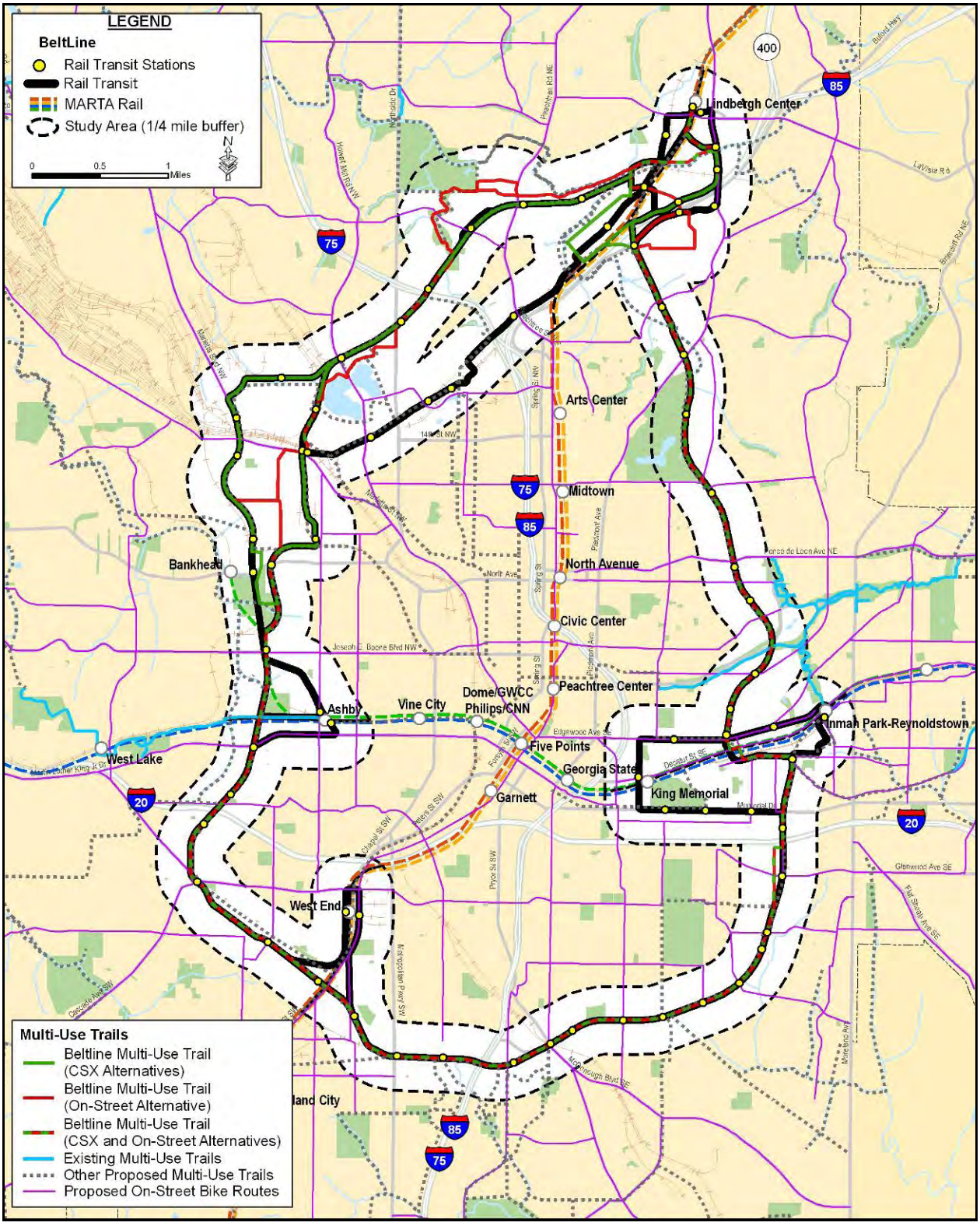
Bicycle Facilities

Currently, there are few on-street bicycle facilities. However, an extensive network is planned as shown on Figure 3-9. The *Connect Atlanta Plan* proposes both “Core” routes providing longer-distance connectivity, and “Secondary” routes providing access to the Core routes. Table 3-8 lists the routes planned in the study area, the type of route, and its completion status.

Multi-Use Trails

Figure 3-9 also shows existing and planned multi-use trails that provide both bicycle and pedestrian facilities within or connecting with the study area and with the proposed on-street network. Currently, the region has few multi-use trails, and the planned network, aside from the Atlanta BeltLine, has few cross-town trails and no circumferential trails.

Figure 3-9: Planned On-Street Bicycle Routes and Multi-Use Trails



Source: City of Atlanta Bureau of Planning

Table 3-8: On-Street Bicycle Routes Intersecting the Build Alternatives

Zone	Alternative	Roadway	Type of Route	Existing	Relationship to Transit Build Alternatives
Northeast	All Build Alternatives	Monroe Dr.	Secondary	No	At-grade
		Piedmont Ave.	Core	No	Over
		Montgomery Ferry Rd.	Secondary	No	Over
		North Ave.	Secondary	No	Under
		North Highland Ave.	Secondary	No	Over
		Virginia Ave.	Secondary	No	Over
		Ralph McGill Blvd.	Core	No	Under
Southeast	All Build Alternatives	Glenwood Ave.	Secondary	Yes	At-grade
		Bill Kennedy Way	Secondary	Yes	In-street
		Hill St.	Secondary	No	Under
		Pryor Rd.	Secondary	No	Under
		Confederate Ave.	Secondary	No	Under
Southwest	All Build Alternatives	Cascade Rd.	Core	No	Over
		Westview Dr.	Secondary	No	Over
		Lawton St.	Secondary	No	Over
Northwest	All A- CSX Howell Jct. / B- Howell Jct. Alternatives	Marietta St.	Core	No	At-grade
		Howell Mill Rd.	Core	No	Over
		Collier Rd.	Secondary	No	Over
		Peachtree Rd.	Core	No	Over
	All C- CSX Marietta Blvd. / D- Marietta Blvd. Alternatives	Marietta St.	Core	No	At-grade
		Marietta Blvd.	Core	No	In-street
		Howell Mill Rd.	Core	No	Over
		Collier Rd.	Secondary	No	Over
		Peachtree Rd.	Core	No	Over
	All F- Atlantic Station Alternatives	Howell Mill Rd.	Core	No	Over
		Peachtree St.	Core	No	Over

Source: City of Atlanta Bureau of Planning

3.1.7.2 Effects on Bicycle and Pedestrian Facilities

No-Build Alternative

The No-Build Alternative includes bicycle and pedestrian facilities along Ralph David Abernathy Boulevard and Marietta Boulevard that would supplement existing facilities, but significant gaps in the bicycle and pedestrian network would remain throughout the study area. Thus, three bicycle/pedestrian elements of the project need would not be addressed by the No-Build Alternative. First, the No-Build Alternative would not address

the project need to expand bicycle/pedestrian options in a manner that benefits the larger study area. Second, the No-Build Alternative improvements would be in-street and would not directly connect existing parks. Thus, the No-Build Alternative would not increase the amount of public greenspace in the study area or provide connections between parks.

Third, while the projects in the No-Build Alternative may serve minority and/or low-income populations in their immediate geographic vicinity, many study area populations would not benefit. As a result, the No-Build Alternative is minimally responsive to the project need to provide bicycle/pedestrian options in those areas in which environmental justice populations have been identified (Section 3.4).

Build Alternatives

Specific to the Atlanta BeltLine Purpose and Need, the Trail Build Alternatives would have beneficial effects on bicycle and pedestrian facilities by creating a circumferential route of multi-use trails that provides connections among existing and proposed pedestrian and bicycle facilities and other multi-use trails. The trails element would provide connectivity between areas currently separated by natural and manmade obstacles, and between activity centers, MARTA rail stations, and recreational and cultural facilities. The Trail Build Alternatives would provide bicycle/pedestrian options in those areas in which environmental justice populations have been identified in the study area (Section 3.4). In addition, the Trail Build Alternatives will increase public greenspace.

The number of connections to other trails is a performance measure that considers the ability of the Trail Build Alternatives to maximize the number of connections to other trails. Each of the Trail Build Alternatives would serve two other trails.

Miles of exclusive trails is another performance measure that evaluates the Trail Build Alternatives by the number of miles of trails separated from automobile traffic. It assesses user safety in terms of separation from automobile traffic by measuring the length of potential exclusive ROW for each of the Trail Build Alternatives. As shown in Table 3-9, preliminary estimates indicate that the Howell Junction Trail Alternative would have the most linear feet of exclusive ROW. Section 3.8 discusses potential effects to pedestrian and bicycle safety and security.

Table 3-9: Estimated Exclusive Right-of-Way and Proposed Access Points for Multi-Use Trails

Alternative	Miles of Exclusive ROW	Miles in Street	Trail Access Points
Howell Jct. Trail	19.8	1.2	90
Marietta Blvd. Trail	18.8	2.6	91
On-Street Trail	19.1	2.7	105

Source: AECOM

The number of proposed trail access points, which include transit stations, connecting trails, and street crossings, is another performance measure. Access to trails is also possible at multiple points along permeable linear areas, for example the edge of Tanyard Creek Park. As shown in Table 3-9, the On-Street Trails Alternative would have the most proposed access points.

3.1.8 Consistency with Transportation Plans

This section describes the consistency of the alternatives with several key plans and studies that have been adopted to guide transportation planning in the Atlanta region.

No-Build Alternative

The No-Build Alternative would not be consistent with a majority of the local and regional transportation plans because these plans include the Atlanta BeltLine transit and/or multi-use trails elements in their recommendations, but it would be consistent with the *Atlanta Regional Freight Mobility Plan,* as it would not affect active freight railroads.

Build Alternatives

The Build Alternatives generally are consistent with local and regional transportation plans including *Envision6* RTP/TIP, *Connect Atlanta Plan*, *Concept 3*, *Atlanta Region Bicycle Transportation and Pedestrian Walkways Plan, and Plan for a Walkable Atlanta*.

The Transit Build Alternatives are consistent because each would provide connections between activity centers, MARTA rail stations and bus routes. The Trail Build Alternatives are consistent because they provide increased infrastructure, routes and connections for bicyclists and pedestrians throughout the study area. These plans are discussed in the Technical Memorandum on Transportation Systems and Facilities.

Table 3-10 lists the Atlanta BeltLine project elements in the RTP/TIP. The Build Alternatives would potentially conflict with the Atlanta Regional Freight Mobility Plan that recommends the region continue to enhance its freight rail network and maintain the viability of in-town rail yards and lines to accommodate the forecasted growth in freight rail volumes. The potential effects of the Atlanta BeltLine on freight rail lines are indeterminate pending arrangements for shared use of CSX freight rail corridors.

Table 3-10: Atlanta BeltLine Projects in *Envision6* RTP/TIP

Project Type	Status	Project Description
Bicycle/Pedestrian Facility	Programmed	Atlanta BeltLine Corridor – multi-use trails and streetscapes linking Lindbergh Center, Inman Park, West End, and Howell Station
		ROW and construction
		Tier 1 environmental design
		Preliminary engineering
Fixed Guideway Transit Capital	Long Range	Atlanta BeltLine Corridor – transit service
Multi-Use Bike/Pedestrian Facility	Programmed	West End multi-use trails along CSX rail corridor and Westview Drive

Source: ARC, 2007, Envision6 RTP and TIP

The Trail Build Alternatives are consistent with the key pedestrian and bicycle policies from the *City of Atlanta 2004-2019 Comprehensive Development Plan* and *Connect Atlanta Plan*, which promote increased infrastructure, safety, ridership, maintenance of facilities, routes, and connections within the city.

3.1.9 Potential Avoidance, Minimization, and Mitigation Measures

During the Public Scoping Process, questions and concerns were raised regarding potential impacts to traffic, bicycle, and pedestrian circulation. In response, MARTA planned the Build Alternatives to avoid or minimize potential adverse effects. The Atlanta BeltLine Transit Build Alternatives would be aligned in or adjacent to exclusive ROW of

existing rail corridors to the maximum extent possible to minimize in-street running segments and would use grade separations to minimize at-grade intersections with roadways and to avoid at-grade crossings of active rail lines. Further means to avoid, minimize, and mitigate adverse effects on roadways, transit, freight rail corridors, and bicycle and pedestrian facilities are discussed below.

3.1.9.1 Transit

As discussed in Section 3.1.3.2, potential adverse effects to existing MARTA local bus routes would consist largely of the effects of in-street alignments of the Transit Build Alternatives. To the extent that the local bus routes are able to share exclusive transit lanes, the effects should be beneficial, but in cases where an exclusive lane is not shared with bus routes, especially if it reduces roadway capacity, there could be a negative effect.

Subsequent analysis would determine potential effects, especially schedule adjustments, on MARTA rail services to facilitate transfers between these services and the Atlanta BeltLine. The Build Alternatives would not have a negative effect on existing commuter bus service, but would likely result in refinements to transit service in general.

3.1.9.2 Roadways

As outlined in Section 3.1.4.2. in-street running and at-grade crossings potentially would affect the roadway network. Where heavy congestion is projected to be created or exacerbated by the Atlanta BeltLine transit, potential avoidance and mitigation measures may include purchase of additional roadway ROW to accommodate an exclusive or mixed-use transit lane. If the additional ROW would adversely affect private property, other means to minimize or avoid congestion may be required. At-grade crossings close to congested intersections and congested intersections within the in-street running segments would be analyzed to determine if new signalization or modification of existing signals would reduce congestion, including signal timing or pre-emption.

3.1.9.3 Freight Rail

As discussed in Section 3.1.5.2, the shared use of or proximity to active freight rail corridors could have potential adverse effects to freight rail operation. During initial consultation with Norfolk Southern and CSX, each railroad cited critical elements to their consideration of passenger rail or trails activity in their ROW. CSX, in particular, cited its "four pillars:" "uncompromised safety, capacity for current and future needs, no subsidization by CSX, and liability protection." Thus, whether the ultimately selected Transit and Trail Alternative is within or adjacent to a freight railroad corridor, specific CSX and Norfolk Southern concerns must be addressed. Key issues of concern to the railroads include the effect of freight ROW use, crossing, or proximity on the safety and capacity of existing and future freight operations.

CSX, in its correspondence in Appendix C, indicated a willingness to consider Atlanta BeltLine in or adjacent to its ROW:

- *"Because of the potential impact to our rail network, CSXT[9] requests that we continue to be included in the foregoing discussions concerning the potential use and*

[9] CSX Transportation Inc. (CSXT) is CSX's principal operating company.

preliminary engineering design that includes CSXT ROW for trails and transit lines during the NEPA process."[10]

- *"CSXT will cooperate in establishment of such paths, recognizing that important requirements must be met and safety precautions taken to protect those who use the pathways."*[11]
- *"There may be a possibility of using some of the CSX right-of-way as long as the railroad's needs for capacity are met and efficiency and safety are not compromised."*[12]
- *"If in the future, if it is determined that CSX's needs for capacity are met and efficiency and safety are not compromised, CSX will be willing to continue discussing the possibility of the BeltLine project operating in their right-of-way but they cannot guarantee or commit to anything."*[13]

The Atlanta BeltLine project sponsors intend to continue coordinating with the railroads as engineering details of alignment, geometry, vertical clearance, horizontal separation, cross section, safety barriers and so on are developed and evaluated. Moreover, matters of particular interest and concern to the railroads will be examined in consultation with the railroads, including but not limited to: interoperability of passenger and freight trains, shared facilities, capacity, operational safety and security, liability and insurance, access fees and compensation, equipment requirements, and capital improvements.

This Tier 1 EIS examines Transit and Trail Alternatives within and outside freight railroad ROW. Alternatives that would use freight railroad ROW would have the highest potential to impact existing and future freight rail operations, while alternatives physically outside freight railroad ROW would have a lower potential to impact freight operations. Thus, the latter functions as a minimization strategy with respect to potential freight railroad impacts. However, in both cases, means to further avoid or minimize potential effects through design refinements would be considered. For example, the typical section of the Transit and Trail Alternatives could potentially be modified to make it narrower. Temporal separation of transit and freight operations could be considered to potentially avoid adverse effects but would involve freight operations for late-night/early morning hours when the transit service would not be in operation. Both temporal separation and diversion of the Atlanta BeltLine outside the railroad ROW would create other potential effects requiring assessment such as late-night noise, increases in vibration, and ROW impacts outside freight railroad corridors.

3.1.9.4 Passenger Rail Operations

The shared use of existing and potential future passenger/commuter rail corridors could adversely affect their operation. In that event, the typical section would be modified to the extent possible. If this proves infeasible, the transit and/or trail elements could be realigned outside of the rail corridors.

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[10] Letter from CSXT to Atlanta BeltLine, Inc. "Re: CSXT Comments on the Atlanta BeltLine Tier 1 Draft Environmental Impact Statement." 08 Oct. 2010.

[11] Ibid.

[12] Coordination Meeting between MARTA, ABI, and CSX. "Meeting Notes." 10 Nov. 2010.

[13] Ibid.

Continued coordination between MARTA, GDOT, Amtrak, and others, as appropriate, is necessary as the Atlanta BeltLine project advances to assess opportunities, constraints, and solutions regarding these respective operations and projects. This coordination is especially necessary as solutions addressing issues such as existing and potential congestion at the Howell Junction are crucial to advance any or all of the various transit and passenger rail proposals. In particular, continued coordination with the Georgia State Properties Commission is required since the state of Georgia owns the air rights at Howell Junction.

3.1.9.5 Bicycle and Pedestrian

Potential effects to existing bicycle and pedestrian facilities could be their elimination or modification in some situations to provide a transit lane in a street ROW. Other potential effects on these facilities concern at-grade crossings of the Atlanta BeltLine and safety and security. Section 3.8 discusses proposed measures to address safety and security.

3.1.10 Subsequent Analysis

A Tier 2 analysis would provide a more detailed examination of the potential effects of the selected alternative on transportation systems and facilities. Emphasis would be placed on effects on freight rail operations; in-street running sections; at-grade crossings and intersections; interfaces with future transit projects; trail crossings, access points, connections and amenities; Atlanta BeltLine station locations, and MARTA Station Connectivity and Infill Station Alternatives areas including potential joint and infill MARTA rail stations. Means to avoid or minimize adverse effects would be considered, and appropriate mitigation measures to offset unavoidable effects would be developed.

3.2 Land Use and Zoning

3.2.1 Methodology

Section 3.2 examines the existing and future land use and the zoning in the study area. This includes the potential direct effects in the ROWs of the Build Alternatives and potential indirect effects in their service areas. These service areas are specific to each alignment alternative, and differ from the study area, which is the composite of them all. The discussion of the land use and zoning within the ROW requirements is intended to address the potential needs to amend the zoning of parcels within proposed ROWs and to understand the existing and future land use to be converted by the acquisition of the parcels within proposed ROWs.

For purposes of comparing the land use effects of one Transit Build Alternative to another in this Tier 1 EIS, areas of potential direct or indirect effects are calculated in acres. Comparisons are made for existing and planned land use, zoning, and estimates of existing and additional required ROW.

The direct effects of the Transit Build Alternatives would occur within the proposed ROWs of the Build Alternatives that are estimated to be 37 feet wide. The indirect effects were assessed based on the area within ¼ mile of the alignment of each of the Transit Build Alternatives, otherwise known as the service area, but not including the area directly within the proposed ROWs. Table 3-11 presents the areas of each Transit Build Alternative's direct or indirect effects by zone. As the alignments are shared in the northeast, southeast, and southwest zones, the variations in affected acres among the Transit Build Alternatives are found only in the northwest zone.

Table 3-11: Acres of Potential Direct or Indirect Land Use Effect: Transit Alternatives

Zone	Potential Direct (D) or Indirect (I) Land Use Effects by Transit Build Alternative (Acres)									
	All A- CSX Howell Jct.		All B- Howell Jct.		All C- CSX Marietta Blvd.		All D- Marietta Blvd.		All F- Atlantic Station	
	D	I	D	I	D	I	D	I	D	I
Northeast	17.5	1353.4	17.5	1353.4	17.5	1353.4	17.5	1353.4	17.5	1353.4
Southeast	20.0	1532.9	20.0	1532.9	20.0	1532.9	20.0	1532.9	20.0	1532.9
Southwest	9.2	767.7	9.2	767.7	9.2	767.7	9.2	767.7	9.2	767.7
Northwest	22.9	1716.3	22.9	1718.2	24.4	1833.7	24.5	1836.9	22.7	1698.9
Totals	69.6	5370.3	69.6	5372.2	71.1	5487.7	71.2	5490.9	69.4	5352.9

The direct effects of the Trail Build Alternatives are based on the estimate that the ROWs of Trail Build Alternatives would be 20 feet wide. Again, the acreage within the MARTA Station Connectivity and Infill Station Alternative Areas is not used to estimate the direct effects. Indirect effects for the Trail Build Alternatives are not calculated as it is assumed that these are represented by the indirect effects of the Transit Build Alternatives because the Trail Alternatives are intended to serve the same stations, activity centers, and communities. Table 3-12 presents the areas of each Trail Build Alternative's direct effect by zone. Again, as the alignments are shared in the northeast, southeast, and southwest zones the variations in affected acres among the Trail Build Alternatives are found only in the northwest zone.

Table 3-12: Acres of Direct Land Use Effect: Trails Alternatives

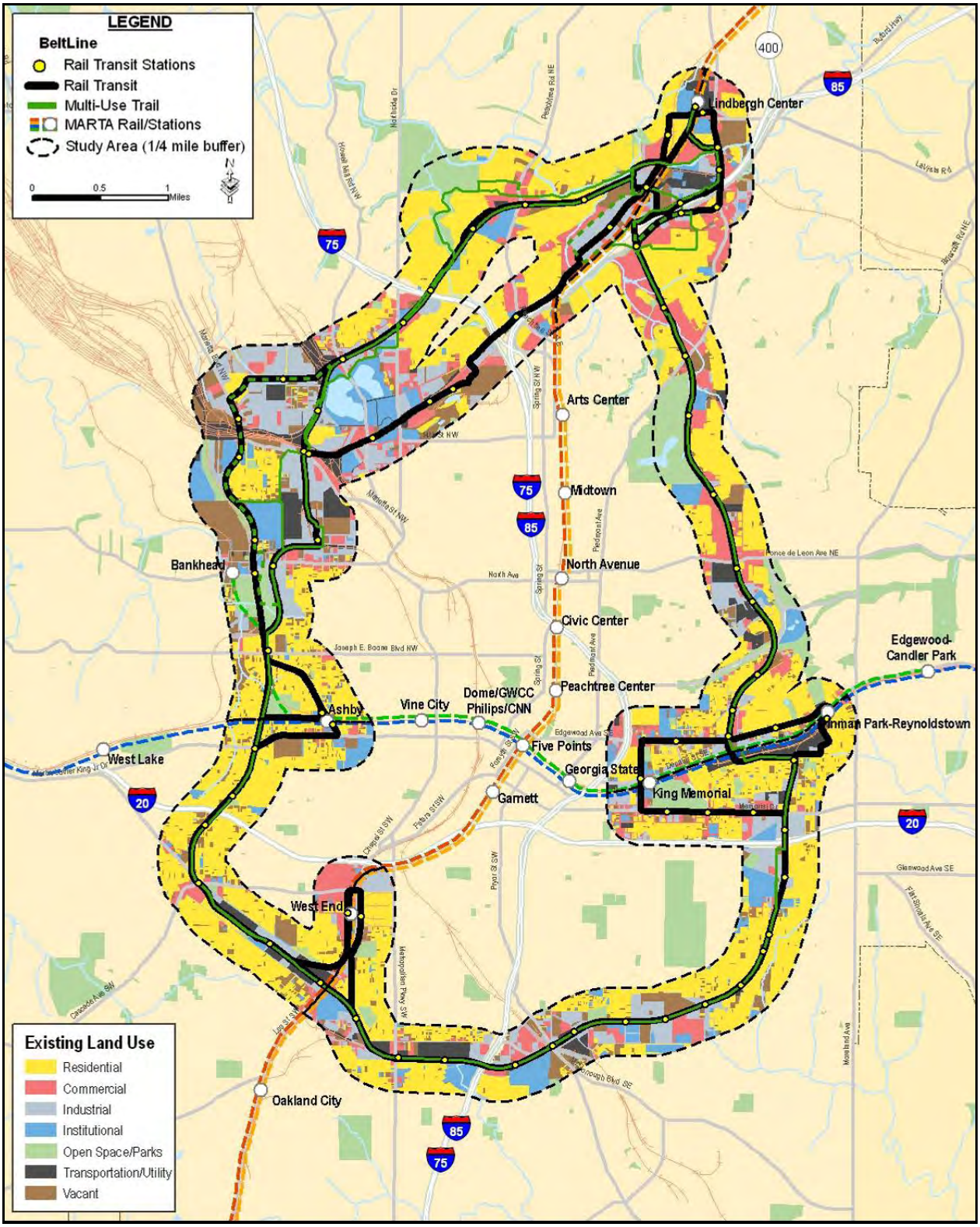
Zone	Direct Land Use Effect by Trail Build Alternative		
	Howell Jct.	Marietta Blvd.	On-Street
Northeast	9.4	9.4	9.4
Southeast	11.0	11.0	11.0
Southwest	5.0	5.0	5.0
Northwest	12.5	13.1	16.3
Totals	37.9	38.5	41.7

The *Technical Memorandum on Land Use, Zoning, and Local Plans* (AECOM 2011) provides further detail regarding the existing and planned conditions including objectives, policies, and recommended projects of the *Comprehensive Development Plan*; the Atlanta BeltLine Subarea Master Plans; and the relevant sections of the Zoning Ordinance.

3.2.2 Land Use

The existing land use, illustrated on Figure 3-10, was primarily provided by the City of Atlanta and supplemented by the Fulton County Tax Assessor's parcel level data and by LandPro data compiled by the ARC. For some parcels, such as state-owned highway ROW, these parcels do not indicate a use. The existing land use, therefore, indicates a smaller number of acres than future land use and zoning.

Figure 3-10: Existing Land Use



Source: City of Atlanta, Bureau of Planning

Future land use, presented in Figure 3-11, represents the City of Atlanta's *Future Land Use Map* (FLUM) that provides policy for development of vacant land and for redevelopment projects. The FLUM covers all areas of the city. It includes a large quantity of land that is designated as mixed-use and a category for transportation/utility land use. Within the study area, the transportation/utility category in the FLUM ranges from four percent in the northeast and southeast to five percent in the northwest and six percent in the southwest. It encompasses the public roadways and freight railroad corridors that would be used by the proposed Atlanta BeltLine alignments.

In this section, the many land use categories used by the City are aggregated into the generalized categories of residential, commercial, industrial, institutional, parks, transportation/utilities, and vacant. All of these generalized land use categories are found in each of the study area zones, but the proportions of the categories differ. The predominant existing land use category in the study area is residential, ranging from 30 percent to 56 percent of total land area in each zone.

3.2.2.1 Direct Effects on Land Use

No-Build Alternative

Direct effects on land use in the study area by the additional ROW requirements of the No-Build Alternative would be examined in the individual environmental analyses for each constituent project.

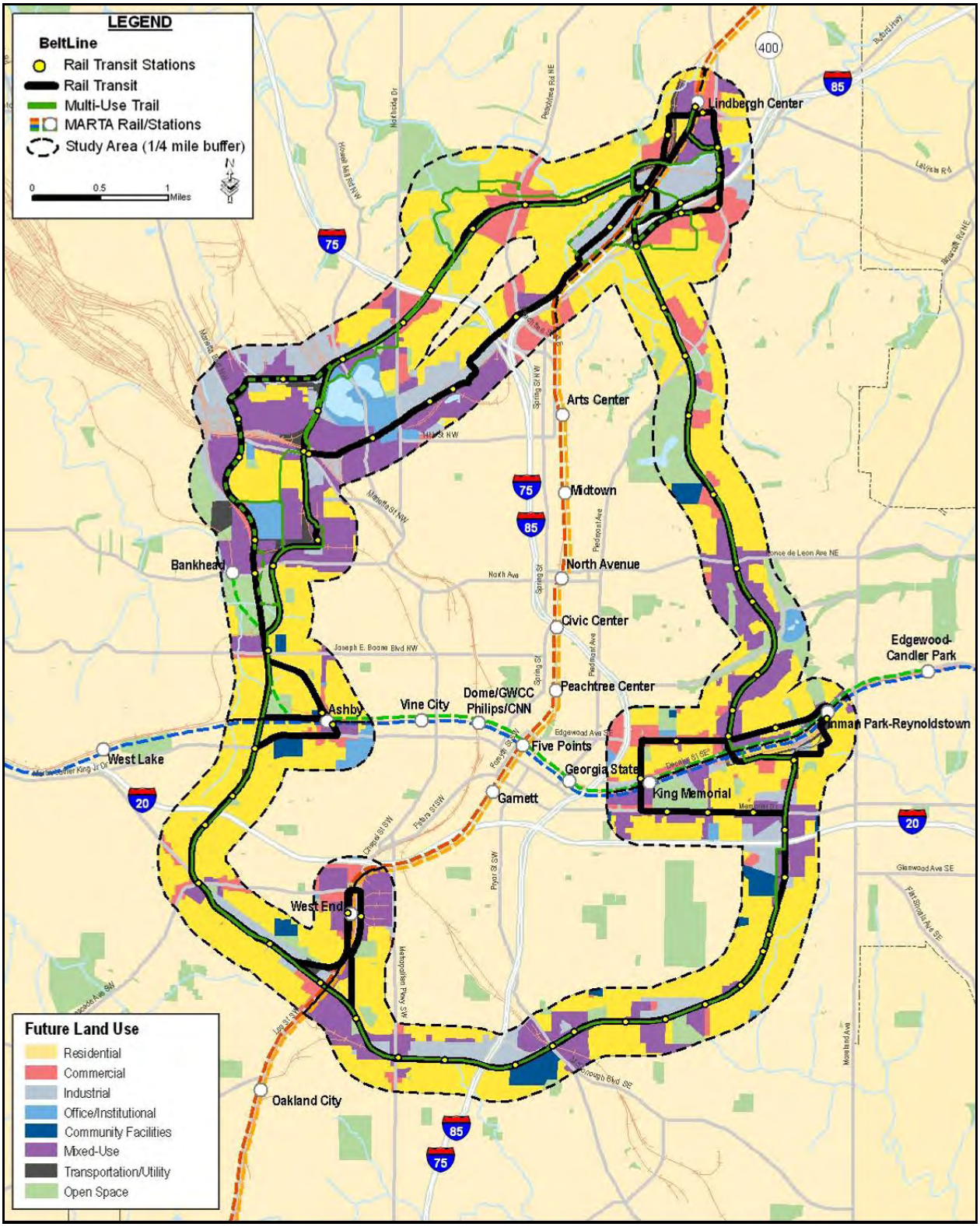
Build Alternatives

Table 3-13 presents the existing land use in the proposed ROWs of each Build Alternative, both Transit and Trails. The direct effect of the alternatives is to convert to the Transportation/Utility land use category all acreages in the ROWs that are not currently in that category. It should be noted, that the "total converted" numbers in Table 3-13 include the No Data category that, in large part, includes railroad, roadway, or utility ROW that more appropriately should be included in the transportation/utility category. In general, the Build Alternatives that convert the smaller number of acres from other uses to Transportation/Utility have less direct effect on existing land use.

Table 3-13: Direct Land Use Effects

Zone	Build Alternatives		Direct Land Use Effects (Acres)									
			Residential	Commercial	Industrial	Institutional	Parks	Vacant	No Data	Total Converted	Transportation/ Utility	Total
Northeast	All Transit and Trail Alternatives		0.3	0.3	0.1	0.0	0.0	0.0	26.1	26.9	0.0	26.9
Southeast	All Transit and Trail Alternatives		0.1	0.1	0.4	0.3	0.0	0.5	29.5	30.9	0.1	31.0
Southwest	All Transit and Trail Alternatives		0.0	0.1	0.2	0.0	0.0	2.7	7.6	10.5	3.7	14.2
Northwest	Transit	All A- CSX Howell Jct.	0.8	0.6	2.4	0.4	0.0	1.8	12.5	18.5	4.4	22.9
		All B- Howell Jct.	2.3	1.4	4.2	2.7	0.0	4.5	3.4	18.5	4.4	22.9
		All C- CSX Marietta Blvd.	0.8	0.4	1.1	0.3	0.0	2.0	18.9	23.5	0.9	24.4
		All D- Marietta Blvd.	2.1	1.2	2.6	1.9	0.0	4.0	11.7	23.6	0.9	24.5
		All F- Atlantic Station	0.1	0.5	3.2	1.0	0.0	3.0	10.0	17.8	4.9	22.7
	Trail	Howell Jct.	1.6	0.8	2.3	1.5	0.0	2.4	1.9	10.3	2.2	12.5
		Marietta Blvd.	1.5	0.8	1.4	1.2	0.6	2.1	5.5	12.9	0.2	13.1
		On-Street	2.4	0.8	0.6	3.2	1.1	1.3	4.7	14.1	2.2	16.3

Figure 3-11: Future Land Use Map (FLUM)



Source: City of Atlanta, Bureau of Planning

In the northeast, southeast, and southwest zones outside the MARTA Station Connectivity and Infill Station Alternative Areas, there are 72.1 acres of direct impact due to acquisition for each of the Build Alternatives, of which 3.8 acres are shown in the transportation/utility land use category. The 68.3 acres of other generalized categories that would be converted by each alternative is comprised of 0.4 residential, 0.5 commercial, 0.7 industrial, 0.3 institutional, 3.2 vacant, and 63.2 acres for which no data is available. No acres used as parks are in the combined ROW's in these zones.

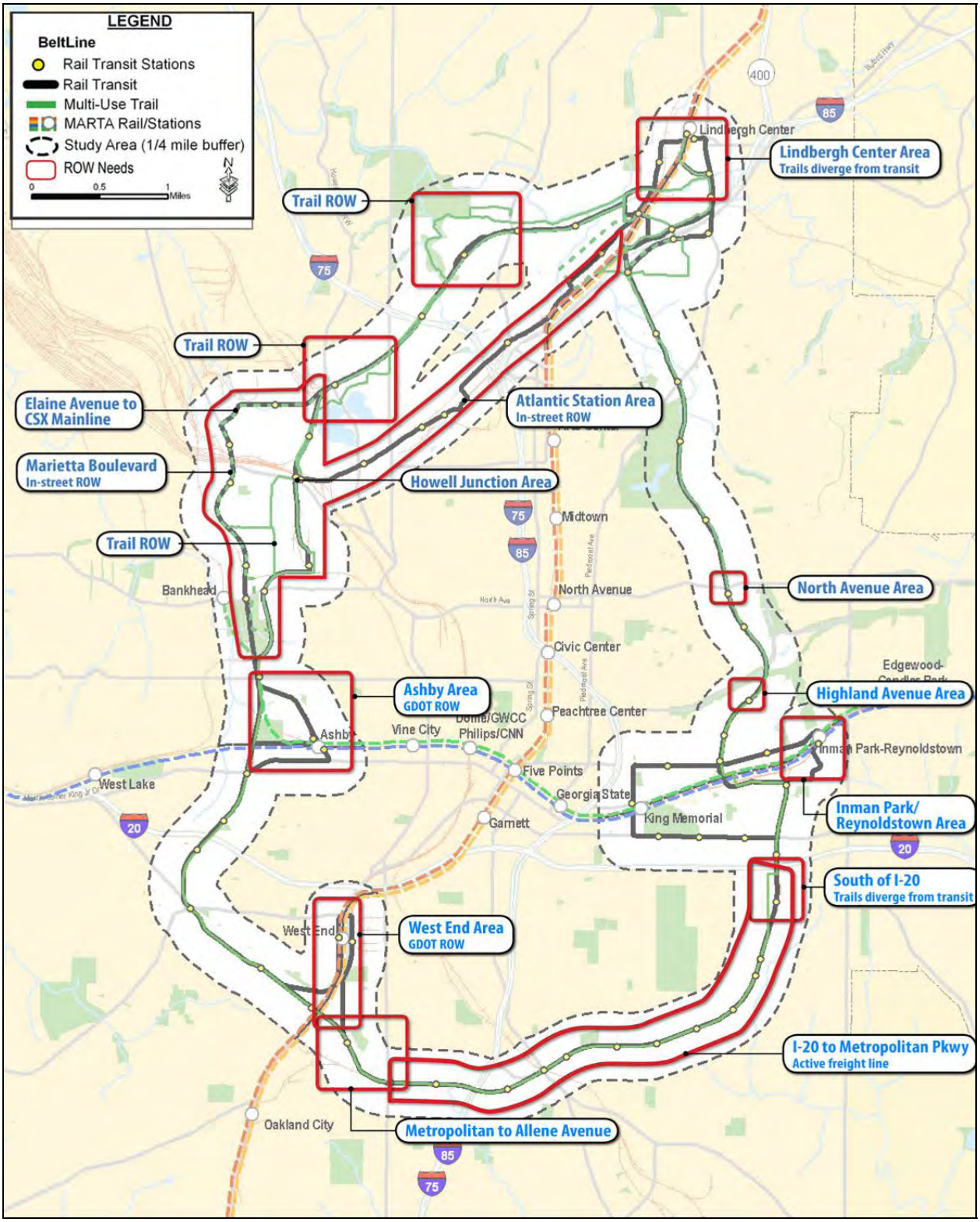
In the northwest zone, the A- CSX Howell Junction and C- CSX Marietta Boulevard Transit Build Alternatives are aligned in active railroad ROWs or in roadways while the others are aligned adjacent to these ROWs. In the other zones, the Transit Build Alternatives are aligned primarily in active and inactive railroad ROW or in roadways. These and certain other lands in proposed ROW that are not owned by the City of Atlanta, MARTA, GDOT, or some other project sponsor, constitute additional required ROW. Figure 3-12 shows the alignments and estimated areas of the additional required ROW. Ultimately, use of active freight rail corridors would require site-specific cross sections based on agreements between the railroads and the Atlanta BeltLine project sponsors. This Tier 1 EIS documents coordination undertaken with public and private transportation entities including the freight railroads that would potentially lead to such agreements (Chapter 3.1). Therefore, while actual cross sections may vary due to site-specific conditions, the estimates of direct impacts within proposed ROWs use the typical cross sections as conservative estimates.

Of the Transit Build Alternatives in the northwest zone, the F- Atlantic Station Alternatives would convert 17.8 acres from other land use categories to transportation/utility, which is the smallest number of acres to be converted. As was stated previously, the Build Alternatives that convert the smallest number of acres from other uses to transportation/utility have the least direct effect on existing land use. If the acres of vacant or "no data" land use categories are excluded from estimating the direct effect in the northwest zone, the C- CSX Marietta Boulevard Alternatives have the least effect by converting only 2.6 acres of land use (residential, commercial, industrial, mixed use, or parks) to transportation/utility.

Of the Trail Build Alternatives in the northwest zone, the Howell Junction Trail Alternative would convert 10.3 acres from other land use categories to transportation/utility, which is the smallest number of acres to be converted. If the acres of vacant or "no data" land use categories, are excluded from estimating the direct effect in the northwest zone, the Marietta Boulevard Trail Alternative has the least effect by converting only 5.4 acres of land use (residential, commercial, industrial, mixed use, or parks) to transportation/utility.

As described in Section 2.5.1 and illustrated by Figure 2-2 through Figure 2-4, approximately 50 preliminary locations for stations were identified for the purpose of evaluating potential Atlanta BeltLine service characteristics. These stations are located approximately ½-mile apart in the vicinity of major roadway intersections, existing or proposed trip generators, and other key access points. The final station locations, their designs and dimensions, and an assessment of the potential direct effects will occur in the Tier 2 analysis.

Figure 3-12: Additional Required Right-of-Way



Source: AECOM

3.2.2.2 Indirect Effects on Land Use

The indirect effects on land use can be described as potential changes in use within the service areas that result from potential development or redevelopment of land by others because of the presence of the Atlanta BeltLine transit and trail. The changes are expressed in Table 3-14 as increases or decreases in the number of acres by generalized category in order to provide for a comparison among the Build Alternatives. This was calculated by comparing the existing land use with the FLUM because it is assumed that changes would be in accord with that document, although the FLUM may be amended over time. The Alternative that indicates the largest net change would have the greatest indirect effect on existing land use.

Table 3-14: Potential Changes in Land Use in Service Areas

Zone	Transit Alternatives		Changes in Land Use of Service Areas (Acres)							
			Residential	Commercial	Industrial	Institutional	Mixed Use	Parks	Transportation/ Utility	Vacant/No Data
Northeast	All Transit Alternatives		+232.5	-58.9	-21.4	-2.4	+245.4	+111.7	+38.3	-547.5
Southeast	All Transit Alternatives		+345.0	-83.1	+44.2	-101.3	+339.1	+35.7	-13.0	-572.0
Southwest	All Transit Alternatives		+207.1	+11.0	+28.9	+2.5	+14.8	+13.6	-7.8	-273.9
Northwest	Transit	All A- CSX Howell Jct.	+225.3	+28.6	-76.5	-52.6	+350.5	+60.5	+1.3	-541.5
		All B- Howell Jct.	+223.6	+26.2	-73.4	-39.6	+348.0	+58.7	+11.3	-550.8
		All C- CSX Marietta Blvd.	+211.0	+45.5	+24.3	-89.6	+326.3	+111.5	+44.2	-677.9
		All D- Marietta Blvd.	+210.0	+42.9	+26.9	-87.5	+325.1	+109.7	+52.2	-687.1
		All F- Atlantic Station	+247.6	-49.0	-16.7	-29.7	+498.0	+48.4	+4.2	-747.8

No-Build Alternative

The No-Build Alternative would not be fully compatible with the FLUM as it is based on the CDP, which includes the adopted Atlanta BeltLine Subarea Master Plans. The Subarea Master Plans support increased transit and additional multi-use trails and specifically recommend higher-density land uses located where the proposed Atlanta BeltLine can efficiently serve them. Indirect effects on land use in the study area by the additional ROW requirements of the No-Build Alternative would be examined in the individual environmental analyses for each constituent project.

Build Alternatives

All Build Alternatives would support realization of the FLUM. The F- Atlantic Station Alternatives would cause the greatest change in land use primarily because of the large area of land that currently is vacant or for which we have no data that would be converted to the transportation/utility land use category. As mentioned earlier, however, there are qualifications to the apparent benefits of converting vacant or “no data” land use categories to transportation/utility. First, the Alternatives that would cause less change in land use may already come closer to conformance with the FLUM. Other qualifications are discussed below. Table 3-14 provides a summary of potential indirect effects on future land use by zone. Additional discussion of the indirect effects on future land use can be found in the *Technical Memorandum on Land Use, Zoning and Local Plans* (AECOM 2011).

In the northeast zone, most potential station locations have planned higher-intensity and mixed-use land uses in their vicinities that would be consistent with the transit element of the Build Alternatives. The potential station in the Armour Yard area has mostly industrial future land use in its vicinity, which could be vulnerable to market pressures for future land use conversions (CDP, 2008). To some extent this is foreseen by the FLUM, that foresees a reduction in the acres of industrial land.

In the southeast zone, near Garibaldi Street and Ormewood Avenue, the potential station locations have nearby land uses that are mostly low-density residential or industrial that could be vulnerable to future market pressures for land use conversions. Near McDonough Boulevard, Glenwood Avenue, and Moreland Avenue / Hardee Street, land uses of higher-intensity and mixed-use would be consistent with the transit element. A notable change projected in this zone is the large reduction in institutional acreage.

In the southwest zone, potential station locations near Martin Luther King, Jr. Drive and Westview Drive have almost entirely low-density residential future land uses designated nearby. Two others near Westview Drive and Rose Circle have significant industrial future land uses designated nearby. These potential station areas could be vulnerable to future market pressures for land use conversions. Other potential station locations have higher-intensity and mixed-use future land uses in their vicinities that would be consistent with and benefit from the transit element of the Build Alternatives.

In the northwest zone, the potential growth in residential use is generally comparable among all the alternatives ranging from 210 acres and 250 acres. The other uses vary more noticeably between the three groups of alternatives. The C- CSX Marietta Boulevard and D- Marietta Boulevard Alternatives are the only ones with a growth of industrial acres and their growth in parks is roughly double the growth for the other alternatives. The extent of potential indirect land use effects in this zone could depend on further definition of the shared ROW in segments of freight rail. Although industrial uses near potential station locations near Marietta Street and along Marietta Boulevard near Elaine Avenue could be vulnerable to market pressure for conversion to other uses; this is not reflected in the changes projected by the FLUM.

Potential long-term adverse indirect effects of the Build Alternatives could be caused by property development or increased property values. While the project is intended to increase property values in proximity to some station and amenity areas as described in the CDP, it also could create market pressures to convert existing low-density or industrial uses into higher-density uses. In some locations this might be incompatible with neighborhood character. Further analysis at the Tier 2 phase would evaluate these potential effects in more detail.

For example, although the FLUM includes denser uses in the ¼-mile vicinity of proposed stations, it retains a significant amount of low-density residential land use. Also, parcels designated for future industrial use could be vulnerable to market demand for residential, office, and retail development near mass transit stations (CDP, 2008). Higher property values would reduce the affordability of affected neighborhoods for low-to-moderate income households (Immergluck, 2007). To mitigate this potential adverse effect, the Atlanta BeltLine Tax Allocation District reserves 15 percent of its bond funds to assure that 20 percent of its new housing units are affordable.

The following measures evaluate how well the No-Build and Build Alternatives meet the land use objectives of the FLUM in relation to specific issues.

Provide service to areas of underutilized land including Brownfields: This measure estimates the extent to which the Alternatives would provide service to underutilized land by estimating the number of acres of this land, shown in Table 3-15, within a ½ mile of proposed stations. Section 101 of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) defines a Brownfield as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Underutilized parcels are defined as parcels whose existing buildings value is less than 40% of the total appraised land value, suggesting the high likelihood of redevelopment or reinvestment.

Table 3-15: Underutilized Land within ½-mile of the Potential Station Locations

Transit Alternatives	Acres
No-Build	213
All A- CSX Howell Jct. / B- Howell Jct.	838
All C- CSX Marietta Blvd. / D- Marietta Blvd.	765
All F- Atlantic Station	704

Source: AECOM

Provide service to areas in the TAD with high development capacity of underutilized or undeveloped land as defined by the Atlanta BeltLine Subarea Master Plans and/or the *Atlanta BeltLine Redevelopment Plan* within ½-mile of proposed stations: This measure estimates the extent to which the Alternatives would serve these areas that were identified by using existing land use maps, aerial photography, and field surveys. These properties were then categorized to identify the ones with higher development capacity as defined by the *Atlanta BeltLine Redevelopment Plan* and the Atlanta BeltLine Subarea Master Plans. Table 3-16 shows the estimated acreage of potential higher density residential and commercial development capacity by Alternative, and that the C- CSX Marietta Boulevard and D- Marietta Boulevard Alternatives would serve the most acres.

Table 3-16: Potential Residential and Commercial Development Capacity

Transit Alternative	Acres
No-Build	101
All A- CSX Howell Jct. / B- Howell Jct.	470
All C- CSX Marietta Blvd. / D- Marietta Blvd.	499
All F- Atlantic Station	487

Source: AECOM

The number of economic development focus areas within ½-mile of the proposed station and trail access points: is shown in Figure 1-5. The F- Atlantic Station Alternatives would serve all 20 economic development focus areas but one, and the other Transit Build Alternatives would serve all 20, while the No-Build Alternative would serve seven.

3.2.3 Zoning

The *City of Atlanta Zoning Ordinance* (*City of Atlanta Zoning Ordinance*, August 2009) is intended to assure the development of future land use in a manner that is compatible with the CDP and the FLUM. All properties are within a zoning district. Figure 3-13 shows

the base districts that regulate permitted uses and the Atlanta BeltLine Overlay District. Base zoning districts regulate land use and include various development regulations. Most base zoning districts contain a single permitted use, but there also are Special Public Interest (SPI) Districts that regulate areas with special attributes such as Downtown, Landmark Districts (LD) that regulate areas of historic and cultural importance, and Planned Development Districts for multiple parcels developed together. The Build Alternatives would have no direct effects to SPI and LD districts.

In addition, there are Overlay Zoning Districts that apply additional regulations such as the Atlanta BeltLine Overlay District. The District was ordained in 2007 and has the same geographic boundaries as the Atlanta BeltLine Redevelopment Area, defined in the *Atlanta BeltLine Redevelopment Plan*. It regulates aspects of building and site design and implements the *Atlanta BeltLine Street Framework Plan* that has been adopted to improve the street grid and the pedestrian and bicycle routes, while the underlying base zoning districts regulate the permitted uses.

Table 3-17 presents the number of acres of impacted land in the proposed ROWs by zoning district outside the MARTA Station Connectivity and Infill Station Alternative Areas by Build Alternative.

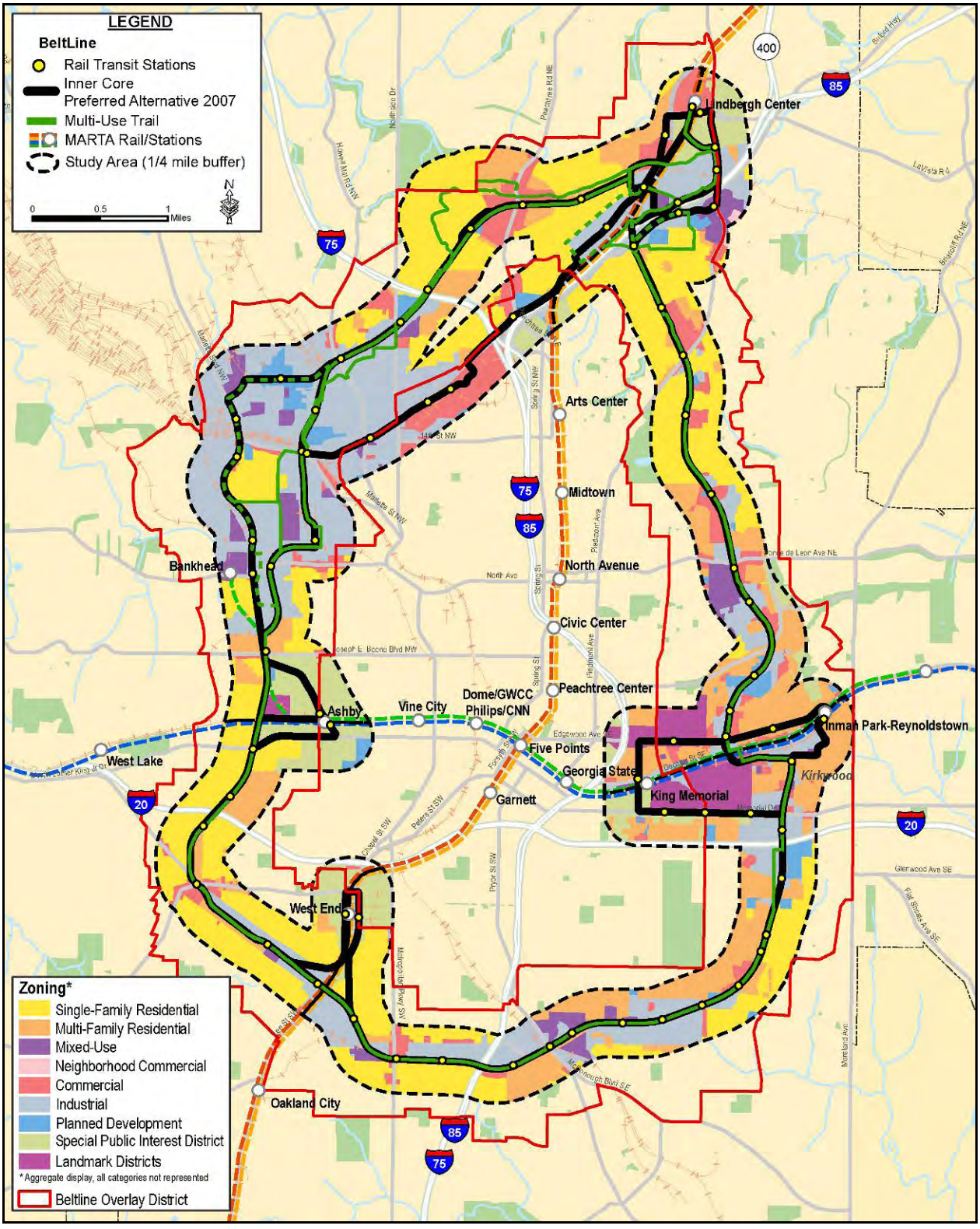
This subsection summarizes the current zoning designations of directly impacted areas and considers the requirements for potential zoning changes based on land use conversions to transportation/utility land uses or to parks. Many parcels in the vicinity of proposed stations are zoned for higher residential and employment densities as part of a transit-oriented development strategy, but other conditions apply in some areas.

Table 3-17: Zoning of ROWs

Zone	Build Alternative		Areas where Zoning May be Affected (Acres)						
			Single Family Residential	Multi-Family Residential	Mixed Use	Commercial	Industrial	Planned Development	Total Acres
Northeast	All Transit and Trails Alternatives		9.2	0.6	1.0	4.4	10.6	1.0	26.8
Southeast	All Transit and Trails Alternatives		4.2	4.4	0.9	2.5	17.9	1.1	31.0
Southwest	All Transit and Trails Alternatives		3.5	4.3	0.0	0.4	6.1	0.0	14.3
Northwest	Transit	All A- CSX Howell Jct. Alternatives	4.7	3.0	0.0	1.4	13.5	0.3	22.9
		All B- Howell Jct. Alternatives	4.0	3.1	0.0	1.5	13.4	0.9	22.9
		All C- CSX Marietta Blvd. Alternatives	5.1	2.2	0.4	1.8	13.0	1.9	24.4
		All D- Marietta Blvd. Alternatives	4.4	2.4	0.4	1.9	13.1	2.2	24.4
		All F- Atlantic Station Alternatives	1.4	1.1	0.6	3.1	16.5	0.0	22.7
	Trail	Howell Jct.	2.2	1.6	0.0	0.8	7.4	0.5	12.5
		Marietta Blvd.	3.0	1.1	0.0	1.3	6.5	1.3	13.1
		On-Street	3.9	2.8	0.8	1.5	7.2	0.1	16.3

Source: City of Atlanta, Bureau of Planning.
Note: Assuming potential effects measured outside of the MARTA Station Connectivity and Infill Station Alternative Areas.

Figure 3-13: Zoning in the Study Area



Source: City of Atlanta, Bureau of Planning

No-Build Alternative

The No-Build Alternative generally would not be consistent with zoning because the base zoning districts were adopted to support the land use policies in the CDP and the FLUM. These policies promote transit-oriented development. The Atlanta BeltLine Overlay District was adopted specifically to support the implementation of the Atlanta BeltLine.

Build Alternatives

Atlanta BeltLine transit tracks, stations, and operating infrastructure either would be permitted uses or would be considered Special Exceptions in the Residential districts other than MR (Multi-Family). Other facilities such as storage and maintenance yards are permitted uses only in the light and heavy industrial districts, but these were not included in the estimates of directly affected ROW and will be addressed in the Tier 2 analysis.

The proposed trails generally would be permitted in existing public ROW, but the sections of trail outside a public ROW could be in a zoning district that limits paved areas or requires setbacks between the trail and existing structures. Regulations would vary if the proposed Trail Alternatives are designated as a park. Residential and Office zoning districts allow parks by Special Use Permit. Multi-Family, Mixed Residential Commercial, and Planned Development (PD) (other than PD-Business Park), have a process through which applications can be made under existing regulations. Other zoning districts do not provide for parks, open space, or recreation and would require an amendment to the ordinance to provide for implementation of the trails.

Based on the assumption that the PD districts are Business Parks and, together with the Commercial and Industrial districts, would require amendments to permit the trails, the acres needing amended zoning in the northwest zone vary by a small range from 8.7 acres for the Howell Junction Trail Alternative to 8.8 acres for the On-Street Trail Alternative to 9.1 acres for the Marietta Boulevard Trail Alternative.

Most of the MARTA Station Connectivity and Infill Station Alternative Areas, most of the study area of the F- Atlantic Station Alternatives, and the entire study area of the remaining Transit and Trail Alternatives are within the Atlanta BeltLine Overlay District (*City of Atlanta Zoning Map*, August 2009). Potentially, the Atlanta BeltLine Overlay District would be redefined to include the portions of the study area currently not in that district following further analysis and determination of a preferred alignment and technology alternative at the end of the Tier 1 EIS process.

3.2.4 Local Plans

A number of plans and studies have guided land development and the transit, multi-use trails, and greenspace components of the Atlanta BeltLine as described in Chapter 1.0. The principal ones are the *Atlanta Strategic Action Plan* (CDP), City of Atlanta, 2008; the Atlanta BeltLine Subarea Master Plans, ABI; and the *Regional Development Plan* (RDP), ARC, 2007.

Master planning is underway for ten “subareas” of the study area shown on Figure 3-14. This planning process builds on recommendations of the *Atlanta BeltLine Redevelopment Plan* that led to the creation of the Atlanta BeltLine TAD. The Subarea Master Plans address parks and open space, mixed-use residential and commercial land use, urban design proposals including public art, and mobility and circulation. The transportation recommendations comprise the *Atlanta BeltLine Street Framework Plan*.

The Master Plans for Subareas 2, 3, 5, 7, and 9 are adopted and the other five are in process. The plans assume implementation of the Atlanta BeltLine by 2030.

No-Build Alternative

The No-Build is not fully consistent with the CDP because it does not include the Atlanta BeltLine, a proposed project in the CDP. It is not consistent with the other plans because they are based on the assumption that the Atlanta BeltLine would be constructed.

Build Alternatives

The Build Alternatives are consistent with the local Subarea Master Plans as the Atlanta BeltLine is included in each.

3.2.5 Economic Conditions and Development Strategies

Economic studies, discussed in Chapter 1.0, have evaluated economic conditions relative to the study area. The principal studies include *Update of Market Forecasts for the Atlanta BeltLine Study Area* (RCRLO 2008) and *Atlanta BeltLine Tax Allocation District Feasibility Study* (EDAW 2005). Both found an existing, diverse economic base, projected significant population and economic growth, and recognized the Atlanta BeltLine as an important component in attracting economic activity and facilitating mobility.

The first study projects an increase in the study area of 84 percent in the number of households; over 3.1 million square feet of new regional office space; over ¾ million square feet of new local office space; over 2.2 million square feet of new local retail; and over 1.6 million square feet of new regional retail. The other study estimates that the TAD would create approximately 37,500 permanent jobs, 48,000 construction jobs, 28,000 new residential units including 5,600 affordable units; and 9 million square feet of new retail, office, and light industrial space that would add over $20 billion to the tax base.

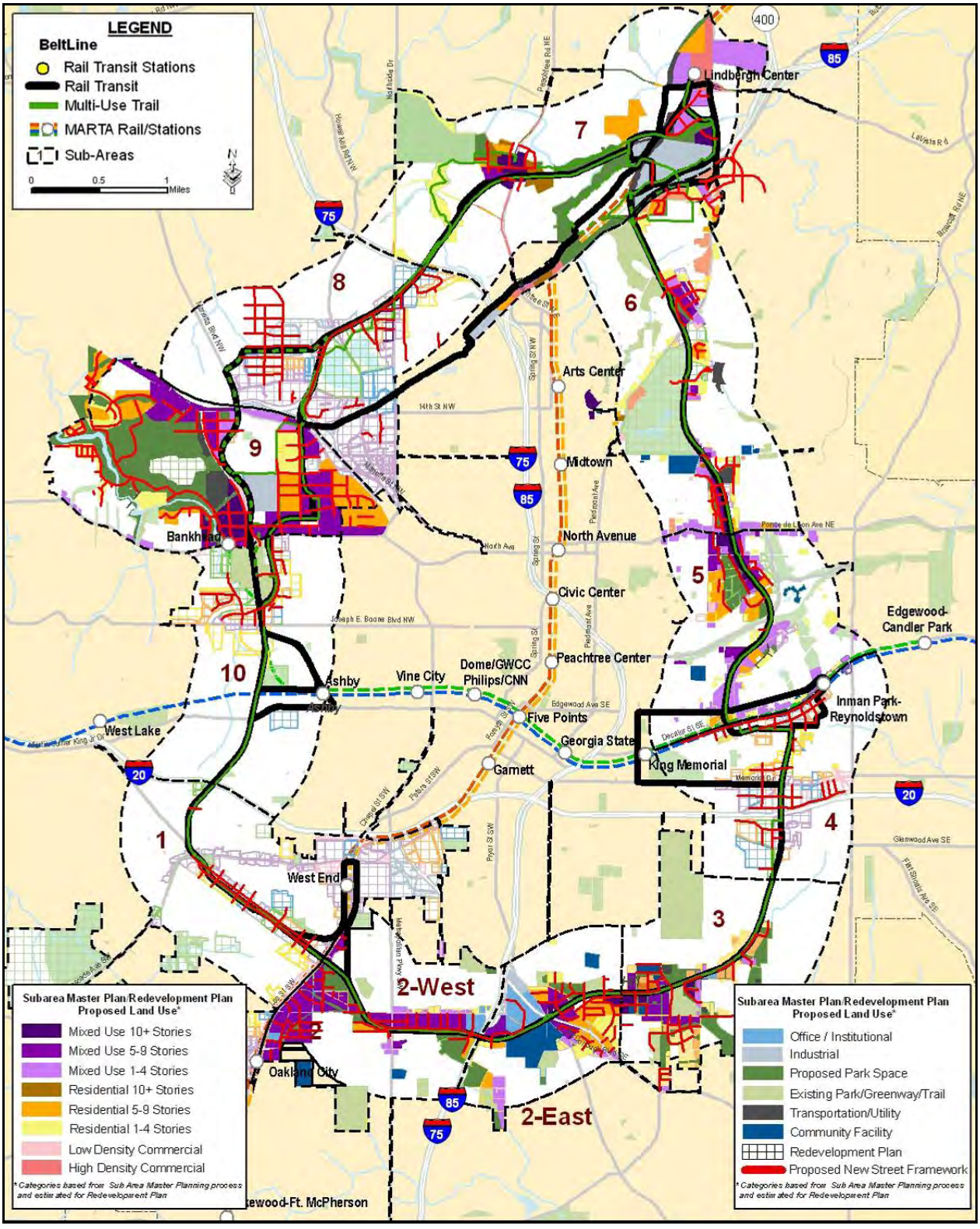
No-Build Alternative

The No-Build Alternative would have a direct short term positive effect associated with construction employment, but this would be a smaller effect than that of the Build Alternatives. In the long term, it generally would support the existing economic conditions. It would be inconsistent with the economic development strategies in the CDP, relative to the Atlanta BeltLine, and its associated projects and would not support the estimates of the economic growth discussed above.

Build Alternatives

The Build Alternatives would have a direct short-term positive effect associated with construction employment. In the long term, the Atlanta BeltLine and its associated projects would increase mobility. The studies reviewed indicate that the long-term effects on the local and regional economies would be beneficial. Each of the Build Alternatives would serve all 20 economic development focus areas and activity centers except for the F- Atlantic Station Transit Alternatives, which would not serve the Northside Drive and Peachtree Road activity centers. The C- CSX Marietta Boulevard and D- Marietta Boulevard, the A- CSX Howell Junction and B- Howell Junction, and the F- Atlantic Station Alternatives would serve approximately 4,900, 4,800, and 4,600 acres of TAD land, respectively.

Figure 3-14: Subarea Master Plans



Source: ABI

The land use impacts of the Atlanta BeltLine could conflict with the City's policy of retaining as much industrial land within the city as possible. As well, the Atlanta BeltLine could increase development pressures to convert industrial areas to other uses near stations. For example, retail development typically occurs as a result of the increase in activity due to transit stations.

3.2.6 Potential Avoidance, Minimization, and Mitigation Measures

During the Public Scoping Process, questions and concerns were raised regarding the potential direct impacts to residences and businesses, the secondary effects of associated redevelopment projects, and the consistency of that development with existing land uses. In response, the Build Alternatives have been designed to minimize the additional required ROW and potential adverse effects on existing land uses. The Build Alternatives would use existing transportation ROW to the maximum extent possible. Table 3-13 in Section 3.2.2 shows the estimated number of acres of estimated direct effect by Alternative and by zone. Also, local policies and the Subarea Master Plans are intended to protect community character.

To some extent the indirect conversion of land uses is an integral aspect of the Atlanta BeltLine. Implementation of the City's industrial retention policy could mitigate development pressures on industrial areas. Strategies to avoid or minimize these effects will be considered through the Subarea Master Planning process and in subsequent Tier 2 analysis.

3.2.7 Subsequent Analysis

This Tier 1 analysis identifies acres of potential direct impacts based on the proposed alignments and typical sections. The Tier 2 analysis will determine site-specific ROW requirements that result from station locations, topography and other physical constraints, and insufficient available ROW in public ownership for the selected alternative, especially at stations and in MARTA Station Connectivity and Infill Station Alternative areas. The Tier 2 analysis also would evaluate the economic development effects of the selected alternative.

3.3 Neighborhoods and Community Facilities

3.3.1 Methodology

The neighborhoods in the study area were identified from information obtained from the City's Bureau of Planning. Community services and facilities were identified within the study area using information obtained from the ARC and the U.S. Geographic Survey (USGS).

A qualitative assessment of potential impacts was undertaken by examining the location of the No-Build and Build Alternatives in relation to neighborhoods and community facilities.

3.3.2 Affected Environment

3.3.2.1 Neighborhoods

The City, and particularly the study area, contains a number of long-standing and historic neighborhoods. The study area contains 61 neighborhoods. Figure 3-15 depicts the neighborhoods and their boundaries as defined by the City. Table 3-18 lists the

neighborhoods by study area zone. The neighborhoods are briefly described in the following paragraph; a more detailed description of the neighborhoods can be found in the *Atlanta BeltLine Existing Conditions Report* (2009).

Neighborhoods in the northeast zone range from historic streetcar suburbs constructed in the late 1800s and early 1900s to residential areas built following World War II. In the southeast zone, neighborhoods range from late 19th and early 20th century single-family communities to apartment and single-family developments built in the early twenty-first century. The southwest zone consists almost entirely of predominantly single-family residential neighborhoods, many originally established in the late 19th and early 20th centuries. The northwest zone consists of a variety of neighborhoods, including early 20th century garden suburbs, light industrial areas and freight yards, 1940s garden apartment complexes, townhouses, and early twenty-first century mixed-use developments.

3.3.2.2 Community Facilities

The study area contains approximately 81 community facilities, including police stations, fire stations, schools, places of worship, libraries, hospitals and health facilities, and museums. These resources provide basic services to the neighborhoods, help to shape the area's overall quality of life and foster a sense of community identity. Appendix D contains a figure depicting the locations of community facilities and a table listing them by study area zone. A detailed description of the community facilities found in the Atlanta BeltLine study area can be found in the *Atlanta BeltLine Existing Conditions Report* (2009).

3.3.3 Preliminary Environmental Consequences

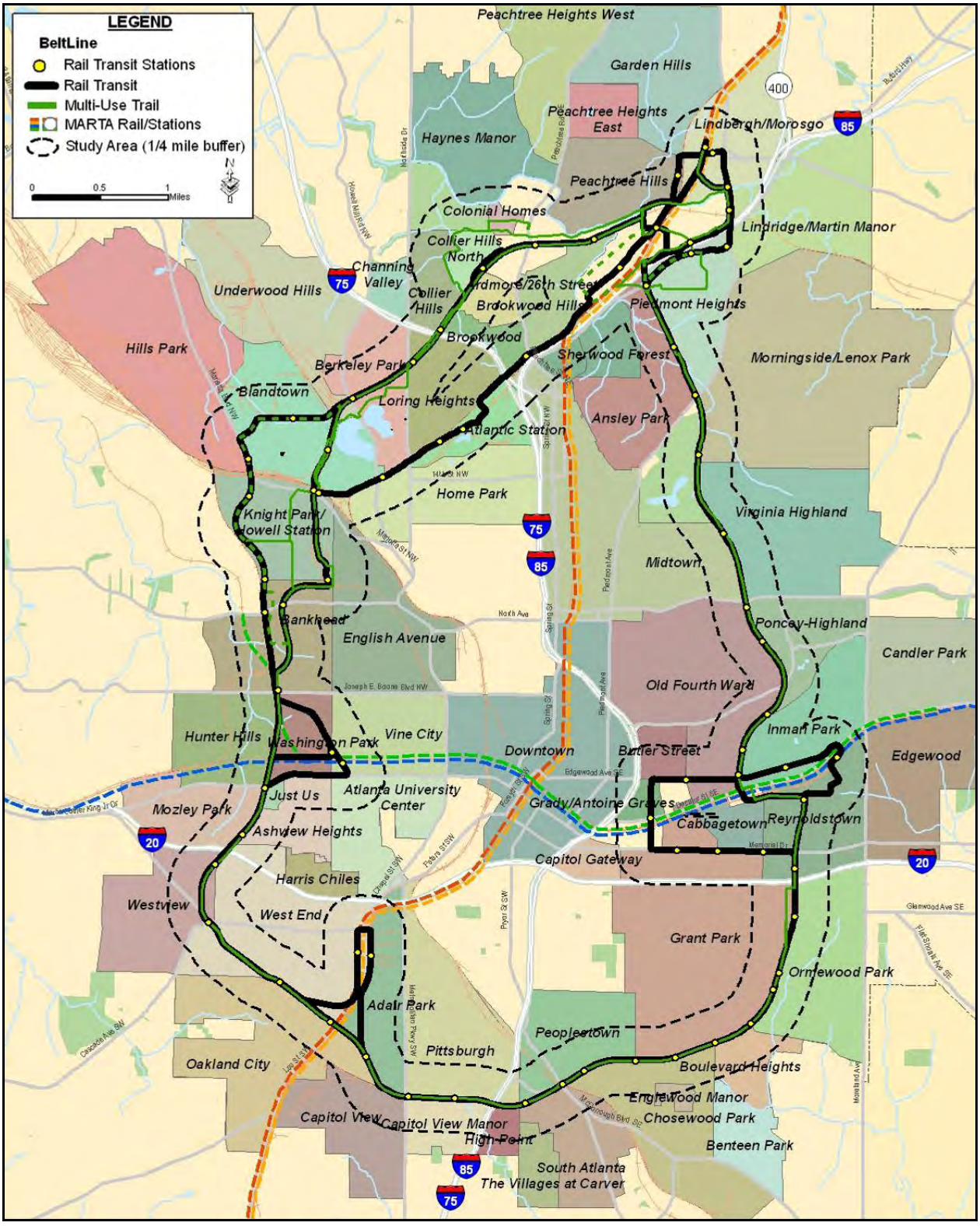
The preliminary assessment of the potential environmental consequences of the No-Build and Build Alternatives is described below.

3.3.3.1 No-Build Alternative

The No-Build Alternative includes a mix of improvements to existing facilities and new transit projects. These projects would have limited impact on regional accessibility for the neighborhoods and community facilities in the study area, and, therefore, would have limited impact on the study area residents. These projects would serve only the study area neighborhoods that are crossed, leaving large geographic areas containing neighborhoods and community facilities that would not be served. A more refined assessment of impacts to neighborhoods and community facilities resulting from the No-Build projects will occur during Tier 2 investigations for those projects.

Currently, the railroad ROW that comprises the Atlanta BeltLine creates a barrier dividing neighborhoods. In the southeast and northeast zones, these rail ROW frequently serve as neighborhood boundaries with limited connectivity across. The No-Build Alternative would not remove this barrier.

Figure 3-15: Neighborhoods



Source: City of Atlanta, Bureau of Planning

Table 3-18: Neighborhoods

Northeast Zone			
Ansley Park	Inman Park	Morningside/Lenox Park	Sherwood Forest*
Butler Street	Lindridge/Martin Manor	Old Fourth Ward	Virginia-Highland
Downtown	Lindbergh/Morosgo*	Piedmont Heights	
Grady/Antoine Graves	Midtown*	Poncey-Highland	
Southeast Zone			
Adair Park*	Capitol View	High Point	Reynoldstown
Benteen Park	Capitol View Manor	Oakland City*	South Atlanta
Boulevard Heights	Chosewood Park	Ormewood Park	The Villages at Carver
Cabbagetown	Englewood Manor	Peoplestown	
Capitol Gateway	Grant Park	Pittsburgh	
Southwest Zone			
Adair Park*	Harris-Chiles	Magnolia Park*	Vine City*
Ashview Heights	Hunter Hills*	Mozley Park	West End
Atlanta University Center	Just Us Neighbors	Oakland City*	Westview
Northwest Zone			
Ardmore	Channing Valley	Hills Park	Peachtree Hills
Atlantic Station	Collier Hills	Home Park	Sherwood Forest
Bankhead	Collier Hills North	Hunter Hills*	Underwood Hills
Berkeley Park	Colonial Homes	Knight Park/Howell Station	Vine City*
Blandtown	English Avenue	Lindbergh/Morosgo*	Washington Park*
Brookwood	Garden Hills	Loring Heights	
Brookwood Hills	Haynes Manor	Midtown*	

* Neighborhood falls across two zones

3.3.3.2 Build Alternatives

The Build Alternatives would either use existing railroad and roadway ROW or run parallel to existing railroad ROW, regardless of the chosen transit mode technology. This strategy would minimize the potential for creating new physical barriers that would reduce connectivity between neighborhoods. As noted in the *Atlanta BeltLine Health Impact Assessment* (Ross 2007), the rail corridors have "historically divided people and places. The new vision for this corridor has the opportunity to reintegrate many neighborhoods (p. 11)."

Neighborhood and Community Access

The Transit Build Alternatives are expected to increase regional access for neighborhood residents, while the Trail Alternatives will provide recreational space and serve to knit together neighborhoods currently divided by the railroad ROW. In addition, as noted in the *Atlanta BeltLine Health Impact Assessment* (Ross 2007), "[t]he [Atlanta] BeltLine can also be connected to existing neighborhood institutions to promote increased physical activity and social capital" (p. 56).

The neighborhoods and community facilities potentially served or affected by the Build Alternatives are summarized in Table 3-19. These data show that the Build Alternatives would perform similarly at around 60 neighborhoods served and up to 70 community facilities accessed.

Table 3-19: Potentially Served or Affected Neighborhoods and Community Facilities

Zone	Build Alternative		Affected Neighborhood / Community Facility
Northeast	All Build Alternatives		14 neighborhoods, 5 schools, 5 places of worship, 2 fire stations, 2 police precincts, 1 library, Martin Luther King, Jr. Community Center, Atlanta Botanical Gardens, City Hall East
Southeast	All Build Alternatives		17 neighborhoods, 11 schools, 8 places of worship, 1 fire station, 1 corrections facility
Southwest	All Build Alternatives		10 neighborhoods, 4 schools, 6 places of worship, 2 fire stations, 1 library, Westhills Senior Citizens Center
Northwest	Transit	All A- CSX Howell Jct./ B- Howell Jct.	24 neighborhoods, 12 places of worship, 1 school, 2 hospitals, 1 court, 2 fire stations
		All C- CSX Marietta Blvd./ D- Marietta Blvd.	20 neighborhoods, 8 places of worship, 1 school, 2 hospitals, 1 jail, 1 court, 2 fire stations
		All F- Atlantic Station	19 neighborhoods, 12 places of worship, 1 school, 1 court, 1 fire station
	Trails	Howell Jct.	24 neighborhoods, 12 places of worship, 1 school, 2 hospitals, 1 court, 2 fire station
		Marietta Blvd.	20 neighborhoods, 8 places of worship, 1 school, 2 hospitals, 1 jail, 1 court, 2 fire stations
		On-Street	22 neighborhoods, 8 places of worship, 1 school, 2 hospitals, 1 court, 2 fire stations

Appropriateness of Scale

An evaluation measure considered in this Tier 1 DEIS is the potential of the Alternatives, both the transit mode and the stations and other fixed facilities, to be of a physical scale that is appropriate for the existing neighborhoods and communities through which it passes. This qualitative measure considers each of the Build Alternatives relative to the proportions (size and mass) of the surrounding buildings, especially along the proposed routes. The evaluation of transit technologies relied in part upon this performance measure.

Other key factors in assessing the appropriateness of the Atlanta BeltLine within the context of the surrounding community were noise, vibration, and visual effects. The land uses adjacent to each of the Build Alternatives were also considered, especially when greater ROW requirements could be anticipated.

The LRT and SC technologies being considered for the Atlanta BeltLine were examined in terms of appropriateness of scale. Although SC and LRT are in the same technology class and can provide similar service characteristics as described in Chapter 2.0, SC would perform somewhat better than LRT in overall fit and appropriateness given the key factors considered. As SC has typically smaller, lighter vehicles and smaller turning radii, which tend to cause fewer noise and vibration impacts compared with LRT. Specifically, this means less likelihood of high-pitched wheel squeal that occurs as the wheels rub against the rails as vehicles increase in length.

Elements can be built into an LRT design to avoid or minimize many noise and vibration concerns, but because of the shorter length of SC vehicles, SC track geometry can fit more readily into existing roadway and railroad ROWs without these precautionary design elements. For example, relatively tighter turns at roadway intersections would be possible for SC vehicles, relative to LRT vehicles that may require additional ROW to accommodate the larger turning radius. Thus, SC technology is likely to incur fewer ROW impacts, thereby having less potential impact on land uses and visual effects.

3.3.4 Potential Avoidance, Minimization, and Mitigation Measures

Conceptual design of the Build Alternatives conservatively indicates low potential for impacts on neighborhoods and community facilities. As the project advances, the design will be refined with the intent of avoiding or minimizing impacts. There also would be a focus on context sensitive design of Atlanta BeltLine infrastructure to ensure compatibility with the surrounding neighborhoods.

Some impacts, such as visual changes caused be overhead power wiring, may be found to be unavoidable. A number of best management practices and mitigation strategies would be considered at that time to effectively offset these impacts. Strategies could include visual buffering, architectural treatments, and design adjustments to improve access or address pre-existing access issues. The development of appropriate mitigation strategies would occur in consultation with the affected neighborhoods and community facilities.

3.3.5 Subsequent Analysis

Detailed analysis would take place as part of Tier 2 to identify potential impacts to neighborhoods and community facilities. Analysis during Tier 2 will evaluate the potential for localized impacts on neighborhoods and communities. At that time, the project sponsors will coordinate with neighborhoods and communities to assess the need for and develop appropriate design strategies to offset unavoidable impacts.

3.4 Socioeconomics and Environmental Justice

This section provides summary project area demographics and identifies populations in the study area that meet the environmental justice criteria outlined in Section 3.4.1. This chapter also presents a preliminary assessment of the potential environmental impacts of the Atlanta BeltLine project on socioeconomics and environmental justice populations.

3.4.1 Methodology

The study area for the socioeconomic and environmental justice analyses presented in this section consists of the census tracts within a ¼-mile of the proposed Atlanta BeltLine alternatives. The assumption is this area generally reflects the population characteristics of the study area and the extent to which the Atlanta BeltLine project may result in changes to existing conditions. A ¼-mile to ½-mile is also the maximum distance most pedestrians are willing to walk to access transit services.

Data presented in this section are from the ARC 2030 Demographic Forecasts and the U.S. Census Bureau (Census 2000). The data were characterized at the census tract, city, and county level.

3.4.1.1 Environmental Justice

The Council on Environmental Quality (CEQ) provides guidance for identifying environmental justice populations in *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ, 1997). The guidance defines environmental justice population as low-income or minority and states, “low-income populations in an affected area should be identified with the annual statistical poverty threshold from the Bureau of the Census’ Current Population Reports, Series P-60 on Income and Poverty.” The guidance defines minorities as “Individual(s) who are members of the following

population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic."

For this Tier 1 DEIS, a description of existing transit-dependent populations within the study area, as well as, a discussion of the potential effects on these populations has been included. A transit-dependent household is a household that reported having no access to a vehicle, or zero-car households, in the 2000 U.S. Census. Transit-dependent populations discussed in this Tier 1 DEIS also include those workers who reported to the 2000 U.S. Census who utilize public transportation to get to work.

Based on CEQ guidance, a census tract has a large concentration of either minority, low-income, or transit-dependent population if:

- At least 50 percent of the population in the census tract is minority, low-income, or zero-car households; or
- The minority or low-income population or zero-car households in the tract is at least 10 percent greater than the average of the minority or low-income population in the county.

Identification of concentrations of minorities and other special population groups in the study area occurred through analysis of U.S. Census Bureau, Census 2000 data at both the county and the zone level. Comparison of census data for each zone to countywide data helped determine if any of the zones would qualify as having large concentrations of minority, low-income, or transit-dependent populations according to the parameters described above. Using these thresholds, a zone in this Tier 1 DEIS has a large concentration of a special group if the:

- Minority population within that zone is greater than or equal to 67 percent of total zone population;
- Low-income households within that zone are greater than or equal to 26 percent of the total number of households within that zone; or,
- Transit-dependent populations - zero-car households within that zone is greater than or equal to 25 percent of total zone population and/or workers using public transportation is greater than or equal to 19 percent of the total zone.

3.4.2 Affected Environment - Socioeconomics

Long-term forecasts predict an increase in population and employment growth for the City of Atlanta and the surrounding region.. Recent trends in the region indicate a market for higher-density land development. The trend toward higher-density uses is also supportive of SC or LRT and other forms of public transit. This section describes the demographic trends in the study area.

3.4.2.1 Population Growth

Table 3-20 presents the population for years 1990, 2000, and 2008 and projections for the year 2030. During 2008, population in the Atlanta BeltLine study area made up 16 percent of Atlanta's population. Historically, the northwest zone had the highest population of all the study area zones, while the southwest zone had the lowest population. The 2030 projection shows population growth for all zones, but with the northwest continuing to lead with the highest population.

Table 3-20: Population - 1990 to 2030

Area	Population (Year)				Growth (Percent Change)		
	1990	2000	2008	2030	1990 to 2000	2000 to 2008	2008 to 2030
Northeast Zone	14,681	17,385	21,583	30,458	18%	24%	41%
Southeast Zone	14,156	14,622	17,021	23,281	3%	16%	37%
Southwest Zone	8,598	9,530	11,029	12,477	11%	16%	13%
Northwest Zone	18,600	22,616	26,423	31,716	22%	17%	20%
Atlanta BeltLine Study Area	56,035	64,153	76,056	97,932	14%	19%	29%
Atlanta	415,200	416,474	477,300	602,783	0%	15%	26%
Fulton County	670,800	816,006	951,500	1,145,902	22%	17%	20%

Source: U.S. Census Bureau, Census 2000 and ARC Regional Forecasts

3.4.2.2 Population Density

Figure 3-16 and Figure 3-17 depict year 2008 and 2030 population densities, respectively. In general, 2008 densities were greatest in three small geographic areas (as indicated by dark brown shades on the map). This includes two areas in the northeast (Lindbergh Center and Old Fourth Ward) and one within the southwest zone south of the Ashby MARTA rail station. Year 2030 projections forecast population densities will be greatest in the north portions of the northwest and northeast zones and the southern portion of the northeast zone.

3.4.2.3 Employment

Table 3-21 presents employment for the study area zones, the Atlanta BeltLine study area as a whole, the City, and Fulton County for years 1990, 2000, and 2008 and projections for the year 2030. Historically, the northeast zone had the highest employment of all the study area zones while the southwest zone had the least employment.

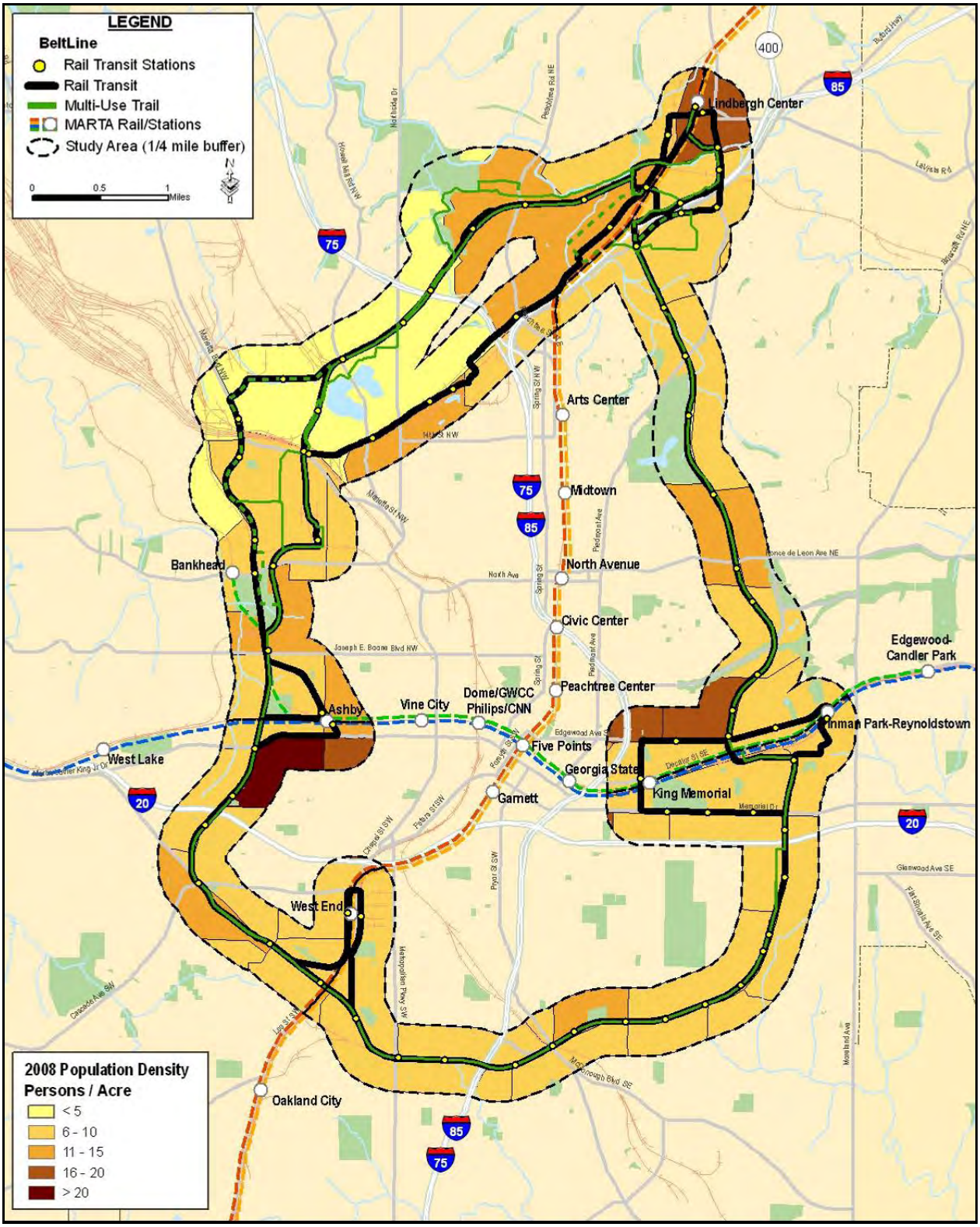
Declines in employment between 2000 and 2008 were due to citywide losses in corporate and construction jobs. The 2030 projection shows growth in all zones, but with the northeast continuing to lead in total employment,

Table 3-21: Employment - 1990 to 2030

Area	Employment (Year)				Growth (Percent Change)		
	1990	2000	2008	2030	1990 to 2000	2000 to 2008	2008 to 2030
Northeast Zone	27,341	29,028	21,547	38,233	6%	-26%	77%
Southeast Zone	9,230	8,354	6,801	11,515	-9%	-19%	69%
Southwest Zone	2,698	2,249	2,697	2,865	-17%	20%	6%
Northwest Zone	18,531	27,034	18,582	29,622	46%	-31%	59%
Atlanta BeltLine Study Area	57,800	66,665	49,627	82,235	15%	-26%	66%
Atlanta	397,147	437,195	398,426	534,073	10%	-9%	34%
Fulton County	560,600	730,900	727,740	1,046,985	30%	0%	44%

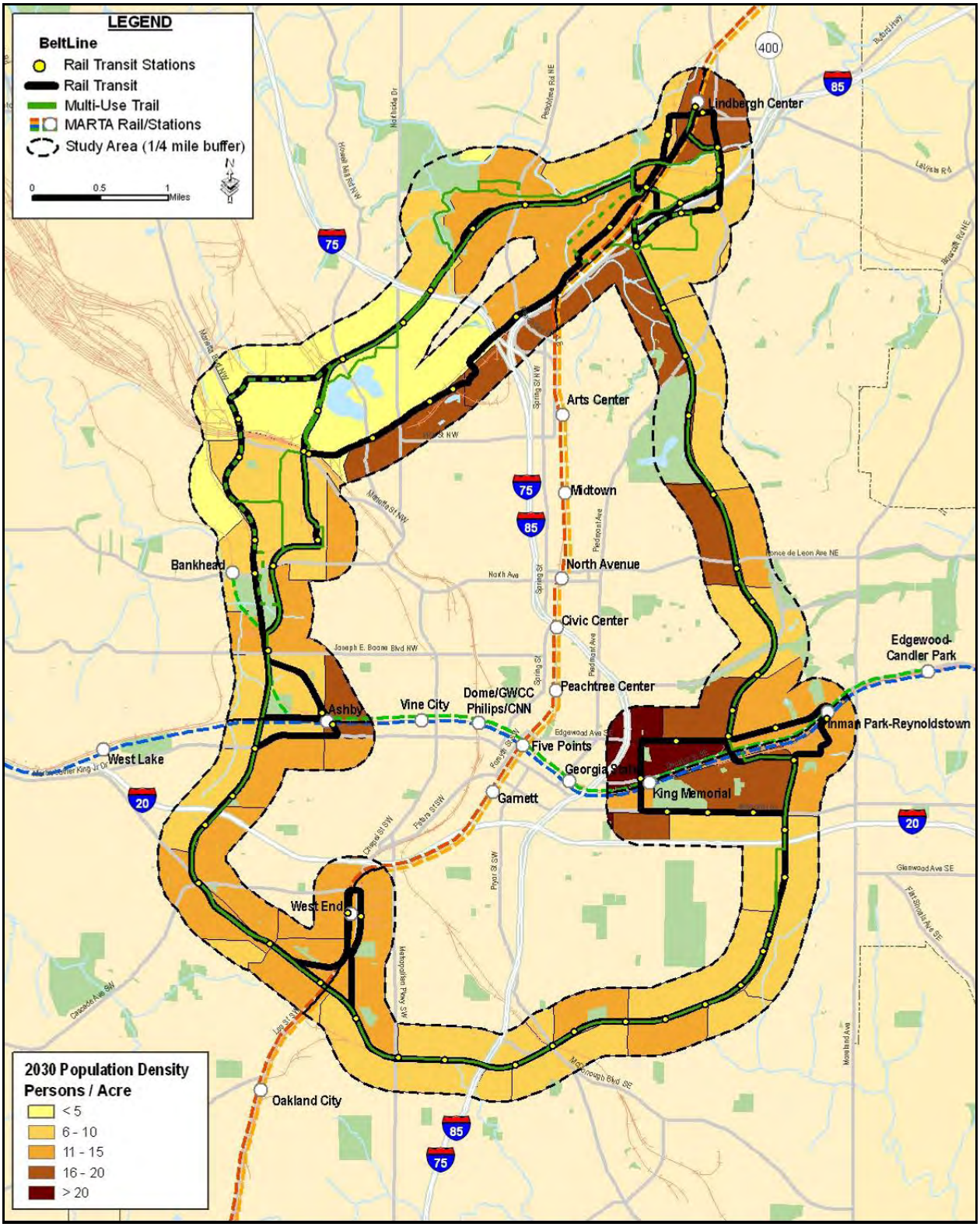
Source: U.S. Census Bureau, Census 2000 and ARC Regional Forecasts

Figure 3-16: Population Density - 2008



Source: U.S. Census Bureau, Census 2000, and ARC

Figure 3-17: Population Density - 2030



Source: U.S. Census Bureau, Census 2000, and ARC

3.4.2.4 Employment Density

In 2008, high densities of Atlanta BeltLine study area employment were primarily concentrated in the northeast and northwest zones. Year 2030 employment projections estimate increases in all zones, but predict employment will continue to concentrate primarily in the northeast and northwest zones. Figure 3-18 and Figure 3-19 depict 2008 and 2030 employment densities, respectively.

3.4.2.5 Households

Table 3-22 presents a summary of household data for the geographically defined areas within the study area. "Households are defined as the set of people who occupy a housing unit — a house, an apartment, a mobile home, a group of rooms, or a single room occupied as separate living quarters. Households are classified by their size (the number of people living in them) and by their type (the relationships among the members of the household)" (Lewis 2002).

According to the ARC, the average household size in the Atlanta region[14] in 2008 was 2.72 persons. In the Atlanta BeltLine study area, the average household size is slightly lower at 2.25 persons[15].

During 2008, the Atlanta BeltLine study area had 33,791 households. Historically, the northwest zone had the greatest number of households of all the study area zones, while the southwest zone had the least number of households. The 2030 projection shows growth in all zones, but with the northeast leading in total households.

Table 3-22: Households - 1990 to 2030

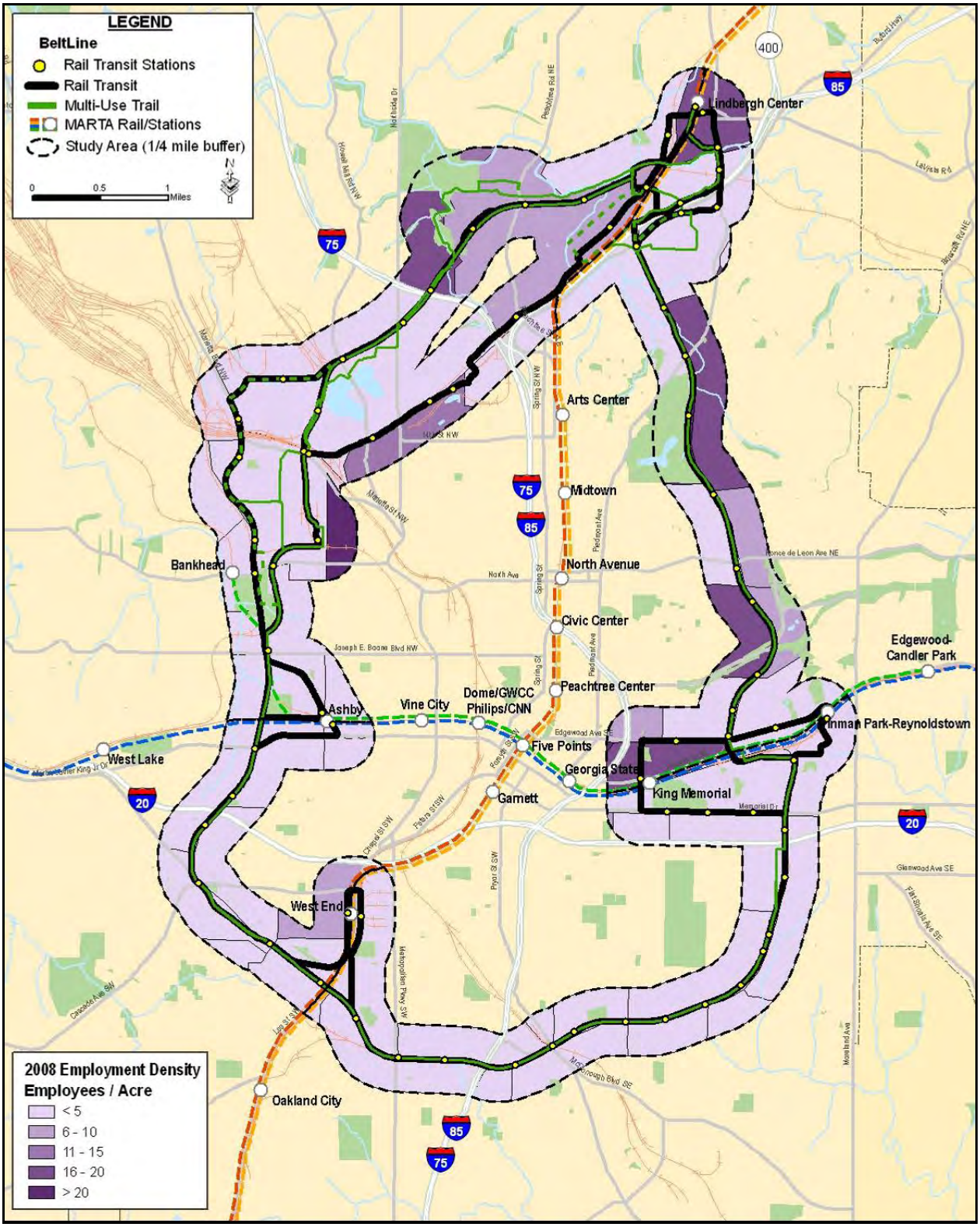
Area	Number of Households (Year)				Growth (Percent Change)		
	1990	2000	2008	2030	1990 to 2000	2000 to 2008	2008 to 2030
Northeast Zone	7,716	8,765	11,362	16,227	14%	30%	43%
Southeast Zone	5,166	5,672	6,927	10,008	10%	22%	44%
Southwest Zone	3,140	3,560	3,724	5,049	13%	5%	36%
Northwest Zone	8,031	9,592	11,778	13,935	19%	23%	18%
Atlanta BeltLine Study Area	24,053	27,589	33,791	45,219	15%	22%	34%
Atlanta	155,752	168,242	198,641	251,887	8%	18%	27%
Fulton County	257,140	321,242	382,422	479,900	25%	19%	25%

Source: U.S. Census Bureau, Census 2000, and ARC

[14] The Atlanta Region is defined as the 10-county area including Cherokee, Clayton, Cobb, DeKalb, Douglas, Fayette, Fulton, Gwinnett, Henry and Rockdale counties, as well as the City of Atlanta. (ARC 2010)

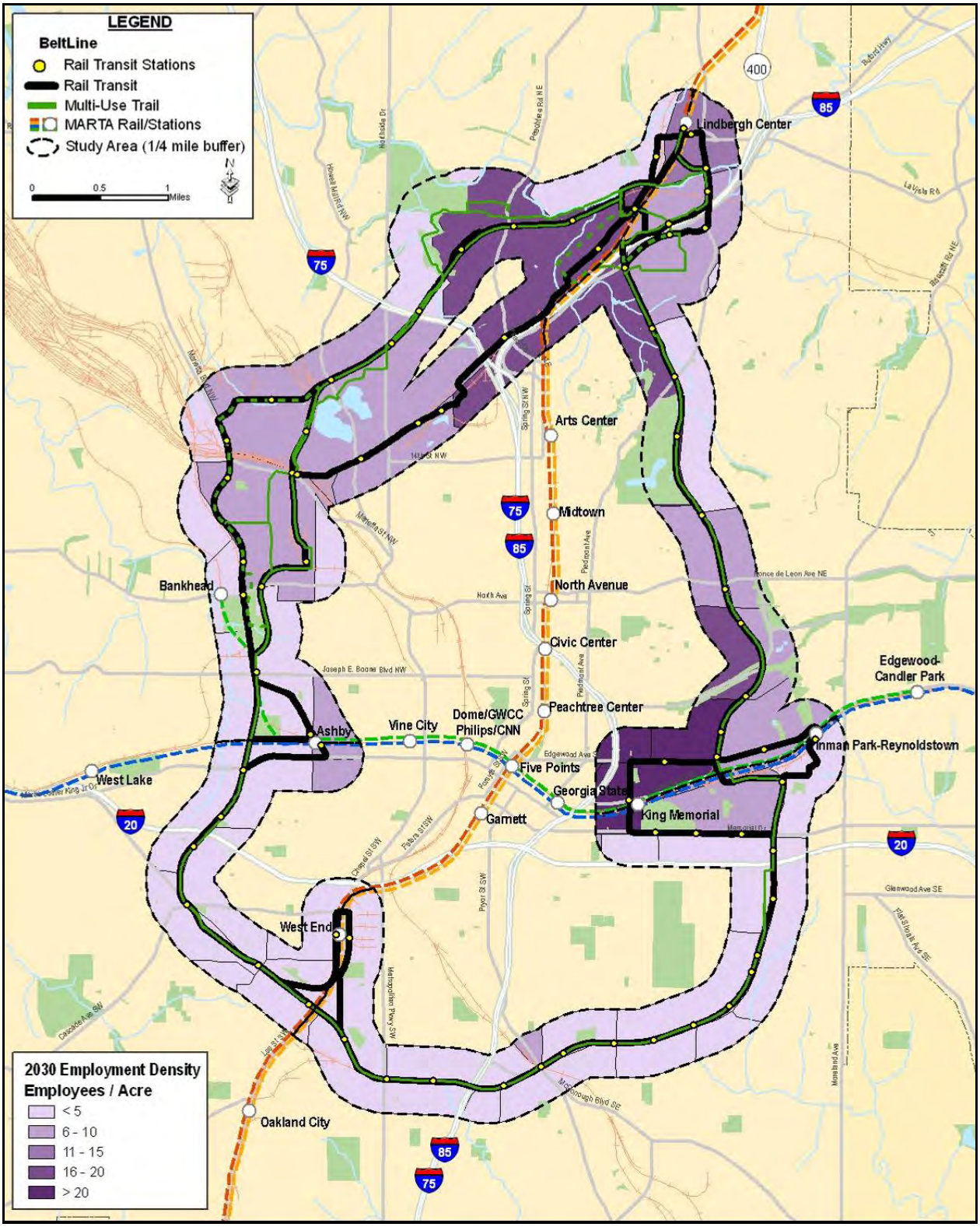
[15] Average household size is based on the ARC 2030 population projection divided by the 2030 household projection.

Figure 3-18: Employment Density - 2008



Source: U.S. Census Bureau, Census 2000, and ARC

Figure 3-19: Employment Density - 2030



Source: U.S. Census Bureau, Census 2000, and ARC

3.4.2.6 Household Density

Figure 3-20 and Figure 3-21 depict study area household densities, respectively. Generally, projections indicate household density will increase between years 2008 and 2030 equally across the study area.

In 2008, study area household density ranged from 3.0 to 5.3 households per acre. The average household density in the study area in 2008 was approximately 3.7 households per acre. Year 2030 projections report density to increase to an average of 4.3 households per acre. Areas with the greatest household density are along the Peachtree Corridor, Piedmont Park, and near Lindbergh Center, Inman Park/Reynoldstown, West End, and Ashby MARTA rail stations.

3.4.2.7 Housing Units

This section discusses housing for the 1990 to 2030 period. U.S. Census 2000 data and ARC demographic data were used to determine the number of existing housing units.

Table 3-23 summarizes projected housing growth for the Atlanta BeltLine study area, as well as, for the City and Fulton County, for the 1990 to 2030 periods. Historically, the northwest and northeast zones had the greatest number of housing units of the study area zones. The 2030 projection indicates growth in all zones, but with the northeast leading in housing unit growth.

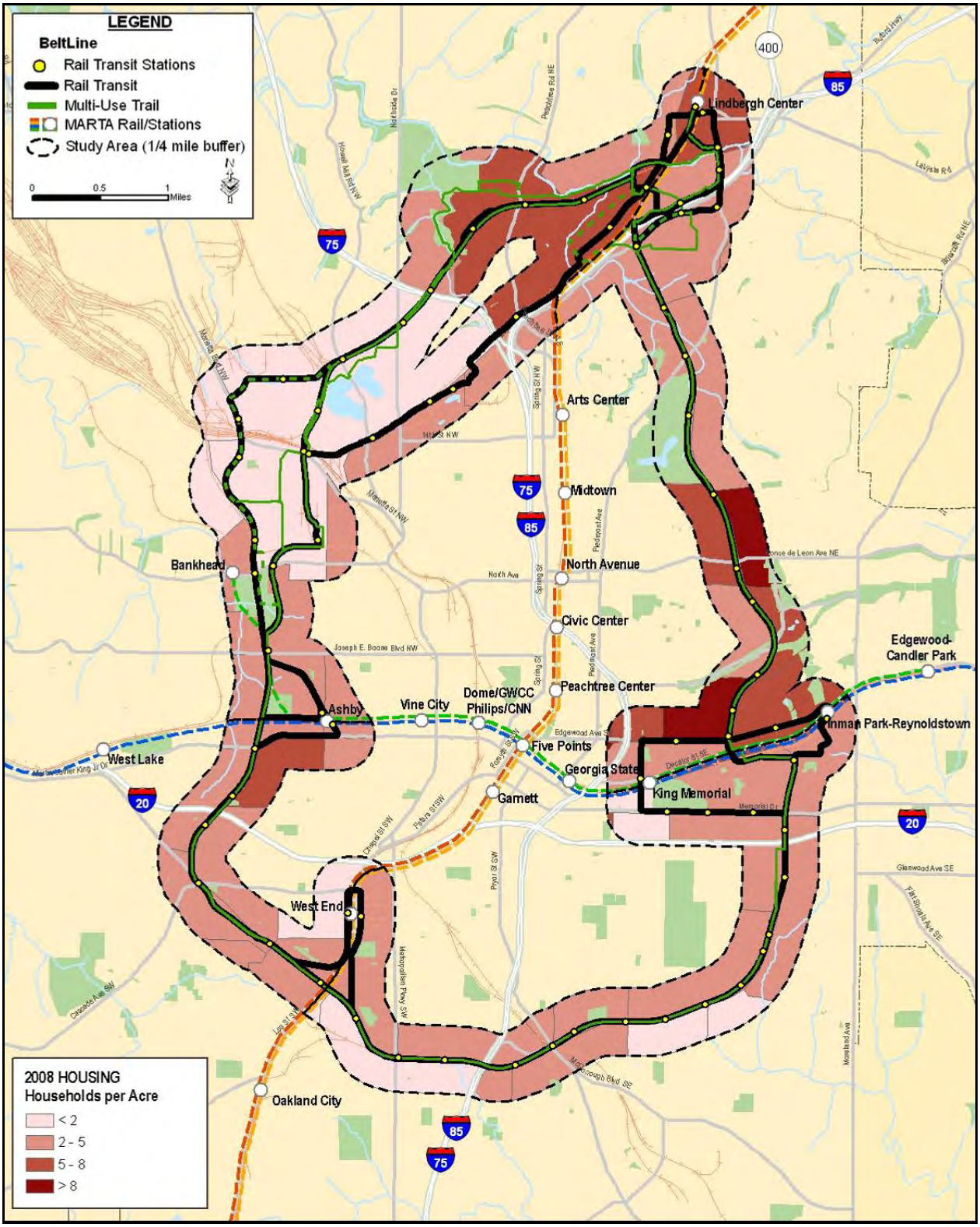
Table 3-23: Housing Units and Housing Unit Growth - 1990 to 2030

Area	Number of Housing Units (Year)				Growth (Percent Change)		
	1990	2000	2008	2030[1]	1990-2000	2000-2008	2008-2030
Northeast Zone	9,042	9,750	13,155	16,034	8%	35%	22%
Southeast Zone	6,266	6,511	8,201	9,475	4%	26%	16%
Southwest Zone	3,685	4,056	4,266	4,213	10%	5%	1%
Northwest Zone	9,784	10,929	13,605	14,137	12%	24%	4%
Atlanta BeltLine Study Area	28,777	31,246	39,227	43,859	9%	26%	12%
Atlanta	182,754	186,998	226,677	250,864	2%	21%	11%
Fulton County	297,503	348,632	434,408	460,555	17%	25%	6%

Source: ARC, U.S. Census Bureau

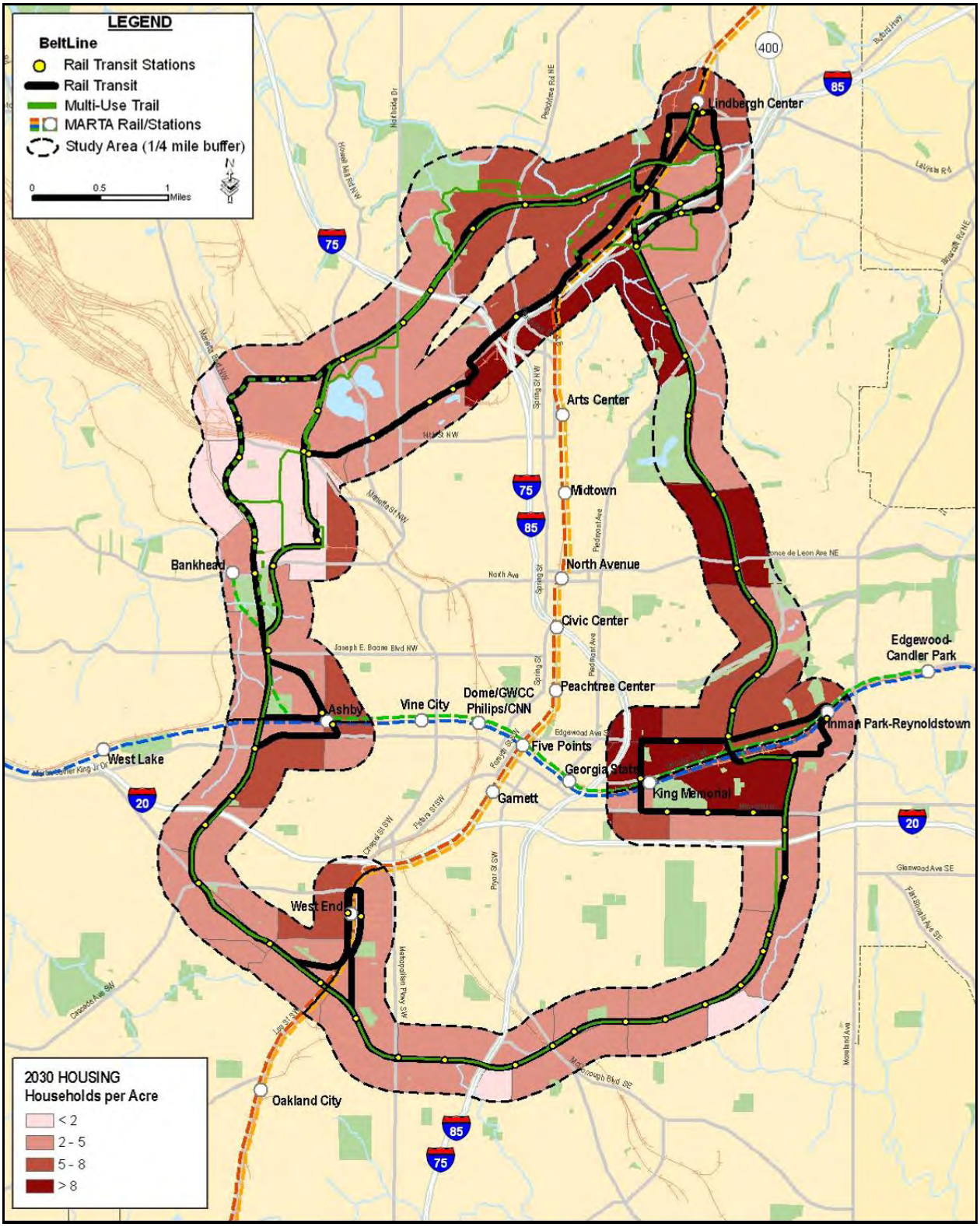
[1] 2030 data for housing units are based on the ARC 2030 population projection divided by 2008 average household size.

Figure 3-20: Household Density - 2008



Source: U.S. Census Bureau, ARC

Figure 3-21: Household Density - 2030



Source: U.S. Census Bureau, ARC

3.4.3 Affected Environment - Environmental Justice

3.4.3.1 Low-Income Population

Low-income populations are those that were living at or below the 1999 U.S. Census Bureau's poverty thresholds[16]. For a family of four, the threshold was $17,603 with a threshold of $8,794 for individuals.

According to the U.S. Census Bureau, the 1999 median household income of City of Atlanta households was approximately $34,770. In the Atlanta BeltLine study area, the median household income was approximately $43,222. Of the study area zones, the northeast had the highest median income ($49,387). The households in the southwest had median incomes of approximately one-half of those in the northeast, at $22,077.

Table 3-24 presents data pertaining to 1999 median household income and the population below the poverty level in 2000.

Table 3-24: Population below Poverty Level

Area	Median Household Income (1999)	Population for whom Poverty Status is Determined[1] (2000)	Population Below Poverty Level	Percent Below Poverty
Northeast Zone	$49,387	15,964	3,104	19.4%
Southeast Zone	$28,989	14,020	3,925	28.0%
Southwest Zone	$22,077	8,347	2,836	33.9%
Northwest Zone	$48,293	18,171	3,610	19.8%
Atlanta BeltLine Study Area	$43,222	56,502	13,475	23.8%
Atlanta	$34,770	392,406	95,743	24.4%
Fulton County	$47,321	789,793	124,241	15.7%

Source: U.S. Census Bureau, Summary File 3, 2000

[1]The U.S. Census Bureau determines poverty status for all people except institutionalized people, people in military group quarters, people in college dormitories, and unrelated individuals under 15 years old.

Of the zones within the study area, the southwest and southeast zones are characterized as environmental justice areas for low-income with 33.9 and 28 percent of the population, respectively, living below the poverty level in 2000. Figure 3-22 illustrates the incidence of low-income populations in the study area.

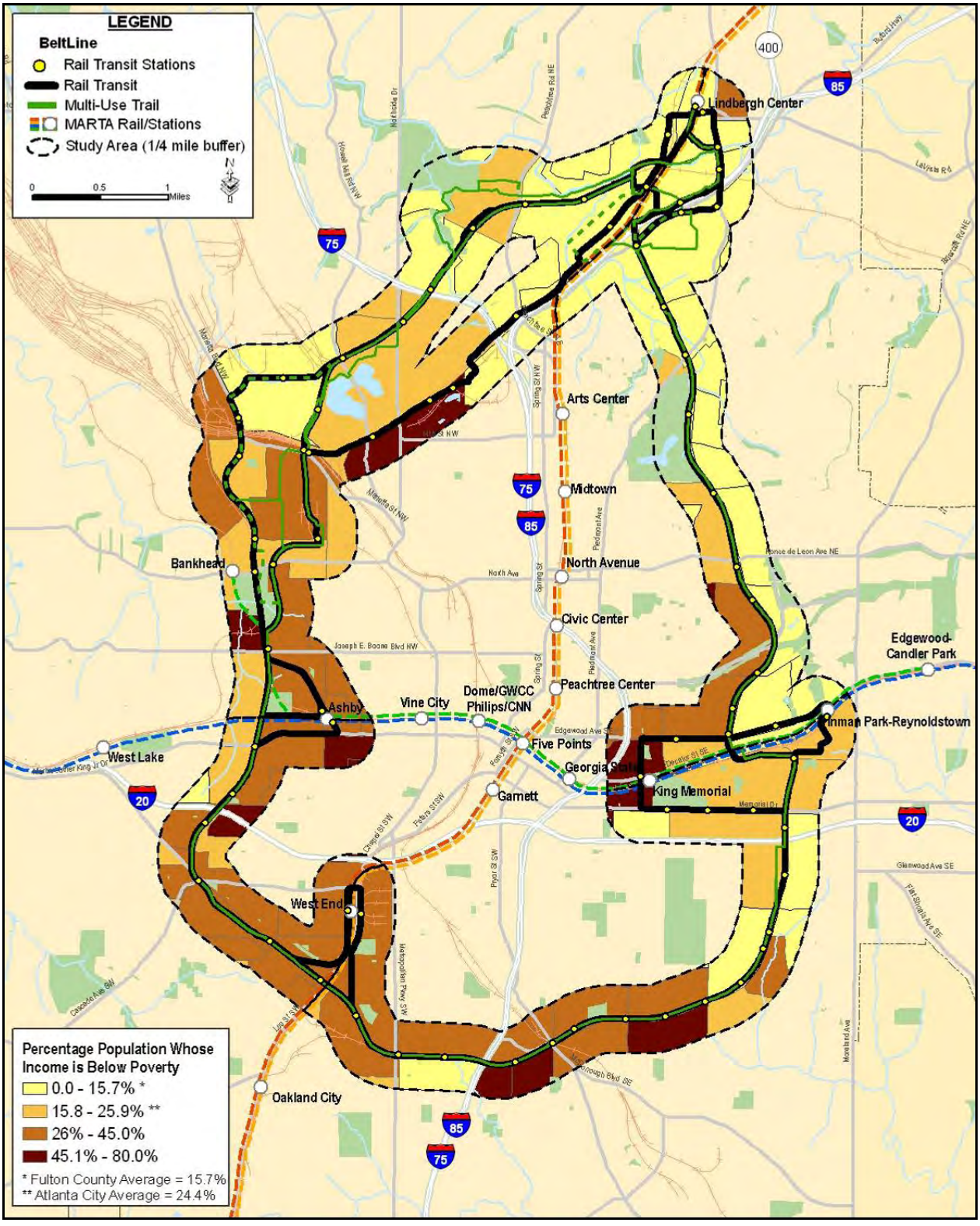
3.4.3.2 Minority Population

In the year 2000, the U.S. Census identified 68.7 percent of the City's population as minority and 60.9 percent of the Atlanta BeltLine study area population as minority.

The southwest and southeast zones had the highest concentration of minority populations. Table 3-25 shows the percentage of minorities within the study area, each of the four zones and other jurisdictions. Figure 3-23 shows the distribution of minority population throughout the study area.

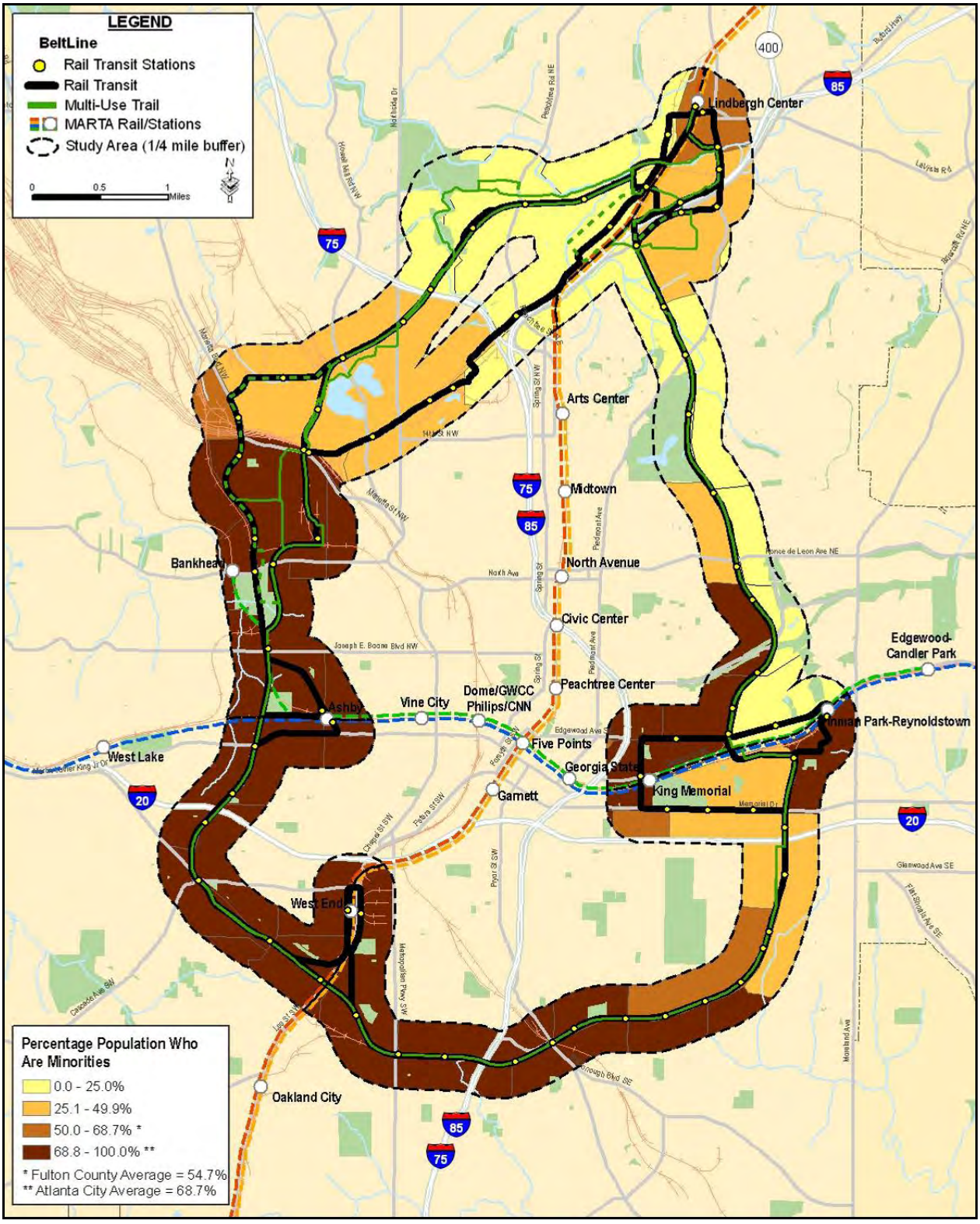
[16] 1999 data were the only data available at the census tract level at the time of writing.

Figure 3-22: Population below Poverty Level - 2000



Source: U.S. Census Bureau

Figure 3-23: Minority Population - 2000



Source: U.S. Census Bureau

Table 3-25: Minority Populations - 2000

Area	Total Population (2000)	Minority Population	Percent Minority Population
Northeast Zone	17,385	7,810	44.9%
Southeast Zone	14,622	10,549	72.1%
Southwest Zone	9,530	9,434	98.9%
Northwest Zone	22,616	11,336	50.1%
Atlanta BeltLine Study Area	64,153	39,129	60.9%
Atlanta	416,629	286,212	68.7%
Fulton County	816,006	445,957	54.7%

Source: U.S. Census Bureau, Summary File 3, 2000

Of the zones within the study area, the northeast zone is the only zone that does not qualify as an environmental justice area for minority concentrations according to the criteria.

3.4.3.3 Transit-Dependent Population

Table 3-26 lists the percentage of zero-car households and workers using public transportation within the study area, the City of Atlanta, and Fulton County.

In 2000, 23.6 percent of City households had no vehicle, while 21.2 percent of households within the study area had no vehicle. The southwest and southeast zones had the highest percentage of households with no vehicle.

The southwest zone has the greatest concentration of both zero-car households and workers using public transportation to get to work. Figure 3-24 depicts the distribution of zero-car households in the study area.

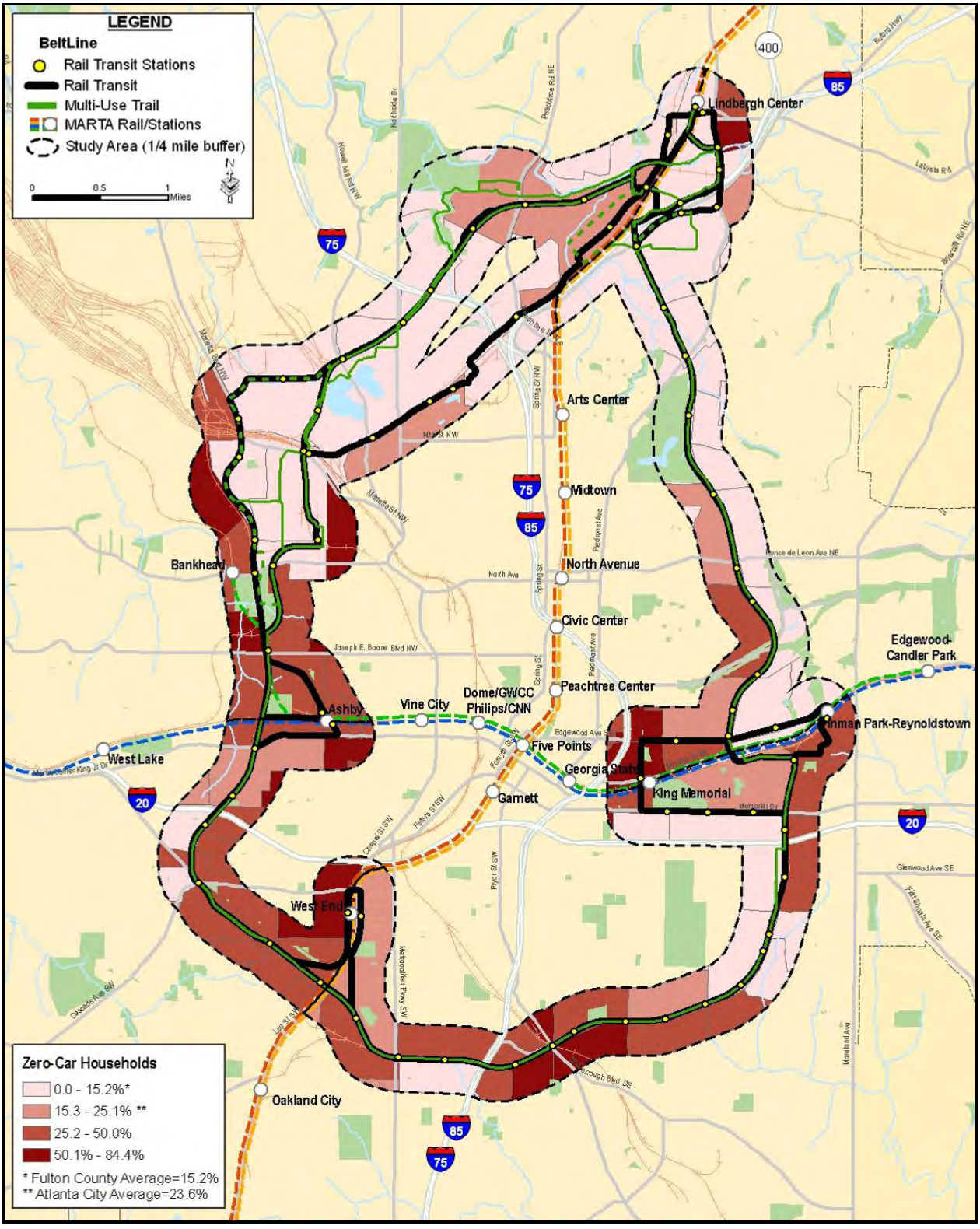
Table 3-26: Zero-Car Households and Percent of Workers Using Public Transportation - 2000

Area	Total Households	Percent Zero-Car Households	Workers 16 Years and Older	Percent Using Public Transportation to Get to Work
Northeast Zone	8,765	18.2%	10,603	14.5%
Southeast Zone	5,672	23.8%	6,427	15.5%
Southwest Zone	3,560	34.1%	2,722	26.1%
Northwest Zone	9,592	18.6%	10,663	12.4%
Atlanta BeltLine Study Area	27,589	21.2%	30,415	15.0%
Atlanta	168,242	23.6%	178,970	15.0%
Fulton County	321,242	15.2%	385,442	9.3%

Source: U.S. Census Bureau, Summary File 3, 2000

Fifteen percent of Atlanta workers over the age of 16 used public transportation to get to work in year 2000, as Table 3-26 indicates. Within the study area, 15 percent of workers used public transportation to get to work. Of the zones in the study area, the highest percentages of workers using public transportation were in the southwest and southeast zones, while the northeast and northwest zones had the lowest percentages. The percentage of transit-dependent residents in each of the four zones, the study area, and the City of Atlanta surpasses that of Fulton County.

Figure 3-24: Zero-Car Households - 2000



Source: U.S. Census Bureau

3.4.4 Preliminary Environmental Consequences

This section summarizes the findings of the potential socioeconomic and environmental justice effects of the No-Build and Build Alternatives.

The evaluation measures relevant to the socioeconomic and environmental justice resource areas are also presented in this section. The evaluation measures were developed to evaluate how well each of the Alternatives would meet the Atlanta BeltLine Purpose and Need in the Tier I DEIS[17].

This section addresses environmental justice in accordance with the provisions of Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

3.4.4.1 Socioeconomics

In 2008, the study area contained 16 percent of Atlanta's population, 12 percent of Atlanta's total employment, and 17 percent of Atlanta's households. The ARC forecasts the population will increase by 29 percent, employment by 66 percent, and households by 24 percent by 2030. The forecasts also indicate that the number of housing units within the study area will increase by approximately 15 percent.

No-Build Alternative

The No-Build Alternative would incrementally improve the attractiveness of existing transportation and trails in Atlanta. As a result, there is an expectation for incremental growth and development both within and outside the study area. Localized benefits are anticipated from implementing the transit and trail projects listed in Chapter 2.0.

Build Alternatives

Table 3-27 presents the 2008 and 2030 population and employment within ½-mile of the proposed transit station locations. The No-Build Alternative would serve the lowest population and employment forecasts in both 2008 and 2030.

Table 3-27: Population and Employment within ½-mile of the Proposed Transit Station Locations

Transit Alternatives	Population		Employment	
	2008	2030	2008	2030
No-Build	54,776	79,874	65,256	80,474
All A- CSX Howell Jct. / B- Howell Jct.	110,915	139,755	100,102	116,345
All C- CSX Marietta Blvd. / D- Marietta Blvd.	110,205	137,941	87,681	116,799
All F- Atlantic Station	110,040	143,496	98,594	115,898

Source: ARC 2008 Regional Forecasts and GIS
Note: Population and employment for the No-Build Alternative includes only those No-Build projects located within the study area. They are described in Section 3.1 and shown in Figure 3-16 through Figure 3-19.

[17] A full list of the evaluation measures established for the Atlanta BeltLine Corridor Environmental Study is presented in Chapter 7.0.

Overall, the improvements proposed with any of the Build Alternatives would complement and support the projected population, employment, and household growth as described in Section 3.4.2.

The growth effects of the Build Alternatives would be similar for each of the alignment concepts considered. The development effects anticipated because of the Build Alternatives are expected to improve the relative balance of housing and employment within the study area. As stated in *The Atlanta BeltLine Health Impact Assessment* (Ross 2007), the Atlanta BeltLine is "to link destinations and people either by putting places and people in closer proximity through redevelopment of underutilized land or by providing a more varied transportation system that includes additional transit, trails, and sidewalk networks to link people to existing parts of the City." The proposed Atlanta BeltLine could act as a gateway to employment in other areas as well as provide an amenity for potential employment to locate in the Atlanta BeltLine study area (Ross and West 2007).

The study on the feasibility of the Atlanta BeltLine TAD shows the Atlanta BeltLine could create approximately 30,000 new full-time jobs, 48,000 year-long construction jobs, and add 28,000 new housing units (including 5,600 affordable units) over its 25-year project span (EDAW 2005).

An evaluation measure used in this Tier I DEIS is the ability of the Trail Alternatives to maximize housing units and employment within ½-mile of the proposed trail access points. Table 3-28 presents the number of housing units and employment for each Trail Alternative.

Table 3-28: Housing and Employment within ½-mile of the Proposed Trail Build Alternatives

Trail Alternatives	Housing (2008)	Employment (2008)
No-Build	9,489	6,707
Howell Jct.	52,977	77,487
Marietta Blvd.	52,718	66,278
On-Street	50,638	70,253

Source: U.S. Census Bureau, Census 2000
Note: Housing and employment data for the No-Build Alternative include only the No-Build projects located within the study area. The No-Build projects in the study area are described in Section 3.1 and shown in Figure 3-16 through Figure 3-19.

Of the Trail Build Alternatives, the Howell Junction Trail Alternative would serve the most housing and employment areas, while the On-Street Trail Alternative would serve the least. The Marietta Boulevard Trail Alternative would serve the least employment.

3.4.4.2 Environmental Justice

In 2006, FTA issued *Environmental Justice: Principles, Policies, Guidance, and Effective Practices* that contains three principles of environmental justice to guide transit agencies in their compliance efforts:

- Ensure that new investments and changes in transit support structures, services, maintenance, and vehicle replacement deliver equitable levels of service and benefits to minority and low-income populations;
- Avoid, minimize, or mitigate disproportionately high and adverse effects on minority and low-income populations; and,

- Enhance public involvement activities to identify and address the needs of minority and low-income populations in making transportation decisions.

No-Build Alternative

The transportation improvements under the No-Build Alternative would provide improved transit service for some environmental justice populations relative to the existing conditions. Neighborhoods served within the study area would benefit from enhanced accessibility in the vicinity of one of the projects, but the number of transit-dependent, low-income, and minority populations served would be smaller in comparison to the Build Alternatives (shown in Table 3-29).

Table 3-29: Transit-Dependent, Low-Income, and Minority Populations within ½-mile of the Proposed Transit Station Locations - 2000

Transit Alternative	Transit-Dependent			Low-Income Population	Minority Population
	Zero-Car Households	Population over Age 65	Disabled Population		
No-Build	5,850	3,777	9,368	11,700	28,272
All A- CSX Howell Jct. / B- Howell Jct.	10,199	8,031	18,895	21,882	60,561
All C- CSX Marietta Blvd. / D- Marietta Blvd.	10,079	8,005	18,724	21,784	59,864
All F- Atlantic Station	9,909	7,718	18,641	21,666	60,698

Source: U.S. Census Bureau, Census 2000
Note: Data for the No-Build Alternative include only those No-Build projects located within the study area. The No-Build projects in the study area are described in Section 3.1 and shown in Figure 3-16 through Figure 3-19.

Many of the opinions expressed during the Public Scoping meetings involving environmental justice communities would not be addressed by the No-Build Alternative, particularly those involving development and interconnectivity throughout the study area. However, the No-Build Alternative would not disproportionately affect environmental justice populations as transit and trail improvements other than the Atlanta BeltLine are planned in all zones of the study area, including the zones defined as environmental justice. Therefore, they would experience somewhat improved access.

Build Alternatives

Potential effects to environmental justice populations as a result of the Build Alternatives are summarized in Table 3-30 and detailed in the *Socioeconomics and Environmental Justice Technical Memorandum*. At this level of analysis, the effects to environmental justice populations of each Build Alternative would generally be the same.

Many of the considerations heard during meetings involving environmental justice communities would be addressed by the Build Alternatives, particularly those involving development and interconnectivity throughout the study area. As the project advances, the project sponsors would consider the many design and construction-related considerations heard, such as station amenities, crossing conditions, and the means to avoid adverse impacts to all study area populations.

An evaluation measure used in this Tier 1 DEIS is the ability of the Build Alternatives to maximize services to low-income, minority and disabled populations, populations over 65, and zero-car households within ½-mile of proposed transit station locations.

Table 3-30: Potential Effects on Environmental Justice Populations within the Study Area

Resource	Potential Effect of Build Alternatives
Land Use and Development	Potential land use conversions may occur where existing and future land uses are not compatible (e.g., residential uses) with the transit or trails elements. While effects are not expected to be disproportionate because they would occur throughout the entire study area, further evaluation is needed in the Tier 2 analysis.
Access to Housing and Property Values	As public and private investment takes place in the Atlanta BeltLine study area, increases in property values and subsequent increases in property taxes and rents could lead to the displacement of long-time residents within the southeast and southwest zone neighborhoods. Low-income residents may be forced to move to more affordable neighborhoods outside of the proposed Atlanta BeltLine service area. However, there are programs, administered by the City, in place to prevent existing residents from being displaced. Further, the overall household cost of transportation would be reduced partially offsetting higher housing costs. In addition, the City of Atlanta has policies in place and is completing subarea planning to develop a framework for protecting single-family residences.
Parks	The proposed transit and multi-use trails would improve access to existing parks. The Howell Junction and Marietta Boulevard Trail Build Alternatives would provide access to slightly fewer park resources than the On-Street Trail Alternative. However, the effect on environmental justice communities would not be disproportionate since park access would be improved throughout the entire study area.
Neighborhoods and Community Facilities	Environmental justice communities, especially within the southeast and southwest zones, would experience improved regional mobility and better access to community facilities within the study area and to other neighborhoods because of the Build Alternatives. With improved connections, the character of the neighborhoods would not be significantly altered. No disproportionate effects are expected to environmental justice communities since all communities in the study area would experience the improved mobility and access equally.
Employment	Environmental justice communities would have improved access to employment within the study area, as well as the region, potentially creating new job opportunities. Approximately 30,000 new full-time jobs and 48,000 year-long construction jobs would be created over the 25-year project span. No disproportionate impacts to environmental justice communities are anticipated since all communities would have improved access as a result of the project..
Noise & Vibration	The preliminary noise and vibration analyses indicate that the southeast and southwest zones would have the most residents that could experience the highest residential noise and vibration impacts. This potential disproportionate effect will be evaluated further during the Tier 2 analysis to determine the severity of the potential noise effects and mitigation measures to mediate them.

According to the 2000 U.S. Census data presented in Table 3-29, the A- CSX Howell Junction and B- Howell Junction Alternatives would provide transit options to the most transit-dependent and low-income populations in the study area. The F- Atlantic Station Alternatives would provide transit options for the greatest number of minorities.

Public Involvement

This section describes the public involvement activities undertaken to involve all potentially affected Environmental Justice populations in the development of the Atlanta BeltLine project.

The project sponsors developed a *Public Involvement and Agency Coordination Plan (PIAC)* in August 2008 for the Atlanta BeltLine project. The plan addresses CEQ Guidance that states that an agency should identify any potentially affected minority populations, low-income populations, and develop a strategy for their effective public involvement in the agency's determination of the scope of the NEPA analysis. As such, the intent of the PIAC is to encourage citizens and local decision-makers to take part in the identification, development, and implementation of transit and trail improvements in the Atlanta BeltLine study area, and to identify potential impacts of alternatives on transportation, social, environmental, and economic conditions. Specific outreach efforts to Environmental Justice populations included coordination with faith-based organizations, cultural groups, and activity centers.

The public outreach for the Atlanta BeltLine Tier 1 DEIS was initiated with the Scoping Phase from July 24, 2008 to September 22, 2008. Eight formal Public Scoping meetings, two in each of the four zones of the study area, were conducted in accordance with NEPA guidelines 40 CFR Parts 1500-1508 and 23 CFR Part 771.

Chapter 8.0 provides a full discussion of the PIAC plan and summarizes all of the comments received during the Scoping Phase. A summary of the key themes in the comments received that relate to socioeconomics and environmental justice include:

- The cost of the project to taxpayers;
- The potential for disproportionate effects on the elderly, low-income and minority communities; the elderly should not be displaced;
- Consistent and equitable development and infrastructure investment in all neighborhoods served by the Atlanta BeltLine;
- The potential for the Atlanta BeltLine to attract additional crime and vagrants, especially along the proposed trail system;
- The ability to prevent accidents and injuries at crossing locations and during construction;
- Transit preferences: ensure ADA Accessibility; use electric/natural gas vehicles; use vehicles carrying 50 to 60 riders; use trolley-like cars; provide a combination of short- and long-trips to both local and regional destinations; use dedicated streetcar lanes; provide raised pedestrian crossovers with lighting; provide more stations in southeast and southwest zones; provide retail shops in stations; provide raised platforms, provide ample parking; provide 24-hour service; use MARTA card;
- Trail amenity preferences: clearly marked trails; use cameras to monitor the trails; limit vehicle crossings; provide traffic signals at heavy pedestrian crossings; and design trails to be as seamless as possible; and,
- The improved access to stops and the quality of life that the transit and trails could provide

3.4.5 Potential Avoidance, Minimization, and Mitigation Measures

As the project advances, the conceptual design will be refined with the intent of avoiding or minimizing disproportionate adverse impacts on environmental justice populations. Specifically, during Tier 2 analysis, adjustments to the configuration, alignment and location of amenities would be examined to avoid disproportionate adverse impacts to environmental justice populations. The project sponsors intend to continue coordination with all communities, particularly environmental justice populations, to develop context sensitive design solutions that benefit all populations.

With regard to housing, affordable housing units will be targeted to households with incomes that are below 60 percent of the Area Median Income (AMI) for renters and 115 percent of AMI for homebuyers. In addition, the City has policies in place and is completing subarea planning to develop a framework for protecting single-family residences. ABI and the City are currently exploring adopting tax assessment policies to reduce the potential impact of increasing property taxes on lower income owner-occupants or tenants. These include the development of a community land trust to maintain permanent affordable housing, providing financial and legal consulting services, and creating a property tax endowment to assist senior and low-income residents with

the payment of their property taxes to enable those citizens to remain in their communities (ABI 2007).

Some impacts may be unavoidable and would be reported during Tier 2 analysis. A discussion of the potential mitigation strategies for each of the resource areas listed in Table 3-30 above is provided in the respective sections.

3.4.6 Subsequent Analysis

Subsequent environmental evaluations during the Tier 2 analysis will address the following:

- Detailed effects of the project on population, employment, and housing growth;
- Detailed effects of the project on potential land use conversion and community benefits;
- Detailed effects of the project on environmental justice communities;
- Review of potential adverse and beneficial effects on neighborhoods, parks, and environmental justice communities;
- Relocation impact analysis for potentially displaced residences, including environmental justice residences, and other uses;
- Pedestrian and vehicular circulation studies; and
- Detailed noise and vibration analyses and mitigation measures.

3.5 Visual and Aesthetic Resources

This section presents a description of the visual and aesthetic resources within the Atlanta BeltLine study area, as well as the potential effects of the project on these resources.

3.5.1 Methodology

The existing visual and aesthetic characteristics of the study area were determined by viewing and qualitatively describing existing land uses, and by reviewing available maps and photographs. Site visits provided an understanding of the aesthetic conditions within each zone. More detailed analysis will be conducted during the Tier 2 analysis.

3.5.2 Affected Environment

The study area encompasses a variety of land uses with differing visual and aesthetic characteristics, including industrial and light industrial areas served by the rail lines, parks, commercial areas, and residential neighborhoods.

In general, development in the study area backs up to the railroad ROW, which in residential areas is frequently screened by vegetation or physically separated from surrounding uses by changes in grade. Street crossings include overpasses and underpasses, as well as at-grade crossings. Often the railroad ROW is only visible at these crossings.

Views of the railroad ROW also are visible from properties adjacent to the ROW. These views are primarily of the vegetation that buffers the ROW or of existing structures on

properties adjacent to the ROW that obscure a direct view. Whereas vegetative buffering can be seen as a benefit, infrequent maintenance of that vegetation can also create an unsightly overgrown condition.

Where views of the ROW are unobscured, the sight of old railroad embankment, structures, rails, ties and ballast beds are present. Railroad-related structures and equipment are visible at all at-grade crossings including signs and crossing warning indicators. Rail yards, sidings, and active or parked trains can be observed from public ROW in numerous locations in the study area. Where vegetation or other screening is absent, views of railroad materials such as piles of ties may still be evident. Dumped trash can also be observed along some ROWs.

Views from the ROW are not a factor if the railroad ROW is currently unused. Where the railroad ROW is active, viewers from within the ROW are restricted to train operators and maintenance personnel as public access is not provided along ROW.

The visual context of the study area includes former light industrial areas converted to commercial and residential uses, new multi-family residential, industrial and light industrial, garden apartments, commercial developments, single-family neighborhoods, and open space. In many cases the railroad ROW is generally situated behind buildings and is not visible from the street, except at street crossings.

3.5.2.1 Potentially Sensitive Views and Resources

Potentially sensitive views and resources throughout the study area would include the prominent visual resources described in Table 3-31 by zone, as well as the cultural and recreational resources identified along the route, as described in Section 3.6.

During the public scoping process, community members in all zones expressed concern regarding potential effects to residential neighborhoods bordering the ROW.

3.5.3 Preliminary Environmental Consequences

Visual impacts were considered when assessing the effects on views of and from the Atlanta BeltLine. Potentially sensitive viewsheds in the study area would include properties adjacent to the proposed Build Alternatives, or users of the proposed Atlanta BeltLine transit and trails.

3.5.3.1 No-Build Alternative

The No-Build Alternative would not change the existing viewshed. Field observations of the existing ROW noted that, whereas the ROW may be visually obscured from adjacent properties and public ROW by vegetation, infrequent maintenance of that vegetation has created an unsightly overgrown condition. Where vegetation or other screening is absent, views of railroad materials such as piles of ties or occasional dumped trash can also be observed.

Table 3-31: Potentially Sensitive Views and Visual Resources by Zone

Zone	Build Alternatives		Potentially Sensitive Views and Visual Resources	
Northeast	All Build Alternatives		• Ansley Golf Course • Ansley Mall • Amsterdam Walk • Piedmont Park • Historic Fourth Ward Park	• Midtown Promenade • Midtown Place • City Hall East • Residential neighborhoods
Southeast	All Build Alternatives		• Oakland Cemetery • Woodland Garden Park • Boulevard Crossing Park • Daniel Stanton Park • The playing fields of the New Schools at Carver	• Adair Park Number One • Adair Park Number Two • Residential neighborhoods
Southwest	All Build Alternatives		• Booker T. Washington High School • Donnelly Park	• Rose Circle Park • Residential neighborhoods
Northwest	Transit	All A- CSX Howell Jct./ B- Howell Jct.	• Washington Park tennis courts • The Howard School • Piedmont Hospital	• Shepherd Center • Tanyard Creek Park • Ardmore Park
		All C- CSX Marietta Blvd./ D- Marietta Blvd.	• Washington Park tennis courts • Maddox Park • Piedmont Hospital	• Shepherd Center • Tanyard Creek Park • Ardmore Park
		All F- Atlantic Station	• Washington Park tennis courts	• Atlantic Station
	Trails	Howell Jct.	• Washington Park tennis courts • The Howard School • Piedmont Hospital	• Shepherd Center • Tanyard Creek Park • Ardmore Park
		Marietta Blvd.	• Washington Park tennis courts • Maddox Park • Piedmont Hospital	• Shepherd Center • Tanyard Creek Park • Ardmore Park
		On-Street	•Washington Park tennis courts •The Howard School	•Tanyard Creek Park • Ardmore Park

3.5.3.2 Build Alternatives

The Build Alternatives would primarily use existing railroad and roadway corridors. The effect of using existing transportation ROW is to minimize the potential for substantial visual impact on neighborhoods, communities, parks, and historic properties. For these reasons, the potential visual effects of each Build Alternative would be similar. Nevertheless, the Atlanta BeltLine would introduce new visual elements within and/or near railroad ROW including new track and ballast, bridges, underpasses and embankments, power stations, poles and overhead wires, stations, storage yards, and multi-use trails with associated signage, lighting, and furniture. Table 3-31 summarizes the visual and aesthetic resources within the study area.

Where existing railroad or roadway infrastructure has deteriorated, the potential exists for the project sponsors to improve visible elements such as bridges through rehabilitation or replacement of elements to be used by the Build Alternatives.

Vegetation, structures, or equipment within and/or near existing or acquired railroad ROW may have to be removed in part or whole to accommodate the new transit and trails elements of the Atlanta BeltLine. New signage and warning indicator equipment would be installed at-grade crossings. These activities and amenities have the potential to change the visual characteristics of and from the railroad ROW and immediate surroundings. Railroad ROWs that are currently obscured by vegetation may be readily visible as a result of implementing the Build Alternatives.

The Trail Build Alternatives would be aligned within and/or near existing railroad ROW alongside the Atlanta BeltLine transit component and/or adjacent to existing roadways. Within railroad ROW and, in some cases along existing roadways, the multi-use trails will create new views of the study area from these locations. Public users of the trails will have a new set of views of adjacent prominent resources, such as parks and historic structures.

3.5.4 Potential Avoidance, Minimization, and Mitigation Measures

The proposed use of existing railroad ROW or proximity to existing railroad ROW is intended to locate new transportation resources in already designated transportation corridors. The intent of aligning the Atlanta BeltLine alongside existing freight railroad infrastructure is to minimize the potential for substantial visual impact on neighborhoods and communities. However, as described in Sections 3.1 and.3.2, some changes in existing visual characteristics may occur.

Conceptually, mitigation strategies that can be considered to address unavoidable adverse visual impacts include modifying the location and configuration of new visual elements to reduce visual impact, providing visual screening or buffers, shielding lighting, and addressing related concerns such as maintenance and trash removal.

3.5.5 Subsequent Analysis

Detailed analysis will be undertaken as the project design is further developed during Tier 2 analysis to identify and assess the extent of adverse impacts on the visual and aesthetic resource of the study area. Further development of project design will include refining the conceptual design presented in this Tier 1 DEIS, using more detailed environmental analysis and ongoing public input.

For example, for each of the proposed station sites, further analysis would be conducted in conjunction with local agencies to develop an understanding of the relationship of the proposed station architecture, lighting systems, and other features to the surrounding natural and built environment, and the historic context of the area. The analysis would identify the potential for blockage of valued views and the areas where the scale, form, and aesthetics of project facilities could be designed to complement the surrounding landscape. Tier 2 analyses would yield a basis for considering specific measures that could be integrated into the final station designs to avoid or reduce the visual impacts of the stations on their surroundings.

3.6 Cultural, Historic, and Archaeological Resources

This section describes the cultural, historic, and archaeological resources that exist within the Atlanta BeltLine study area as well as the potential effects of the project on these resources.

3.6.1 Methodology

Coordination with the State Historic Preservation Office (SHPO) determined the approach for identifying known and potential cultural, historic, and archaeological resources along the corridor for the Tier 1 DEIS, as documented in Appendix B, Agency Coordination. A meeting on August 6, 2009 obtained concurrence from the SHPO regarding an approach to the cultural resources evaluation that includes three steps:

- Study Area Definition

- Existing Data Sources Review
- Field Reconnaissance

The Tier 1 and 2 analyses will fulfill the requirements of Section 106 of the National Historic Preservation Act (NHPA) as codified in 36 CFR 400. Section 106 requires federal agencies or projects requiring a federal permit to take into account the effects their actions might have on historic properties. In the Atlanta BeltLine Tier 1 DEIS, the focus of Section 106 analysis is on identifying areas of cultural, historic, and archaeological sensitivity. Both documented sites and those undocumented areas with a potential for historic or prehistoric archaeological resources define the term "areas of archaeological sensitivity."

The Tier 2 analysis of a Build Alternative would involve a more detailed evaluation of both architectural and archaeological resources, an assessment of potential project effects on those resources, means to avoid or minimize effects, and development of appropriate mitigation strategies. Tier 2 analyses will also involve the preparation of a more specific Area of Potential Effect (APE) for upcoming actions. All aspects of the Tier 2 analysis regarding cultural resources will involve consultation with SHPO, the agencies, and consulting parties.

The preliminary assessment of potential effects of the alternatives on cultural resources focused on direct, physical impacts and used a typical APE as a means of measurement. In this case, the preliminary APE is 150 feet on each side of the alternative alignments (300 feet wide overall), which conservatively allows for all anticipated alternative impacts. The boundaries and specific locations of all cultural resources were compared to the preliminary APE of each of the alternatives. A resource was considered to be potentially directly affected if it was wholly or partially inside the APE of the alternative, or if the boundary of the resource was adjacent to the APE.

A *Cultural Resources Reconnaissance Technical Memorandum* (2009) was prepared to support this Tier 1 DEIS. Neither a *Historic Resources Survey Report* (HRSR) or a Phase I archaeological study was prepared for this Tier 1 DEIS. A more detailed APE will be prepared as part of future Tier 2 analyses for both historic resources and archaeological resources, once a Preferred Alternative has been selected and design has progressed.

3.6.1.1 Study Area Definition

In consultation with the SHPO, the study areas used to identify cultural resources for the Tier 1 study were ¼ mile from each side of the Atlanta BeltLine corridor centerline for historic architectural resources, for a maximum of a ½ mile within which both direct and indirect effects to these resources might occur. For archaeological resources, the study area was identified to include 150 feet from each side of the proposed Atlanta BeltLine corridor centerline, for a maximum of 300 feet within which construction of any project improvements could potentially impact archaeological resources.[18] The study area for historic architectural resources is broader to include potential indirect effects.

[18] As part of the Georgia Environmental Policy Act (GEPA) study conducted specifically for the northeast zone of the Atlanta BeltLine Corridor, surveying and documentation of cultural resources took place (2008 - 2009). The *Cultural Resources Reconnaissance Technical Memorandum* (2009) shows the data gathered from the cultural resources study, which is also included in the Tier 1 EIS.

3.6.1.2 Existing Data Sources Review

Existing information on previously identified historic properties was reviewed to identify any known resources that exist within the study area. This review included properties listed on the National Register of Historic Places (NRHP), NRHP nominations, National Historic Landmarks, and the updated Georgia Historic Bridge Survey (GHBS 2008).

Also consulted were the Georgia's Natural, Archaeological, and Historic Resources GIS (NAHRGIS) database (https://www.itos.uga.edu/nahrgis/) and documentation available at the Georgia Department of Natural Resources (GADNR), SHPO, Atlanta Urban Design Commission (AUDC), Historic American Building Survey (HABS), Historic American Engineering Record (HAER), and other available sources of information.

Additional information specifically for the northeast zone was obtained from the Atlanta BeltLine Georgia Environmental Policy Act (GEPA) study. Supporting technical reports for that study, the *Historic Resources Survey Report* (HRSR) and a *Phase I Archaeological Report,* were reviewed.

Review of the state archaeological site files at The University of Georgia and existing survey reports identified archaeological sites within a one-kilometer (0.62 miles) distance surrounding the archaeological study area. In addition, topographic maps, aerial photography, and as-built maps for the original MARTA line identified areas of high archaeological site potential.

Construction of a predictive model determined potential prehistoric site locations, based on topography, known site locations, and the degree of historic landform disturbance. Historic maps from the 19th Century through the 20th Century were also sources of information for locating areas of historic archaeological site potential.

Identification of potential consulting parties followed the review of existing information on previously identified historic properties. In addition to the SHPO, other potential consulting parties were determined based on the guidance in the *GDOT/FHWA Cultural Resource Survey Guidelines*. The potential consulting parties invited by FTA to comment on the Atlanta BeltLine project included the SHPO, the National Park Service Southeast Regional Office, the ARC, the Fulton County Board of Commissioners, and the City of Atlanta Bureau of Planning. For more information regarding the review of resources and sources consulted, see the *Cultural Resources Reconnaissance Technical Memorandum* (2009).

3.6.1.3 Field Reconnaissance

Field reconnaissance was conducted in the historic architectural study area to identify any historic properties potentially eligible for listing in the NRHP or Georgia Register of Historic Places (GRHP). This reconnaissance involved a windshield survey to locate properties that appeared to be over 50 years of age and potentially eligible based upon National Register criteria. The basis for this evaluation included the physical appearance of the resources and their architectural design. Other factors such as integrity, setting, and historical importance based upon knowledge of the development of the neighborhood also were included in the evaluation of potential eligibility.

A reconnaissance also was conducted in the archaeological study area to confirm the sensitivity of areas assessed to have archaeological potential based on background research or prehistoric site predictive modeling.

3.6.2 Affected Environment

The discussion of cultural resources is organized by study area zone. A total of 180 cultural resources were identified. Lists of all cultural resources by study area zone can be found in the *Cultural Resources Reconnaissance Technical Memorandum* (2009).

One resource, the Historic Railroads of the Atlanta BeltLine, has been determined eligible for the entire Atlanta BeltLine Corridor. The contributing elements within the northeast zone were surveyed in detail during the Atlanta BeltLine GEPA study.

Other resources, such as Atlanta's Historic Apartment Complexes, exist in more than one zone, but were counted only once. Figure 3-25 shows all NRHP-listed, or potentially eligible historic resources in the study area. Table 3-32 lists the number of existing and potential historic and archeological resources by zone. Appendix D includes detailed figures by zone illustrating areas of archaeological sensitivity in the 300-foot study area for archaeological resources. No sacred Native American Lands were identified within this study area.

Table 3-32: Number of Historic and Archaeological Resources by Zone

Zone	Georgia/National Register of Historic Places		AUDC Additional "Significant" properties	Additional Resources Identified During Field Reconnaissance	Archaeologically Sensitive Areas	Total Number of Resources
	Listed Sites	Eligible Sites				
Northeast	16	28	0	0	8	52
Southeast	10	2	13	17	12	54
Southwest	6	1	4	6	4	21
Northwest	12	3	9	14	15	53
Total All Zones						180

A Tier 2 analysis will be completed to determine potential eligibility of those resources not already listed on the National Register of Historic Places or determined eligible.

3.6.2.1 Preliminary Environmental Consequences

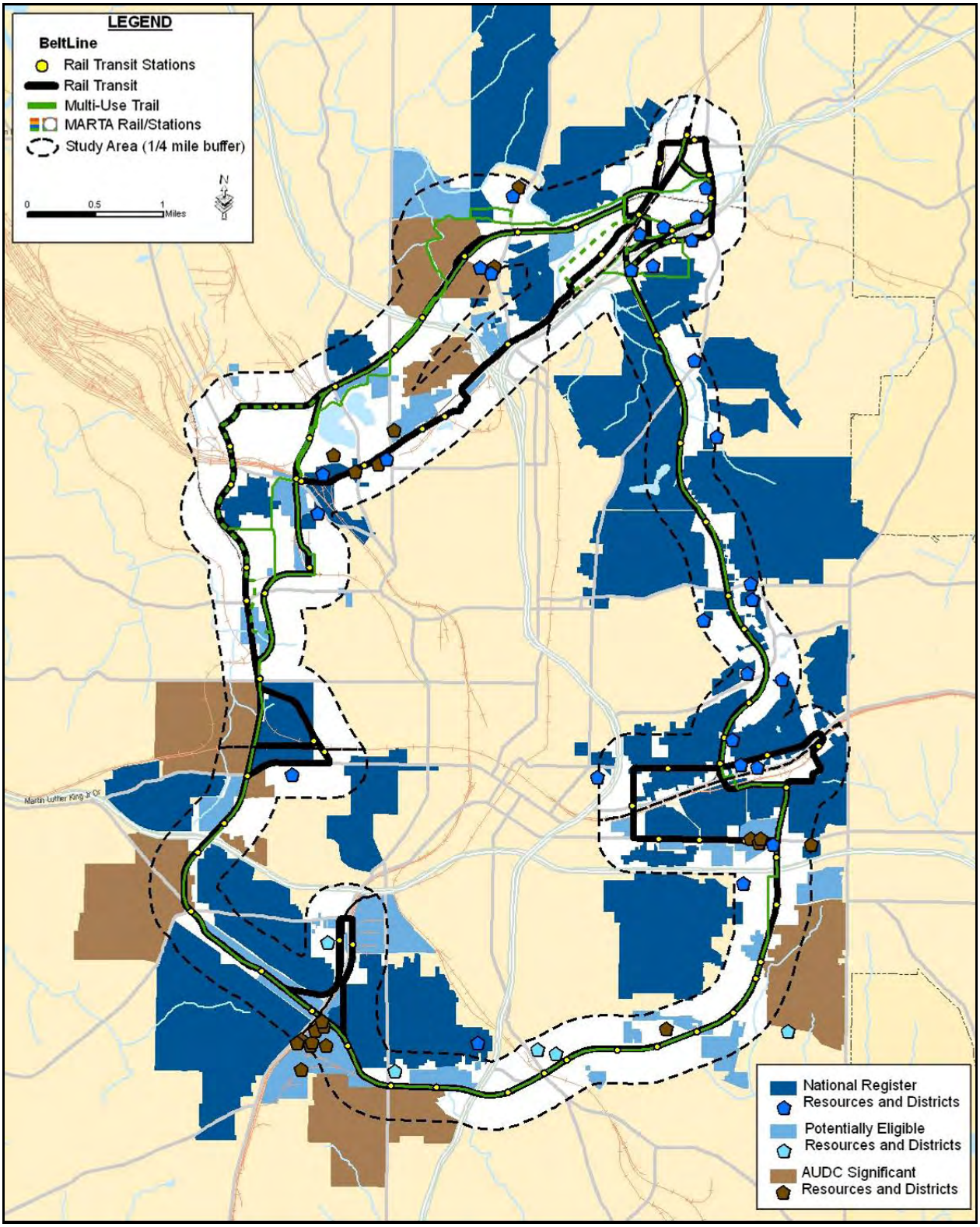
This section describes the potential impacts of the No-Build and Build Alternatives on cultural resources, including both historic and archaeological sites that are listed, eligible, and potentially eligible for listing on the Georgia Register of Historic Places (GRHP) or the National Register of Historic Places (NRHP). For the purpose of this section, and for ease of discussion, all of the resources are referred to as "cultural resources."

No-Build Alternative

The No-Build Alternative includes a mix of improvements to existing facilities and new transit projects. The improvements to existing facilities are geographically specific; as such, the potential for cultural resource impacts would be highly localized.

Assessment of the extent of potential cultural resource impacts of the No-Build projects would occur during environmental analysis for those projects. Public outreach and Section 106 coordination in regard to avoiding, minimizing, and mitigating the potential adverse cultural resources effects of the No-Build projects would take place during those environmental reviews.

Figure 3-25: Historic Resources



Sources: NRHP, GRHP, AUDC, and ARC.
Note: Resources on more than one list are mapped according to their highest designation level. National and/or State Register listing takes precedence over AUDC listing, for example.

Build Alternatives

The proposed use of existing railroad ROW by the Atlanta BeltLine would aggregate transportation resources in existing transportation corridors and minimize the potential for substantial impacts on the environment, including cultural resources.

During the scoping process, the general public as well as regional agencies provided input regarding cultural resources. Comments from the public and agencies expressed concern that the proposed Atlanta BeltLine could have detrimental effects on historic structures and archaeological resources, and there should be an assessment of these potential impacts. Preliminary design of the Build Alternatives occurred with the intent of avoiding or minimizing impacts to cultural resources, wherever feasible.

Although 180 total resources were identified within the larger project study area across all four zones as discussed in Section 3.6.2 and in the *Cultural Resources Reconnaissance Technical Memorandum* (2010), only 119 resources fell within the 300-foot wide preliminary APE, noted in Section 3.6.1.

This section presents the results of the impact analysis on those 119 resources that could potentially be directly, physically impacted. Table 3-33 indicates the total number of historic resources and areas of archaeological sensitivity potentially subject to direct and indirect, proximity impacts within each zone. Each of the Build Alternatives has the potential to affect a similar number of cultural resources. It should be noted that there has not yet been a formal evaluation of eligibility or effects under Section 106 as part of this project.

Table 3-33: Potential Impacts to Cultural Resources

Zone	Build Alternatives		Numbers of Potential Impacts to Cultural Resources
Northeast	All Transit and Trails Alternatives		29
Southeast	All Transit and Trails Alternatives		42
Southwest	All Transit and Trails Alternatives		16
Northwest	Transit	All A- CSX Howell Jct. Alternatives	19
		All B- Howell Jct. Alternatives	18
		All C- CSX Marietta Blvd. Alternatives	17
		All D- Marietta Blvd. Alternatives	17
		All F- Atlantic Station Alternatives	21
	Trail	Howell Jct.	12
		Marietta Blvd.	12
		On-Street	16

The C-CSX Marietta Boulevard and D- Marietta Boulevard Alternatives would affect the fewest number of cultural resources, while the F-Atlantic Station Alternatives would affect the most. The Howell Junction and Marietta Boulevard Trail Build Alternatives could affect slightly fewer cultural resources than the On-Street Trail Alternative. In general, in the northwest zone, there is a slight difference in the total number of impacts to cultural resources depending on the Build Alternative.

A summary description of the potential impacts to historic resources (buildings, structures, historic districts, and objects) and areas of archaeological sensitivity follows. For a list of cultural resources located within the study area, and their physical relationship to the Build Alternatives, see the *Cultural Resources Reconnaissance Technical Memorandum* (2009).

As stated above, the use of existing railroad and roadway ROW, wherever possible, to locate proposed transit and trail elements minimizes the potential for direct effects on historic resources. On the other hand, the main resource that would be directly impacted by any of the Build Alternatives is the Historic Railroad Resources of the Atlanta BeltLine. This resource, which spans all four study area zones, is comprised of numerous contributing elements including railroad ROW, track, ballast, bridges, culverts, retaining walls, and other related features. Any proposed action within the former Atlanta BeltLine railroad system footprint would likely cause impacts to the resource.

Additional ROW is expected to be needed in specific areas adjacent to existing Atlanta BeltLine corridor to accommodate the Build Alternatives regardless of the chosen transit mode technology. A preliminary assessment of ROW needs identified the Orkin-Rollins Building as another historic resource that would be directly impacted by the Build Alternatives in the northeast zone. This resource could have an element of the project constructed on a portion of the property, creating a direct impact to the building itself. Other historic resources could be indirectly affected by proximity impacts such as visual, noise, vibration, and access changes.

Finally, 39 areas of archaeological sensitivity are identified by background research and field reconnaissance in all zones. The investigations suggest that the areas of sensitivity could retain potentially significant archaeological sites. Field-testing was performed in the northeast zone as part of the GEPA study and is documented in the *Environmental Effects Report – Atlanta BeltLine Corridor Northeast Zone* report.[19]

3.6.3 Potential Avoidance, Minimization, and Mitigation Measures

Conceptual design of the Build Alternatives conservatively indicates the potential for direct and indirect impacts on cultural resources. As the project advances, the design will be refined with the intent of further avoiding or minimizing impacts on cultural resources.

Some impacts may be unavoidable and would be reported during Tier 2 analysis. At this point FTA and MARTA would work in consultation with the Georgia SHPO and Consulting Parties to identify mitigation strategies, which would eliminate or mitigate adverse effects; and if necessary, prepare a Programmatic Agreement to outline mitigation commitments.

3.6.4 Subsequent Analysis

As described in Section 3.6.2.1 above, during Tier 2 analysis further design development would enable the identification of specific direct and indirect effects on cultural resources and allow compliance with the requirements of Section 106 to proceed. In addition, during Tier 2 analysis, additional investigations and studies would take place to 1) identify cultural resources and determine eligibility for the National Register of Historic

[19] AECOM, Inc., 2009. *Environmental Effects Report – Atlanta BeltLine Corridor Northeast Zone*, Atlanta BeltLine Corridor Environmental Study. Prepared for MARTA and ABI.

Places, 2) determine the direct and indirect effects on those cultural resources, and 3) develop appropriate mitigation measures for unavoidable impacts.

As part of meeting the requirements of Section 106, the project sponsors would consult with the Georgia SHPO and other consulting parties and the public concerning the full range of effects to cultural resources during Tier 2 analysis.

3.7 Parks and Recreational Resources

3.7.1 Methodology

The methodology for assessing potential effects on parks and recreational resources included:

- Identification of publicly-owned parks and recreational properties in the study area;
- Identification and assessment of the potential effects of the alternatives on the parks and recreational resources potentially crossed or otherwise affected by the Alternatives;
- Determination of the consistency of the alternatives with City and regional plans for park and recreational facilities;
- Identification of general areas where the alternatives could need additional ROW that could affect adjacent park properties; and
- Discussion of potential design and mitigation strategies to offset potential negative impacts.

The analysis applied both quantitative and qualitative assessments in these tasks. It used quantitative assessments to determine if parks and recreational resources exist within a 150-foot buffer to either side of each proposed alternative alignment. Data was collected from the GIS resources and the adopted park and recreation plans of the City of Atlanta to identify park and recreation lands in the study area. All City classifications of parks were used including: Regional Parks, Community Parks, Neighborhood Parks, Block Parks, Garden Parks, and Conservation Parks.

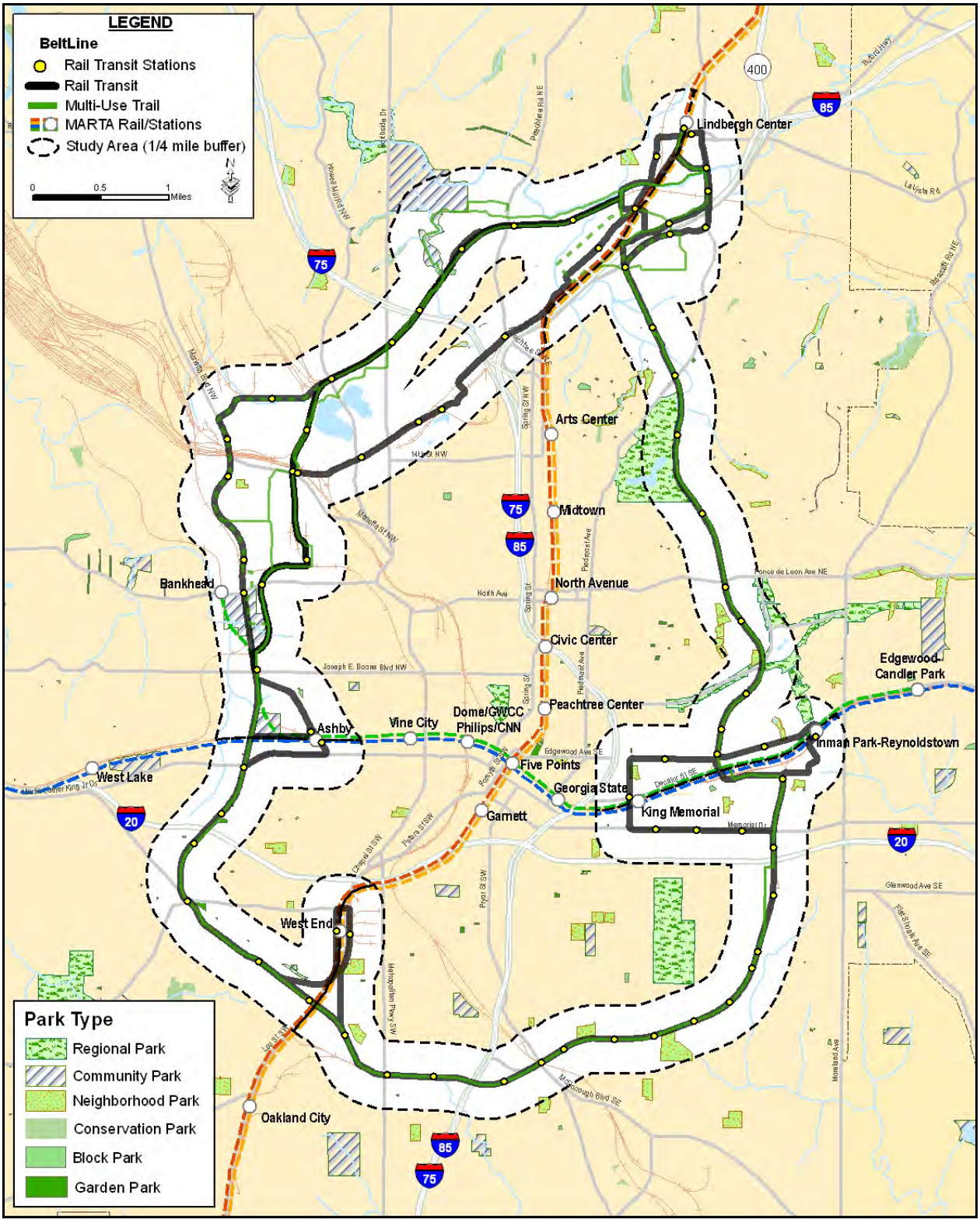
Identification of the potential impacts on parkland in the study area took place, focusing on potential ROW impacts. A qualitative assessment evaluated the potential of the alternatives to contribute to or detract from existing or planned parks and recreational resources.

3.7.2 Affected Environment

Twenty-two public parks, including two regional parks, six community parks, six neighborhood parks, seven garden parks, and one block park are located within the 150-foot buffer. These parks total approximately 65.5 acres within the 150-foot buffer and extend beyond the buffer to cover a total of 605 acres.

The ¼-mile study area to either side of the Atlanta BeltLine contains a total of 448 acres of public park space. Appendix D contains a table listing park and recreational facilities by zone, within the 150-foot buffer, and within the ¼-mile study area (shown in Figure 3-26).

Figure 3-26: Parks



Source: City of Atlanta, Department of Parks, Recreation, & Cultural Affairs

3.7.3 Planning Context

According to the *Atlanta's Project Greenspace Summary Report*, released in 2009 by the City of Atlanta, the City lags behind its U.S. peers in greenspace per capita and this number would continue to fall if the City is not proactive in implementing a greenspace vision. Currently Atlanta offers 0.75 acres of public parkland per 100 residents. Its goal is to increase that ratio to one acre per 100 residents. This is an extensive multi-year study of parks, recreation facilities, and natural resource areas, and accessibility of these resources to Atlanta residents. The study updates the City's 1993 *Parks, Open Space and Greenways Plan*. Goals outlined in the report include:

- Protecting a minimum of 20 percent of the City's land area as greenspace;
- Providing a minimum of 10.5 acres of public parkland per 1,000 residents;
- Providing publicly accessible greenspace within a ½-mile walk of every resident;
- Protecting at least 75 percent of Atlanta's environmentally sensitive lands via ownership and/or development regulations; and
- Providing recreational facilities and programs to meet citizen needs based on a level of service standards.

3.7.4 Preliminary Environmental Consequences

3.7.4.1 No-Build Alternative

Overall Study Area

Existing Park and Recreational Effects
In the No-Build Alternative, only two projects would potentially affect parks and recreational resources in the study area. Commuter Rail-Lovejoy/Griffin/Macon has the potential to affect Adair II Park near West End in the southeast zone, and the I-20 East BRT has the potential to affect Rawson-Washington Park at the edge of the Atlanta BeltLine study area in the southeast zone. The sponsors of the projects in the No-Build Alternative would be required to identify unavoidable impacts to these and any other parks, and to develop appropriate mitigation strategies for these in accord with federal, state, and local requirements.

Future Park and Recreational Effects
The No-Build Alternative would have some positive effects on future park and recreational resources in the study area, as it would add bicycle and pedestrian facilities and trails to improve access to parks and recreational resources. Planned parks and recreational resources identified in the City's future land use data include park expansions of existing parks, new parks, and recreational resources. Table 3-34 summarizes the locations of these new facilities, which would primarily benefit the local community.

The 2009 *Atlanta's Project Greenspace Technical Report* presents the City of Atlanta's vision of parks and recreational resources as a highly interconnected network with easy access (within ½-mile) to public parks for all Atlanta residents. The No-Build Alternative would be minimally responsive to this vision for future park and recreational resources by providing new bicycle/pedestrian and trail facilities at discrete locations in the study area.

Table 3-34: No-Build Alternative: Planned Park, Pedestrian, and Multi-Use Trail Resource Improvements within the Study Area

Project Name	Project Type	Zone	Project Description
Lindbergh to Inman trail	Hiking trail	Northeast	Unpaved trail improvement project
Piedmont Park Expansion	Regional park	Northeast	Expansion of a regional park and recreational resource per the *Piedmont Park Master Plan* (Currently under construction)
Eastside Trail	Multi-use bicycle / pedestrian resource	Northeast	Eastside multi-use trail from Piedmont park to Glenwood (Currently under construction)
Four Corners Park Expansion	Neighborhood park	Southeast	Expansion to neighborhood park and recreational resource
Ralph David Abernathy Boulevard pedestrian/intersection improvements	Pedestrian resource	Southwest	Ralph David Abernathy Boulevard pedestrian and intersection improvements
West End multi-use trails	Multi-use bicycle / pedestrian resource	Southwest	West End multi-use trails along CSX RR and Westview Drive
Southwest Hiking Trail	Hiking trail	Southeast	Unpaved trail improvement project
Enota Park	Neighborhood park	Southeast	New neighborhood park
Westside Reservoir Park	Regional park	Northwest	New regional park and recreational resource
Marietta Boulevard pedestrian improvements	Multi-use bicycle / pedestrian resource	Northwest	Marietta Boulevard pedestrian improvements
Northside Atlanta BeltLine Trail	Multi-use bicycle / pedestrian resource	Northwest	Northside multi-use trail along Ardmore, Tanyard, and Atlanta Memorial Parks

Source: ARC, *Envison6* RTP, September 27, 2007

3.7.4.2 Build Alternatives

The Transit and Trail Build Alternatives would have an overall positive effect on the parks and recreational facilities in the study area as the project would directly address many of the City's greenspace goals and provide access to those facilities. The Trail Build Alternatives would provide over 50 acres of the 3,784 public park acres needed to meet the 10 acres per 1000 residents goal, using 2030 population projections[20]. The Build Alternatives would also provide connectivity between park activity centers, and between residences and park resources.

Existing Park and Recreational Effects

Potential effects on parks and recreational facilities were assessed in terms of access, direct physical impacts, and indirect or proximity impacts. The Transit Build Alternatives would provide a transit option to access existing parks and recreational facilities. The Trail Build Alternatives would have a positive effect on existing park and recreation resources by creating direct pedestrian- and bicycle-oriented trail connections between the public parks, and between communities and public parks.

[20] Based on the typical design for the multi-use trail, including alignments within and outside the transit ROW. Rough estimates for each Alternative vary between 50.7 acres and 52.9 acres.

The effects of the Build Alternatives on the parks and recreational resources would be similar in the northeast, southeast, and southwest zones where the Build Alternative alignments are the same. In the northwest zone, the Build Alternative alignments differ; as a result, potential effects on parks and recreational facilities differ. Table 3-35 quantifies the number of parks and recreational resources accessible by each Build Alternative.

Table 3-35: Number of Parks and Recreational Resources Accessible by Build Alternatives

Zone	Transit Alternatives			Trail Alternatives		
	All A- CSX Howell Jct./ B- Howell Jct.	All C- CSX Marietta Blvd./ D- Marietta Blvd.	All F- Atlantic Station	Howell Jct.	Marietta Blvd.	On-Street
Northeast	6	6	6	6	6	6
Southeast	3	3	3	3	3	3
Southwest	7	7	7	7	7	7
Northwest	5	5	3	5	5	6
Totals	21	21	19	21	21	22

The F- Atlantic Station Alternatives would provide access to two less parks than other Transit Build Alternatives. Initial analysis indicates that the Transit Build Alternatives would not likely require ROW from any parks.

Unlike the Transit Alternatives, the Howell Junction and Marietta Boulevard Trail Build Alternatives would provide access to slightly fewer park resources than the On-Street Trail Alternative. Neither the Howell Junction Trail Alternative nor the On-Street Trail Alternative is likely to require park ROW acquisition.

The Transit and Trail Build Alternatives are not likely to directly impact existing parks and recreational facilities. During the Public Scoping Process, specific concern was expressed about the potential for the Atlanta BeltLine to have a direct impact on park ROW. As a result, consideration was given in the development of the Build Alternatives to avoid the need to use ROW from an existing park or recreational resource. For example, at Freedom Park, the transit and trail project elements would remain in the existing rail ROW that crosses a narrow portion of the park. As the existing Freedom Park multi-use trails cross the existing rail ROW, a positive effect would be the connection of the Freedom Park Trail to the Atlanta BeltLine trails element. There could still be an impact to parks located immediately adjacent to Build Alternative corridors if additional ROW is necessary to meet specific transit and trail design criteria.

The intent of the Atlanta BeltLine is to avoid or minimize adverse effects on existing parks and recreational facilities. Providing trail connections to or through existing parks could require use of parkland, however, the connections and trails provide an enhancement to the parks by improving access and connectivity to other parks. It is likely that the ownership of the park would remain the same.

It should be noted that where the transit and trail alternatives cross existing trails, such as at Freedom Park, access and safety measures in the form of design and operational controls would be provided. These could include strategies such as grade separated crossings of transit and trails, or gated and signalized at-grade crossings. The details of these strategies will be determined during Tier 2 analysis.

The potential exists for indirect effects due to the proximity of transit operations to thirteen park and recreational facilities in all alternatives:

- Freedom Park
- Piedmont Park
- Daniel Stanton Park
- Gordon-White Park
- Green Leaf Circle
- Napoleon Circle
- South Gordon Triangle
- Stafford Street Park
- Ardmore Park
- Bobby Jones Golf Course
- Maddox Park
- Tanyard Creek Park
- Washington Park

Indirect effects of transit operations can include noise and/or vibration impacts. However, initial noise and vibration screening indicates a low potential for indirect impacts due to the Atlanta BeltLine project. As the project design advances, strategies to avoid the potential for indirect effects on parks and recreational facilities will be applied.

A more detailed list of potential effects by zone is provided in Appendix D, along with figures that illustrate the park locations by zone.

Planned Park and Recreational Resources

The Atlanta BeltLine is part of the City's greenspace plan. Thus, anticipation is for the Build Alternatives to have a positive effect on future park and recreation facilities, as they would help realize the City's vision of increased public park space and park connectivity.

Potential Construction Effects

Likely construction effects could include temporary use of property for staging equipment, temporary disturbances to access and activities, and temporary land disturbances, such as impacts to vegetation and increased sediment and erosion. If construction staging or access occurs in or adjacent to a federally owned park or recreational facility, then there is a requirement of coordination with the property owner.

3.7.5 Potential Avoidance, Minimization, and Mitigation Measures

As the project design advances, the project sponsors would strive to avoid or minimize adverse effects on parks and recreational resources. Identification of unavoidable, specific impacts and determination of appropriate mitigation measures would occur by coordinating with the resource owner.

Potential mitigation strategies might include use of best management practices during construction activities and specific park enhancements or potential land replacement for long-term adverse impacts. Mitigation of proximity effects to parks could take place through context sensitive design, plantings, and sound buffering.

Should there be a temporary impact to parks and recreational resources during construction activities, public access would be restored when construction is complete. Construction activities would occur in a manner that would least disturb the use of these resources. Temporarily impacted land within parks would mean restoration to pre-construction or better conditions after construction activities are complete.

3.7.6 Subsequent Analysis

During the Tier 2 analysis of the Preferred Alternative, more detailed research on the types of functions and activities at each resource, public access, and exact property boundaries would occur to determine the extent of any potential impacts. The analyses would include:

- Descriptions of the uses and functions of each of the resources, and identification of resource boundaries including; total size of resources, specific services and facilities, and access to resources;
- Specific potential impacts on each resource, including property acquisition, if any;
- Physical impacts, proximity impacts, and temporary impacts on each resource resulting from proposed operations and infrastructure improvements to accommodate the Atlanta BeltLine; and,
- Documentation of consultation with the affected federal, state, and local jurisdictions and owners/operators of the identified resources.

3.8 Safety and Security

3.8.1 Methodology

This section qualitatively assesses the potential safety and security issues that would be addressed as the Atlanta BeltLine development progresses, which respond to the FTA's *Safety and Security Management Plan* (SSMP) requirements.

Safety and security regulations and guidance related to the project include the American Association of State Highway and Transportation Officials (AASHTO), the Illuminating Engineering Society of North America (IESNA), and the *Americans with Disabilities Act* (ADA). Materials, engineering guidelines, and accessibility requirements are addressed.

When the project is ready to enter the Preliminary Engineering phase, applicants for and recipients of FTA funding must submit a *Safety and Security Management Plan* (SSMP). The SSMP describes how the applicant will address safety and security for the Atlanta BeltLine project regardless of the chosen transit mode technology. During the Tier 1 DEIS analysis, there was an identification of certain features with regard to safety and security that respond to the SSMP requirements, which are described in brief below.

3.8.2 Affected Environment

Existing safety protocols and measures in operation for existing transportation services are in effect. These protocols and measures are procedures to protect the safety of the public and the employees employed by MARTA, GDOT, the City of Atlanta, CSX, Norfolk Southern, and other entities that operate along or across the Atlanta BeltLine. Clearance requirements are in place along passenger and freight railroad lines, including CSX, Norfolk Southern, and MARTA. The sponsors of the projects listed on the TIP, included in the No-Build Alternative, would implement safety measures that are consistent with their own protocols and requirements.

Seventeen fire stations serve the study area within a one-mile buffer of the planned route. The project study area is entirely within the limits of existing fire protection.

3.8.3 Environmental Consequences

Safety and security are conditions of transportation operations that protect the resources, the operators, and the users of those resources. This section contains a qualitative assessment of the potential operational safety and security conditions of the No-Build and Build Alternatives.

3.8.3.1 No-Build Alternative

Under the No-Build Alternative, existing safety and security protocols, such as compliance with AASHTO and ADA, or the control of roadway-track interactions for at-grade crossings, and measures in operation for existing transportation services would be in effect. This would include MARTA, GDOT, the City of Atlanta, CSX, Norfolk Southern, and other entity procedures to protect the safety and security of their resources, the public, and their employees who use the resources.

3.8.3.2 Build Alternatives

Assessment of safety and security for the Build Alternatives occurs through four key topic areas: trails, stations, roadway-track interactions, and freight rail-track interactions. The provisions described for safety in this section are conceptual and subject to refinement and detailed evaluation of effects in a Tier 2 analysis.

Trails

The Atlanta BeltLine trail design provides for a safe and secure environment for trail users. Utilization of the standards established in guidelines from AASHTO, IESNA, or by the ADA would address most safety issues along the trails. The AASHTO guide would address vertical and horizontal alignment issues. The ADA would specify standards for steps, ramps, handrails, and guardrails. Installation of lighting would meet the IESNA guidelines and be tailored appropriately for different conditions along the trails.

Several issues could present safety and security concerns for potential trail users, including the potential for pedestrian conflicts with transit, roadways, and pedestrian security along the trails. During the conceptual design, consideration was given to all these factors to help minimize the potential for such conflicts and breeches of pedestrian security. The design provides for safe interaction of trail users with transit and roadway traffic through use of signage and visual indicators at crossings.

Additionally, a performance measure was used in this Tier 1 DEIS to evaluate the ability of the Build Alternatives to maximize the miles of exclusive trails separated from roadway traffic. This measure assesses trail user safety in terms of the extent to which the trail alignments are within their own ROW and entirely separate from roadways. The assessment considers the number of linear feet of potential exclusive ROW for each of the Trail Build Alternatives based on conceptual design.

As shown in Table 3-36, preliminary estimates indicate the Howell Junction Trail Alternative would have the most linear feet of exclusive ROW and the Marietta Boulevard Trail Alternative would have the least.

Table 3-36: Estimated Exclusive Right-of-Way and Access Points for Multi-Use Trails

Trail Alternative	Miles within Exclusive ROW	Miles in Street	Proposed Trail Access Points
Howell Jct.	19.8	1.2	90
Marietta Blvd.	18.8	2.6	91
On-Street	19.1	2.7	105

Source: AECOM

Another area for potential conflicts is at proposed planned trail access points, particularly at roadway crossings. Trail access points include transit stations, connecting trails, and street crossings. Access to trails is also possible along linear areas (e.g., Tanyard Creek Park edge). Prescribed safety designations, such as appropriate crosswalks and visual cues, would be provided to minimize risks for both trail users and vehicles.

A performance measure was used in this Tier 1 DEIS to evaluate the ability of the Build Alternatives to maximize the number of proposed trail access points. As shown in Table 3-36, of the Trail Build Alternatives the On-Street Trail Alternative would have the most proposed trail access points, while the Howell Junction Trail Alternative would have the least.

The security of the trail users is paramount. Obviously, where the trail diverges from the transit line the trail may become more isolated. These potential areas of low visibility might create a security risk for trail users. City policing of the trails may be an option to provide increased security to trail users.

Stations

Safety and security of stations will be an important consideration during Tier 2 analysis and design. Station design would conform to MARTA and ABI safety and design criteria as well as ADA standards, and National Fire Protection Association (NFPA) and Building Officials and Code Administrators International, Inc. (BOCA) standards. The design of lighting would promote safety and security and conform to IESNA guidelines. In addition, there would be a provision for appropriate access of emergency response by police, fire department, and paramedic equipment and personnel. Where stations are not within street ROW, access would be from adjacent streets. Construction materials for the stations would meet code requirements from BOCA and the NFPA. Outside of stations, safe management of pedestrian interactions with transit vehicles should minimize conflicts between pedestrians and vehicular traffic.

Roadway – Track Interactions

A major issue with transit systems is the interaction between transit and roadway vehicle. Efforts would be made to protect both transit users and drivers of roadway vehicles that interact with transit. Landscaping can act as a buffer between vehicular and transit traffic, but, when used, vehicular and pedestrian crossings would provide clear views in all directions. Traffic signals would be installed at intersections where the trail crosses a high-traffic vehicular road at grade. Railroad warning devices for highway grade crossings would be used where appropriate. The design of the crossing circuitry would avoid unnecessary delays to motorists. Where needed, the grade crossing warning system would preempt adjacent traffic lights to avoid automobiles forming a queue across the tracks.

Mainline grade crossings would consist of durable, long lasting materials. Construction of grade crossings would occur with due consideration to access for track maintenance, electrical isolation, non-interference with electrical track circuits or rail fastenings, tire adhesion, and slip resistance for pedestrians. Grade crossings would be on tangent track and away from special trackwork areas, unless otherwise approved by MARTA. Rail joints would not exist in grade crossings.

As the design advances, there would be an evaluation of the warrant for modifications to existing roadways. Plans to permanently alter existing roadways would take place in coordination with GDOT and/or the City to assure safety of all modes of travel.

Freight Rail – Track Interactions

For areas where the Build Alternatives would share a ROW with existing freight rail, appropriate and required horizontal and vertical clearances would be necessary between freight rail, light rail, and trail modes. As described in Section 3.1.5.2, CSX, Norfolk Southern, and MARTA have clearance requirements that would be accommodated in shared use or parallel ROW.

A shared ROW would require coordination with MARTA, in partnership with ABI, and freight rail companies. Additionally, the establishment of inter-organizational communication guidelines would occur between MARTA, ABI, and any organizations in a shared ROW situation. An alternative method to shared ROW and separate tracks would be to utilize LRT tracks laid within the tracks of the current railway.

3.8.4 Potential Avoidance, Minimization, and Mitigation Measures

The design of safety and security strategies would focus on addressing the conditions developed as part of the Build Alternatives. The selection and application of those strategies would strive to avoid adverse impacts on adjacent properties and land uses. Where impacts are unavoidable, means to minimize those impacts would occur. Typical considerations could include, but would not be limited to design modification or selection of alternate strategies. In all cases, the project sponsors would coordinate with the affected property owner to identify and design appropriate solutions or mitigation strategies.

3.8.5 Subsequent Analysis

A Tier 2 analysis would identify the specific safety and security needs and strategies for a selected Alternative regarding trails, stations, roadway-track interactions, and freight rail-track interactions.

3.9 Contaminated and Hazardous Materials

3.9.1 Methodology

An investigation for known or suspected contaminated and hazardous material sites occurred within both the ¼-mile study area and the 300-foot study area (defined as 150 feet on either side of the proposed alignments). The larger ¼-mile study area allows a broader view of potential effects within the overall Atlanta BeltLine study area, while the 300-foot study area focuses on direct physical impacts with a width that conservatively allows for all anticipated alternative impacts. In compliance with United States Environmental Protection Agency (USEPA) and American Society for Testing and Material (ASTM) requirements, Federal and State environmental regulatory database

reports, including current and historic status reports, were reviewed. The database reports were further reviewed to determine the number of Recognized Environmental Conditions (REC) sites located within the 300-foot study area.

A field survey of potential REC sites was completed for the northeast, southeast and southwest zones and included a visual review of the sites to observe signs of spills, stressed vegetation, evidence of the presence of buried tanks or buried waste, subsidence, unusual soil discolorations, or any other unnatural items that may indicate the possible presence of environmental conditions. The findings of the site reconnaissance were limited to the readily observable conditions within the 300-foot study area.

3.9.2 Legal and Regulatory Context

Federal regulations dealing with asbestos containing building materials (ACM) are in part contained in 40 CFR, Part 763. The USEPA enforces the *Asbestos Hazard Emergency Response Act* (AHERA) and the *National Emission Standards for Hazardous Air Pollutants* (NESHAPS) and regulates ACM abatements in residences of more than four units, commercial buildings, and federal facilities and projects. ACM within the State of Georgia is governed by Environmental Rule 391-3-14 and the *Georgia Asbestos Safety Act*, which oversees the handling, management, transportation, and disposal of ACM.

Federal regulations that govern lead-based paint (LBP) are included in 40 CFR, Part 745 through enforcement by the USEPA. LBP within the State of Georgia is governed by Environmental Rule 391-3-24 and the *Georgia Lead Poisoning Prevention Act of 1994*. The environmental rule contains the procedures, requirements, and standards for performing LBP abatement activities.

3.9.3 Affected Environment

3.9.3.1 Regulatory Database Reports

The regulatory database searches indicated an estimated total of 2,226 reports were within the ¼-mile study area. Of this total, 1,102, or 49.5 percent, are in the northwest zone. The largest percentage of industrial and non-residential properties also occurs within the northwest zone. In general, areas that contain higher percentages of industrial or non-residential properties also contain higher numbers of reports and potentially higher amounts of contaminated or hazardous material sites. Areas containing a greater percentage of residential properties, such as the southwest zone, typically contain fewer database reports within the ¼-mile study area, in this case 6.8 percent of the total, and potentially lesser numbers of contaminated or hazardous material sites.

A summary of the regulatory database reports is included in Table 3-37. Note that individual sites can appear on multiple databases. For example, a site listed on the Underground Storage Tank (UST) database could also be listed on the Leaking Underground Storage Tank (LUST) database. Also of note is that Facility Index System / Facility Registry System (FINDS) reports are often redundant to selected federal or state databases in content and listing.

Table 3-37: Preliminary Federal and State Reports and Database Reports

Regulatory Database	Number of Sites Within the ¼-Mile Study Area	Number of Sites Within 300 Foot Study Area[1]
Federal Records		
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	12	4
CERCLIS No Further Remedial Action Planned (CERCLIS-NFRAP)	20	11
Corrective Action Report (CORRACTS)	4	2
Emergency Response Notification System (ERNS)	52	13
Facility Index System/Facility Registry System (FINDS)[2]	552	208
FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA Tracking System (FTTS)	15	5
FIFRA/TSCA Tracking System Administrative Case Listing (HIST FTTS)	16	6
Hazardous Materials Information Reporting System (HMIRS)	21	8
Integrated Compliance Information System (ICIS)	10	6
CERCLA Lien Information (LIENS)	1	1
PCB Activity Database System (PADS)	2	0
Conditionally Exempt Small Quantity Generators (RCRA-CESQG)	42	17
Non Generators (RCRA-NonGen)	209	84
Large Quantity Generators (RCRA-LQG)	4	1
Small Quantity Generators (RCRA-SQG)	29	14
Resource Conservation Recovery Act - Transporters, Storage and Disposal (RCRA-TSDF)	3	1
Section 7 Tracking Systems (SSTS)	5	0
Toxic Chemical Release Inventory System (TRIS)	4	1
Toxic Substances Control Act (TSCA)	6	4
US BROWNFIELDS	1	1
Engineering Controls Sites List (US ENG CONTROLS)	1	0
Sites with Institutional Controls (US INST CONTROL)	1	0
State Records		
Permitted Facility & Emissions Listing (AIRS)	67	33
Above Ground Storage Tanks (AST)	5	1
Drycleaner Database A listing of drycleaners in Georgia (DRYCLEANERS)	27	6
GA BROWNFIELDS	35	14
Non-Hazardous Site Inventory (GA NON HIS)	140	56
List of Leaking Underground Storage Tanks (LUST)	206	80
Hazardous Site Inventory (SHWS)	10	5
Delisted Hazardous Site Inventory Listing (DEL SHWS)	1	1
Spills Information Oil or Hazardous Material Spills or Releases (SPILLS)	343	93
Solid Waste Disposal Facilities (SWF/LF)	1	1
A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report (TIER 2)	55	30
Underground Storage Tank Database (UST)	326	121

Source: Environmental Data Resources, Inc. (EDR) DataMap™ Corridor Study, Inquiry Numbers: 02244958.3r, dated June 17, 2008, 02517938.1r, dated June 15, 2009, 02517938.2r, dated June 16, 2009, and 02558078.1r dated August 10, 2009. Sites and properties may be listed in more than one database reports.

[1] Information is preliminary and locations should be considered approximate. Addresses of the sites were reviewed and verified using a geo-referencing program. However, field verification, except where noted, of all sites is required for a more accurate location.

[2] FINDS reports are often redundant in content and listing to the other reports provided.

3.9.3.2 Recognized Environmental Conditions (REC) Sites

The database reports were further reviewed to determine the number of REC sites located within the 300-foot study area, which preliminary findings identify approximately 828 REC sites.

Table 3-38 details the estimated number by zone of REC sites within the 300-foot study area. A preliminary list of the REC and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (i.e., Superfund) sites located within or adjacent to each zone and alignment is included in Appendix D and shown on Figure 3-27. For the purposes of this Tier 1 DEIS, the sites and their locations are approximate.

Table 3-38: Preliminary Recognized Environmental Condition (REC) Sites

Zone	REC Sites within the 300-foot Study Area
Northeast Zone	73
Southeast Zone	112
Southwest Zone	20
Northwest Zone	107
Total RECs within 300-foot APE	312

Source: EDR DataMap™ Corridor Study, Inquiry Numbers: 02244958.3r, dated June 17, 2008, 02517938.1r, dated June 15, 2009, 02517938.2r, dated June 16, 2009, and 02558078.1r dated August 10, 2009.
Note: Information is preliminary and locations should be considered approximate. All sites were reviewed and verified using Google Earth® or similar geo-referencing program. However, field verification, except where noted, of all sites should be completed for the Tier 2 analysis or subsequent investigations.

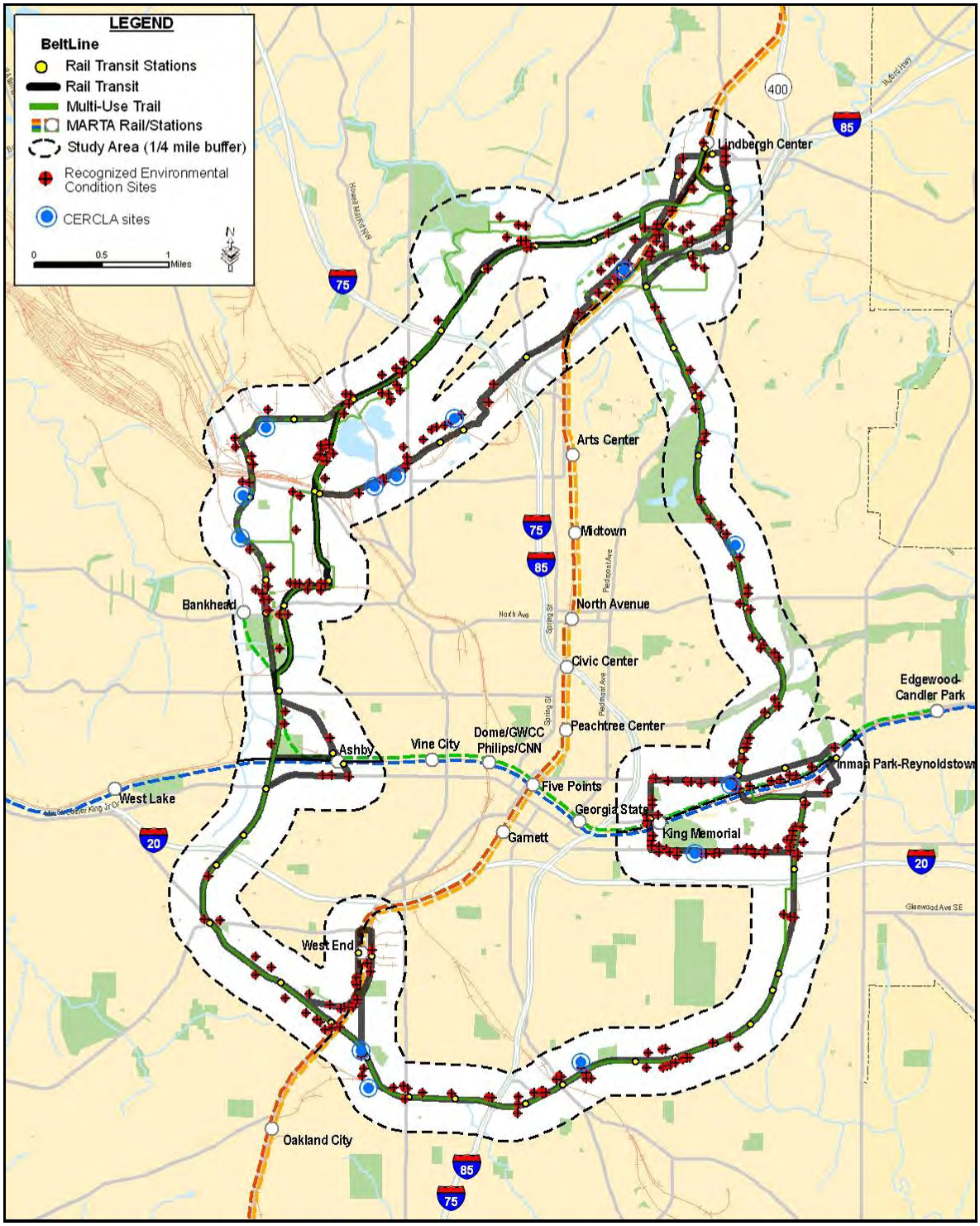
In the northeast zone, a cluster of industrial/non-commercial use properties are present in and around the Armour Drive/Ottley Drive area. These sites have had reported spills and USTs and were reported to generate hazardous waste. In addition, one former CERCLA site is present in this industrial park. Hulsey Yard is also considered an REC given ongoing railroad-related operations.

In the southeast zone, the areas along Memorial Drive and near the Inman Park/Reynoldstown MARTA rail station contain numerous sites that have had reported spills, USTs, and had generated hazardous waste including one CERCLA-related site. REC sites are also prevalent at the areas of Milton Avenue and Hank Aaron Drive, including one former CERCLA site. Two former CERCLA sites are present immediately east of the West End area.

In the southwest zone, the industrial and non-residential areas near the West End MARTA rail station have a high occurrence of reported spills, USTs, and sites that have generated hazardous waste.

In the northwest zone, many of the REC sites in the northwest zone contain USTs, leaking USTs, spills, or handle/generate hazardous waste, and are current and/or former CERCLA-related sites.

Figure 3-27: Preliminary REC and Current and Former CERCLA Sites within the 300-Foot Study Area



Source: EDR DataMap™ Corridor Study, Inquiry Numbers: 02244958.3r, dated June 17, 2008, 02517938.1r, dated June 15, 2009, 02517938.2r, dated June 16, 2009, and *02558078.1r* dated August 10, 2009.
Note: Information is preliminary and locations should be considered approximate. All sites were reviewed and verified using Google Earth® or similar geo-referencing program. However, field verification, except where noted, of all sites should be completed for the Tier 2 analysis or subsequent investigations.

3.9.4 Preliminary Environmental Consequences

3.9.4.1 No-Build Alternative

Proposed projects (e.g., BRT and Atlanta Streetcar) included in the No-Build Alternative that may overlap or intersect the Atlanta BeltLine Corridor have the potential to encounter identified REC sites within their respective study areas. The number of such study area sites to be encountered by these projects is limited given the primarily perpendicular orientation of the projects in relation to the Atlanta BeltLine Corridor study area. The No-Build projects would therefore be subject to the same USEPA and Georgia Environmental Protection Division (GEPD) requirements as the Atlanta BeltLine Corridor Build Alternatives for identifying and managing any contaminated or hazardous material sites.

3.9.4.2 Build Alternatives

The Build Alternatives, regardless of the chosen transit mode technology, have the potential to encounter RECs within the 300-foot study area. Table 3-39 summarizes the numbers of REC sites located within the 300-foot study area of each Build Alternative.

Table 3-39: Preliminary Number of REC and CERCLA-Related Sites near Build Alternatives

Zone	Build Alternative		Number of REC Sites within the 300-Foot Study Area*	Number of Former/Current CERCLA-Related Sites within the 300-Foot Study Area*
Northeast	All Build Alternatives		43	3
Southeast	All Build Alternatives		80	4
Southwest	All Build Alternatives		14	0
Northwest	Transit	All A- CSX Howell Jct./ B- Howell Jct.	49	0
		All C- CSX Marietta Blvd./ D- Marietta Blvd.	50	3
		All F- Atlantic Station	52	5
	Trails	Howell Jct.	36	0
		Marietta Blvd.	36	3
		On-Street	44	1

Source: EDR DataMap™ Corridor Study, Inquiry Numbers: 02244958.3r, dated June 17, 2008, 02517938.1r, dated June 15, 2009, 02517938.2r, dated June 16, 2009, and 02558078.1r dated August 10, 2009.
Note: Information is preliminary and locations should be considered approximate. All sites were reviewed and verified using Google Earth® or similar geo-referencing program. However, field verification, except where noted, of all sites should be completed for the Tier 2 analysis or subsequent investigations.
*: Includes the maximum number of REC sites present along a given MARTA Station Connectivity and Infill Station Alternatives.

Each of the Build Alternatives has the equivalent potential to encounter RECs in the northeast, southeast, and southwest zones. In the northwest zone, the F- Atlantic Station Transit Alternatives and the On-Street Trail Alternative have the most REC sites in their 300-foot study area compared to the other alternatives evaluated.

The A- CSX Howell Junction and B- Howell Junction Transit Alternatives and the Howell Junction Trail Alternatives would not encounter any CERCLA related sites. The other Build Alternatives have the potential to encounter one or more such sites.

Potential direct impacts to properties of concern were evaluated for the Build Alternatives located in the northwest zone. As detailed by Table 3-40, each of the Build Alternatives has the potential to directly impact REC sites, CERCLA-related sites, or buildings.

As shown by Table 3-40, B- Howell Junction. D- Marietta Boulevard, and F- Atlantic Station have the potential to directly impact more REC sites and buildings. In addition, the A- CSX Howell Junction and B- Howell Junction Transit Alternatives and the Howell Junction and On-Street Trail Alternatives do not potentially impact any CERCLA-related sites whereas the remainder of the Transit and Trail Alternatives have the potential to directly impact between two and three CERCLA-related sites. Of these, the site located at 762 Marietta Boulevard was identified to have the most CERCLA-related regulatory reports and have more recent activity.

Table 3-40: Preliminary Number of Potential Direct Impact to REC Sites, CERCLA-Related Sites, and Buildings

Zone	Build Alternative		Number of Potential Direct Impacts		
			REC Sites	Former/Current CERCLA-Related Sites	Building Impacts
Northwest	Transit	All A- CSX Howell Jct. Alternatives	20	0	13
		All B- Howell Jct. Alternatives	22	0	27
		All C- CSX Marietta Blvd. Alternatives	12	2	9
		All D- Marietta Blvd. Alternatives	13	2	22
		All F- Atlantic Station Alternatives	21	3	28
	Trail	Howell Jct. Trail Alternative	19	0	14
		Marietta Blvd. Trail Alternative	12	2	13
		On-Street Trail Alternative	18	0	3

Source: EDR DataMap™ Corridor Study, Inquiry Numbers: 02244958.3r, dated June 17, 2008, 02517938.1r, dated June 15, 2009, 02517938.2r, dated June 16, 2009, and 02558078.1r dated August 10, 2009.
Note: Information is preliminary and locations should be considered approximate. All sites were reviewed and verified using Google Earth® or similar geo-referencing program. However, field verification, except where noted, of all sites should be completed for the Tier 2 analysis or subsequent investigations.

Impacting a known REC site or previously unidentified contaminated site could require coordination with the respective property owner and regulators, and potentially require soil and groundwater sampling investigations, as well as the possible remediation of contaminated or hazardous materials within the proposed alignment. Additionally, impacts to buildings would require the identification and/or abatement of ACM and LBP prior to the full or partial demolition of the structures. Wherever possible, impacts to REC sites, CERCLA-related sites, and buildings should be avoided or minimized to limit impacts to hazardous and contaminated materials.

3.9.5 Potential Avoidance, Minimization, and Mitigation Measures

All Build Alternatives have the potential to encounter contaminated or hazardous materials, including relic and/or active underground storage tanks. As project design advances, the project sponsors would strive to avoid impacts to and from contaminated sites and hazardous materials. Where impacts are unavoidable, minimization of the impacts would occur. Minimization strategies could include designing project components at- or near-grade, or elevating the system using fill material or structure.

These strategies can greatly avoid or reduce the impacts to and from contaminated materials.

Properties acquired for the development of the Build Alternatives could include buildings, facilities, or structures that require demolition. ACM and/or LBP could be present in these buildings. In addition, ACM and/or LBP may be present in both older and active facilities and equipment still present on the railroad and roadway ROW to be used by the Build Alternatives. In accord with federal, state, and local requirements, a survey would be conducted for ACM and LBP and assured completion of abatement prior to the demolition or renovation of a building or structure.

During operations and maintenance, the project sponsors would be subject to compliance with applicable federal, state, and local regulations governing the storage, handling, and disposal of hazardous and contaminated materials.

3.9.6 Subsequent Analysis

Subsequent analysis for contaminated and hazardous materials sites could include additional investigations along the ROW of the selected Alternative, at a potential area of concern, or for properties considered for acquisition during the development of the project. Additional investigations could include the following:

- Phase I Environmental Site Assessments for properties considered for acquisition, inclusive of reviews of the historical land use and Freedom of Information Act (FOIA) file searches;
- Phase II Environmental Site Assessments of the proposed ROW, specific areas of concern, or for properties considered for acquisition;
- ACM and/or LBP investigations of facilities, structures, and/or equipment present along the proposed alignment; or at properties considered for acquisition;
- Removals of relic and/or active underground storage tanks;
- If applicable, development of remedial strategies, for the proposed alignment, area of concern, or properties considered for acquisition; and,
- Coordination and prioritization of all investigations and remediation activities with GEPD.

3.10 Utilities

3.10.1 Methodology

The presence of common utility types was identified through a review of aerial photographs, mapping available from utility companies and contractors, and visual inspections. Contact was made with each utility company and contractor through the Utility Protection Center of Georgia.

For the purpose of this Tier 1 DEIS, the definition of a potential utility conflict is the location of any utility within 200 feet of the centerline of a No-Build or Build Alternative alignment. Typically, construction of transit requires a large amount of land disturbance within the transit ROW. In this case, the potential for encountering utilities is high. In contrast, trail construction typically requires a small area of land disturbance and is considerably less likely to encounter utilities.

3.10.2 Legal and Regulatory Context

NEPA requires that all major federal actions assess potential impacts to the built and natural environment. Utilities are a commodity or service for public use and therefore require consideration in the environmental process.

3.10.3 Affected Environment

The Atlanta BeltLine study area contains infrastructure for potable water treatment and supply, sanitary sewer collection and treatment, stormwater collection and discharge, electric distribution, communication facilities and cabling, and natural gas storage and distribution. Many utilities run adjacent to roadway and railroad ROWs. A description of each type of utility infrastructure is provided below.

3.10.3.1 Water and Sewer

Potable water, sanitary sewer, and stormwater collection systems are found throughout the study area. With the exception of treatment plants and certain types of pump stations, most sanitary sewer infrastructure is subsurface. Manholes for system access or air-release provide surface evidence of the sanitary sewer system.

Stormwater collection and discharge systems also occur throughout the study area. These underground systems may be as simple as a single pipe carrying drainage underneath the roadbed or as complicated as a network of pipes and inlets designed to collect and detain drainage from heavily developed areas. An example is the stormwater treatment facility near Piedmont Park and Amsterdam Avenue.

3.10.3.2 Electric

Georgia Power provides and maintains the majority, if not all, of the electric distribution systems within the study area. Power plants serving the study area, but not located in the study area, are generally coal-fired or nuclear. The distribution systems include high voltage lines on towers, substations, transmission lines both above and below ground, ground and pole-mounted transformers, and service lines.

3.10.3.3 Communication Facilities

Communication facilities throughout the study area consist predominantly of fiber optics for local and national telecommunications. AT&T, Verizon, and a number of other companies maintain fiber optic lines in the study area. The communication infrastructure is both aerial and underground cabling.

3.10.3.4 Natural Gas

Residences and businesses throughout Atlanta use natural gas for cooking, space heating, water heating, and industrial processes. The pressurized infrastructure that supplies natural gas consists of underground distribution pipes and compressor stations. The Atlanta Gas Light Company is the dominant supplier of gas in the study area.

3.10.4 Preliminary Environmental Consequences

3.10.4.1 No-Build Alternative

The No-Build Alternative could result in potential impacts on utilities to implement the projects. The sponsors of those projects would be responsible for identifying utilities and addressing potential conflicts.

3.10.4.2 Build Alternatives

Based on the Tier 1 assessment, utility issues appear to be similar among the Build Alternatives. Many utilities run adjacent to or within roadway and rail ROW that are part of the Build Alternatives. The potential for utility impacts and relocations is dependent on the exact location of utilities in relation to Atlanta BeltLine construction and operation activities.

In general, the Build Alternatives should encounter few potential utility relocations with utilities within existing rail corridors. In contrast, in-street alignments could encounter a high concentration of utilities, such as gas, water, and stormwater lines, and therefore a high number of potential utility relocations. The following situations may occur during implementation of the Build Alternatives:

- Major electrical lines such as overhead primary, underground primary, and underground network form a dense network in the Atlanta BeltLine study area. In the case of electric utilities, overhead primary lines run along most of the streets considered for in-street alignments of the transit and trails system. Although these primary lines cross over the streets at numerous locations, the potential for relocation of poles and wires should be minimal. The potential for utility relocations, however, may occur with underground primary and network lines.
- Underground fiber optic conduits potentially pose conflicts with the Build Alternatives. However, due to a typical conduit depth of eight feet or greater, it is possible that fiber optic lines would experience minimal to no project-related impacts.
- Two six-inch gas lines are generally located under many of the streets considered for the Build Alternatives. Typically, gas lines do not occur along active and abandoned railroad ROW, but cross the ROW at particular locations. Gas lines are typically located three feet underground although depths can vary greatly.
- Stormwater drainage and communication utilities installed by the railroads may occur along existing and former railroad ROW.

Table 3-41 summarizes the potential utility issues associated with the Transit Build Alternatives only as the Trail Alternatives would have minimal potential effect. The quantity of utilities along and crossing the F- Atlantic Station Transit Build Alternatives appears to be slightly lower than that of the other Build Alternatives.

Table 3-41: Potential Utility Effects

Zone	Transit Alternative	Affected Neighborhood / Community Facility
Northeast Southeast Southwest	All Transit Build Alternatives	• Low concentration of potential utility relocations along rail ROW • High concentration of potential utility relocations along in-street segments
Northwest	All A- CSX Howell Jct. Alternatives	• Moderate concentration of potential utility relocations south of CSX rail ROW
	All B- Howell Jct. Alternatives	• Moderate concentration of potential utility relocations south of CSX rail ROW • High concentration of potential utility relocations along the west of Peachtree St.
	All C- CSX Marietta Blvd. Alternatives	• Moderate concentration of potential utility relocations south of CSX rail ROW • High concentration of potential utility relocations along in-street segments
	All D- Marietta Blvd. Alternatives	• Moderate concentration of potential utility relocations south of CSX rail ROW • High concentration of potential utility relocations along the west of Peachtree St.
	All F- Atlantic Station Alternatives	• Moderate concentration of potential utility relocations north and south of rail ROW

The following subsections describe specific utility configurations by zone. As the Atlanta BeltLine project design advances, examination of potential utility conflicts would occur and the means to avoid impacts would be sought. Where a utility cannot be avoided during construction or where access to a utility generates interference during operation, relocation of the utility would be considered. Current utility easements in and across the ROW may need to be consolidated to facilitate potential relocations and implementation of improvements. Utility relocations may be needed so that maintenance of the utility will not interfere with transit operation or vice versa.

Water and Sewer

In the northeast zone, adjacent to the Atlanta Botanical Gardens and Clear Creek, a large underground combined sewer overflow facility exists close to the Build Alternative. Atlanta BeltLine improvements intend not to interfere with operations or maintenance of the facility.

In the northwest zone, the Atlanta City Water Works Reservoirs One and Two and the associated treatment plant are located just south of the Build Alternatives in the vicinity of Howell Mill Road. Piping connecting to these facilities may cross under both the CSX and Norfolk Southern ROW. Engineering design of the Build Alternatives using either of these ROW would consider the presence of these reservoirs and strive to avoid or minimize impacts on them.

Electric

Throughout the study area, underground primary and network electrical lines cross or run parallel to the railroad ROW and in-street segments in numerous locations. These potential areas of effect are often near the intersection of a Build Alternative with a major roadway or MARTA rail line.

Appendix D contains a list of the electrical lines that lie within or near the study area.

Communication Facilities

Throughout the study area, communication lines cross or run parallel to or within the railroad ROW and in-street segments in numerous locations.

Appendix D contains a list of the communication lines that lie within or near the study area.

Natural Gas

Throughout the study area, gas lines cross or run along most of the streets proposed for in-street running by the Build Alternatives.

Appendix D contains a list of the natural gas lines that lie within or near the study area.

3.10.5 Potential Avoidance, Minimization, and Mitigation Measures

Design efforts would strive to avoid or minimize conflicts with existing utilities. Where impacts are unavoidable, coordination with utility representatives will proceed regarding relocation or other appropriate mitigating actions. Current utility easements in and across the ROW may need to be consolidated to facilitate potential relocations and implementation of Atlanta BeltLine improvements. Further evaluation considering utility size, lateral, and vertical location is needed, as these are primary indicators to the extent of impact and not necessarily quantity alone. Any necessary utility relocation decisions will include consideration of sensitivity to surrounding built and natural environments.

Specific mitigation measures are not available at this time since specific impacts are unidentified. It should be possible to minimize most impacts through utility operator/owner involvement during preliminary design of the selected Alternative. If utility relocations are unavoidable, coordination with the City of Atlanta and utility owners would be conducted to develop relocation and construction phasing plans around peak usage hours to minimize utility disruptions.

3.10.6 Subsequent Analysis

Subsequent analyses would focus on project-specific impacts identified during design when more precise definitions of the utility size and location, ROW, transit and trail alignments, proposed station locations, and operations are developed.

3.11 Air Quality

3.11.1 Methodology

Existing air quality characteristics were determined by reviewing available air quality data from GEPD-managed monitoring sites and comparing that data to federal and state National Ambient Air Quality Standards (NAAQS).

3.11.1.1 Relevant Pollutants

"Air Pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or reducing human or animal health. Regulations for air pollutant emissions exist to protect human health and welfare, and the environment.

The 1970 federal *Clean Air Act* was established by NAAQS to protect the public health. The USEPA identifies eight air pollutants of nationwide concern: carbon monoxide (CO), sulfur oxides (SO_x), hydrocarbons (volatile organic compounds, or VOCs), nitrogen oxides (NO_x), ozone (O_3), particulate matter sized 10 micrometers or less (PM_{10}),

particulate matter with a size of 2.5 micrometers or less ($PM_{2.5}$), and lead (Pb). The sources of these pollutants, their effects on human health, and their concentrations in the atmosphere vary considerably.

3.11.1.2 Pollutants of Concern

The pollutants that are most important for this air quality assessment are those that are traceable principally to motor vehicle engines and electrical power plants. In the study area, ambient concentrations of CO and O_3 are predominantly influenced by roadway motor vehicle activity. Emissions of VOCs, NO_x, PM_{10}, and $PM_{2.5}$ come from both mobile and stationary sources, while emissions of Pb are associated mainly with various stationary sources.

CO is the primary pollutant used to indicate the potential for adverse air quality impacts from motor vehicles in general, and at roadway intersections in particular. This is because roadway motor vehicles produce most of the ambient CO, and emission rates of CO from vehicles are relatively high in comparison to emissions of other pollutants. The CO standard would most likely be exceeded first under federal and state ambient air quality standards. Accordingly, CO is the main pollutant of concern for air quality analysis.

Similarly, because the formation of O_3 a regional pollutant, occurs in the presence of VOC and NO_X, indirect evaluation of O_3 takes place through its precursors. However, because the CO standard would be exceeded first before either NO_2 or VOCs, only CO is included in the modeling analysis. As a result, measurements of O_3 concentrations typically occur directly in the atmosphere rather than through modeling predictions.

Appendix D lists the NAAQS and the *Georgia Ambient Air Standards*, which are almost identical. Presently, there are NAAQS for seven criteria pollutants: O_3, CO, NO_2, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and Pb.

3.11.1.3 Climate Change and Greenhouse Gas Emissions

In addition to criteria pollutants, greenhouse gases (GHGs) emissions were also considered in this report for NEPA disclosure purposes by following the *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* issued by the Council of Environmental Quality (CEQ) in February 2010. As the proposed action is anticipated to release GHGs to the atmosphere, these emissions are quantified and disclosed for each activity of the proposed action.

GHGs are compounds that contribute to the greenhouse effect. The greenhouse effect is a natural phenomenon where gases trap heat within the surface-troposphere (lowest portion of the earth's atmosphere) system, causing heating (radiative forcing) at the surface of the earth. The primary long-lived GHGs directly emitted by human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These gases influence the global climate by trapping heat in the atmosphere that would otherwise escape to space. The heating effect from these gases is considered the probable cause of the global warming observed over the last 50 years. Global warming and climate change can affect many aspects of the environment. Not all effects of GHGs are related to climate, for example, elevated concentrations of CO_2 can lead to ocean acidification and stimulate terrestrial plant growth, and CH_4 emissions can contribute to O_3 levels.

The USEPA Administrator has recognized potential risks to public health or welfare and on December 7, 2009 signed an endangerment finding regarding greenhouse gases under Section 202(a) of the Clean Air Act (CAA), which finds that the current and projected concentrations of the six key well-mixed greenhouse gases in the atmosphere threaten the public health and welfare of current and future generations.

As per CEQ's *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, an increase of 25,000 metric tons or more of GHG emissions is considered an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. Although the likelihood that this threshold is met will be investigated in further detail during the Tier 2 analysis phase, indirect emissions produced to power electrically-powered transit corridors is expected to be considerably less than the CEQ threshold.

3.11.2 Legal and Regulatory Context

Any project constructed in the State of Georgia has to achieve compliance with the NAAQS and the *Georgia Ambient Air Standards*. The USEPA delegates authority to the Air Protection branch of GEPD to monitor and enforce air quality regulations in the State. The *Georgia State Implementation Plan* (SIP), developed in accordance with the *Clean Air Act*, contains the major requirements with respect to transportation in general.

3.11.3 Affected Environment

This section summarizes measured ambient air quality data for the region, including the study area. GEPD maintains a statewide network of monitoring stations that routinely measure pollutant concentrations in the ambient air. These stations provide data to assess compliance with the NAAQS and to evaluate the effectiveness of pollution control strategies. The relevant monitored pollutants are O_3, NO_2, CO, particulates, and SO_2.

Appendix D presents the "Recently Monitored Ambient Air Quality in the Region" showing the maximum measured concentrations for these pollutants measured at representative monitoring stations nearest to the study area, as reported by the GEPD for 2005-2008.

- Fulton and DeKalb Counties recorded the fourth highest concentrations of O_3 in Georgia, exceeding the NAAQS of 0.075 parts per million (ppm) in the given measured years of 2005 to 2008, which ranged from a low of 0.084 ppm in 2008 to a high of 0.098 ppm in 2007.
- The highest average concentrations of $PM_{2.5}$ (three-year mean) measured within Fulton County ranged from 15.30 µg/m^3 in 2006, to16.05 µg/m^3 in 2007, which continued to exceed the NAAQS of 15 ppm.
- There are short-term exceedances of the SO_2 standard, but none of the standards for longer time periods (including 24-hours and annual) are exceeded.
- The reported concentrations for CO, NO_2, and PM_{10} do not exceed their respective standards.

3.11.4 Preliminary Environmental Consequences

To determine the potential effects on air quality, the estimated probable 2030 annual ridership was used to ascertain the extent to which each Alternative would attract ridership and transfer trips from roadways to transit. The assumption is an emissions

reduction would be highly correlated to ridership attraction. To the extent the Build Alternatives would reduce the number of automobiles on the road, there is an expectation of a reduction in regional emissions and concentrations of CO, volatile organic compounds, nitrogen oxides, and particulate matter. This reduction in regional emissions would also apply to greenhouse gases (such as water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases). Any reductions in man-made emissions would contribute to an overall reduction in both greenhouse gases and the criteria pollutants as automobile drivers switch to transit.

The following subsections describe the probable effects of each alternative on air quality in the context of probable ridership. A detailed air quality assessment would take place as part of the Tier 2 analysis for the selected alternative and a detailed evaluation of potential station locations.

3.11.4.1 No-Build Alternative

None of the Atlanta BeltLine project elements would occur under the No-Build Alternative. However, the other transportation improvements proposed in the *Envision6* RTP have the intent of improving local and regional air quality through strategic improvements to the existing bus, rail, and roadway networks.

3.11.4.2 Build Alternatives

As part of the *Detailed Screening* phase of the Atlanta BeltLine project, the annual total ridership of 26.4 million was estimated for the preferred B3 Alternative, the predecessor of the Build Alternatives. This ridership rate represents an 80 percent increase over the 14.5 million predicted under the No-Build Alternative[21].

As shown in Table 3-42, new ridership attributed directly to the system-wide enhancements proposed as part of the Atlanta BeltLine Corridor, has an expected increase of 44 percent. These data show a substantial increase in ridership between the No-Build and the Build Alternatives. In terms of air quality, the ridership numbers for the Build Alternatives equate to eliminating substantial numbers of vehicles from roadways in the region and their corresponding vehicular emissions.

Table 3-42: Ridership Estimates - 2030

Performance Measure	No-Build Alternative	Preferred Alternative (B3)	
		Ridership	Percent Change
Total Ridership (annualized in millions)	14.54	26.41	+82%
New Riders (annualized in millions)	-	6.43	+44%

Source: *Detailed Screening Results and Selection of Locally Preferred Alternative, Inner Core BeltLine Alternatives Analysis*, MARTA, Atlanta, GA, January 2007.

During this same period, projected traffic in the metropolitan Atlanta region has an expectation of increasing by slightly less than one percent per year (0.77 percent) or 25.9 percent between 2000 and 2030.

[21] Detailed Screening Results and Selection of Locally Preferred Alternative, Inner Core BeltLine Alternatives Analysis, MARTA, Atlanta, GA, January 2007.

As shown in Table 3-43, projections indicate vehicle hours traveled (VHT) increasing by 39.6 percent, indicating longer commute times as a result of increased traffic congestion. In fact, expectations are that total hours of delay (an indication of total traffic congestion) would increase almost threefold (262.9 percent) from 2000 to 2030.

Table 3-43: Existing and Projected Traffic Growth and Roadway Congestion - 2000 and 2030

Roadway Performance Measures	2000	2030	Percent Change
Vehicle Miles Traveled (VMT)	9,591,054	12,077,922	25.9%
Vehicle Hours Traveled (VHT)	27,178	37,936	39.6%
Hours of Delay	99,002	359,319	262.9%
Atlanta Metropolitan Population	224,989	403,241	79.2%

Source: *Inner Core Feasibility Wrap-Up Report, Inner Core BeltLine/C-Loop Transit Feasibility Study*, MARTA, Atlanta, GA, March 2005.

The traffic congestion and delay summarized in Table 3-43 clearly indicates not only the need for transit in the region, but also the likelihood for use of that transit service. As a result, the air quality benefits associated with the Build Alternatives include a reduction in vehicular emissions as automobile drivers switch to transit. This emissions reduction should meet with an insignificant emissions increase from off-site electricity generation required to power the LRT and SC vehicles via overhead catenaries.

The technological differences between SC and LRT vehicles as applied to the Atlanta BeltLine project are minimal in comparison to the overall benefit achieved by reducing automobile VMT by switching to transit service. For example, the smaller-sized SC vehicles would require more trains to achieve the same passenger-carrying capacity as the larger LRT vehicles. This incremental increase in trains and operations, which would result in an incremental increase in energy usage, would create only a marginal increase in off-site emissions from electric power plants on the grid.

Although each F- Atlantic Station Transit Alternative is shorter in length than the other Transit Alternatives (4.7 miles versus 5.6 miles in the northwest zone), this is a marginal difference with little to no bearing on the estimated pollutant emissions generated by the project.

The Trail Build Alternatives provide a non-motorized transportation option that would contribute no new emissions. To the extent that travelers would opt to use the trails as an alternative to motorized travel, air quality would benefit.

3.11.5 Transportation Conformity Determination

Based on the project's inclusion in the *Envision6* RTP, the proposed action would not require a formal conformity determination on a regional level and, therefore, would not have significant air quality impacts for the nonattainment pollutants. Additionally, a detailed hot spot analysis is proposed as part of the Tier 2 analysis phase to demonstrate project-level conformity with the NAAQS.

3.11.6 Potential Avoidance, Minimization, and Mitigation Measures

With respect to regional emissions and conformity, the *Envision6* RTP includes the Atlanta BeltLine project, and estimated ridership for all alternatives would have a beneficial effect on air quality by reducing automobile emissions. Therefore, compliance with the transportation conformity requirements and regional air quality do not warrant

mitigation measures at this time. A detailed assessment of the potential impacts from the project (such as intersection hot spot analysis) is proposed as part of the Tier 2 analysis phase.

3.11.7 Subsequent Analysis

Subsequent analysis would include a detailed air quality assessment of the selected Alternatives including station locations as part of the Tier 2 analysis. This would include assessments of the potential effect of project-related motor vehicle emissions on local roadways near stations and congested intersections. An evaluation would also occur on the role of indirect emissions used to power the Atlanta BeltLine vehicles and other potential associated emission sources, such as freight rail locomotive emissions from modified freight operations in terms of regional air quality.

3.12 Noise and Vibration

3.12.1 Methodology

The noise and vibration assessment took place in accordance with FTA's *Transit Noise and Vibration Impact Assessment* guidelines[22], which specify the type of analysis appropriate for a Tier 1 DEIS. The following sections describe human perception of noise and vibration.

The FTA guidelines assess noise and vibration impacts from transit vehicles and facilities (such as buses, trains, and stationary sources such as grade crossings bells and maintenance facilities). FTA assesses impacts at sensitive receivers such as residences, schools, and libraries. Typically not under consideration are commercial and industrial properties sensitive to transit noise and vibration, except perhaps, laboratories and other facilities that utilize sensitive photographic or imaging equipment.

3.12.1.1 Noise

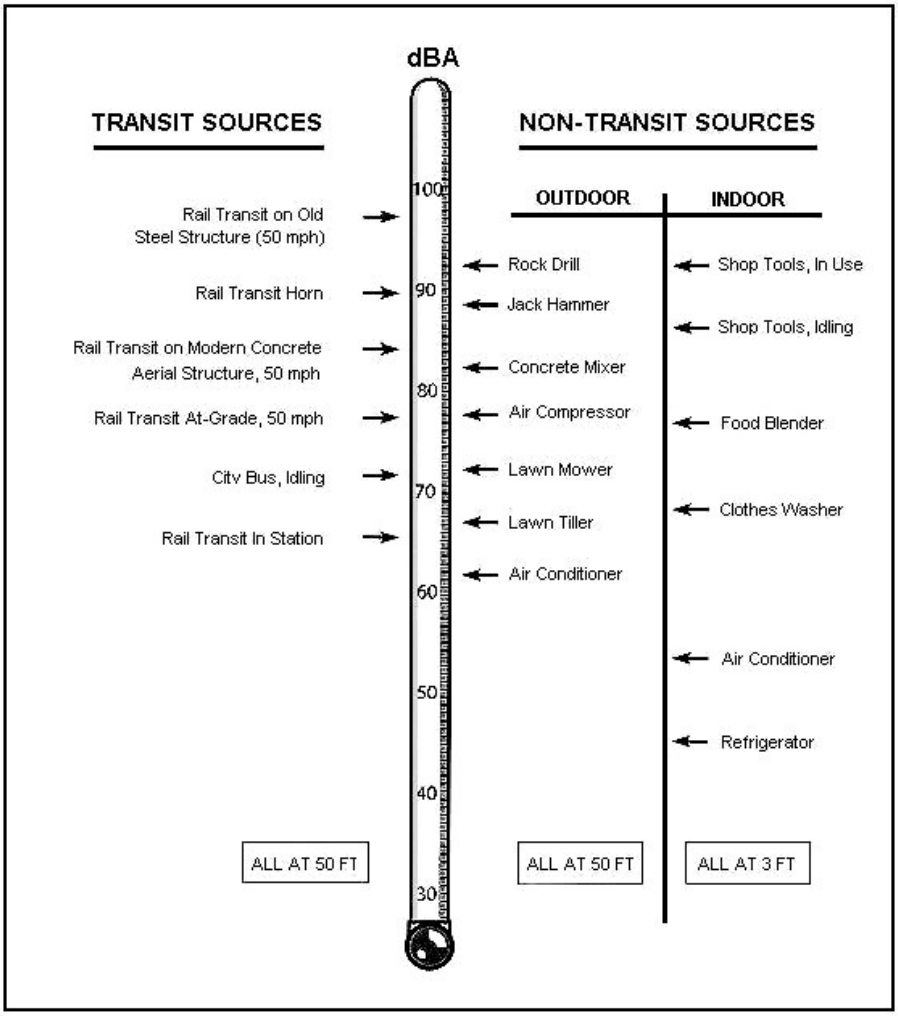
The use of various sound levels exists to quantify noise from transit sources, including a sound's loudness, duration, and tonal character. The A-weighted decibel (dBA) is commonly used to describe the overall noise level because it more closely matches the human ear's response to audible frequencies. Because the A-weighted decibel scale is logarithmic, a 10 dBA increase in a noise level is generally perceived as a doubling of loudness, while a 3 dBA increase in a noise level is just barely perceptible to the human ear. Figure 3-28 shows typical A-weighted sound levels from transit and other common sources.

3.12.1.2 Vibration

Ground-borne vibration associated with vehicle movements is usually the result of uneven interactions between wheels and the road or rail surfaces. Examples of such interactions (and subsequent vibrations) include train wheels over a jointed rail, untrue, warped rail car wheel, a motor vehicle wheel hitting a pothole, a manhole cover, or any other uneven surface. Figure 3-29 shows typical ground-borne vibration levels from transit and other common sources.

[22] *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, U.S. Department of Transportation, Federal Transit Administration, Office of Planning and Environment, Washington, DC, May 2006.

Figure 3-28: Typical A-Weighted Noise Levels



Source: *Transit Noise and Vibration Impact Assessment*, Federal Transit Administration, Washington, DC, May 2006.

3.12.2 Affected Environment

The existing ambient noise and vibration environment in all zones is typical of developed urban and suburban communities. Primary influences on noise conditions in the study area include traffic noise along local roadways and highways and existing freight railroad activity where applicable. Roadway traffic dominates ambient noise levels. More than in the other zones, the ambient noise levels in the northwest zone are affected by existing CSX and Norfolk Southern freight railroad activity, especially for residences near active grade crossings because of the federally mandated use of warning horns.

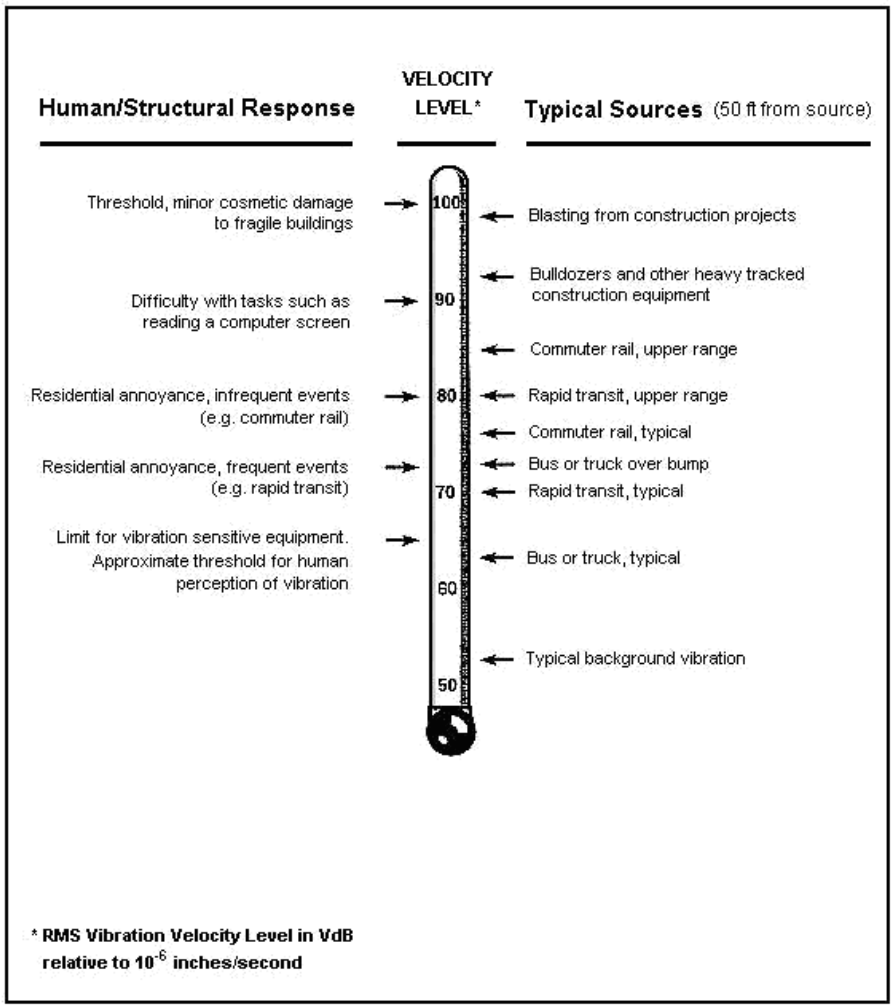
3.12.3 Preliminary Environmental Consequences

3.12.3.1 Noise

The FTA guidelines prescribe a screening distance for steel wheel vehicles noise of 350 feet for LRT vehicles and 125 feet for low- and intermediate-capacity vehicles, such as SC vehicles. The screening distances are measured from the centerline of the rail route

within which an impact may occur from passenger rail noise sources. This screening distance applies to FTA Category 2 land uses, which includes residences and buildings where people normally sleep such as hospitals and hotels. For the initial screening assessment, the FTA recommends only evaluating potential impacts at residences as a surrogate for other land-use categories and sensitivities such as schools, libraries, churches, and parks. Using this screening distance, a total number of potentially impacted residences within the study area was determined.

Figure 3-29: Typical Ground-Borne Vibration Levels



Source: *Transit Noise and Vibration Impact Assessment*, Federal Transit Administration, Washington, DC, May 2006.

3.12.3.2 Vibration

The FTA guidelines prescribe a screening distance for steel wheel vehicle vibration of 150 feet for LRT vehicles and 100 feet for low- and intermediate-capacity vehicles, such as SC. The screening distances are used to identify areas within which an impact may occur between a passenger rail vibration source and existing residences. As with noise, only rail service factored into this assessment (i.e., other transit sources, such as wheel

squeal, traction power substations, and maintenance facilities would be evaluated in further detail in the Tier 2 analysis phase). Using these screening distances, a total number of potentially impacted residences within the study area were determined.

3.12.3.3 No-Build Alternative

Noise and vibration levels in the portions of the study area within the FTA screening distances under the No-Build Alternative would be similar to those under the existing conditions. The No-Build Alternative would result in no potential changes in noise or vibration without the Atlanta BeltLine and without any modifications to the existing freight rail operations.

3.12.3.4 Build Alternatives

The FTA screening distances for noise and vibration were utilized to identify potential impacts among the almost 18,000 receptors identified within the project study area. As shown in Figure 2-2 through Figure 2-4 in Chapter 2.0, the screening distances were applied to the alignments of the Transit Build Alternatives. The Build Alternatives share a common alignment, and therefore common impacts in the northeast, southeast, and southwest zones. In the northwest zone, the project alignments are defined by each Build Alternative.

Table 3-44 identifies the estimated number of residences within the noise screening distances for each Transit Build Alternative. Similarly, Table 3-45 identifies the estimated number of residences within the vibration screening distances for each Transit Build Alternative.

Table 3-44: Number of Residences within the FTA Noise Screening Distances

Zone	Transit Alternative	Number of Residences within FTA Noise Screening Distance	
		LRT (350 feet)	SC (125 feet)
Northwest	All A- CSX Howell Jct.	459	112
	All B- Howell Jct.	441	147
	All C- CSX Marietta Blvd.	513	121
	All D- Marietta Blvd.	496	155
	All F- Atlantic Station	387	134

Table 3-45: Number of Residences within the FTA Vibration Screening Distances

Zone	Transit Alternative	Number of Residences within FTA Vibration Screening Distance	
		LRT (150 feet)	SC (100 feet)
Northwest	All A- CSX Howell Jct.	202	72
	All B- Howell Jct.	172	107
	All C- CSX Marietta Blvd.	215	78
	All D- Marietta Blvd.	185	113
	All F- Atlantic Station	158	92

The results of the screening assessment are presented for both LRT and SC transit modes. The noise and vibration screening results suggest the potential for substantially fewer noise impacts with the SC mode compared with the LRT mode in all alternatives. Subtle differences exist between LRT and SC vehicles (such as vehicle size and weight,

passenger capacity, operating characteristics including speed and turning radius) that could contribute to wheel squeal. For example, SC vehicles are generally smaller than LRT vehicles and are able to navigate short-radius curves without the onset of wheel squeal (the high-pitched noise) that occurs when steel wheels rub against the rail head resulting in elevated noise impacts. However, due to their smaller capacities, more SC vehicles may be required to achieve the same passenger-carrying capacity as the larger and faster LRT vehicles. These differences are generally reflected in the selected screening distances.

The intent of the FTA noise and vibration screening assessment is to identify areas of potential impacts from the transit mode and alignment alternatives. As a result, the distinguishing features of LRT and SC vehicles (and the differences in the number of noise and vibration impacts for each transit mode) cannot be more precisely quantified during the initial Tier 1 DEIS when details such as vehicle type, headway times, consist sizes, operating speeds, and track curvature have not been defined.

3.12.4 Potential Avoidance, Minimization, and Mitigation Measures

A detailed noise and vibration analysis will take place for the selected alternative during the Tier 2 analysis. At that time, strategies to avoid or minimize noise and vibration impacts would be examined for feasibility and incorporated into the project design, while strategies to mitigate the unavoidable impacts would be examined further.

Most importantly, the Build Alternatives have been conceptually designed to avoid and minimize impacts on residences and other noise and vibration sensitive land-uses such as hospitals, libraries, churches, parks, and museums. For example, several segments of alternatives have been selected within or adjacent to existing, active freight railroad corridors to minimize noise and vibration impacts due to land-takings or expanded ROW acquisitions. The types of noise and vibration control strategies that could be examined to mitigate any potential impacts include:

- Selecting and maintaining equipment, such as rail grinding and wheel truing;
- Increasing the radius of curves to minimize the onset of wheel squeal;
- Eliminating train horn noise at grade crossings in compliance with the Quiet Zone requirements in the FRA whistle ban regulation[23];
- Installing noise buffers, barriers and screening;
- Selecting the least vibration-producing equipment and construction techniques; and,
- Utilizing operational controls such as restricting vibration-inducing activities to locations with no potentially affected receptors or restricting vibration-producing activities to less sensitive times of day.

3.12.5 Subsequent Analysis

Subsequent analysis would take place during Tier 2 analysis to determine specific noise and vibration impacts. Subsequent analysis would include the following:

[23] Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings, August 17, 2006, 49 Code of Federal Regulations, 222 and 229.

- Measuring existing ambient conditions;
- Analyzing future transit vehicle operations;
- Determining project impacts from transit vehicles and any modifications to the existing freight rail operations;
- Determining impact from other ancillary sources such as maintenance facilities, park and ride lots, warning horns and bells; and
- Determining appropriate mitigation during operations and construction.

3.13 Energy

This section describes the potential energy use of the Build Alternatives, possible strategies to minimize energy consumption during project construction and operation, and possible subsequent analysis regarding project energy use.

3.13.1 Methodology

A qualitative examination of existing energy resources used by transportation was made in part by using data and statistics presented in the 28th Edition of the *Transportation Energy Data Book*, published by the Center for Transportation Analysis at the Oak Ridge National Laboratory in 2008. The sources of existing energy used by transportation facilities in the City of Atlanta were determined through observation and consultation with the Georgia Power and Southern Company websites.

The evaluation of potential energy use by the Alternatives focused on forecast ridership and savings in VMT by personal car and the relationship of those factors to energy use. The evaluation used the ridership forecast reported in Table 3-42 and developed during the *Inner Core Atlanta BeltLine Alternatives Analysis (2005)*.

3.13.2 Affected Environment

The *Transportation Energy Data Book* reports that highway vehicles were responsible for approximately 80 percent of all transportation energy use in the United States in 2007. Non-highway modes (air, water, pipeline, and rail) accounted for the remaining 20 percent, with air travel accounting for nearly half of the non-highway energy use. Rail accounted for approximately two percent of transportation energy use.

The sources of energy that power transportation in the study area include electricity and fossil fuels. Electricity powers the MARTA heavy rail system. Gasoline and diesel fuel are the primary fuels for roadway and other transit vehicles. According to the 2000 U.S. Census, 15 percent of workers over the age of 16 in Atlanta and in the Atlanta BeltLine study area used public transit to get to work, while the majority of the remaining workers traveled by personal car.

Georgia Power, one of four utilities that comprise Southern Company, provides electrical power to the Atlanta region. As indicated on their website, Georgia Power derives electricity from a range of sources including coal, nuclear, oil and gas, and hydroelectric plants.

3.13.3 Preliminary Environmental Consequences

3.13.3.1 No-Build Alternative

The No-Build Alternative assumes the planned service changes and enhancements identified in the ARC *Envision6* Regional Transportation Plan (RTP) and the Fiscal Years 2008-2013 Transportation Improvement Program (TIP) would be implemented, with the exception of the Atlanta BeltLine. The forecast population and employment changes in the Atlanta region, documented in Section 3.4 are also assumed.

As described in Chapter 2.0, the planned projects in the RTP and TIP would collectively address some issues related to suburb-to-city mobility. However, many transportation imbalances and issues would remain concerning in-city mobility, transit accessibility and connectivity, particularly with the existing MARTA system, and insufficient transportation options.

As part of the *Detailed Screening* phase of the Atlanta BeltLine project, annual total ridership of 14.5 million was predicted for the elements of the No-Build Alternative[24]. This number is approximately equivalent to an annual automobile travel savings of 79.8 million vehicle miles. Using the industry standard for automobile energy use, 6,233 British Thermal Units (BTUs) per vehicle mile,[25] the energy savings by diverting personal car drivers to transit services available in the No-Build Alternative would be up to approximately 497 billion BTUs annually.

However, growth in the number of vehicles on roadways will be substantial in the No-Build Alternative because existing and planned transit services will provide only a partial solution to the transportation needs of the region and study area. Growth in the number of vehicles on roadways will require additional energy and fuel consumption in proportion to the number of added vehicles. Moreover, increased traffic volume will adversely affect LOS as described in Chapter 1.0, thereby reducing average travel speeds by 24 percent in 2030 and increasing fuel consumption.

3.13.3.2 Build Alternatives

Each of the proposed Transit Build Alternatives is intended to serve the same study area market and, while LRT and SC have some different characteristics each would be considered the same type of intra-city transit. Therefore, probable energy use by each of the Transit Build Alternatives would be equivalent, and the description of energy use in this section applies equally to all Transit Build Alternatives.

The expected source of energy for the Atlanta BeltLine transit element is electricity provided by Georgia Power. However, the preliminary findings of this assessment can apply to either electricity or diesel fuel use, the two typical sources of energy for LRT or SC transit systems. Energy would be necessary to power the Atlanta BeltLine transit equipment, station equipment, and maintenance yard operations. Of these sources, the rail transit equipment would have the highest demand for energy.

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[24] *Detailed Screening Results and Selection of Locally Preferred Alternative*, Inner Core Atlanta BeltLine Alternatives Analysis, MARTA, Atlanta, GA, January 2007.

[25] Federal Transit Administration, July 1999. Technical Guidance on Section 5309 New Starts Criteria.

Atlanta BeltLine ridership is projected to be 26.4 million boardings annually with a travel savings of 145.2 million vehicle miles per year. Using the industry standard for automobile energy use, 6,233 BTUs per vehicle mile, the energy savings by diverting personal car drivers to Atlanta BeltLine riders would be up to approximately 905 billion BTUs annually.

Comparison of the No-Build Alternative travel and energy savings with the Transit Build Alternatives travel and energy savings indicates a net increase of 11.9 million boardings annually and 65.5 million vehicle miles annual travel savings for the later. As shown in Table 3-42 in Section 3.11 Air Quality, new ridership attributed directly to the system-wide enhancements proposed as part of the Atlanta BeltLine, is expected to be 6.4 million boardings, a savings of 35.4 million annual vehicle travel miles and approximately 220 billion BTUs.

Table 3-46 summarizes the estimates of annual energy savings for the No-Build and Build Alternatives.

Table 3-46: Annual Energy Savings

Alternative	Annual Boardings (millions)	Annual Travel Miles Saved (millions)	Annual Energy Savings (billion BTUs)
No-Build	14.5	79.8	497
Build (New Ridership)	6.4	35.4	220
Build (All Atlanta BeltLine Ridership)	26.4	145.2	905

Sources: MARTA's January 2007 Atlanta BeltLine Inner Core Alternatives Analysis and AECOM

As reported in the *Transportation Energy Data Book,* rail transit typically uses 12 times more energy, or BTUs, than an automobile based on an average energy-efficiency of approximately 70,000 BTU per vehicle mile. However, each rider on an LRT or SC vehicle uses approximately eight percent of the energy that a person in an automobile uses. Therefore, the energy efficiency or the amount of BTUs saved by a rail transit rider is significant in comparison to that of a single driver. As a result, although Atlanta BeltLine operations would be a new energy consumer, the effect of the project on overall energy supply and use would be a substantial savings. Other savings, such as reduced congestion and delays on roadways in the Atlanta region, are additional energy benefits of the Atlanta BeltLine Build Alternatives.

3.13.4 Potential Avoidance, Minimization, and Mitigation Measures

Consideration of energy conservation measures would be ongoing during construction and operation of the Atlanta BeltLine to minimize overall energy needs. For example, a potential energy plan could encourage construction contractors and operations personnel to adopt energy conservation measures including, but not limited to, the following:

- Use energy-efficient equipment;
- Incorporate energy-saving techniques;
- Avoid unnecessary idling of equipment;
- Consolidate material delivery, whenever possible, during construction to ensure efficient vehicle utilization;
- Schedule delivery of material during non-rush hours to minimize fuel use lost to traffic congestion;

- Use renewable energy sources along the system;
- Encourage employees and contractors to carpool; and,
- Maintain equipment and machinery in good working condition, especially those using fossil fuels.

3.13.5 Subsequent Analysis

Upon a decision to proceed with the proposed action, MARTA would coordinate with Georgia Power in relation to its energy needs to operate the Atlanta BeltLine. This Tier 1 DEIS anticipates that adequate power would be available from Georgia Power to serve the Atlanta BeltLine. Subsequent efforts might include more detailed analysis on potential energy consumption by the selected Alternative.

3.14 Water Resources

This section identifies and describes the water resources in the study area, including wetlands, rivers, streams, floodplains, open water bodies (lakes and ponds), groundwater recharge areas, and sole source aquifers. The section also summarizes the effects of the No-Build and Build Alternatives on the water resources in the study area. Table 3-47 provides the definitions for the various water resource terminology used throughout this section.

Table 3-47: Water Resource Terminology

Term	Information Source	Definition
Wetlands	U.S. Army Corps of Engineers (USACE) / U.S. Environmental Protection Agency (USEPA)	Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USEPA and USACE, 42 Federal Register, 37, 125-126, 37128-29, July 19, 1977)
Groundwater recharge areas	Georgia DNR's *Hydrologic Atlas 18* (1989 Edition)	Portions of the earth's surface where water infiltrates into the ground to replenish an aquifer
Sole source aquifers	USEPA Region 4 Sole Source Aquifers maps	A sole or principal source of water that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer
Runoff		The portion of stormwater that cannot infiltrate the ground surface

3.14.1 Methodology

The identification of water resources was accomplished by review of USGS topographic maps, the National Wetlands Inventory (NWI), aerial photography, Flood Insurance Rate Maps, and other available reports and studies (water quality reports, soil surveys) and by undertaking field observations to verify resources identified from these reviews.

An area of potential impact of 150 feet on each side of the alignments of the Build Alternatives was used to assess the potential direct effects on water resources. A water resource within the potential impact area would be considered potentially directly impacted.

3.14.2 Affected Environment

The northern part of Atlanta is drained by the Chattahoochee and Little Rivers and by the tributaries of the Flint River, which drain into the Gulf of Mexico. The southern part of Atlanta and adjacent areas to the south are drained by the tributaries of the South River, which flows eastward into the Atlantic Ocean.

3.14.2.1 Surface Water Resources

Streams

Table 3-48 summarizes the number of surface waterways by study area zone and their principal characteristics. Each crossing of the study area has been defined individually and is located on Figure 3-30.

Table 3-48: Stream Crossings by Zone

Zone	Number of Streams (Type)
Northeast	9 Streams (5 Perennial, 3 Intermittent, 1 Ephemeral)
Southeast	2 Streams (1 Intermittent, 1 Ephemeral)
Southwest	The southwest zone is within the watershed of Proctor Creek. However, no proposed alternatives cross the streams.
Northwest	14 Streams (11 Perennial, 2 Intermittent, 1 Ephemeral)

Source: ARC

Wetlands

There are two wetland areas in the study area and both are in the northeast zone. One is along the edge of Piedmont Park near the Park Drive bridge, between the rail corridor and the park. The USACE system classification is low quality resulting from its presence in fragmented habitat, being of limited size, and supporting the growth of invasive plant species. The other is north of Armour Drive and west of Piedmont Road, near Peachtree Creek. This USACE system classification is medium quality resulting from its relative maturity and ability to retain floodwater, provide limited wildlife habitat, and filter pollutants from the environment.

Open Water Bodies

There are five open water bodies in the study area, one in the northeast zone and the others in the northwest zone. In the northeast zone, Lake Clara Meer is a major, manmade surface water body located in Piedmont Park, surrounded by maintained lawn and landscaped areas. It serves as a recreational and aesthetic asset of the park. In the northwest zone there are four manmade impoundments.

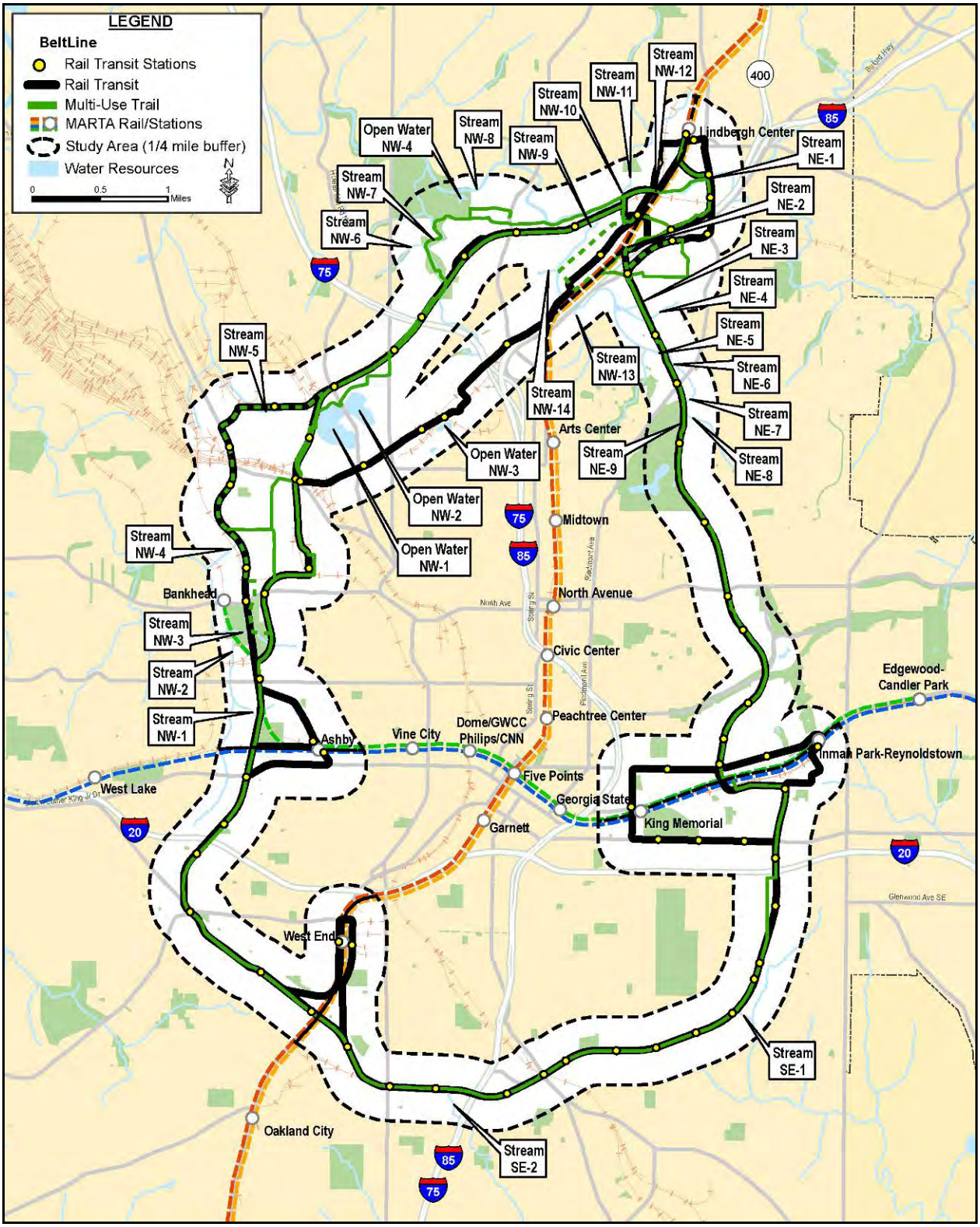
Groundwater Recharge Areas

There are no significant groundwater recharge areas in the study area. All parks and greenspace, including vegetated residential areas, provide a surface area conducive for stormwater runoff to filter into the ground. The remainder of the study area consists of impervious surfaces, such as roadways and commercial land uses with associated parking areas.

Sole Source Aquifers

There are no sole source aquifers in the study area based on the USEPA definition.

Figure 3-30: Study Area Surface Water Resources



Source: ARC

Floodplains

As shown on Figure 3-31, there are 100- and 500-year floodplains in the northeast zone associated with Peachtree Creek, Clear Creek, and their unnamed tributaries, near the Lindbergh Center MARTA station, and within and near Piedmont Park; in the southwest zone associated with Proctor Creek and its unnamed tributaries south of the Ashby MARTA station; and in the northwest zone associated with Peachtree Creek, Proctor Creek and their unnamed tributaries.

3.14.3 Environmental Consequences

During the Public Scoping Process, questions and concerns were raised regarding how the Atlanta BeltLine would affect water resources. Particularly, there was concern about the potential effects on stormwater runoff, flooding, groundwater and surface waters and water quality. It was asked whether potential mitigation strategies to protect water resources would be identified in the Tier 1 DEIS. In response, the potential effects of the No-Build and Build Alternatives and potential strategies to avoid, minimize, and mitigate potential impacts on water resources are discussed below.

3.14.3.1 No-Build Alternative

Several projects included in the No-Build Alternative have the potential to directly affect study area water resources. These potential effects and strategies to avoid, minimize, and mitigate these potential effects would be undertaken during the environmental reviews of those projects.

3.14.3.2 Build Alternatives

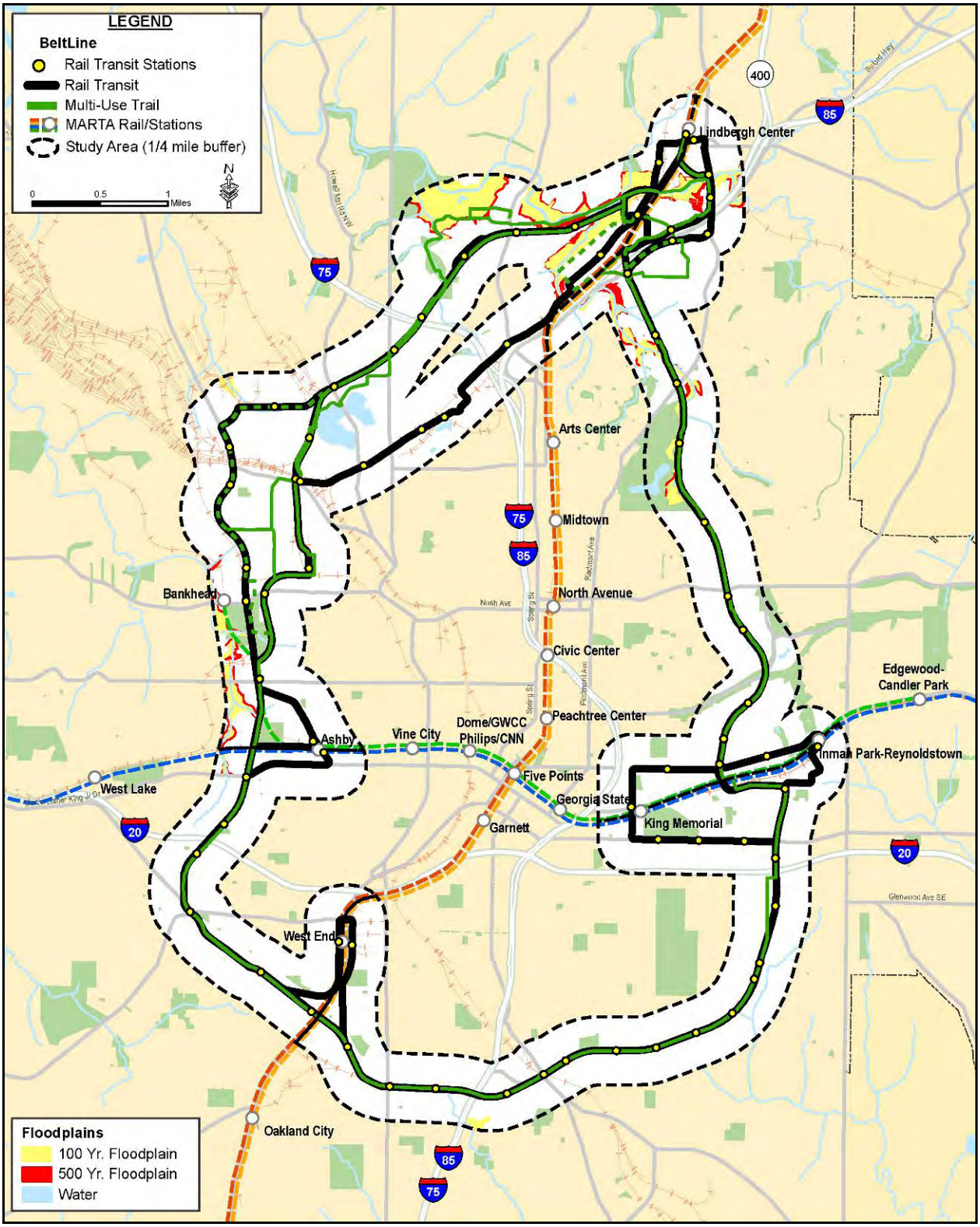
The Build Alternatives would have no effects on wetlands, open water bodies, or sole source aquifers, but would have the potential to directly affect streams and groundwater resources in the study area. These affects are briefly described below.

Streams

Stream could be impacted with new crossing structures, extensions of existing culvert crossings, and stream buffer encroachments. Figure 3-32 shows the potential crossings of streams by the Alternatives in the study area. Stream impacts are listed in Table 3-49 for each Transit Build Alternative where impacts exist. The C- CSX Marietta Boulevard and D- Marietta Boulevard Transit Alternatives would have the most effects on streams, while the A- CSX Howell Junction, B- Howell Junction, and F- Atlantic Station Transit Alternatives would have the fewest effects.

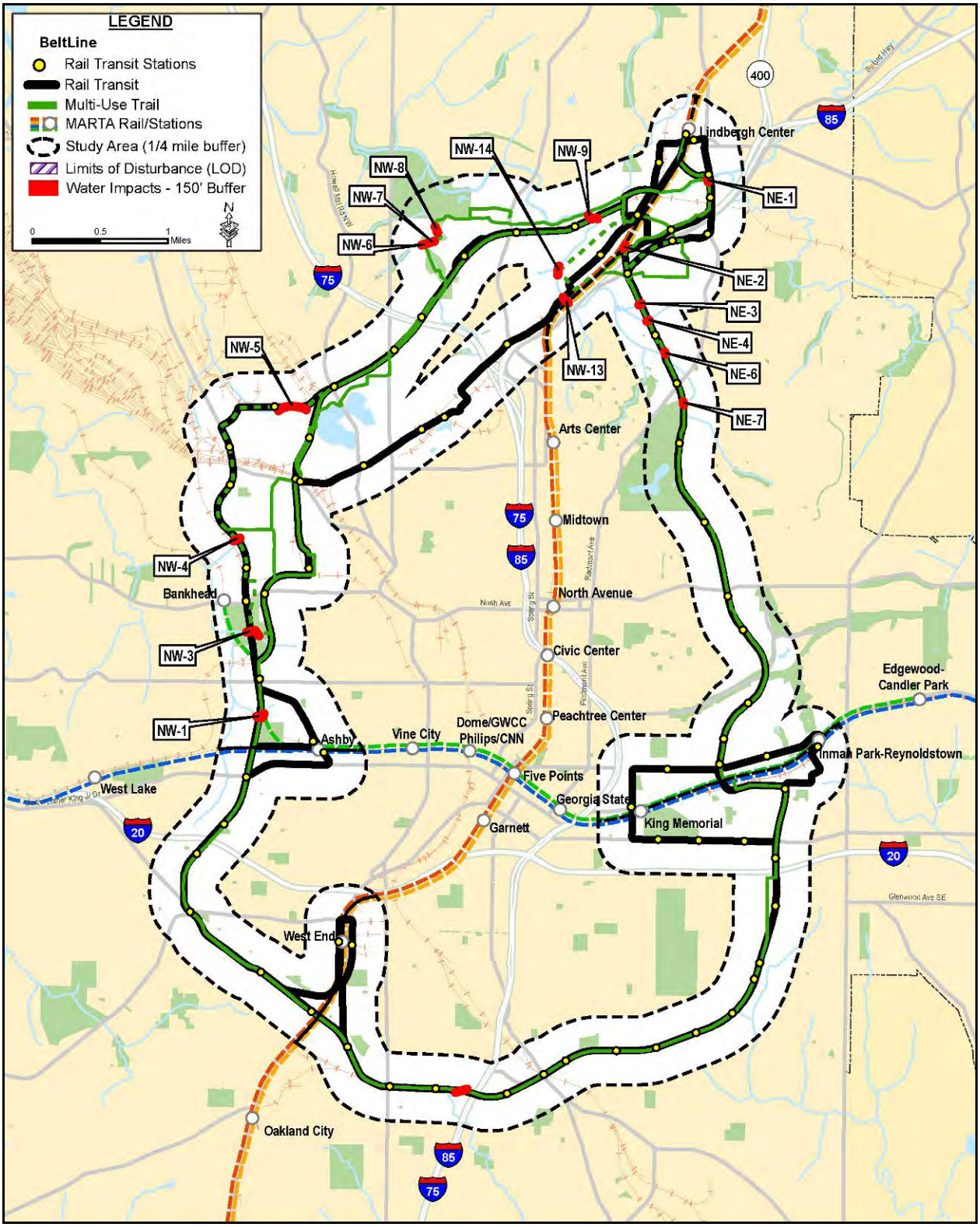
In this analysis, the effects of the Trail Alternatives were combined with the effects of the Transit Alternatives where transit and trails are co-aligned. Therefore, the Howell Junction and Marietta Boulevard Trail Alternatives would affect no additional streams, but the On-Street Trail Alternative would impact an additional four streams where it is not co-aligned with the Transit Alternatives.

Figure 3-31: Study Area Floodplains



Source: ARC

Figure 3-32: Potential Crossings of Water Resources



Source: ARC

Table 3-49: Potential Impacts to Streams

Build Alternative		Number of Potential Stream Impacts	Area (acres)of Potential Stream Impact
Transit	All A- CSX Howell Jct. / B- Howell Jct.	7	0.60
	All C- CSX Marietta Blvd. / D- Marietta Blvd.	11	1.17
	All F- Atlantic Station	7	0.22
Trails[1]	Howell Jct./Marietta Blvd.	0	0.00
	On-Street	4	0.52

Source: AECOM
[1]Trail effects are combined with transit quantities where transit and trails are co-aligned. Quantities shown for trails occur where trails have a separate alignment from the transit.

Groundwater Resources

The Build Alternatives would introduce new impervious surfaces at stations and trails, which would affect groundwater resources. Converting pervious ground where precipitation can infiltrate to impervious pavement or structures would reduce the ability of water to recharge to the groundwater in proportion to the amount of impervious surfaces. The C- CSX Marietta Boulevard and D- Marietta Boulevard Transit Alternatives and the Howell Junction and Marietta Boulevard Trail Alternatives would have the least potential impact on groundwater resources based on amount of impervious surfaces, as shown in Table 3-50. As described in Section 3.14.2, parks are the principal groundwater recharge resources. In the northwest zone, Maddox and Tanyard Creek Parks contain large areas of pervious surfaces. The Transit and Trail Build Alternatives are not anticipated to affect the parks or the groundwater recharge areas in the parks.

Table 3-50: Amount of New Impervious Surface Outside of MARTA Rail Station Areas

Build Alternative		Impervious Surface (acres)
Transit	All A- CSX Howell Jct. / B- Howell Jct.	25
	All C- CSX Marietta Blvd. / D- Marietta Blvd.	16
	All F- Atlantic Station	21
Trail	Howell Jct. / Marietta Blvd.	18
	On-Street	20

Note: Total acreage does not include impervious surface within the MARTA rail station areas.

Floodplains

The Build Alternatives would potentially affect the floodplains associated with the affected streams. Perpendicular crossings or longitudinal encroachments may be unavoidable.

Stormwater

To the extent possible, the Build Alternatives would be co-aligned with the existing railroad ROW. The finished grades would be similar to the existing corridor. Nevertheless, the construction of new transit facilities would introduce new impervious surfaces and increased stormwater runoff would be managed in accordance with applicable regulations.

3.14.4 Potential Avoidance, Minimization, and Mitigation Measures

Conceptual design of the Build Alternatives conservatively indicates the potential for direct and indirect impacts on water resources, such as encroachments on or structures over water resources, and increased stormwater runoff from added impervious surface. As the project advances, the design will be refined to avoid or minimize impacts on water resources. During Tier 2 analysis, adjustments to the alignment and the location of amenities would be examined to avoid effects on water resources.

Unavoidable effects would be reported during Tier 2 analysis. A number of best management practices would be identified and mitigation strategies developed at that time to minimize unavoidable impacts. These may include soil erosion control measures, stormwater management and water quality provisions that may be applied temporarily during construction, or permanently as appropriate, to protect water resources.

3.14.5 Potentially Required Permits and Approvals

3.14.5.1 Federal

Unavoidable impacts to streams regulated by 33 CFR Part 328.3(b) and protected by Section 404 of the Clean Water Act (22 United State Code 1344) would require a Section 404 permit from the U.S. Army Corps of Engineers.

Tier 2 analysis would require demonstration of project compliance with Executive Order 11988 Floodplain Management that prescribes protection of floodplains from impacts, particularly longitudinal impacts, wherever possible.

3.14.5.2 State

Unavoidable impacts to buffers around streams would require Stream Buffer Variance permit from the Georgia Environmental Protection Division.

3.14.5.3 City

Impacts to stream buffers are subject to compliance with the City of Atlanta's specifications regarding stream or riparian buffers and associated erosion and sediment control requirements.

3.14.6 Subsequent Analysis

During Tier 2 analysis, the design will be refined to avoid or minimize impacts on water resources including adjustments to the alignment and location of amenities as prescribed by federal, state, and local water resource protection regulations and guidelines including NEPA.

3.15 Biological Resources

This section identifies the biological resources in the study area, and describes the potential effects of the No-Build and Build Alternatives on those resources, including aquatic and terrestrial species protected by the Endangered Species Act, birds protected by the Migratory Bird Treaty Act, and invasive species.

3.15.1 Methodology

The identification of existing biological resources employed a combination of existing available data from the Wildlife Resources Division of the Georgia Department of Natural Resources (GADNR) and a preliminary field reconnaissance of the area of potential impact, which is 150 feet on each side of the alignment of the Build Alternatives to conservatively allow for all anticipated effects.

3.15.1.1 Aquatic Resources

The water bodies supporting aquatic biota within the study area were identified using available data. Investigation of the potential for trout streams used the GADNR Wildlife Resources Division database, which contains existing data for known rare species and natural communities as well as potentially occurring rare species and natural communities. Field examinations occurred in rivers, streams, and open water bodies to characterize potential aquatic resources.

3.15.1.2 Terrestrial Resources

The terrestrial habitats identified in the study area include non-aquatic fields, woodlands, and landscaped areas. A determination of wildlife and plant life known or likely to use the identified terrestrial habitats took place using available data sources and field observations.

3.15.1.3 Protected Species

The potential for protected species to occur in the study area was evaluated by coordination with the GADNR and by a preliminary field reconnaissance for suitable habitat. GADNR is a repository for data on known threatened, endangered, and rare species that are recognized by them and by the U.S. Fish and Wildlife Service (USFWS). On July 24, 2009, information relating to the locations and potential occurrences of protected species was requested from GADNR, and the response, dated September 9, 2009, is included in Appendix C of this Tier 1 DEIS. Field verification to identify potential habitats that could support protected species took place. A formal biological assessment will take place during Tier 2 analysis.

3.15.1.4 Migratory Bird Treaty Act

Areas potentially used by birds protected by the federal *Migratory Bird Treaty Act* were identified. The focus of this investigation was areas containing greater than 100 acres of contiguous habitat and other habitats such as culverts and bridges.

3.15.2 Affected Environment

3.15.2.1 Aquatic Resources

As discussed in Section 3.14.2, aquatic resources included in the study area are Peachtree Creek and its tributary streams, a number of tributaries to Clear and Tanyard Creeks, Lake Clara Meer in Piedmont Park, Sugar, Intrenchment, and Proctor Creeks, and the South River. None of the aquatic resources is a designated wild trout stream.

Aquatic biota likely to inhabit these resources would be restricted to species tolerant of medium quality, somewhat impaired to fully impaired water quality. Generally, the

number and diversity of species in impaired condition aquatic resources are limited to commonly occurring species that are tolerant of the impaired conditions.

3.15.2.2 Terrestrial Resources

Piedmont Park provides a combination of manicured landscaping and wooded edges. Oakland Cemetery, Freedom Park, Daniel Stanton Park, Adair Park, Washington Park, Maddox Park, Tanyard Creek Park, Ardmore Park, and Peachtree Hills Park provide manicured landscaping. The ballasted track area within the Decatur Belt Corridor is flanked by opportunistic tree, shrub, and herb vegetation. The L&N Corridor is overgrown in many areas with opportunistic tree, shrub, and herb vegetation. The CSX and Norfolk Southern Corridors are kept clear of excess vegetation, but the edges may contain opportunistic tree, shrub, and herb vegetation.

In many areas invasive plants dominate as discussed in greater detail in Section 3.15.2.5. These terrestrial characteristics provide little food and cover for a low number of commonly occurring animals that are adapted to a human environment, such as squirrels, rabbits, raccoons, opossums, robins, and starlings.

3.15.2.3 Protected Species

Table 3-51 presents a list of federally and/or state protected plants and animals observed through GADNR field reconnaissance near the study area, obtained from GADNR coordination. See Appendix D of this Tier 1 DEIS for a full list of federally and/or state protected plants and animals in Fulton County.

Table 3-51: Listed Plant and Animal Species in Fulton County

Zone	Species Name	Type of Species	Listing	Location Where Species Observed
Northeast	Bay Star-vine – *Schisandra glabra*	Plant	State Protected – Threatened	Unspecified locations approximately 1.5 miles northeast of the Build Alternatives, 2.5 miles east of the Build Alternatives, and a 3 miles east of the Build Alternatives
	Chattahoochee Crayfish – *Cambarus howardi*	Aquatic Arthropod	State Protected	Approximately two miles east of the Build Alternatives in Peachtree Creek
	Peregrine Falcon – *Falco peregrinus*	Bird	State Protected	Approximately two miles southwest of the Build Alternatives
Southwest	Bachman's Sparrow – *Aimophila aestivalis*	Bird	State Protected	Approximately two miles south of the Build Alternatives
	Pink Ladyslipper – *Cypripedium acaule*	Plant	State Protected	Approximately 2.5 miles southwest of the Build Alternatives
Northwest	Georgia Aster – Symphyotrichum georgianum	Plant	Federally Protected – Candidate	Approximately 2.5 miles northwest of Build Alternatives

Source: GADNR, www.gadnr.org site accessed June 2008; USFWS, www.fws.gov site accessed June 2008
Note: The southeast zone did not have any listings of plant or animal species.

GADNR reported that a single federally protected species and five state protected species occur within a three-mile radius of the study area. Preliminary field reconnaissance within the 300-foot area of potential impact found no additional protected species or suitable habitat for a protected species.

3.15.2.4 Migratory Bird Treaty

Preliminary field reconnaissance within the area of potential impact found no large tracts of intact forest that would provide suitable habitat for migratory birds. Several migratory

bird nests were observed beneath the overpass carrying the MARTA rail line over Proctor Creek and North Avenue, beneath the Collier Road bridge over Tanyard Creek, and the Peachtree Road bridge over Peachtree Creek. The overpasses located at Ormewood Avenue, Berne Street, Confederate Avenue, Murphy Avenue, Lawton Street, Ralph David Abernathy Boulevard, Lucile Avenue, I-20, Martin Luther King, Jr. Drive, Mobile Street, Joseph E. Boone Boulevard, Donald Lee Hollowell Parkway, and the railroad trestles over Tanyard and Clear Creeks potentially would provide nesting habitat for migratory bird species.

3.15.2.5 Invasive Species

Nine invasive species were found within the area of potential impact including Chinese privet, Japanese honeysuckle, mimosa, kudzu, English ivy, Chinese lespedeza, Nepalese browntop, Johnsongrass, and multiflora rose.

3.15.3 Preliminary Environmental Consequences

During the Public Scoping Process, questions and concerns were raised regarding how the Atlanta BeltLine would affect biological resources. Issues expressed included what the project effects would be on animals including threatened and endangered species, animal habitat, and vegetation. In response, the anticipated effects of the Build Alternatives are described in this section, as are potential strategies to avoid, minimize, and mitigate potential impacts on biological resources.

3.15.3.1 No-Build Alternative

The No-Build Alternative includes several planned projects with the potential to affect study area biological resources. These potential effects would be investigated under the environmental processes for future projects that may comprise the No-Build.

3.15.3.2 Build Alternative

The Build Alternatives have the potential to impact biological resources associated with existing streams and stream buffers, as well as street trees and landscaped areas that may be affected where additional ROW is required regardless of the chosen transit mode technology.

As summarized in Chapter 3.14, the C- CSX Marietta Boulevard and D- Marietta Boulevard Transit Alternatives would potentially affect up to 11 streams while the A- CSX Howell Junction, B- Howell Junction, and F- Atlantic Station Transit Alternatives would potentially affect seven streams. No additional streams impacts are associated with the Howell Junction and Marietta Boulevard Trail Alternatives, but the On-Street Trail Alternative would potentially impact four additional stream. The potential effects would include shading, enclosure, and/or filling of the waterway within the limit of disturbance, which would degrade or eliminate the habitat values of the aquatic resources, thereby changing or eliminating the species composition currently using the resources.

The Build Alternatives would also clear vegetation from the railroad corridors. This effect could remove opportunistic plant materials, particularly invasive species.

Impacts on biological resources as a result of new ROW acquisition could include removing landscaped areas or edge areas. Removing the profusion of invasive species would be a benefit as these species prohibit the growth and diversity of native terrestrial vegetation. The small percentage of the terrestrial vegetation that is native opportunistic

species may also be reduced or removed. These effects could change or eliminate the species composition currently using the resources.

Based on current data and observations, the Build Alternatives would not be expected to affect protected species or to affect species or habitat protected by the Migratory Bird Treaty. The elevated structures that would potentially provide suitable habitat for migratory bird species are stated in Section 3.15.2.4.

3.15.4 Potential Avoidance, Minimization, and Mitigation Measures

Conceptual design of the Build Alternatives conservatively indicates the potential for impacts on biological resources. As the project advances, the design will be refined to avoid or minimize effects on biological resources. During Tier 2 analysis, adjustments to the alignment and the location of amenities would be examined to avoid effects on biological resources as prescribed by federal and state regulations and guidelines including NEPA.

Unavoidable effects would be reported during Tier 2 analysis. A number of best management practices would be identified and mitigation strategies developed at that time to minimize unavoidable impacts. These could include:

- coordination with regulators to identify appropriate and reasonable means to accommodate protected species;
- removal and disposal of invasive plant parts to avoid future infestations and,
- enhance the landscaping using native species or cultivars of native species that would provide superior food and shelter resources to the vegetative community that is currently present.

3.15.5 Potentially Required Permits

3.15.5.1 Federal

Unavoidable impacts to aquatic resources would require Section 404 of the *Clean Water Act* permit from the USACE; USEPA review and concurrence would be required regarding project compliance with the *Migratory Bird Treaty Act* during Tier 2 analysis; and Section 7 of the federal *Endangered Species Act* requires consultation may be required during Tier 2 analysis if federally protected species are encountered.

3.15.5.2 State

GADNR consultation could be required during Tier 2 analysis if state regulated species are encountered, and a GEPD Stream Buffer Variance could be required for unavoidable impacts to terrestrial resources near streams.

3.15.5.3 Local

Compliance with the City of Atlanta's specifications regarding stream or riparian buffers and associated erosion and sediment control requirements would be required.

3.15.6 Subsequent Analysis

During Tier 2 analysis, the design will be refined to avoid or minimize impacts on biological resources including adjustments to the alignment and location of amenities as

prescribed by federal, state, and local biological resource protection regulations and guidelines including NEPA.

3.16 Geologic Resources

This section describes the geologic resources in the study area and the potential effects of the No-Build and Build Alternatives on these resources.

3.16.1 Methodology

The assessment of geologic resources included identification of topography, underlying geologic conditions, unique geologic formations, and primary soil types including soils designated as prime, unique, of statewide importance, or of local importance. This was completed through a review of USGS topographic maps, aerial photography, the Natural Resources Conservation Service (NRCS) Soil Survey, and data from the U.S. Department of Agriculture (USDA) as appropriate.

A qualitative assessment of potential effects on geologic resources took place by examining the conceptual engineering needs associated with the No-Build and Build Alternatives and making a preliminary assessment of effects. The assessment focused on evaluating potential earthmoving and excavation activities, particularly in areas where deep excavations could occur to build tunnels or foundations for elevated structures.

3.16.2 Topography

The study area is located on a series of ridgetops that overlie the valleys formed by Peachtree, Proctor, Clear, South River, Sugar, and Intrenchment Creeks. The bedrock geology outcrops dramatically along several railroad ROWs; creek corridors tend to be narrow, deep, and steep-sided.

Where the terrain moderates, it is still rolling. The natural ridge and valley terrain is responsible in part for the manner in which the streets and land use have developed. Major arteries such as the interstate systems and railroads follow ridgelines and routes of least topographic change. Exceptions to this trend can be observed near the Lindbergh Center MARTA rail station, for example, where dramatic changes in natural elevation required the use of elevated structures to support MARTA and other arteries.

3.16.3 Geology

The study area is located in the Piedmont Physiographic Province of Georgia. The character of the Piedmont Province is of narrow waterways below broad valleys and moderate slopes. It is composed of hard igneous and metamorphic rocks derived from ancient (300 to 600 million years old) sediments, once deeply buried and subjected to high temperatures and pressures. The primary bedrock formations that underlie the study area are the Lithonia Gneiss, Clairmont, Wahoo Creek, Stonewall Gneiss, and Clarkston formations (also shown in Appendix D).

These formations consist of hard rock types including biotite gneiss and schist, granite, granite gneiss, mica schist, and other rocks of the Precambrian and Paleozoic age (Hodler and Schretter 1986).

3.16.4 Soils

The soil series present in the study area includes Cecil, Cartecay-Toccoa, Congaree, Congaree-Cartecay, Rion, and Wickham. A description of each soil type can be found in Appendix D. The study area's principal soil associations consist of urban land (soil areas of cut and fill), also referred to as Udorthents, and a combination of native soils series' and urban lands (USDA 2009).

3.16.5 Preliminary Environmental Consequences

During the Public Scoping Process, questions and concerns were raised regarding how the Atlanta BeltLine would affect environmental resources in general, including geology, soils, and topography. In response, the expected effects of the Alternatives are described in this section, as are potential strategies to avoid, minimize, and mitigate potential effects on geological resources.

3.16.5.1 No-Build Alternative

The projects assumed in the No-Build Alternative would be the subject of an environmental assessment for each project. In general, the effects of the No-Build Alternative on geology, topography, and soils would be incremental.

3.16.5.2 Build Alternatives

The Transit Build Alternatives would follow a similar grade to those of the existing railroads and streets. The Trail Build Alternatives would follow existing grades in most locations in order to facilitate access.

As a result, the anticipation is for there to be minimal potential effects on geology, topography, and soils in most areas. In some locations, however, deeper and/or wider excavations than required for at-grade construction will occur. Examples would include footings for proposed elevated railway or pedestrian ramps near Howell Junction in the northwest zone, extensions of existing tunnels under existing roadways near Inman Park/Reynoldstown MARTA rail station, and cutting back existing exposed bedrock, in the cut section of the Decatur Belt ROW near Piedmont Park.

A geotechnical survey would be required to characterize local soil and rock conditions to assist decision making on appropriate design and construction methods, the suitability of existing soils and geology to support structures, the need for fill material, the amount of material to be removed and how to remove it, and the rationale for using retaining walls and other slope stabilization techniques.

3.16.6 Potential Avoidance, Minimization, and Mitigation Measures

Geotechnical testing would occur as the design advances to identify location-specific geologic and soils conditions and to determine an appropriate design and construction approaches to avoid or minimize potential adverse effects. Selection of soil and rock removal techniques would take place based on localized conditions and requirements. The project sponsors would employ soil erosion and sediment control best management practices to control disturbed soils during construction. There would be a containment of excavated soils and a stabilization of finish graded soils.

3.16.7 Subsequent Analysis

Geotechnical analysis would occur during a Tier 2 analysis. At that time, a more detailed assessment of localized effects on topography, geology, and soils would take place, and there would be an identification of minimization and mitigation strategies as warranted