

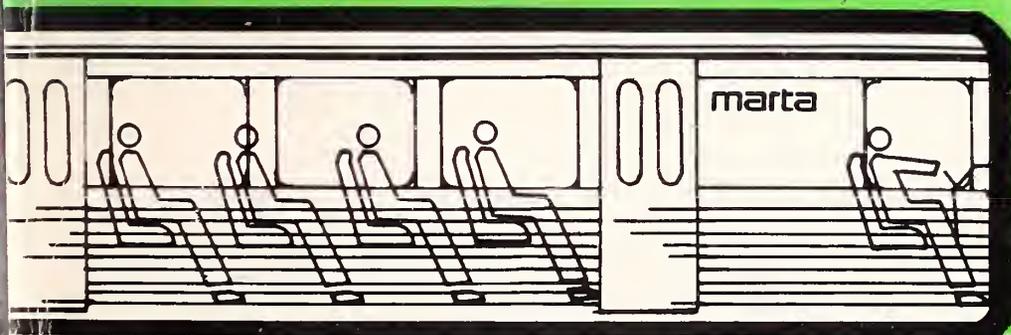


U. S. Department of Transportation  
Urban Mass Transportation Administration

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# Final Environmental Impact Statement Metropolitan Atlanta Rapid Transit System

## North Line Lindbergh/Piedmont Segment



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August 1980





DEPARTMENT OF TRANSPORTATION  
URBAN MASS TRANSPORTATION ADMINISTRATION  
WASHINGTON, D.C. 20590

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FINAL ENVIRONMENTAL IMPACT STATEMENT

NORTH LINE: LINDBERGH/PIEDMONT SEGMENT

ATLANTA, GEORGIA

August 21, 1980  
Date

*Peter Benjamin*  
Peter Benjamin  
Acting Associate Administrator  
for Transit Assistance

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# COVER SHEET

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U.S. DEPARTMENT OF TRANSPORTATION  
URBAN MASS TRANSPORTATION ADMINISTRATION

FINAL ENVIRONMENTAL IMPACT STATEMENT

Pursuant to Section 102(2) (c), PL91-190 of the National Environmental Policy Act of 1969, and Sections 3 (d) and 14 of the Urban Mass Transportation Act of 1964, as amended.

LEAD AGENCY: Urban Mass Transportation Administration

COOPERATING AGENCY: The Metropolitan Atlanta Rapid Transit Authority

TITLE OF LOCALLY PROPOSED ACTION: Ambassador Apartments Alternative  
Lindbergh/Piedmont Segment  
Atlanta, Georgia

ABSTRACT: This Final Environmental Impact Statement (EIS) documents the environmental impacts of and responds to substantive comments received on the Draft EIS for a section of the North Line of Atlanta's rapid transit system. Two alternatives were examined in detail for this section known as the Lindbergh/Piedmont Segment. The first alternative known as the Referendum Alternative, consists of an alignment with two stations within established residential neighborhoods. The Referendum Alignment's environmental impacts were originally documented in the 1973 UMIA approved systemwide Final EIS. The other alternative, the Ambassador Apartment Alternative consists of the consolidation of the two stations into a single Lindbergh Center Station and the consequent changes to the track alignment. The Lindbergh Center Station is proposed to be located at the center of a commercial area away from established residential neighborhoods.

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This Final Environmental Impact Statement was made available on SEP 19 1980



# SUMMARY

## MAJOR CONCLUSIONS

This Final Environmental Impact Statement (EIS) was prepared by the Urban Mass Transportation Administration (UMTA) in cooperation with the Metropolitan Atlanta Rapid Transit Authority (MARTA) to document the environmental impacts of part of the North Line of Atlanta's rapid transit system.

The Draft EIS for this change was circulated to various Federal, state, and local agencies and to interested organizations and individuals in accordance with the regulations of the Council on Environmental Quality and U.S. Department of Transportation. UMTA received comments on the Draft EIS for 60 days after the official start of circulation on Friday, February 14, 1980. UMTA and MARTA have addressed all substantive comments received on social, economic, and environmental issues in this final EIS. Responses to the substantive comments can be found in Chapter VI of this Final EIS while appropriate changes to the text, as a result of comments received, are indicated by vertical lines in the margins.

Two alternatives are examined in detail in this EIS, the Referendum Alignment and Ambassador Apartments Alternatives. Two additional alternatives, the Over Piedmont Road and Under Piedmont Road Alternatives, were eliminated from detailed consideration because the trackway alignment along Piedmont Road, an important arterial, would have precluded development along this portion of the roadway. This was not compatible with local land use plans for the area.

### I. Referendum Alternative

A. Description: This alternative proposes to have two stations along its length. One, the Lindbergh Drive Station, has 230 parking spaces, 10 bus bays and encompasses 7.3 acres. The other, the Piedmont Road Station, has 1075 parking spaces, 4 bus bays and takes 16.5 acres of land. Both are on the west side of the Southern Railroad track. The line segment parallels the Southern Railroad tracks on the northwest side for the entire length. The length of this segment is 15,300 feet, of which 3,700 feet are aerial structure, and 11,600 feet are at-grade.

B. Estimated Cost: The cost estimate for this section of the North Line is approximately \$100 million, of which \$80 million is proposed to be UMTA funds.

### C. Summary of Effects:

1. Long-Term Beneficial Effects: This alternative with two stations would provide convenient rail transit service to and from residential areas.

2. Long-Term Adverse Effects: This proposed action would have the following adverse effects:

1. It would encourage intrusion into residential neighborhoods of incompatible land uses.
  2. Fifty-four residences and eight businesses would have to be relocated.
  3. It would have visual intrusion for 6,500 feet of its length.
  4. There will be additional noise levels along 5,800 feet of line. Noise barriers will be provided in these areas.
  5. There may be up to 87,000 cubic yards of excavation spoils to dispose of in approval of landfill sites.
3. Short-Term Construction Impacts: This action would require the temporary detouring of traffic on Peachtree Hills Road. It would also cause noise and dust annoyances typical for a construction effort of this scale.

## II. Ambassador Apartment Alternative

A. Description: This alternative proposes to have one station along its length. The Lindbergh Center Station would be located at the northwest corner of the Lindbergh Drive and Piedmont Road intersection. It would have approximately 2050 parking spaces, 14 bus bays, and cover 19 acres. The connecting line segment would diverge from the Southern Railroad alignment near Mayson Street just south of Peachtree Creek, parallel Garson Drive into the Station, cross under the Ambassador Apartment complex, over Piedmont Road, then parallel the Southern Railroad tracks on their southeast side before crossing over to the north side 1,200 feet from Lenox Road. The length of this segment is 15,250 feet, of which 2,000 feet are aerial structure, 12,000 feet are at-grade, and 1,250 feet are in subway.

B. Estimated Cost: The estimated cost of this station and line segment is approximately \$100 million of which \$80 million is proposed to be UMTA funds.

### C. Summary of Effects:

1. Long-Term Beneficial Effects: The proposed action will have the following major beneficial effects:

1. The consolidated station will encourage the development in a commercial area which is desired by the City of Atlanta.
2. It will consume about one-half the electrical energy of the Referendum Alternative.

2. Long-Term Adverse Effects: This proposed action will have the following major adverse effects:

1. The consolidated station would not be located in a residential area therefore not providing the convenient rail transit service offered by the two station referendum alternative.
2. Thirty-six residences and eight businesses will be relocated.
3. There will be a view of the rail line from residences during at least part of the year for a total of 2,000 feet.

4. There will be an addition of noise levels in two areas totalling 1,300 feet. Acoustical barriers will be used in these areas.
5. There may be up to 100,000 cubic yards of excavation spoils needed to be disposed in approved landfill sites.
3. Short-Term Construction Effects: The construction of this station and line segment will cause temporary detouring of traffic around the immediate construction sites at Lindbergh Drive and Morosgo Drive. It will also cause noise and dust annoyances typical of this scale of construction activity. No traffic will be detoured through residential neighborhoods.

### III. Evaluation of Alternatives

The two alternatives differ in four significant ways.

1. The Ambassador Apartments Alternative locates one station in the commercial area, the Referendum Alternative located two stations partially within residential neighborhoods. The one station alternative would provide less convenient rail transit service to and from residential areas, but would encourage development in a commercial area.
2. The Ambassador Apartments Alternative requires 1,300 feet of acoustical barriers versus 6,500 feet required by the Referendum Alternative.
3. The Referendum Alternative requires the demolition of 18 more housing units than does the Ambassador Apartments Alternative.
4. The Referendum Alternative is more visually intrusive than is the Ambassador Apartments Alternative.

### IV. Selection of Locally Preferred Alternative

The City of Atlanta requested MARTA to adopt the consolidated station concept primarily to remove the stations from within the residential neighborhoods. This the MARTA Board did in March 1974. The subsequent environmental assessment showed that there were trade-offs between the two alternatives each with its own pros and cons. On balance it was clear that the Ambassador Apartments Alternative, by encouraging development in a commercial area, was far better than the Referendum Alternative. In July 1979, the MARTA Board amended its earlier resolution and adopted the specific Ambassador Apartments Alternative.

### Areas of Controversy

Substantive comments raised during the circulation of the Draft Environmental Impact Statement focused on the areas of alternatives, traffic and transportation impacts, floodplains, water quality, noise impacts, and air quality.

### Issue to be Resolved

The major issue to be resolved is whether to approve the change from the Referendum Alignment to the Ambassador Apartments Alternative in the Lindbergh/Piedmont segment of the Metropolitan Atlanta Rapid Transit System's North Line. The Urban Mass Transportation Administration is considering the significant impacts documented in this EIS as well as the substantive comments received from the circulation of the Draft EIS.



# REVIEW AND FINDINGS

This Final Environmental Impact Statement represents a detailed statement, as required by Section 14 of the Urban Mass Transportation Act of 1964, on-

- (1) the environmental impact of the proposed project,
- (2) adverse environmental effects which cannot be avoided should the proposal be implemented,
- (3) alternatives to the proposed project, and
- (4) irreversible and irretrievable impact on the environment which may be involved in the proposed project should it be implemented.

Based on the information contained in this Environmental Impact Statement and on consideration of the written and oral comments offered on the draft document, the Urban Mass Transportation Administration determines in accordance with Section 14 of the Act that -

- (1) adequate opportunity was afforded for the presentation of views by all parties with a significant economic, social, or environmental interest, and fair consideration has been given to the preservation and enhancement of the environment and to the interest of the community in which the proposed project is located, and
- (2) all reasonable steps have been taken to minimize adverse environmental effects of the proposed project and where adverse environmental effects remain, there exists no feasible and prudent alternative to avoid or mitigate such effects.



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# CHAPTER 1

## PURPOSE AND NEED FOR ACTION

The Metropolitan Atlanta Rapid Transit Authority's (MARTA) rapid transit system was approved by referendum on November 9, 1971. The Final Environmental Impact Statement on this Referendum System was completed in March 1973.<sup>1</sup> The System is shown in Figure 1.1.

Since that time requests for changes to the Referendum System have been made by various governmental bodies. Supplement I, to the original EIS, completed September, 1975, presents analyses of changes to the system at Vine City, Techwood (OMNI) Station, the Tucker-North DeKalb Corridor, Candler Park (Edgewood/Candler Park) Station, and East Lake Station.<sup>2</sup>

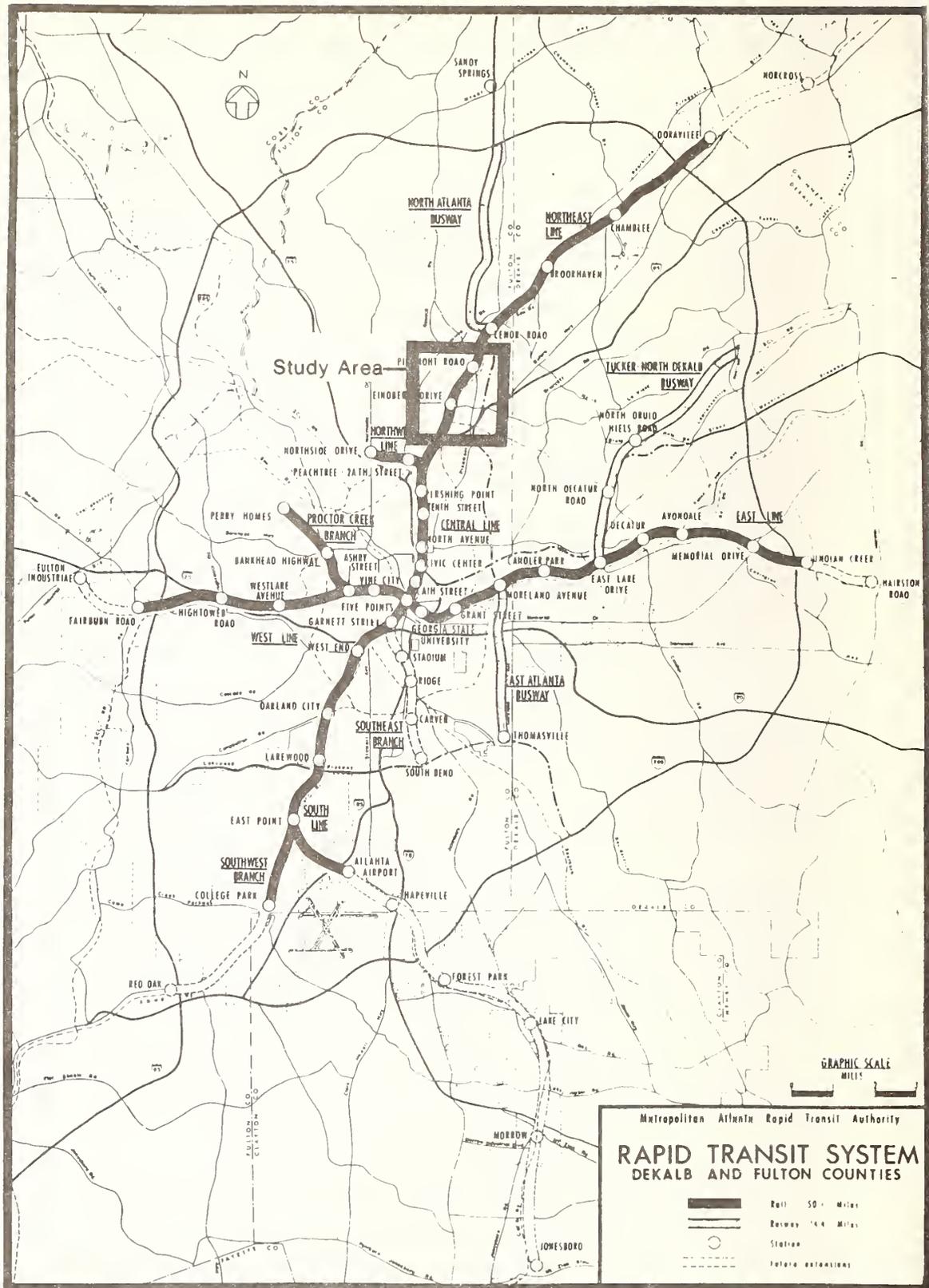
Another such request by the City of Atlanta involves the consolidation of the Lindbergh and Piedmont Stations along a revised alignment. In March 1974 the MARTA Board of Directors adopted a resolution modifying the Referendum System to this effect. This change was ratified by the local governments involved in accordance with their Rapid Transit Contract and Assistance Agreement.

The purpose of this Supplement to the original EIS is to document the probable environmental impacts of alternatives to the Referendum alignment and station locations in the Lindbergh Drive/Piedmont Road area. The present environmentally-approved rapid transit system is shown in Figure 1.2. The Lindbergh/Piedmont study area is shown 5 miles north of the downtown area. The Lenox Station is beyond the study area to the north.

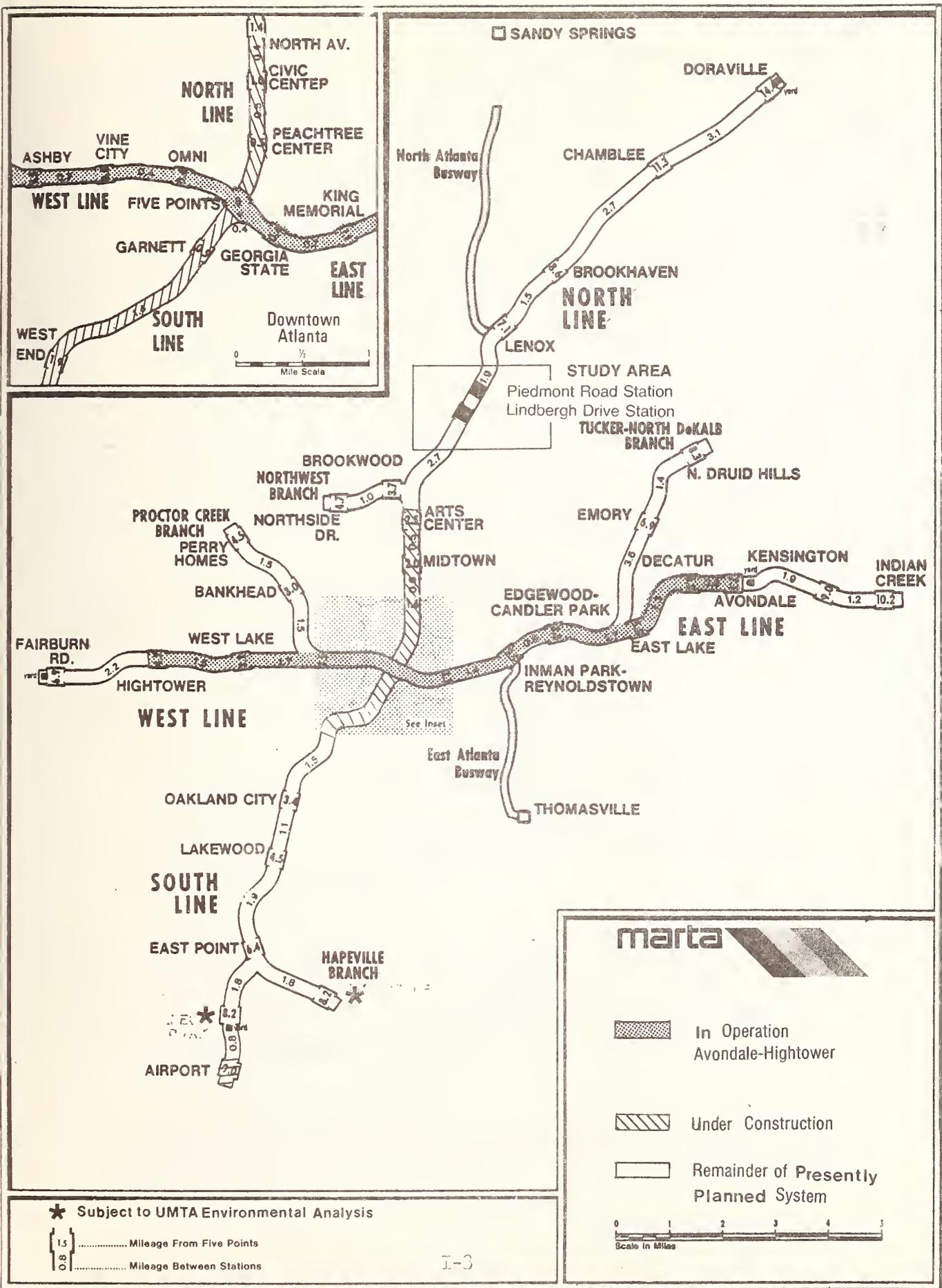
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<sup>1</sup>Final Environmental Impact Statement, GA-03-0008 Urban Mass Transportation Administration, prepared by the Urban Mass Transportation Administration, March, 1973.

<sup>2</sup>Supplement One to Final Environmental Impact Statement, Metropolitan Atlanta Rapid Transit System. Project GA-03-0008, prepared by the Urban Mass Transportation Administration, September, 1975.



**FIGURE 1.1: 1971 REFERENDUM SYSTEM**



**FIGURE 1.2: PRESENT RAPID TRANSIT SYSTEM**



# CHAPTER 2

## ALTERNATIVES INCLUDING PROPOSED ACTION

### A. DEVELOPMENT OF ALTERNATIVES

The 1971 Referendum Plan for this area provided for two stations, one at Lindbergh Drive and one at Piedmont Road (Figure 2.1). Both stations were to serve dual functions. The Piedmont Station was to serve neighborhood transit needs north of the MARTA Line and commercial and office functions south of it. The Lindbergh Station was designed to serve neighborhoods west of the MARTA Line and existing and future community or regional shopping and office centers to the east. (Piedmont Road runs due north/south.)

The validity of accomplishing and sustaining these goals with two stations only one-half mile apart was questioned by both neighborhood residents and the City of Atlanta. The City's Planning Department and residents of the neighborhoods adjacent to the stations came to believe that the Referendum's two stations would create pressure for redevelopment in the residential areas west of the railroad. In a report, Analysis of the Proposed Single Station Alternatives in the Lindbergh-Piedmont Area,<sup>1</sup> the City stated:

"Presently, the railroad serves as a boundary between the commercial and residential uses. Locating a station on the west side of the railroad would not retain the land use boundary as stated by MARTA. Instead, redevelopment of established residential uses would be encouraged close to the station. In addition, the location of MARTA stations on the west side of the railroad makes redevelopment to the east difficult because of the railroad barrier."

During the period from early December, 1973, to the adoption of the single station alignment on March 25, 1974, citizen meetings were held by both local civic associations and MARTA. The merits of the Referendum alignment versus a consolidated station and alignment east of the railroad were discussed. The following is a summary of major meetings and important actions taken by public agencies:

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<sup>1</sup>Analysis of Proposed Single Station Alternatives in the Lindbergh-Piedmont Area, City of Atlanta, Bureau of Planning, 1973.

December 5, 1973: Public meeting with residents of Garden Hills areas at which citizens proposed consolidating the Lindbergh and Piedmont Stations into one at the Atlanta Flea Market site. Citizens indicated that construction of two stations (Referendum Plan) would have an adverse affect on Garden Hills, Peachtree Hills and Peachtree Heights.

December 12, 1973: A second public meeting was held with Garden Hills residents. Atlanta Aldermen and residents continued to press for a combined station. MARTA's staff recommended against the change. MARTA General Manager committed strongly to weighing community sentiment with engineering and economic factors before a final decision is reached.

January 15, 1974: MARTA Board of Directors held a special meeting to hear citizen views of the Lindbergh-Piedmont area. At this meeting MARTA presented information related to alternate locations.

January 21, 1974: City of Atlanta Planning Department issued a report having the Mayor's backing single station concept. The report cited eleven reasons for consolidation of the two stations with the compelling reason being less overall impact to the residential community west of the Southern Railroad. Other reasons included better access from the Marian Road corridor, less rail travel time, and no necessary street improvements.

March 20, 1974: The Atlanta Regional Commission (ARC) proposed a refined Referendum Plan with two stations. The Lindbergh Station would remain in same location, with with parking in the Miami Industrial Area.

March 25, 1974: MARTA Board of Directors voted unanimously to combine the Piedmont and Lindbergh Stations, against MARTA staff recommendation to keep the Referendum alignment.<sup>2</sup> The main reason for the decision was to eliminate impact on houses on Sharondale Drive, west of the railroad. Both the Fulton County Commission<sup>3</sup> and Atlanta City Council<sup>4</sup> later voted in support of the consolidation.

A draft environmental assessment report was presented to the Board of Directors in July, 1979. This report provided an in-depth description and analysis of the alignment adopted previously by the Board in 1974 and called the under Piedmont Road alternative. In addition the report analyzed two other alternatives developed by the MARTA staff: the over-Piedmont Road alternative and the Ambassador Apartments alternative.

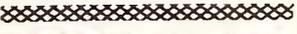
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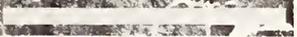
<sup>2</sup>Resolution Concerning Request by City of Atlanta for Relocation of Northeast Line and Combining Lindbergh and Piedmont Stations, MARTA Board of Directors, approved as to legal form by B. Donald Johnson, March 25, 1974.

<sup>3</sup>Resolution by the Fulton County Commission, April 3, 1974.

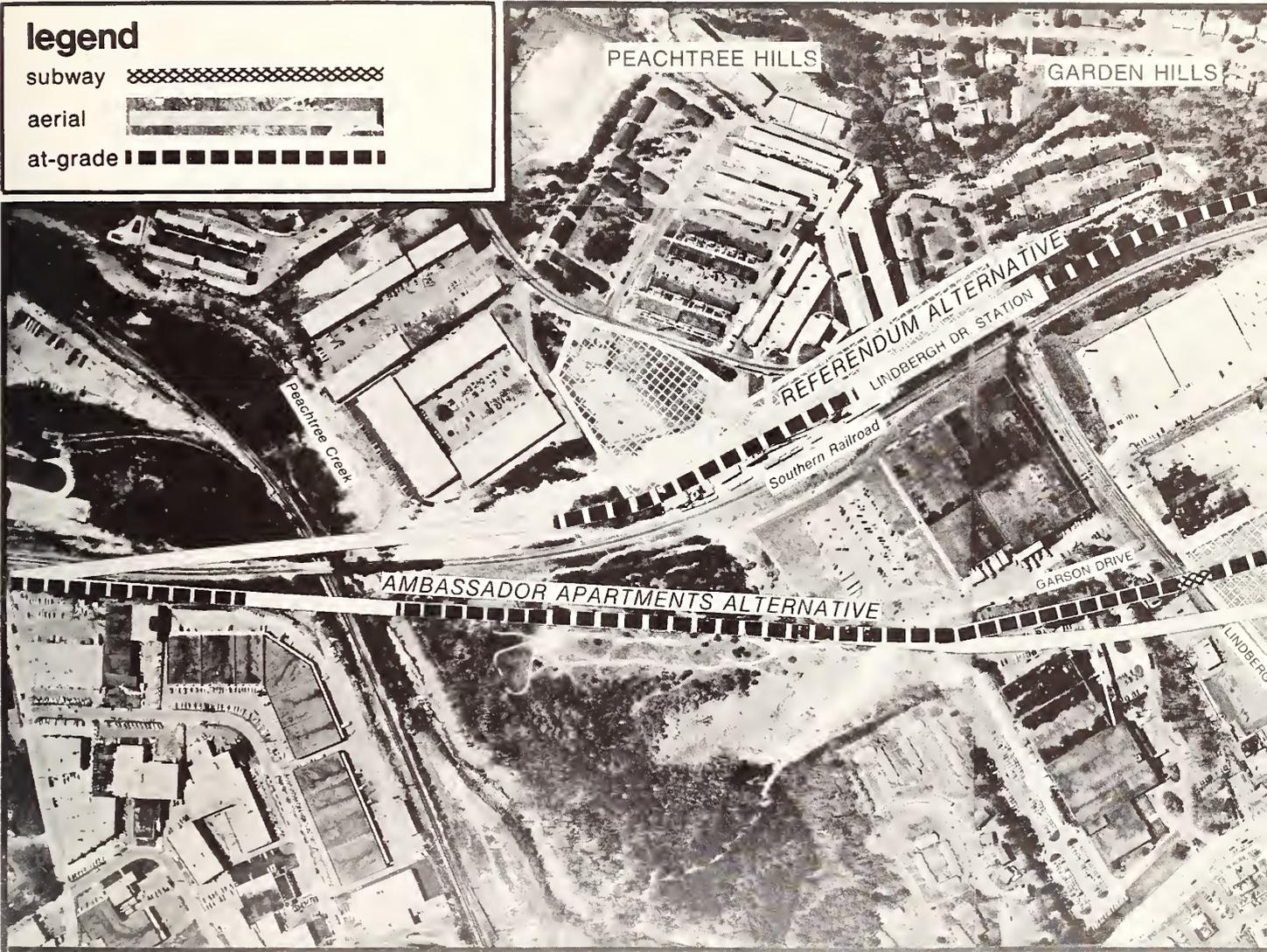
<sup>4</sup>Resolution by the City Council of Atlanta, Georgia, certified by J.J. Little, adopted April 23, 1974.

**legend**

subway 

aerial 

at-grade 









# legend

subway 

aerial 

at-grade 

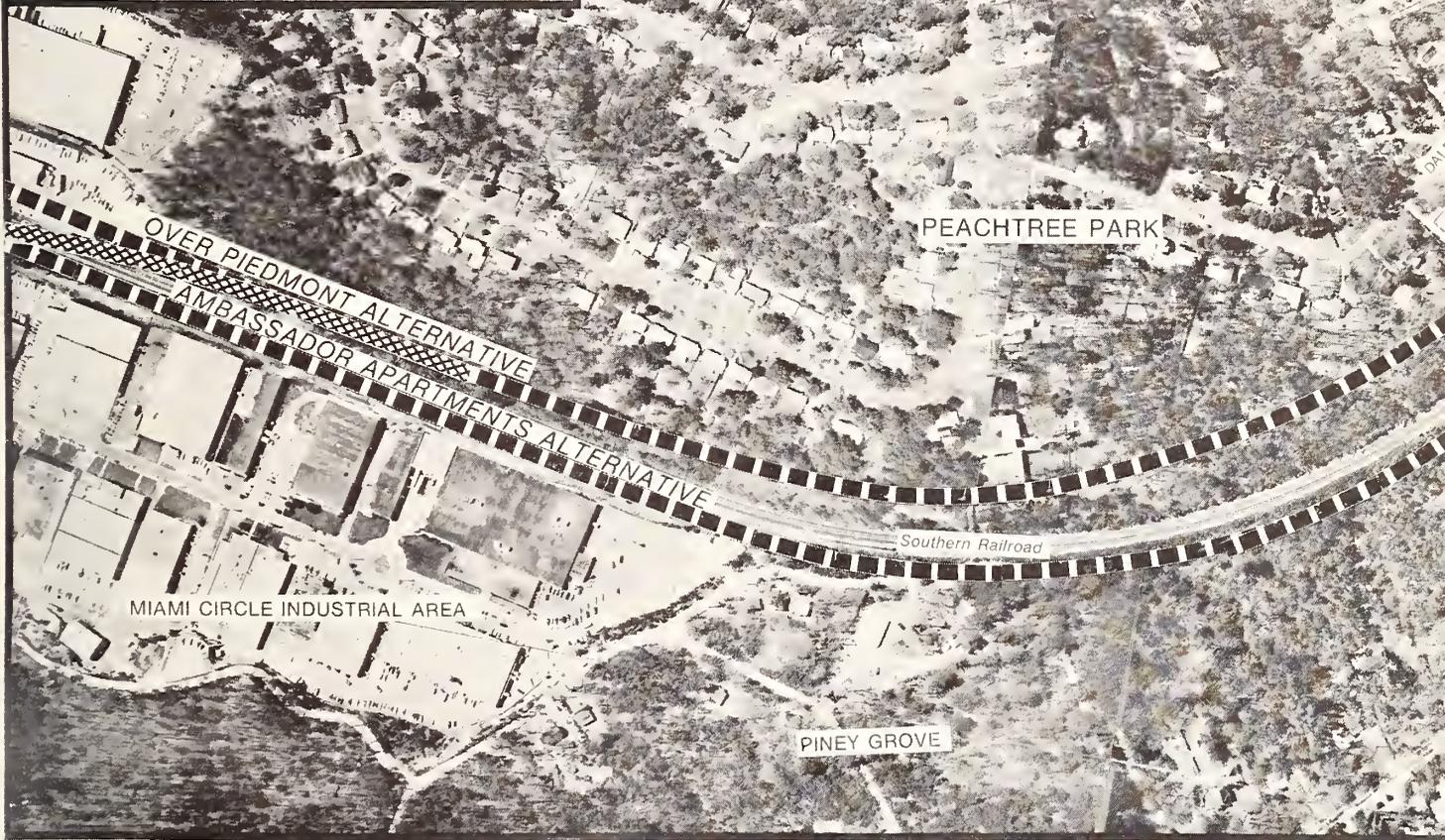
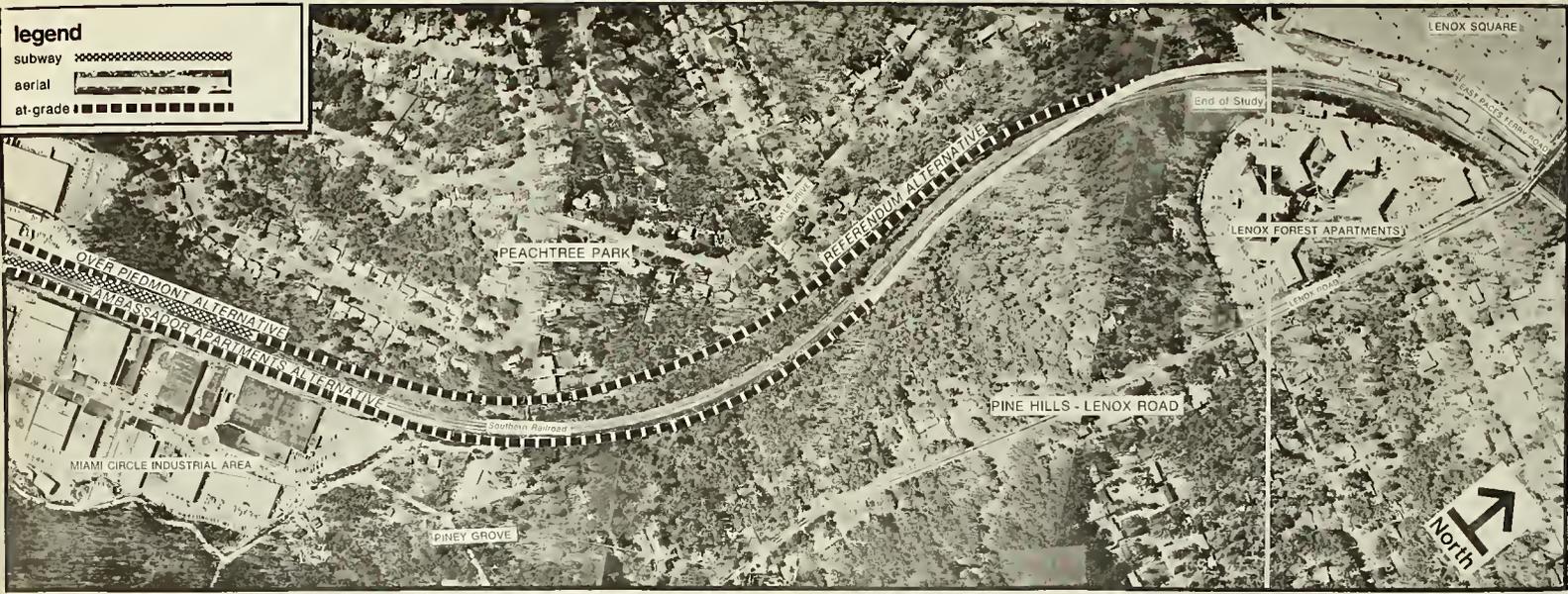
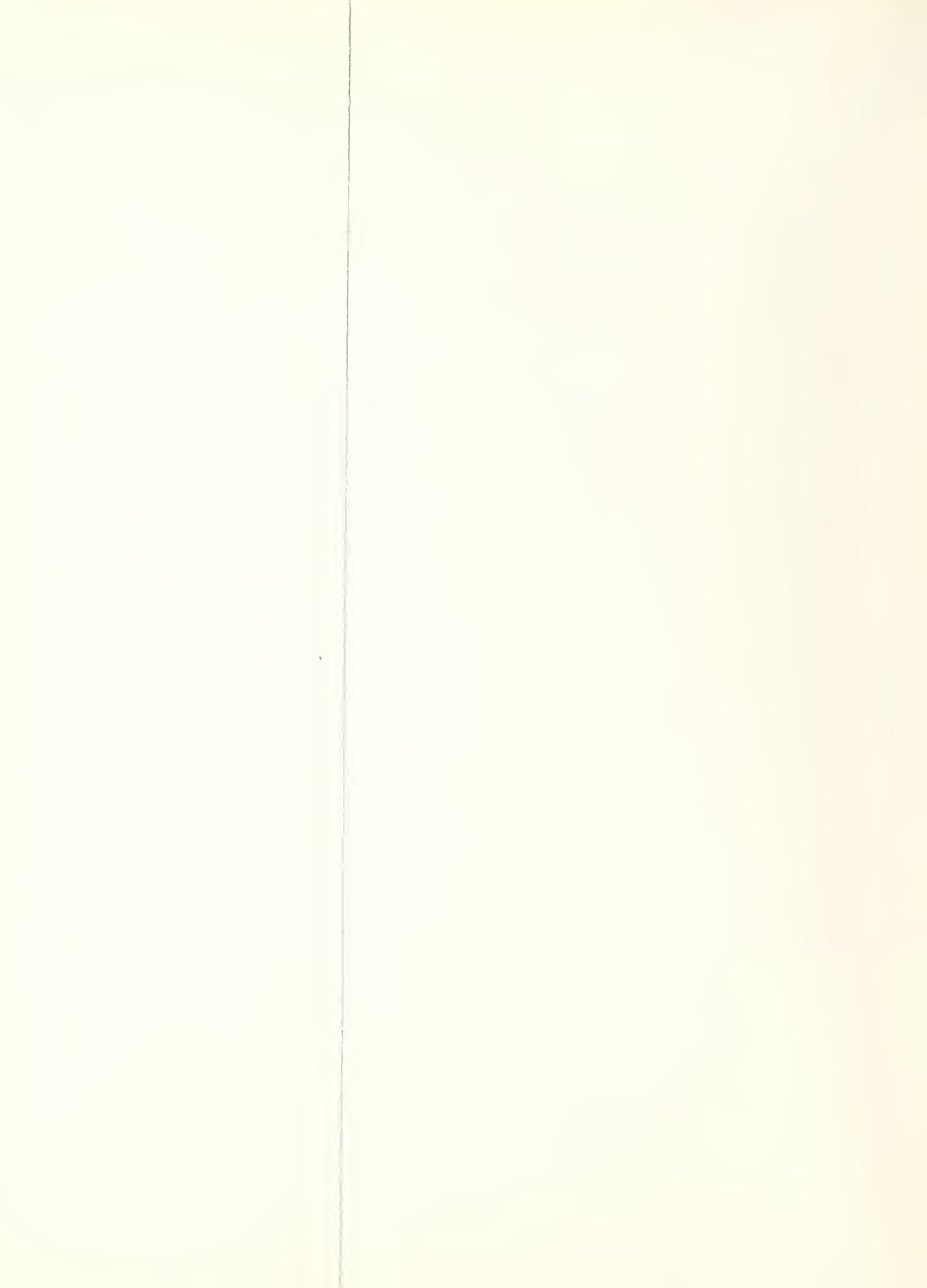




Fig. 2.1b:  
ALTERNATIVE ALIGNMENTS





The under-and over-Piedmont Road alternatives have essentially the same alignment, the exception being north of the station site at the Atlanta Flea Market, the over-Piedmont Road alignment is aerial until it crosses the railroad northeast of Piedmont Road where it returns to grade. The Ambassador Apartments alignment (described in detail below) like the previous two alignments locates the station at the Atlanta Flea Market site. The major differences in the alignment occur north of the station site where the alignment is pulled away from Piedmont Road and is in subway through the Ambassador Apartments.

Table 2.1 summarizes the relative impacts of each of the alternatives. The over Piedmont Road Alternative and the under Piedmont Road Alternative were dropped primarily because the trackway alignment along Piedmont Road would have precluded any development along this important arterial. This was not compatible with the projected land use for the area. The Ambassador Apartments Alternative retained the common good points of the two eliminated alternatives and at the same time stayed behind the Piedmont frontage properties. The two alternatives were also northwest of the Southern Railroad tracks within the Peachtree Park neighborhood; the Ambassador Apartments Alternative is on the southeast side of these tracks.

Figure 2.1a clearly shows that the under Piedmont Road Alternative and the under Piedmont Road Alternative takes or severely impacts most of the business along Piedmont Road north of Morosgo Drive. Even after construction of the under Piedmont Road alternative the development potential of many of these parcels would be restricted by the subway box below. The Ambassador Apartments Alternative directly affects only two of the Piedmont Road businesses: the Athens Garage and the Hansel and Gretel Nursery.

During the development of these primary alternatives several others were initially considered but were eliminated. Several of these possibilities were questioned at the March 24th public hearing on this draft document and need to be mentioned.

One apparent alignment was to use a gully streambed around the Ambassador Apartment complex rather than the one chosen which goes right through the complex. This alignment is infeasible, however, because the track curvatures required are far tighter than any rapid transit standards allow. (The sweep of the curve north of the Ambassador Apartments complex in that alternative is a 60 mph curve with a 1,500-foot radius of curvature; this is considered a minimum for rapid transit.)

Another alignment possibility was one directly east of and adjacent to the Southern Railroad. This one was not feasible because the straight track required for the station would have moved the tracks away from the curving railroad. Large industrial buildings would have had to be demolished, vehicular access would have been difficult, and pedestrian access would have been much longer. The chosen station site allows good access, centers the station within the developed area and minimizes pedestrian access distances.

TABLE 2.1: COMPARISON OF ALL ALTERNATIVES

FACTOR	OVER PIEDMONT ROAD	UNDER PIEDMONT ROAD	AMBASSADOR APARTMENTS	REFERENDUM
LAND USE	Encourages planned nodal development; preserves neighborhood boundaries; precludes some development along Piedmont Road.	Encourages planned nodal development; preserves neighborhood boundaries; precludes some development along Piedmont Road.	Encourages planned nodal development; preserves neighborhood boundaries.	Possible intrusion of incompatible land uses into neighborhoods.
SOCIO-ECONOMIC DISRUPTION	Removes 8 housing units and 8 operating businesses.	Removes 8 housing units and 8 operating businesses.	Removes 1 36-unit apartment building; 8 businesses.	Removes 54 housing units and 8 businesses; future neighborhood disruption.
TRANSPORTATION	Some street disruption during construction; increase in traffic at 3 major intersections; improved pedestrian access.	Street disruption during construction; increase in existing traffic at 3 major intersections; improved pedestrian access.	Some street disruption during construction; increase in traffic in 3 major intersections; improved pedestrian access.	Minor street disruption during construction. Pedestrian access good west of railroad, not good east of Piedmont Road.
OPEN SPACE	Crosses Peachtree Creek and open space #1.	Crosses Peachtree Creek and open space #1.	Crosses Peachtree Creek and open spaces #1 and #13.	Crosses Peachtree Creek and 5 open spaces #3, #8, #13 & #14.
WATER QUALITY	Affects Peachtree Creek during construction.	Affects Peachtree Creek during construction; requires water utility relocation and pumping of drainage water.	Affects Peachtree Creek during construction.	Affects Peachtree Creek during construction.
NOISE	Sound barriers may be needed at Cox Cablevision; Ambassador Apartments and between Piedmont Road and Burke Road.	Requires sound barriers near the Cox Cablevision facility and north of subway portal beyond station.	Requires sound barriers north of subway portal and south of Burke Road.	Requires sound barriers in the area of Sharradale Drive, Burlington Circle and Pale Dr.
AIR QUALITY	None significant.	None significant.	None significant.	None significant.
VISUAL	Visually prominent north of the station.	None significant.	Portions of the at-grade line will be visually prominent north of Piedmont Road.	The at-grade line will be visually prominent north of the Lindbergh Drive Station and north of Piedmont Road.
SOLID WASTE	Minor demolition wastes; minor amount of earth needed.	Minor demolition wastes; large amount of earth moving.	Some demolition waste; large amount of earth moving.	Some demolition waste; some earth moving.

## B. DESCRIPTION AND IMPACTS OF ALTERNATIVES

This section describes the Referendum and Ambassador Apartments alignments and summarizes the probable environmental impacts of each.

### 1. Alternative 1: Referendum Alternative (Figure 2.2)

#### a. Description

The "No Action" Alternative for this analysis is the Referendum Plan. It is on aerial structure as it crosses the two branches forming the wye of the Southern Railway just south of Armour Drive. It then crosses over Armour Drive and the Southern main Line. The line continues on the west side of the railroad, in a northerly direction and crosses over the Seaboard Coast Line and Peachtree Creek. The aerial structure ends approximately 500 feet north of Peachtree Creek. The line continues at-grade with areas of retained cut and fill north and toward the Lenox Station. There are two aerial bridges for grade-separated crossing of Lindbergh Drive and Piedmont Road. The Referendum Plan Lindbergh Drive Station is located west of the Southern Railroad at Peachtree Hills Avenue and Lindbergh Drive. The Referendum Piedmont Road Station is located west of the Southern Railroad and southwest of the Southern Railroad bridge crossing Piedmont Road. The Lindbergh Drive Station would have 230 parking spaces, 10 bus bays and take 7.3 acres. The Piedmont Road Station would have 1,075 parking spaces, 4 bus bays and take 16.5 acres. The segment is 15,300 feet long, with 3,700 feet in aerial structure, and 11,600 feet at-grade.

#### b. Probable Environmental Impacts

##### 1. Land Use and Urban Development:

Although the original EIS determined that few land use changes would take place around the Lindbergh Station, and very few around the Piedmont Station, these conclusions were later questioned by City of Atlanta planners and surrounding neighborhood groups. Instead it was projected that each of these stations, but especially Lindbergh Station, would foster significant intrusions into the stable single-family neighborhood west of the station.

##### 2. Socio-Economic Characteristics:

The Referendum Alternative removes 54 housing units and 8 businesses. Fifty-two of the residential takes result from the taking of two apartment units, one at each station area. The eight businesses are also within the station areas.

There will be a tendency for rents in the area to increase.

### 3. Transportation Impacts:

By intercepting traffic from the north on Piedmont Road and from the east on Marian Road at or before the Marian/Piedmont intersection, the Referendum Alternative helps reduce traffic at the more critical intersections to the south. The Lindbergh/Piedmont intersection will be affected by this alternative to the same extent as it would under the Ambassador Apartments Alternative. Minor improvements to the Lindbergh Drive approaches would be needed (specifically right turn lanes) with the addition of MARTA traffic. However, the Georgia DOT improvement of this intersection will provide ample capacity for all traffic. The Morosgo Drive intersection will not be affected by this alternative.

Some increase in traffic through neighborhoods, particularly Garden Hills would occur, but would not expect to be over 50 additional cars during the peak period. MARTA traffic forecasting models do not indicate substantial cross traffic from Peachtree Road to the stations.

### 4. Natural Environmental Conditions:

Open Space: The Referendum alignment would go through open space areas #3, 8, 13 and 14. Most affected would be area #8 between Sharondale Drive and the railroad. It is diverse, but mainly characterized by hardwood trees; it presently acts as a visual buffer for the residences along Sharondale Drive. Area #13 is a 10-acre wooded area which the Piedmont Road Station would severely affect. Area #14 is much like #18 and serves the same purpose for the residences along Darlington Circle. Open spaces are shown in Figure 3.6, page III-9.

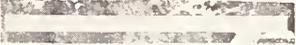
Water Quality: The construction of the bridge span over Peachtree Creek will require a U.S. Army Corps of Engineers' permit. The span will be well over 50 feet above the 100-year flood level (EL.807). Some of the support piers will be within the flood plain and will require cofferdams to allow foundation construction. Settling tanks will be required to remove sediment from the cofferdam dewatering discharge. A detail flood hazard evaluation will be performed during final design. Not only will the Army Corps of Engineers requirements be incorporated into the contract documents, but pertinent Georgia and City of Atlanta requirements will also be included both in the Peachtree Creek floodplain and in the other construction areas.

Noise: Analysis indicates there are four areas where intermittent, short-term train pass-by noise levels would be above the maximum acceptable level of 75 dBA for average residential neighborhoods without the construction of barrier walls. The four areas are: (1) the single-family residential area along Sharondale Drive (2,400 feet); (2) along Canterbury Road (700 feet); (3) north of Burke Road (2,300 feet) and (4) north toward the end of the study (1,100 feet) (see Figure 4.3B). All line segments in these areas are at-grade. Acoustical barriers totalling 6,500 feet would thus be needed.

Air Quality: The original Environmental Impact Study and supplemental studies indicate no air quality problems associated with this alternative.

Visual: The Referendum Alignment would cause some visual intrusion for 6,400 feet, 42 percent of its 15,300-foot length. Approximately 90 residential units would have a clear view of the Referendum Alignment for at least part of the year, about half that number for all of it.

# legend

- subway 
- aerial 
- at-grade 

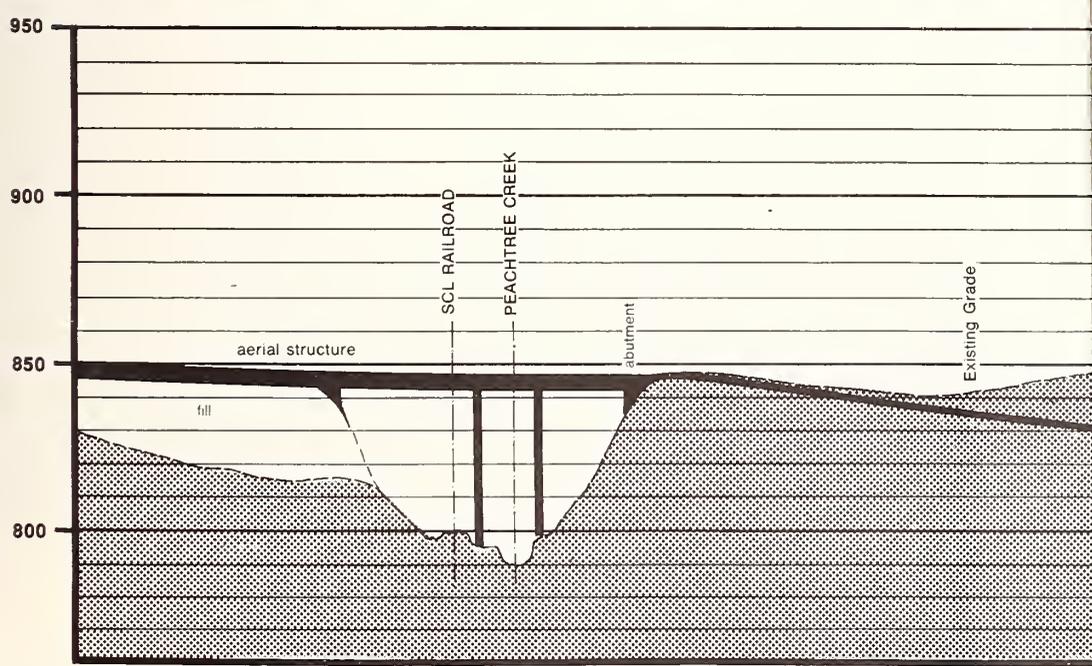
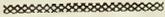
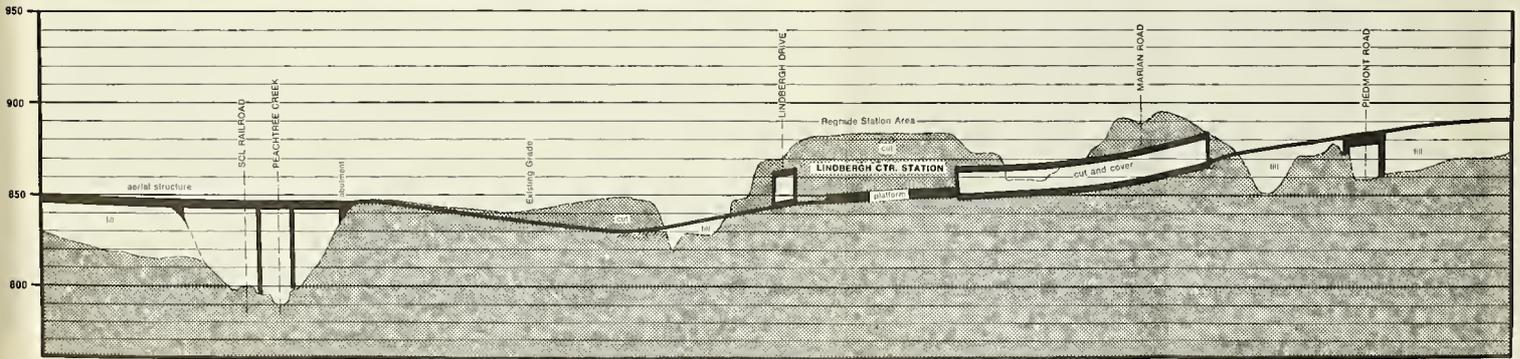
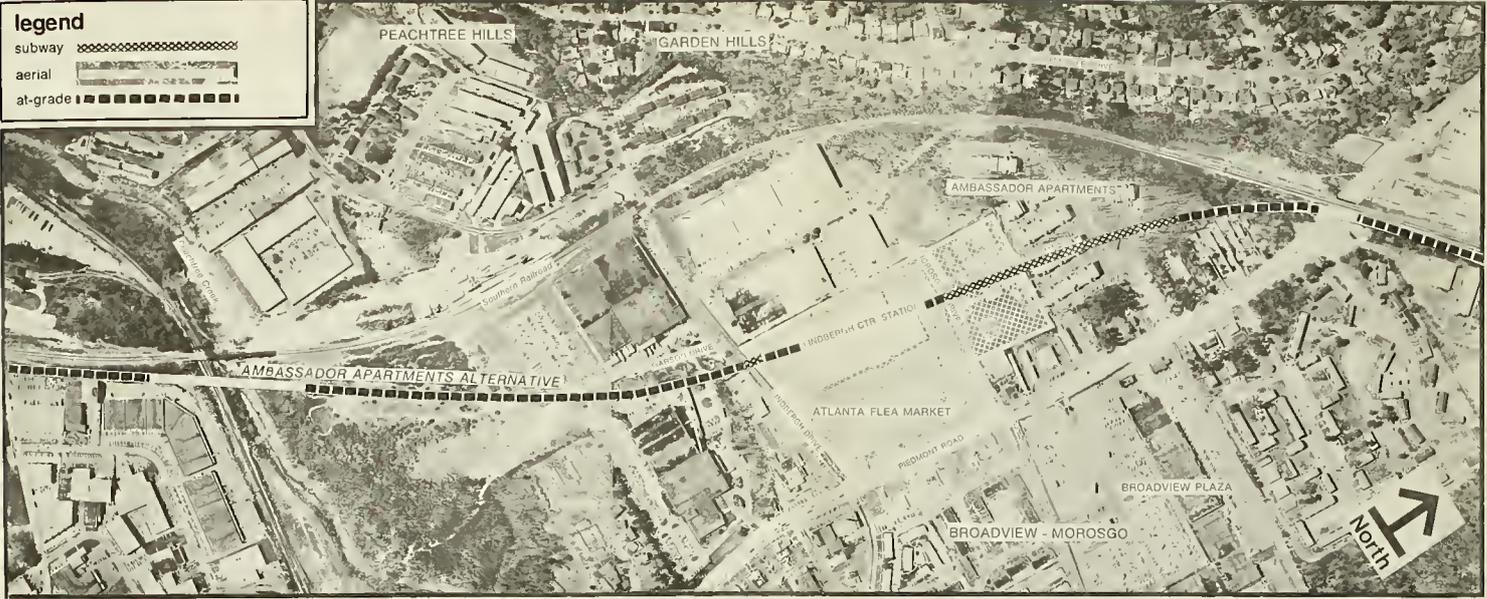




Fig. 2.3a:  
ALTERNATIVE 2, AMBASSADOR APARTMENTS

**legend**

- subway 
- aerial 
- at-grade 



ONE THOUSAND FEET



# legend

subway 

aerial 

at-grade 

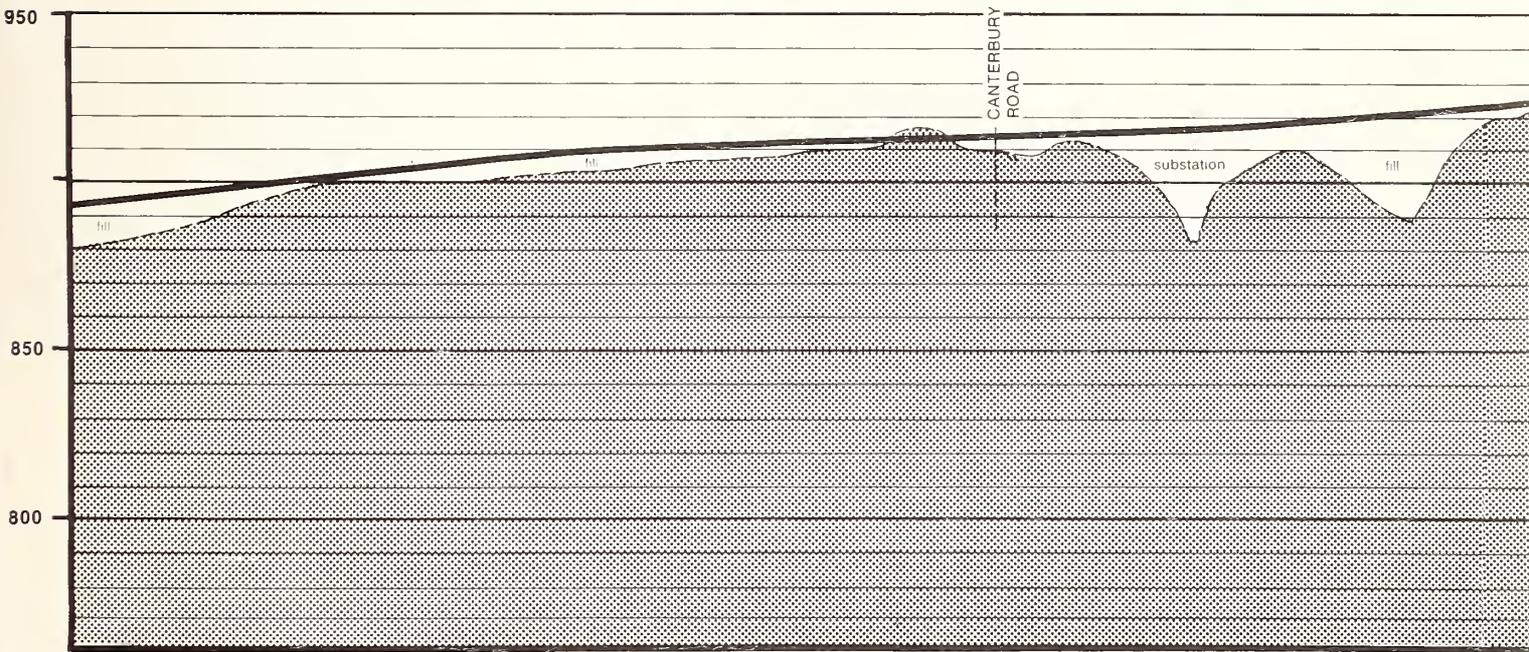
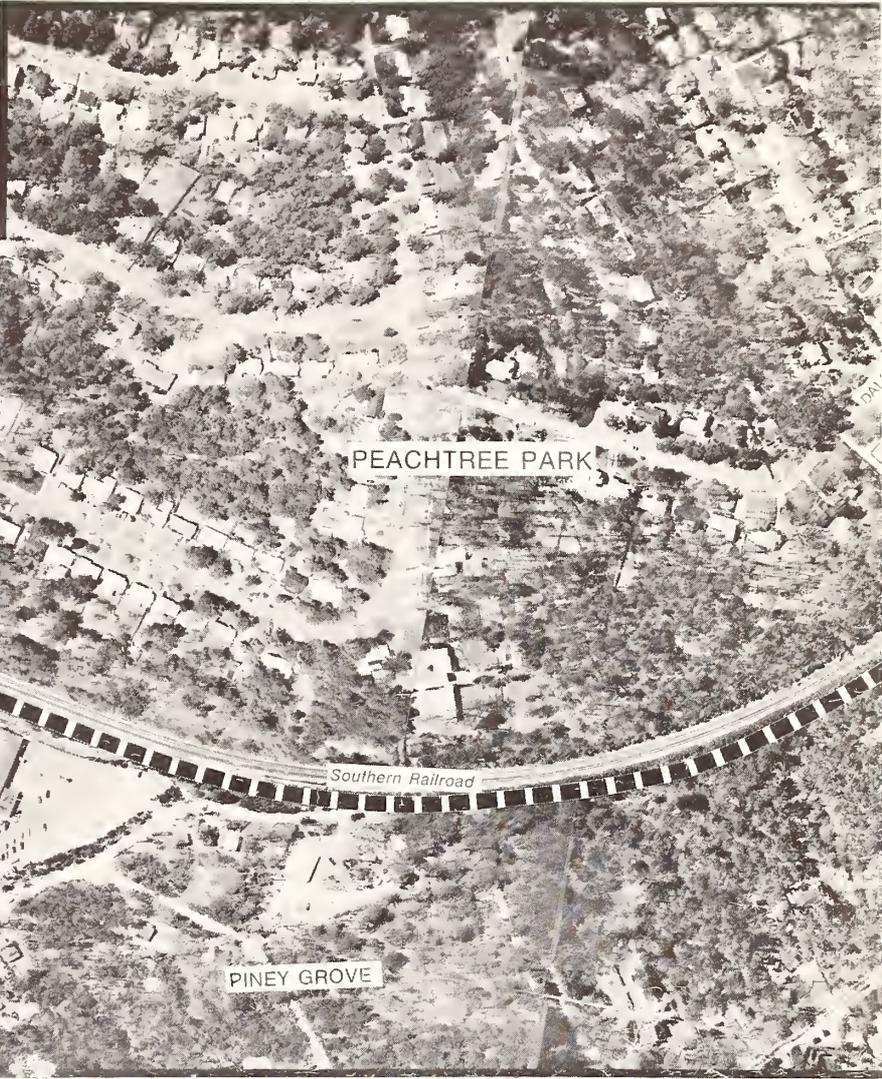
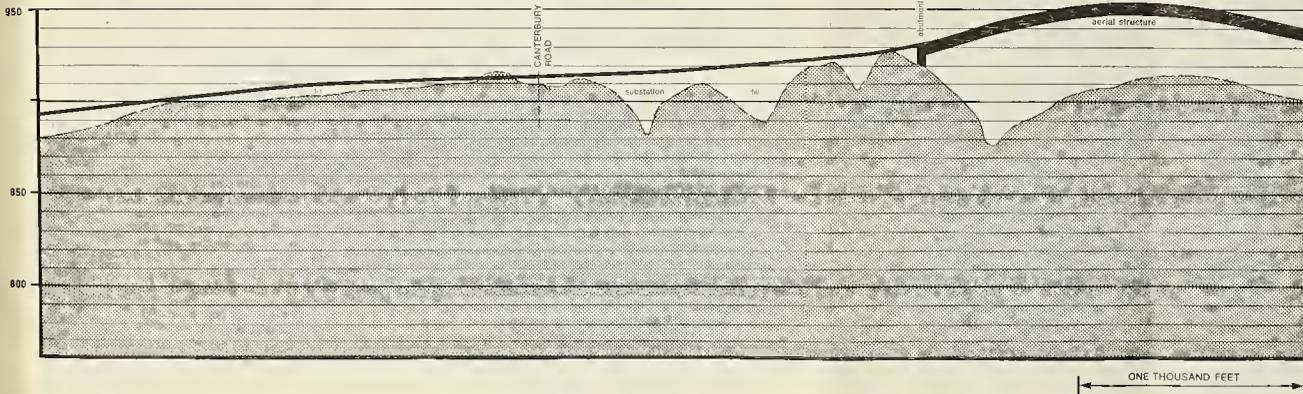
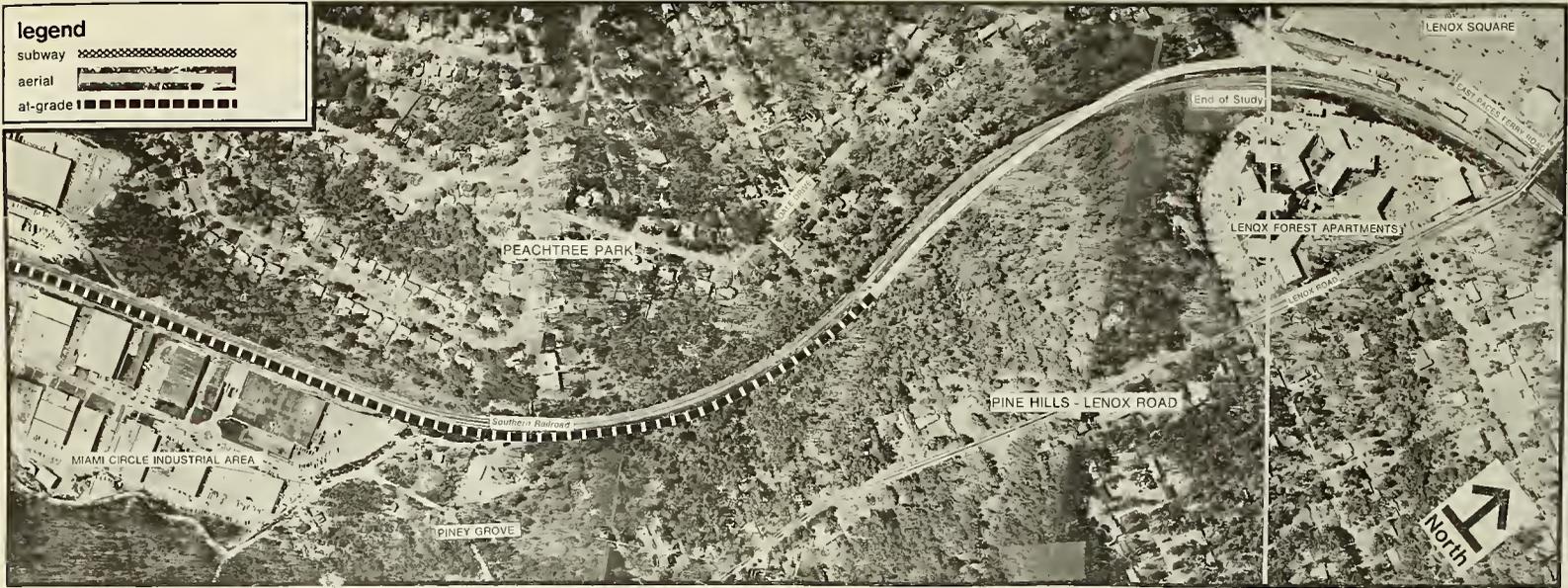




Fig. 2.3b:  
ALTERNATIVE 2: AMBASSADOR APARTMENTS





## 5. Solid Waste:

The Referendum Alternative will require the removal of 87,000 cubic yards of excess excavation spoil. This earth may be able to be used either for fill in portions of the North Line beyond the subject segment or for fill for the Georgia Department of Transportation's I-85 widening work. These needs and scheduling problems are still being determined. Should there be any excess spoils, it will be placed in approved landfill sites.

## 2. Alternative 2: Ambassador Apartments (Figure 2.3)

### a. Description

The Ambassador Apartment Alternative diverges from the Referendum Alignment just south of Armour Drive and runs in a northeasterly direction crossing Armour Drive, the Seaboard Coast Line Railroad and Peachtree Creek.

After crossing Peachtree Creek the line enters a depressed cut section and continues to Lindbergh Drive where the line goes under Lindbergh Drive. In the station site the line is in a depressed cut with the trackway open, but below the surface. The line then crosses under Morosgo Drive. Continuing in subway under the Ambassador Apartments, the line curves to the east crossing above Piedmont Road near the Southern Railroad bridge south and east of that railroad. The line continues at-grade on the southwest side of the railroad for roughly 6,000 feet. It crosses over to the north and west side of the Southern Railroad tracks returning to the Referendum alignment at Lenox Square Parkway. This is twelve hundred feet before Lenox Road. The segment is 15,250 feet long with 2,000 feet in aerial structure, 1,250 feet in tunnel and 12,000 feet at-grade.

The station site is located at the existing Atlanta Market. The station itself is toward the back of the site (away from Piedmont Road) and, therefore, allows for an efficient station site design. It will have 2,050 parking spaces, 14 bus bays and require 19 acres of land.

### b. Probable Environmental Impacts

#### 1. Land Use and Urban Development:

By locating a single station in a commercial/industrial/retail area, existing and future land uses will be better served in two ways. First, the development potential will be focused, not split between two stations. This allows for a more nodal, high-density pattern desired for this area by the City of Atlanta. Second, and most importantly, the new station site retains the traditional railroad barrier between the single-family neighborhood and existing and future incompatible land uses. Violation of this boundary in the Referendum scheme was the reason the proposed change was made at the neighborhood's insistence. (This alternative does, however, remove 1 apartment building and 8 businesses.) A third benefit is that by routing the line west into the Ambassador Apartments, the frontage along Piedmont Road is retained for future development. This land has good re-development possibilities.

## 2. Socio-Economic Characteristics:

This alternative will have a significant relocation impact on the Ambassador Apartment complex, but no major disruption will occur in surrounding neighborhoods as with the Referendum Plan. It will require the taking of one 36-unit apartment building. Eight businesses will also be relocated. Thus, with regards to disruption, this alternative varies from the Referendum Alternative by taking slightly fewer residential units.

There will be a tendency for rents in the area to rise, affecting some of the lower-income families in the Broadview-Morosgo neighborhood. This would also occur with the Referendum Alternative.

## 3. Transportation Impacts:

The existing street system will be affected by heavy truck movements during construction, particularly Lindbergh Drive and Morosgo Drive, for a period of 2½ years. While underpasses are built, traffic on both streets will be detoured around the construction site for a period of several months. After construction there will be increases in existing traffic volumes from station traffic at Marian Road/Piedmont Road, Morosgo Drive/Piedmont Road and Lindbergh Drive/Piedmont Road. While the additional volumes represent less than 10% of 1979 traffic volumes, in some cases they add noticeably to the volume/capacity (V/C) ratios of certain approaches. (The V/C ratio is a measure of congestion and a V/C ratio of 1.0 means that for the full peak hour all cars have to wait for at least one green light.) The most congested approaches will be Lindbergh Drive and Morosgo Drive from the west during the peak hour when V/C ratios are well above 1.0. This assumes no right-turns on a red light. Right turns are allowed on red which lowers the ratio substantially; calculations used do not allow for this factor. The Lindbergh Drive/Piedmont Road intersection is presently being redesigned by the Georgia Department of Transportation and will be rebuilt in the next year or two. This is well before the MARTA facilities are completed. The Morosgo Drive/Piedmont Road intersection will be improved with the construction of the station parking lot.

Pedestrian walk times will be an improvement over the Referendum Plan as most pedestrians will originate in the Broadview-Morosgo apartment complexes and the future high-density development around the station.

## 4. Natural Environmental Conditions:

Open Space: This alignment crosses Peachtree Creek in aerial structure. It also crosses open space area #4 and a little of #13. The impact on #13 will be significant. Five of the open spaces located here will be affected by the Referendum Plan. Open spaces are shown in figure 3.6, page III.9.

Water Quality: Construction over Peachtree creek, will require special care to protect its water quality. At the Ambassador Apartments the line crosses over a small intermittent stream. Although no long-term impacts will occur, some possibility exists for erosion from exposed soil areas along the line during construction. The Referendum Plan also affects Peachtree Creek. In addition, a substantial increase in station water runoff and erosive conditions will occur with the Referendum alignment between Lindbergh Drive and Piedmont Road and east of Piedmont Road.

The construction of the MARTA facility over Peachtree Creek will require a U.S. Corps of Engineers permit. The bottom of the span (EL.833) is 26 feet above the 100-year flood level (EL.807) and 13 feet above the Standard Project Flood. A detailed flood hazard evaluation will be performed for this site to accurately determine flood levels, flood discharges, and flood velocities for use in the final design of the bridge. MARTA will request this as a service from the Corps of Engineers. MARTA will further work with the Corps to make sure the type of construction used meets with any applicable requirements.

Noise: This Alternative is in subway through the most critical area in the corridor, the Ambassador Apartment complex. North of the portal, there will be 1,100 feet of acoustical barrier to protect the businesses fronting Piedmont (specifically the Hansel and Gretel Nursery) and apartments along Button Road. Another 200 feet of acoustical barriers will be placed along Canterbury Road to protect 4 dwellings. The total of 1,300 feet of noise barriers reflects the fact that only 5% of the alignment is within 250 feet of residences. Tests along the operating segments of the rail system indicate that the acoustical barriers in use lower noise levels just over 10 dBA for at-grade installations. Train noise, although lower can still be identified by its uniqueness. The remaining portion of the 15,250 foot study section are either through open areas, industrial/commercial areas, or far enough from residences so that train by-pass noise levels are below the American Public Transit Association guidelines for the type of use. For a further discussion see Appendix C.

The Referendum Alternative requires 6,500 feet of noise barriers compared to 1,300 feet for the Ambassador Apartments Alternative.

Air Quality: There will be an increase in the existing CO level in and around the station parking lot; the resulting level will nevertheless be below state and national standards. Full documentation of this finding is included in the appendices.

Visual: This Alternative has less visual intrusion when compared to that of the Referendum Alternative. It is depressed or in tunnel on either side of the Lindbergh Center Station. The line will be seen by some of the East Wesley Apartment tenants, the Hansel and Gretel Nursery, and by some homeowners on Dale Drive and Peachtree Drive as it crosses to the other side south of Lenox Road. The at-grade section in the vicinity of the Piney Grove community will be within the normal sight lines of four residences. In all about 30 residences will be visually affected by the line. This compares with the 90 residences which will have a direct view of the Referendum alternative.

#### 5. Solid Waste:

The excess excavation spoils for the Ambassador Apartments Alternative is 100,000 cubic yards. This earth may be able to be used either for fill in portions of the North Line beyond the subject segment or for fill for the Georgia Department of Transportation's I-85 widening work. These needs and scheduling problems are still being determined. Should there be any excess spoils, it will be placed in approved landfill sites.

### C. EVALUATION OF ALTERNATIVES

Table 2.2 summarizes and compares the impacts of the Referendum and Ambassador Apartment Alternatives. There are four areas where the two alternatives differ significantly in impacts.

The first and most important is the location of the stations relative to surrounding land uses. The Referendum Alternative locates two stations within the residential neighborhoods which would encourage intrusion of incompatible land uses into these residential areas. The Ambassador Apartments Alternative locates one station within the commercial area in proximity to the existing and planned future generators.

The Referendum Alternative also required 6,500 feet of acoustical barriers versus 1,300 feet for the Ambassador Apartments Alternative.

Third, the Referendum Alternative requires the demolition of 18 more housing units than does the Ambassador Apartments Alternative.

Finally, the Referendum Alternative is also much more visually intrusive. It is able to be seen by three times as many households during some part of the year.

Both alternatives are estimated to cost \$100 million although their alignments and design are quite different. The Referendum Alternative has two stations to the Ambassador Apartments Alternative's one. However, this advantage is coincidentally balanced by the extra cost of the subway segment.

### D. SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE:

Primarily to remove the stations from within the residential neighborhoods the City of Atlanta requested MARTA to adopt the consolidated station concept at the corner of Lindbergh Drive and Piedmont Road. The environmental assessment indicated there were trade-offs between the two alternatives, some negative some beneficial. On balance, as summarized in the preceding section, the Ambassador Apartment Alternative was clearly better since it would encourage development in a commercial area. The MARTA Board of Directors in July 1979 therefore specifically adopted this alternative.

TABLE 2.2: COMPARISON OF ALTERNATIVES

FACTOR	REFERENDUM	AMBASSADOR APARTMENTS
LAND USE	Two stations within neighborhoods with likely intrusion of incompatible land uses.	One station centered within commercial area to encourage planned high-density development.
SOCIO-ECONOMIC DISRUPTION	Full takes: 54 residential units 8 businesses	Full takes: 36 residential units 8 businesses
TRANSPORTATION	5% increase in traffic over 1973 levels during the peak hour in year 2000.	5% increase in traffic over 1973 levels during the peak hour in year 2000.
OPEN SPACE	15 acres of open space removed	8 acres of open space removed
WATER QUALITY	Crosses Peachtree Creek floodplain in aerial structure; cofferdam construction	Crosses Peachtree Creek in aerial structure; cofferdam construction
AIR QUALITY	No problems	No problems
NOISE	6500 feet of acoustical barriers needed	2600 feet of acoustical barriers needed
VISUAL	90 residential units with clear view of trackway for at least part of the year	30 residential units with clear view of trackway for at least part of the year
SOLID WASTE	14,700 yd <sup>3</sup> of demolition waste 12,000 yd <sup>3</sup> of construction waste 87,000 yd <sup>3</sup> of excess excavation spoil	7,000 yd <sup>3</sup> of demolition wastes 10,250 yd <sup>3</sup> of construction waste 100,000 yd <sup>3</sup> of excess excavation spoil



# CHAPTER 3

## AFFECTED ENVIRONMENT

### A. LOCATION

The affected study area is located in Northeast Atlanta, approximately five miles from the Central Business District. It starts just south of Armour Drive and ends at Lenox Square Parkway on the north. This area generally corresponds to that used in the Lindbergh Center Transit Station Area Development Study (TSADS).<sup>1</sup> The boundaries for this study, however, extend south to Armour Drive and north to East Paces Ferry Road. The Lenox Station area is completely beyond the study area to the north.

### B. LAND USE AND URBAN DEVELOPMENT

The Lindbergh Center area is characterized primarily by single-family residential development, though more intensive uses follow major arterials. Industrial uses, primarily warehousing, are located along the two rail lines (Seaboard Coast Line and Southern Railway) and commercial and multi-family residential developments have generally followed Piedmont Road and Lindbergh Drive between the Southern Railway and the Northeast Expressway (I-85). Peachtree Hills Avenue, in the area of Lindbergh Drive and the two railroad corridors, has developed with multi-family, and industrial uses. Also, sizeable parcels of vacant land remain south of Garson Drive and some natural areas particularly to the west of the Southern Railroad tracks. Figure 3.1 shows existing land uses in the study area. Figure 3.2 indicates the proposed future land uses. These uses generally reflect the zoning restrictions. The projected zoning plan is shown in Figure 3.3.

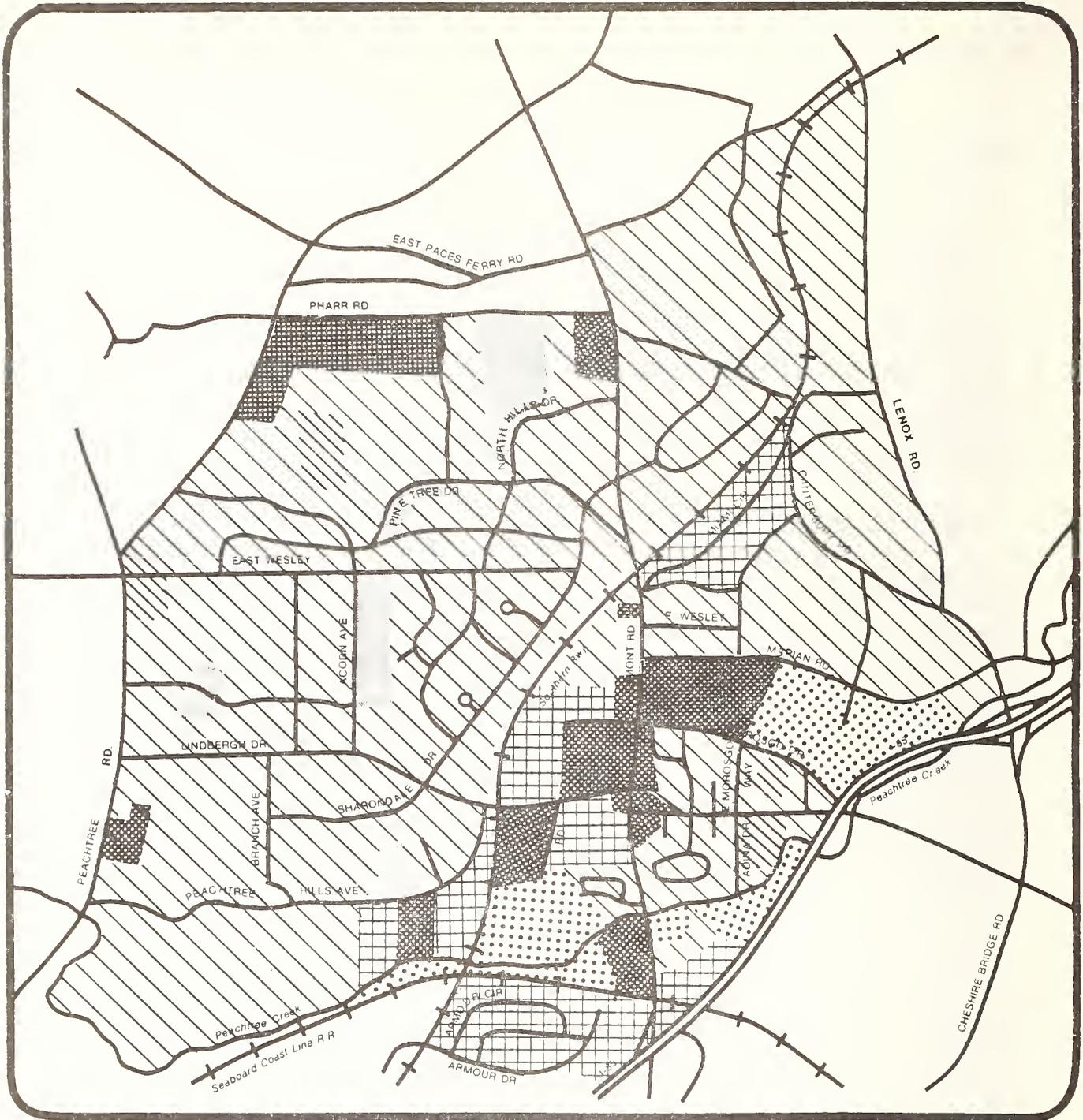
### C. SOCIO-ECONOMIC CHARACTERISTICS

The City of Atlanta has identified five distinct neighborhoods in the affected area. They are Peachtree Hills, Peachtree Heights East, Garden Hills, Peachtree Park and Broadview-Morosgo. The area also has a section not associated with any of the above neighborhoods and is referred to as the Peachtree Creek area. Figure 3.4 depicts the boundaries for each neighborhood and existing community facilities. Most of the area is middle to high income.

Except for the Broadview-Morosgo neighborhood and the Piney Grove community, all the others are characterized by well-maintained, single-family dwellings. There are some other uses, but these are few and concentrated. Existing housing in the Broadview-Morosgo neighborhood consists almost entirely of apartments.

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<sup>1</sup>Lindbergh Center Transit Station Area Development Plan, City of Atlanta Bureau of Planning, pp. 10-12.

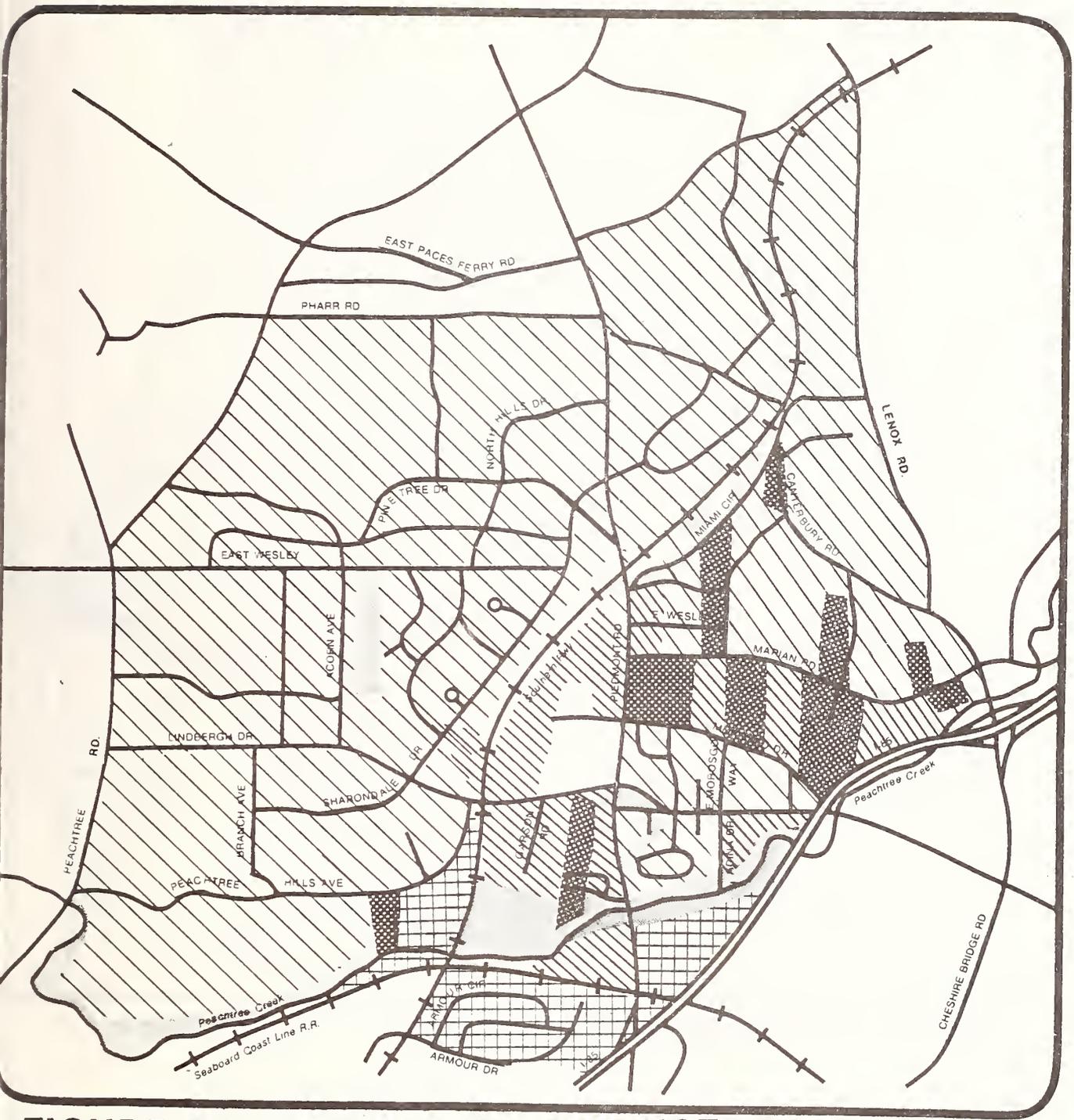


**FIGURE 3.1: EXISTING LAND USE**



**LEGEND**

- |  |   |
|--|---|
|  Residential         |  Institutional |
|  Park and Open Space |  Industrial    |
|  Commercial/Office   |  Vacant        |

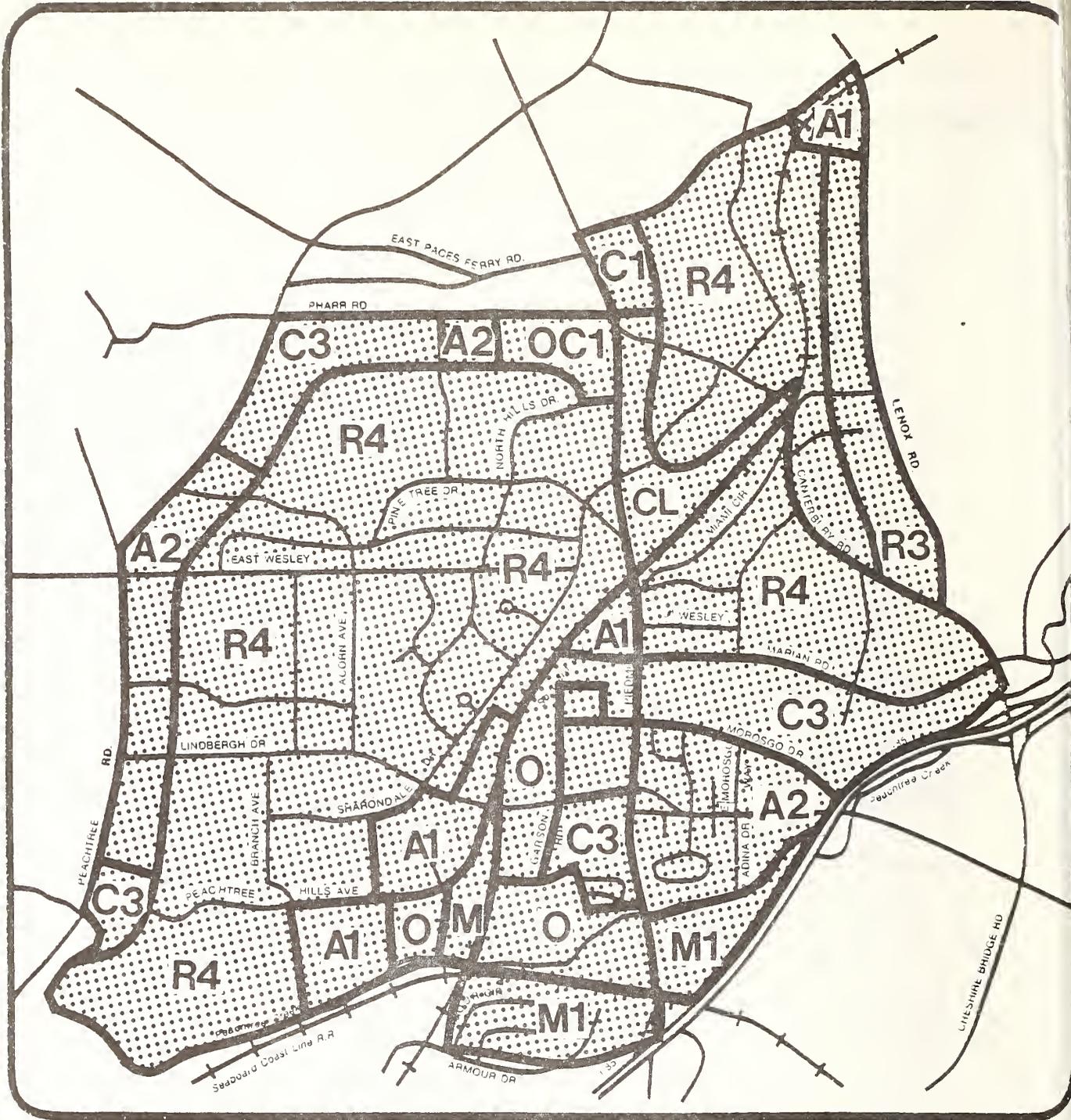


**FIGURE 3.2: PROJECTED LAND USE**



**LEGEND**

-  Residential
-  Institutional
-  Park and Open Space
-  Industrial
-  Commercial/Office

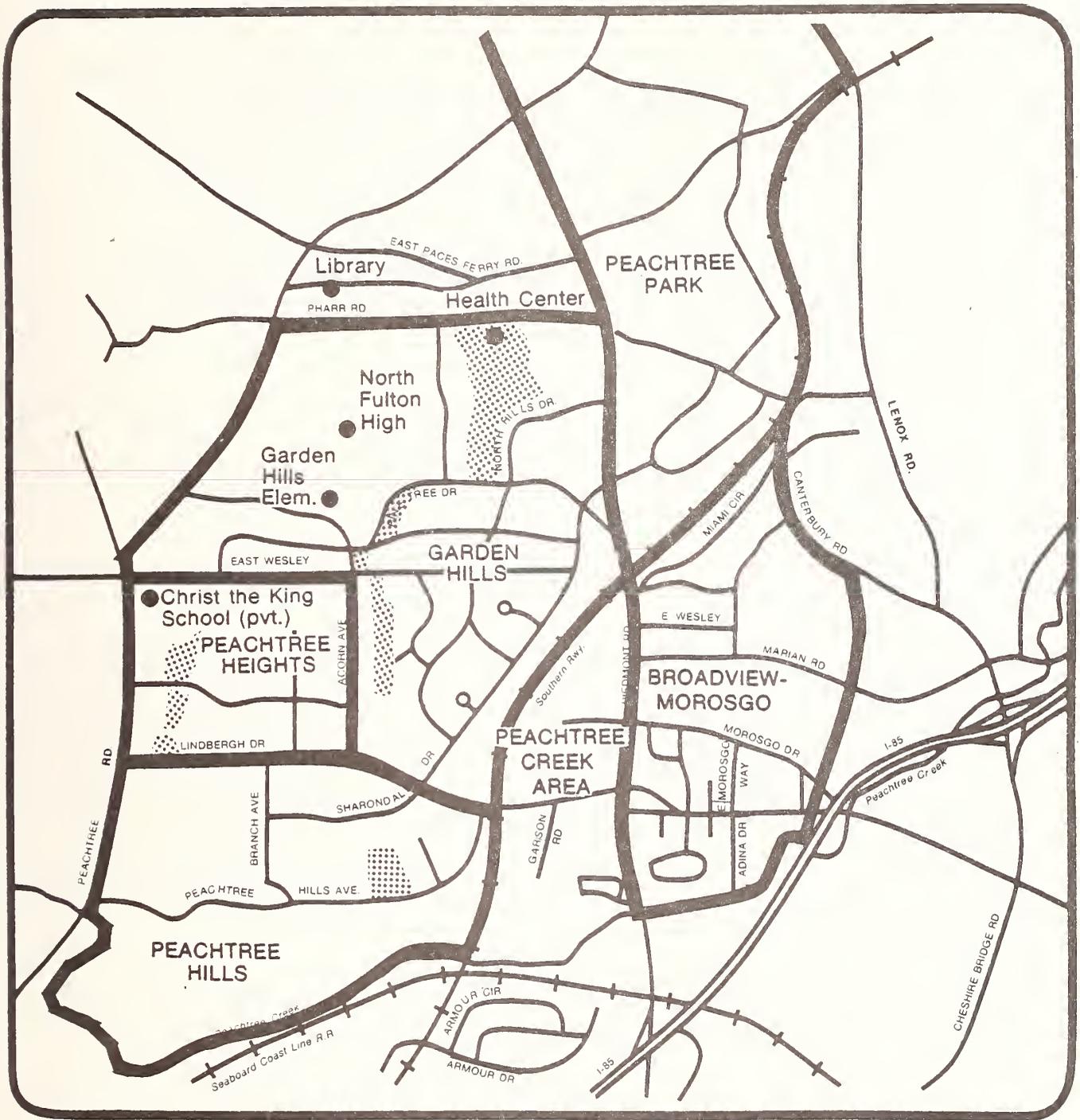


**FIGURE 3.3: PROJECTED ZONING**

**LEGEND:**

- A1** Apartment District greater than 4 stories
- A2** Apartment District 4 stories or less
- CL** Commercial Limited
- C1** Neighborhood Commercial
- C3** Intense Commercial
- R3 & R4** Single Family Residential
- M1** Light Industrial
- O** Office Institutional





**FIGURE 3.4: NEIGHBORHOODS AND COMMUNITY FACILITIES**

**LEGEND**

- Neighborhood Boundaries
- Other Community Facilities
- ▨ Park and Open Space
- Schools Library Health Center



This area has come to have the largest concentration of Hispanics in Atlanta. Broadview Shopping Center and the Miami Circle industrial area are also within this neighborhood. A small community of Blacks, called Piney Grove, is situated east of the Southern Railroad in the vicinity of Canterbury Road. The community consists of about six small, sub-standard houses and a heavy equipment business.

The Peachtree Creek area which extends northward between the Southern Railway and Piedmont Road is primarily industrial and commercial. There are two apartment complexes in this area as well. One, the Ambassador Apartments to the north, has higher income units.

#### D. TRANSPORTATION

Piedmont Road running north-south through the study area is a principal arterial to the downtown from north Atlanta. Buford Highway, another principal arterial serving the northeast area connects directly with Piedmont Road through the Marian Road extension. This extension was completed in 1977. The most recent traffic counts for this area were taken in April 1979 for the Morosgo Drive and Lindbergh Drive intersections with Piedmont Road. Based on this one-day count and a similar one done in 1974 for the Lindbergh Drive/Piedmont Road intersections, traffic on Piedmont Road increased 12% in the 5-year period. This increase reflects the addition of the Marian Road improvement. The volume/capacity (V/C) ratio - a measure of congestion - is presently (1979) 0.80 for this intersection as a whole. However, the Lindbergh Drive approach from the west would have a V/C ratio above 1.00 (saturation) were it not for the allowed right-turn on red. The V/C ratio of Piedmont Road itself is close to saturation in the peak direction. The Georgia Department of Transportation in a separate project is presently redesigning this intersection to correct this condition by adding extra capacity. It's plans are to rebuild the intersection within the next couple of years, well before the MARTA rail facility is completed. Existing (1979) traffic counts for the affected intersections and V/C calculations are available upon request.

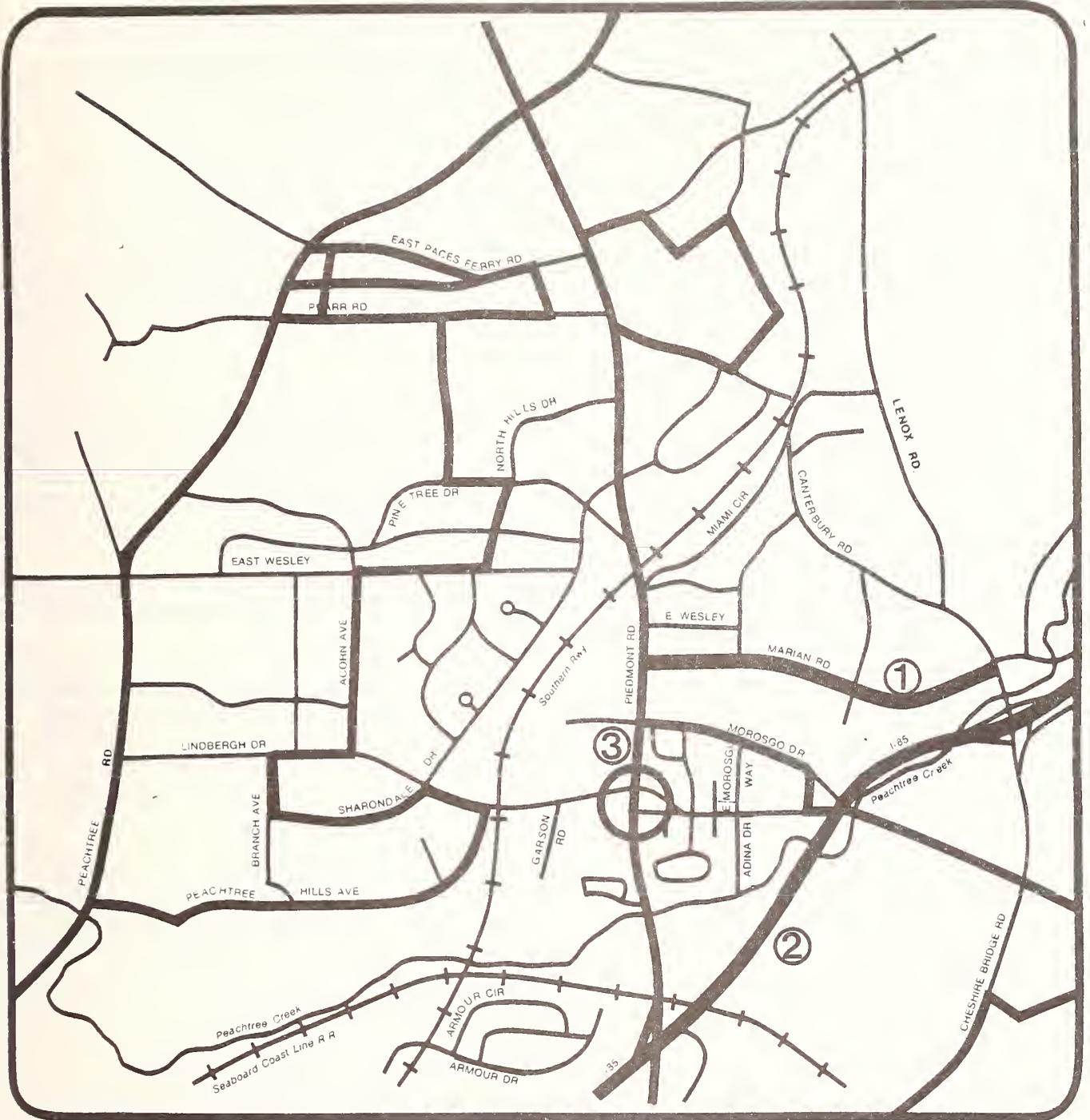
The Morosgo intersection with Piedmont Road has an existing V/C ratio of 0.65 in the afternoon peak hour. All approaches have excess capacity except the eastbound movement on Morosgo which is theoretically over capacity at this time.

The list below shows major road improvements for the affected area in the Transportation Improvement Program (TIP) of the Regional Transportation Plan.<sup>2</sup> These improvements are shown in Figure 3.5.

1. Marian Road Bus Lane - Buford Highway to Piedmont Road (.8 miles) - 1987 - 2000. (I-85 HOV lane access to Lindbergh Drive is being considered as an alternative.)

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<sup>2</sup>Regional Transportation Plan, 1978-2000, Atlanta Regional Commission, October, 1977; Transportation Improvement Program, June, 1978.



**FIGURE 3.5: BUS ROUTES, ROADWAYS AND PLANNED IMPROVEMENTS**



- 1 Marian Road Bus Lanes
- 2 I-85 Widening
- 3 Piedmont/Lindbergh Intersection Improvements

— Bus Routes

2. I-85 Widening - Utilization of existing I-85 between Pershing Point and Buford Highway as an arterial facility. Construction of a new I-85 paralleling existing I-85 in this corridor - 1979-1986.

3. Lindbergh-Piedmont Intersection Improvement - Upgrade intersection from 2 to 4 lanes - 1979-1986.

Existing bus service is good; most locations in the study area are within five minutes of a bus line. Two routes, Garden Hills 1G and 71 Wieuca, provide service within neighborhoods. Other routes (92, 41, and the limited 85P) proceed down Piedmont Road.

#### E. NATURAL ENVIRONMENTAL CONDITIONS

1. Open Space: Figure 3.6 shows the boundaries of privately-owned open spaces. Open space #1 through #5, #8, #13, and #16 consist primarily of hardwoods. The rest are open space areas within the neighborhoods. Areas #1 through #5 and #16 especially serve an important drainage function for Peachtree Creek. There are no Section 4(F) parks or publically-owned recreation areas. Surveys of the areas indicate no exceptional wildlife.<sup>3</sup>

Most of the soil is categorized as Unclassified City Land and appears almost throughout the study area in the open spaces.

2. Water Quality: The study area is located within the watershed of Peachtree Creek, which is a tributary of the Chattahoochee River. The Peachtree Creek Basin is intensively urbanized and is approximately 15 miles long, 10 miles wide and 134 square miles in area. It is a designated HUD 100-year flood plain (Zone A8). A Corps of Engineers permit will be required to construct the MARTA aerial structure across Peachtree Creek.

In 1969, Water Quality Survey of Peachtree Creek was prepared by the Georgia Water Quality Control Board. Water quality was described as grossly polluted. The flow in Peachtree Creek is derived from surface runoff and groundwater seepage. The urbanization of the watershed had resulted in continuing increases in peak channel flow rates and significant reduction of the time to reach peak flood stage.

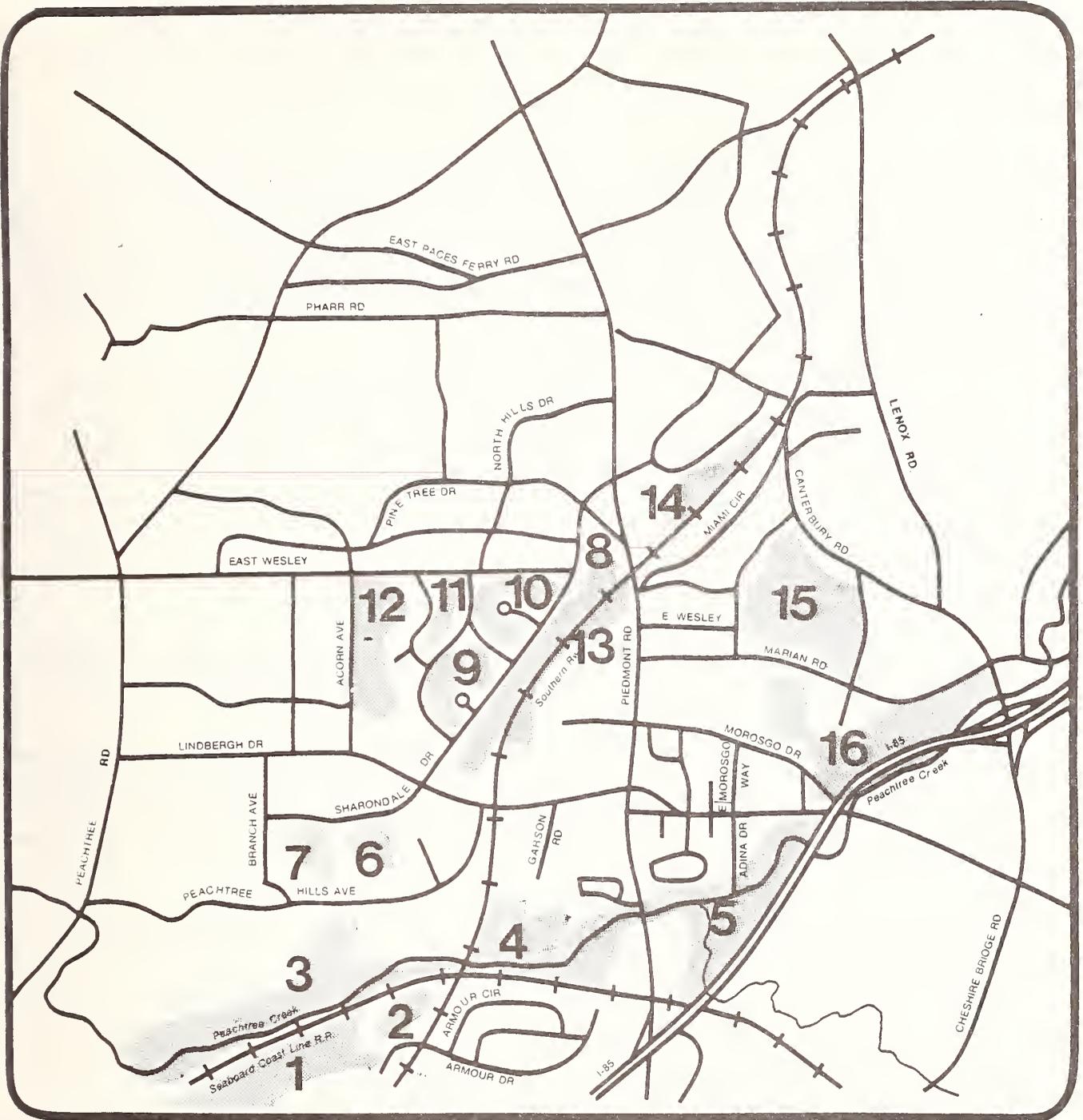
Runoff in the study area is discharged to the Creek as surface flow or collected in systems of storm sewers which exist within the study area: First a 48" trunk sewer in the flood plain area of the North Fork of Peachtree Creek, and secondly, a 12" trunk sewer, which parallels the Southern Railroad.

There is also a small stream flowing in back of the Piedmont Road parcels south of the Southern Railroad bridge. It meanders through the Ambassador Apartment complex before entering an underground drainage system. The stream is intermittent and principally serves to drain a small area.

3. Noise Levels: Existing community ambient noise levels taken in field surveys are expressed in decibels on the "A" weighted network. The "A" weighted network is used because it most nearly represents the response to noise by the average person's ear.

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<sup>3</sup>Parsons, Brinkerhoff/Tudor/Bechtel, Ecological Impacts, prepared in part by Dr. Arthur Benke, 1974.



**FIGURE 3.6: OPEN SPACES**



Noise level measurements were made at seven (7) locations within the limits of this analysis. The sites chosen were considered representative of the land use for that area which may be potentially impacted by MARTA rapid transit operations. The locations selected for the ambient noise survey are shown on Figure 3.7.

The ambient noise level measurements made and reported were for assistance in determining the land use category for use in defining the acoustical design criteria, not for comparison with the rail noise. The MARTA design criteria call for maximum wayside noise from trains of 70 dBA in "Quiet residential" areas, of 75 dBA in "Average residential" areas and 80 dBA in "Busy residential/semi-commercial" areas. The type of area is determined from the observed land use and the measured median or average ambient noise level at night; night being the time when train noise is likely to create the most impact.

For a quiet, low density urban residential area, the average ambient (or L<sub>50</sub>) noise level is expected to be 35 to 45 dBA at night. For an average urban residential area the L<sub>50</sub> at night is expected to be 40 to 50 dBA. For a high density residential or semi-residential/commercial area the L<sub>50</sub> at night is expected to be 45 to 55 dBA. The range of measured average or median sound level at night, compared with these expected ranges, and combined with the actual land use type in an area is used to determine the appropriate criteria for maximum train noise. For further discussion of the existing and projected noise conditions see Appendix C.

Major noise sources are the high traffic corridors in the area including Piedmont Road, Lindbergh Drive, and the Northeast Expressway (I-85) immediately south of the study area.

Sites #1, #3 and #4 were selected to measure the ambient noise levels at apartment complexes along Piedmont Road. Site #1 was near the Hilltop Apartments. The nighttime L<sub>50</sub> ambient noise level was measured at 48-52 dBA. Site #3, located in the parking lot of the Ambassador Apartments, indicated a nighttime L<sub>50</sub> noise level of 57-60 dBA.

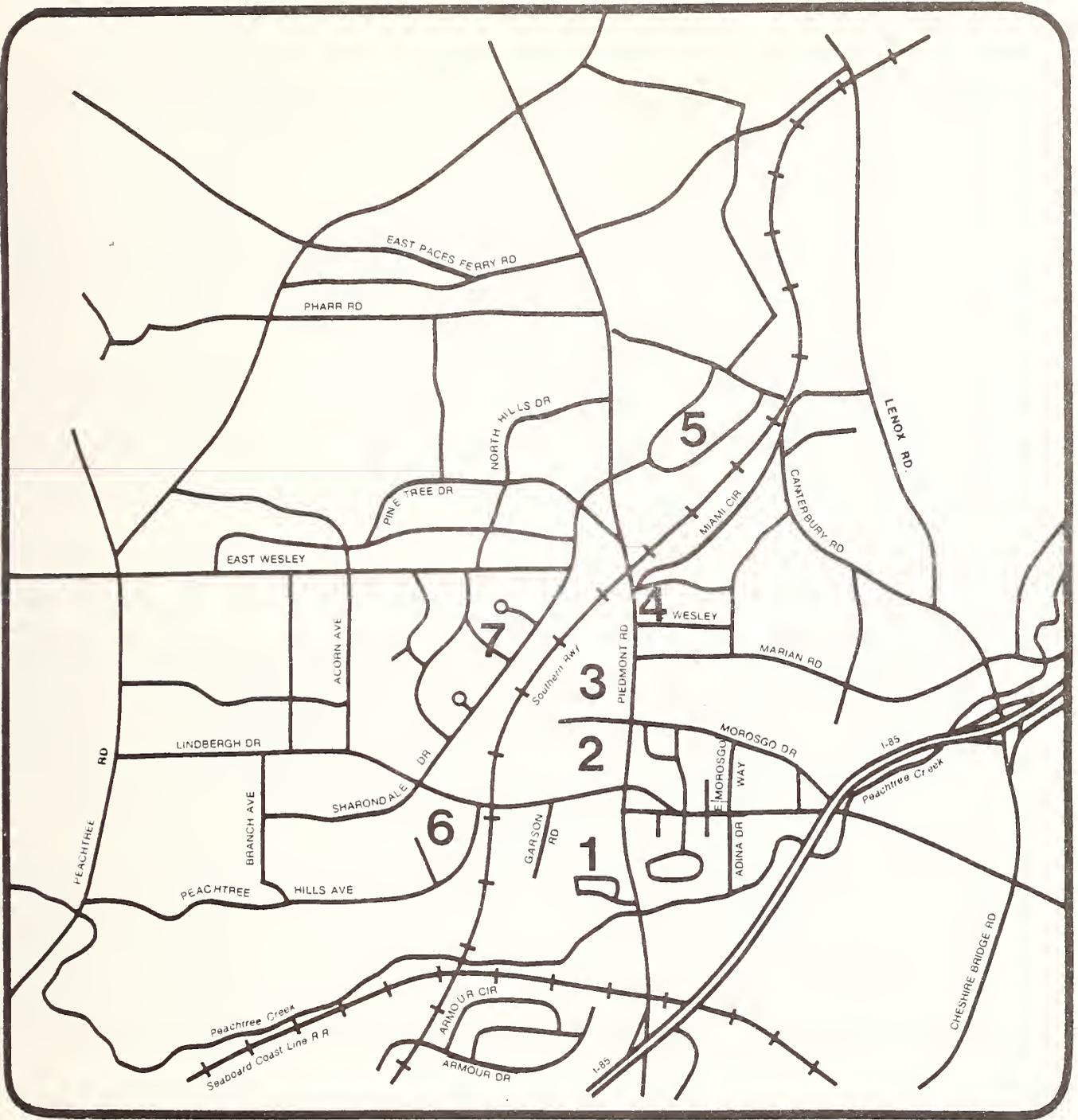
The ambient noise levels at the apartments in the Peachtree Hills area are represented by measurements taken at Site #6. The apartments are located about 200 feet west of the Southern Railway at Lindbergh Drive and Peachtree Hills Avenue. The nighttime noise level was 50-60 dBA. Site #5 and #7 are located in the single-family residential neighborhoods, Garden Hills and Peachtree Park. Piedmont Road and the Northeast Expressway are near enough to have a measurable impact on the ambient noise levels. The L<sub>50</sub> nighttime measurements for this area range from 46-50 dBA.

4. Air Quality: Analysis of air was prepared in 1978. At present the study area is located within the designated non-attainment area for photo-chemical oxidants and CO (43FR 8981 March 3, 1978) within the Atlanta Air Quality Control Region. Analysis of the station site indicates that CO concentrations in 1985 will be well within the National Ambient Air Quality Standards for both the 8-hour and 1-hour periods.

#### F. HISTORIC PRESERVATION

An architectural survey of the MARTA alignment and adjacent roadways revealed no structure of historic or architectural significance.<sup>4</sup>

<sup>4</sup>Letter from Elizabeth Lyon, State Historic Preservation Officer, to Richard Stanger, Manager of Urban Design for MARTA, dated November 26, 1979.



**FIGURE 3.7. LOCATION OF NOISE MEASUREMENT RECEPTORS**





# CHAPTER 4

## ENVIRONMENTAL CONSEQUENCES OF PROPOSED ACTION AND ALTERNATIVE

### A. LONG TERM IMPACTS

#### 1. Land Use and Urban Development:

##### a. Referendum Alternative:

Although the original EIS determined that few land use changes would take place around the Lindbergh Station, and very few around the Piedmont Station, these conclusions were later questioned by City of Atlanta planners and surrounding neighborhood groups. Instead it was projected that each of these stations, but especially Lindbergh Station, would foster significant intrusions into the stable single-family neighborhood west of the station. Figures 3.2 and 3.3 depict the proposed land use and zoning for the area. The two-station referendum alignment could encourage incompatible land uses to develop within the neighborhoods.

##### b. Ambassador Apartments Alternative:

The intent of the City of Atlanta's proposed land use and zoning plans for this area is to concentrate commercial and higher-density apartment uses on the east side of the Southern Railroad. If appropriately utilized this boundary will protect the stability of the residential neighborhood, a primary planning goal. This alternative logically combines the stations and locates the one station at the heart of the developable area east of the Southern Railroad. This approach is compatible with and will help foster the proposed land use and zoning plans.

#### 2. Land Acquisition and Displacement:

##### a. Referendum Alternative:

Figures 4.1a and 4.1b indicate the specific land takes required to construct this alternative. A large number of relocations (28 units) would be required immediately adjacent to the Lindbergh Station because Peachtree Hills Avenue will have to be relocated around the station perimeter. At the Piedmont Station a 24-unit apartment building (P,R) within the Ambassador Apartment complex would also be acquired and the tenants relocated. These units are in the process of being converted to condominiums; they were built after the 1971 Referendum. Two single-family homes would also be relocated at Burke Road. Seven more single-family homes along Sharondale Drive would require deep but partial takes of their back yards. Eight businesses would also be displaced. The Foremost Dairy parcel would be partially taken with no displacement necessary.

b. Ambassador Apartment Alternative:

Figure 4.2a and 4.2b specify what businesses and residences will have to be acquired and relocated. The largest acquisition will be the 36-unit apartment structure (building D, E, F) within the Ambassador Apartments. These apartments are planned to be converted to condominiums. Special care will be taken to return the finished grade through the Ambassador Apartments to a pleasing condition compatible with the medium-density residential use of the land. Specific details of the final landscape design will be worked out with the property owner. Care will be taken as well to screen the station parking lot from the complex. The income level of the Ambassador tenants is upper-middle.

The business relocations vary greatly in size. The Flea Market, a leasee on MARTA-owned land, rents booths to a large number of small sellers. It is only opened on the weekend. The Flea Market management is presently looking for a place to relocate. The Wolf Camera shop and the Hess Service Station are also in the Flea Market block and will have to be relocated. The other businesses -- Cox Cablevision, Buckhead Animal Clinic, Storey Theatres, M & M Associates, and a furniture refinishing shop -- are all along the proposed right-of-way and will also need to be relocated. None of the firms is a minority business.

Relocation benefits, as appropriate, will be available as required by the Uniform Relocation Assistance and Real Property Acquisition Act as amended,

It is the intent of the U.S. Department of Transportation to provide special consideration to small businesses displaced or directly affected by a project such as the one under consideration. In this line segment there are seven such businesses to be displaced, all but two single locations, and two businesses to be severely affected, both single locations. Special care will be taken to assist them and to relocate them in the City of Atlanta and close to the existing sites. MARTA's relocation and acquisition program has aggressively pursued such a course in the past and will continue to do so in this area.

3. Open Space:

a. Referendum Alternative:

The Referendum alignment would go through open space areas #3, 8, 13 and 14 (see Figure 3.4). Most affected would be area #8 between Sharondale Drive and the railroad. It is diverse, but mainly characterized by hardwood trees; it presently acts as a visual buffer for the residences along Sharondale Drive. Area #13 is a 10-acre wooded area which the Piedmont Road Station would severely affect. Area #14 is much like #18 and serves the same purpose for the residences along Darlington Circle.

b. Ambassador Apartments Alternative:

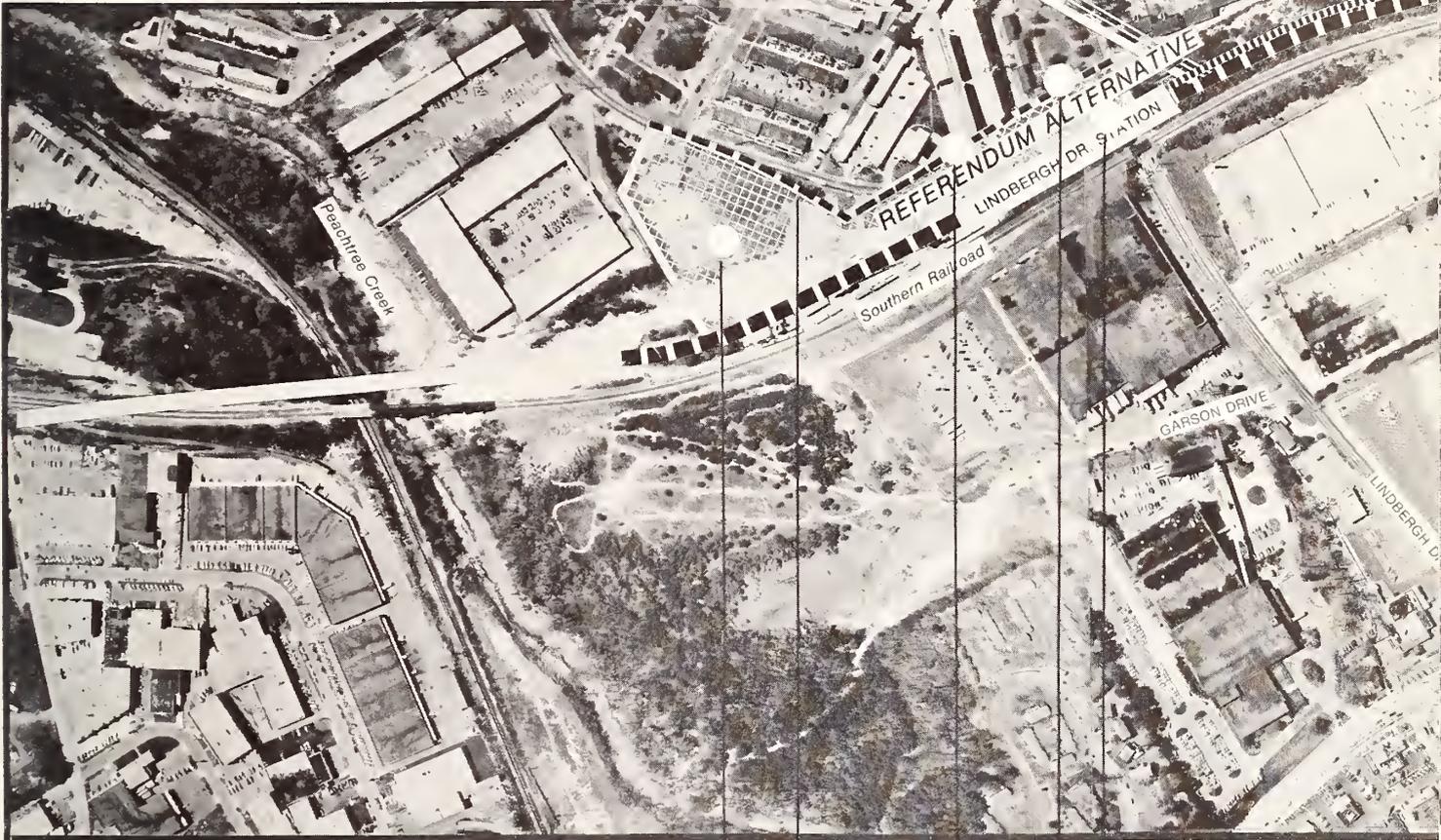
Open space area #4 will be traversed by this alternative. It is a 23-acre site owned by Cox Broadcasting Company on the north bank of Peachtree Creek. Eight acres will be used for the line. A 200-year old beech tree, 3'7" in

# legend

subway 

aerial 

at-grade 

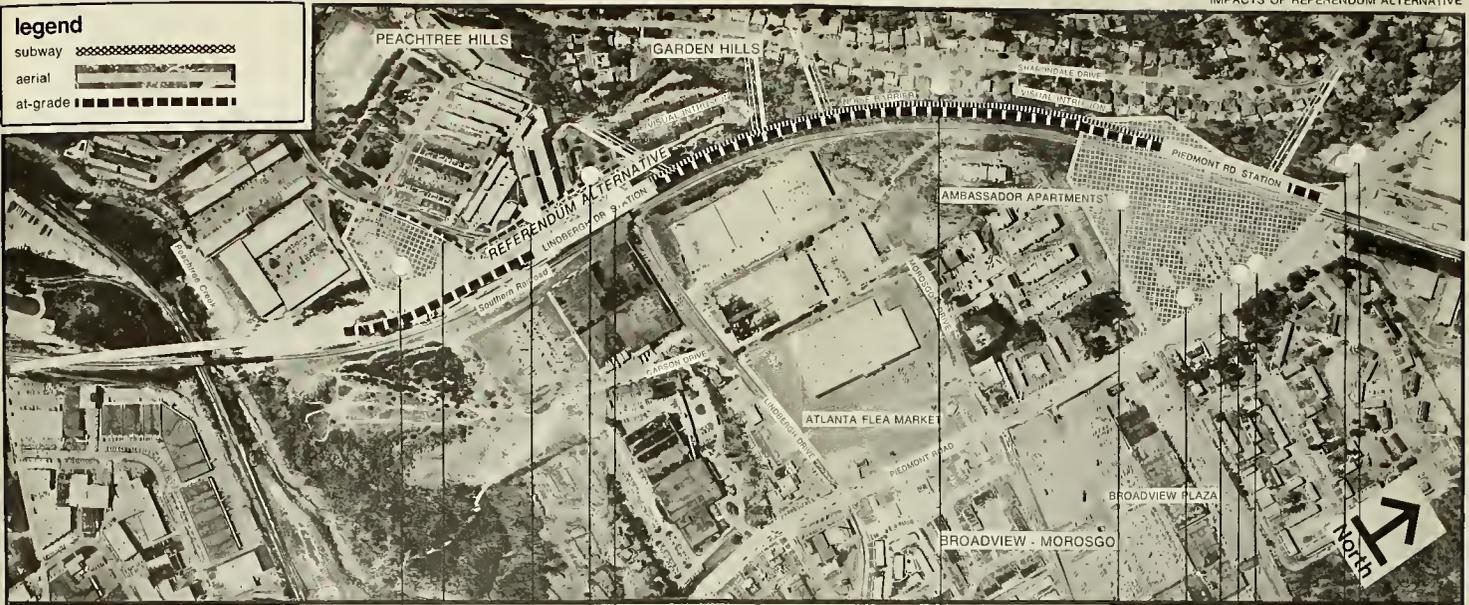


RESIDENTIAL TAKES			425 LINDBERGH CONDOMINIUMS 12 UNIT HILLCREST APARTMENTS 16 UNITS
COMMERCIAL TAKES		ALLIED CONCRETE	MAJIK MARKET
TRANSPORTATION		RELOCATED PEACHTREE HILLS AVE.	
VISUAL IMPACTS			
NOISE IMPACTS			
STATION INFORMATION		LINDBERGH DR. STATION	Construction: Aerial Parking Spaces: 230 Bus Bays: 10 Acreage: 7.3

## REFERENDUM ALTERNATIVE



Fig. 4.1a:  
IMPACTS OF REFERENDUM ALTERNATIVE



RESIDENTIAL TAKES	425 LINDBERGH CONDOMINIUMS 12 UNITS HILLCREST APARTMENTS 16 UNITS	2575 2585 2597 2607 2581 2591 2601 SHARONDALE DRIVE	CHEROKEE PLUMBING AND HEATING, INC
COMMERCIAL TAKES	MAJIK MARKET ALLIED CONCRETE	GETZ EXTERMINATORS HANSEL AND GAETEL NURSERY SCHOOL McDEVITT AND STREET COMPANY AMBASSADOR APARTMENTS	R B. WALTER EDUCATIONAL MATERIALS PIEDMONT NORTH ACADEMY
TRANSPORTATION	RELOCATED PEACHTREE HILLS AVE.		
VISUAL IMPACTS	VISUAL INTRUSION		
NOISE IMPACTS	NOISE BARRIER		
STATION INFORMATION	LINDBERGH DR. STATION Construction: Aerial Parking Spaces 230 Bus Bays: 10 Acreage 7.3	PIEDMONT RD. STATION Construction: Aerial Parking Spaces 1075 Bus Bays: 4 Acreage 16.5	

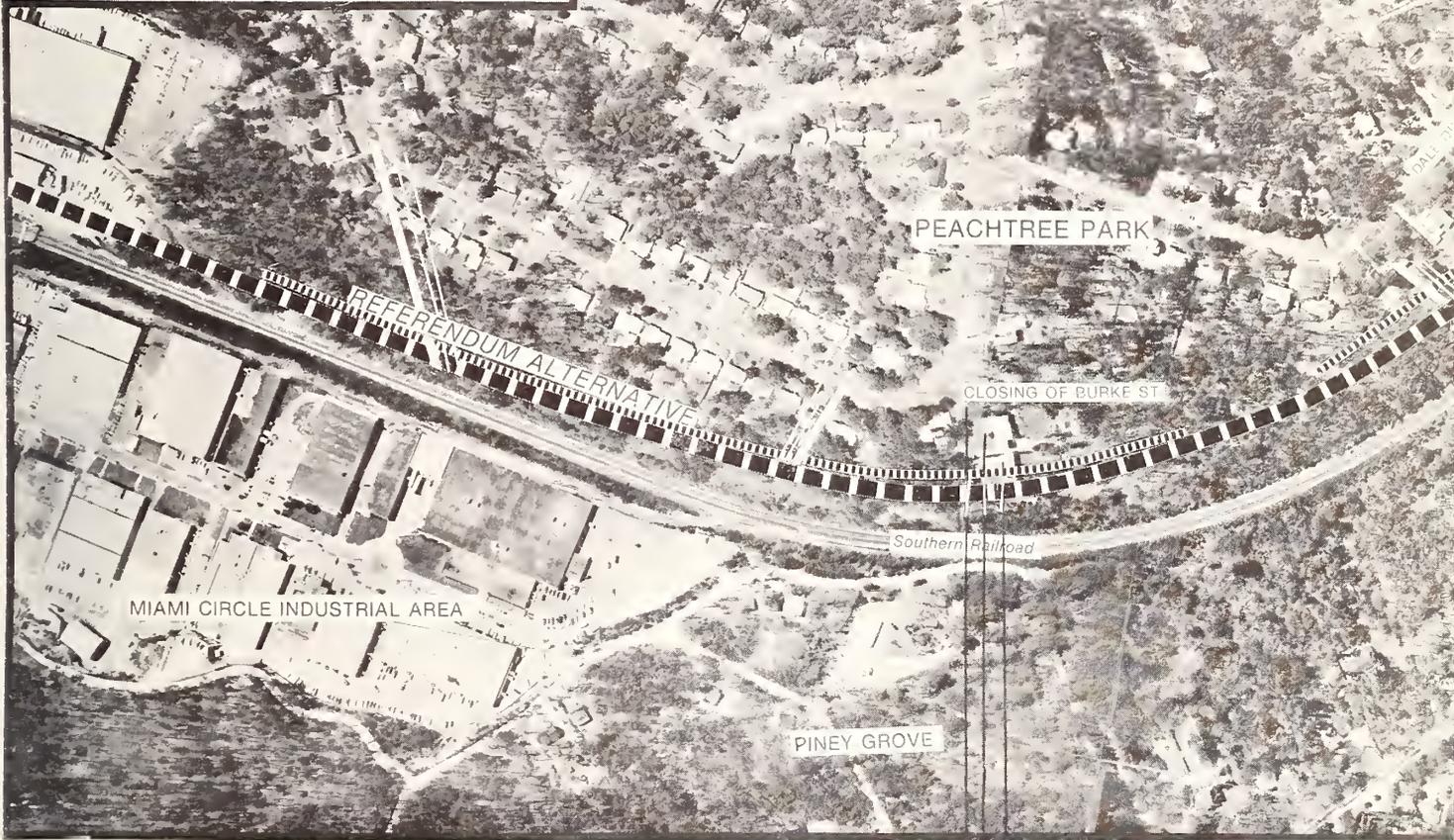
REFERENDUM ALTERNATIVE

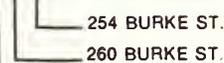
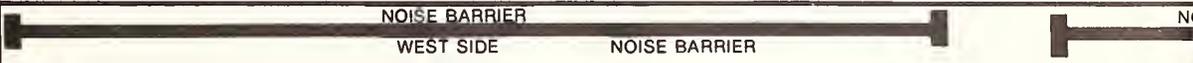
ONE THOUSAND FEET



# legend

- subway 
- aerial 
- at-grade 



RESIDENTIAL TAKES	
COMMERCIAL TAKES	
TRANSPORTATION	
VISUAL IMPACTS	
NOISE IMPACTS	
STATION INFORMATION	

## REFERENDUM ALTERNATIVE

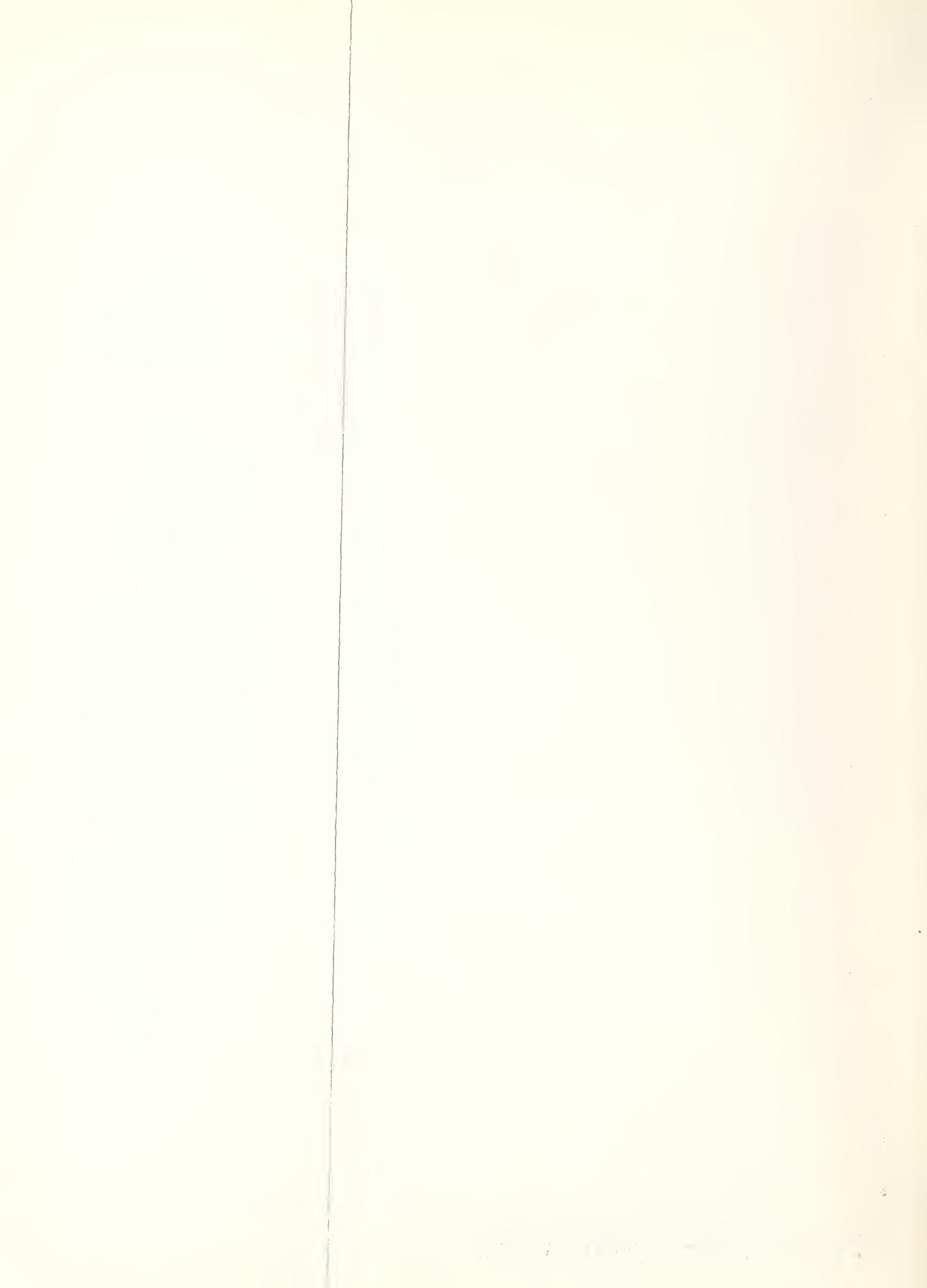
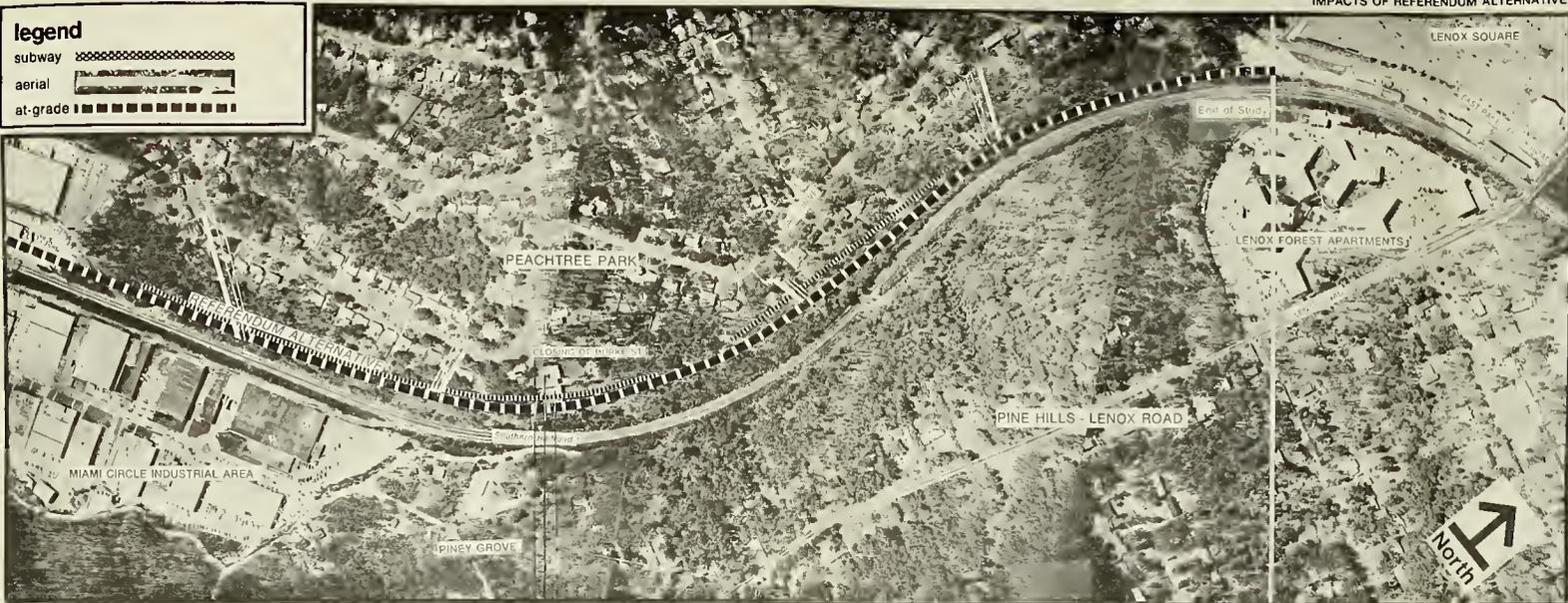


Fig. 4.1b:  
IMPAIRMENTS OF REFERENDUM ALTERNATIVE



RESIDENTIAL TAKES	254 BURKE ST. 260 BURKE ST.
COMMERCIAL TAKES	
TRANSPORTATION	CLOSING OF DEAD END BURKE ST.
VISUAL IMPACTS	VISUAL INTRUSION
NOISE IMPACTS	NOISE BARRIER WEST SIDE NOISE BARRIER WEST SIDE
STATION INFORMATION	

REFERENDUM ALTERNATIVE

ONE THOUSAND FEET





THE UNIVERSITY OF CHICAGO

LIBRARY OF THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS DEPARTMENT

PHYSICS DEPARTMENT

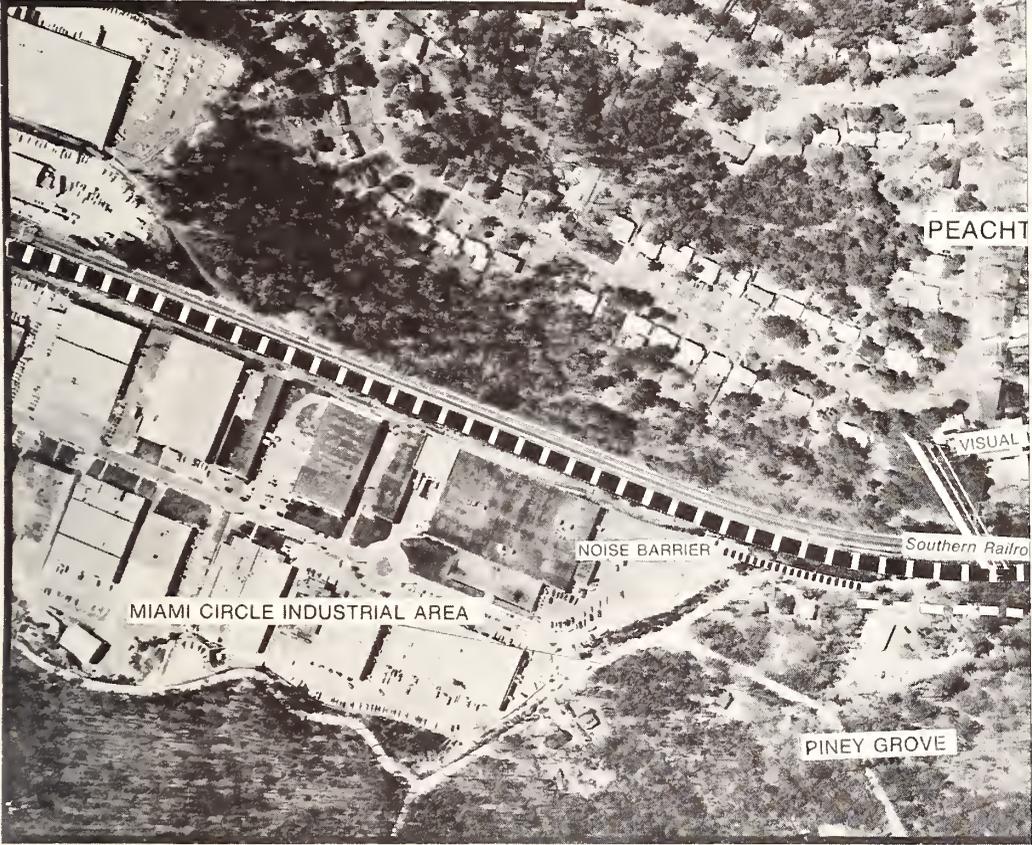
PHYSICS DEPARTMENT





# legend

- subway 
- aerial 
- at-grade 



RESIDENTIAL TAKES	
COMMERCIAL TAKES	
TRANSPORTATION	
VISUAL IMPACTS	
NOISE IMPACTS	
STATION INFORMATION	

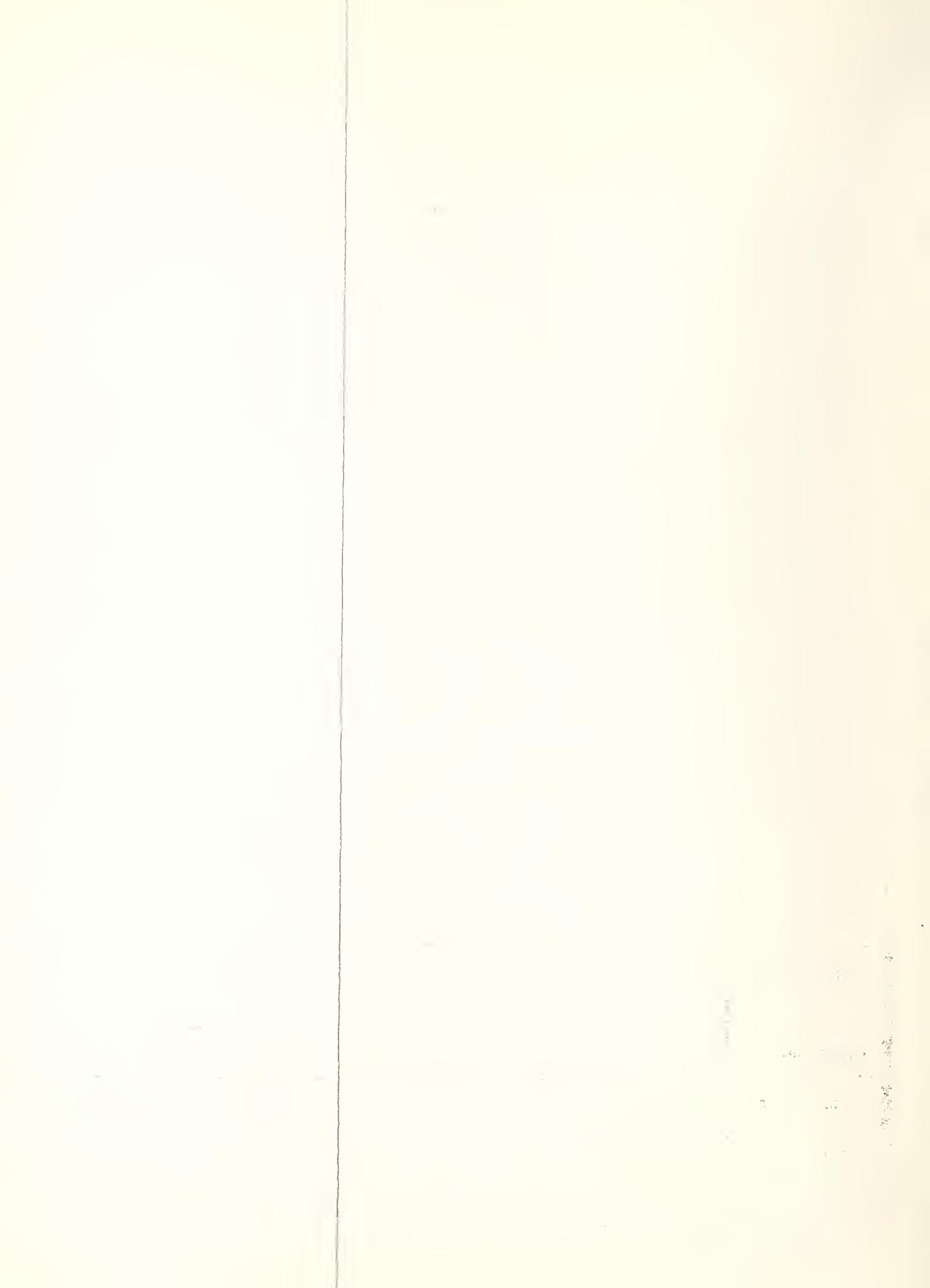
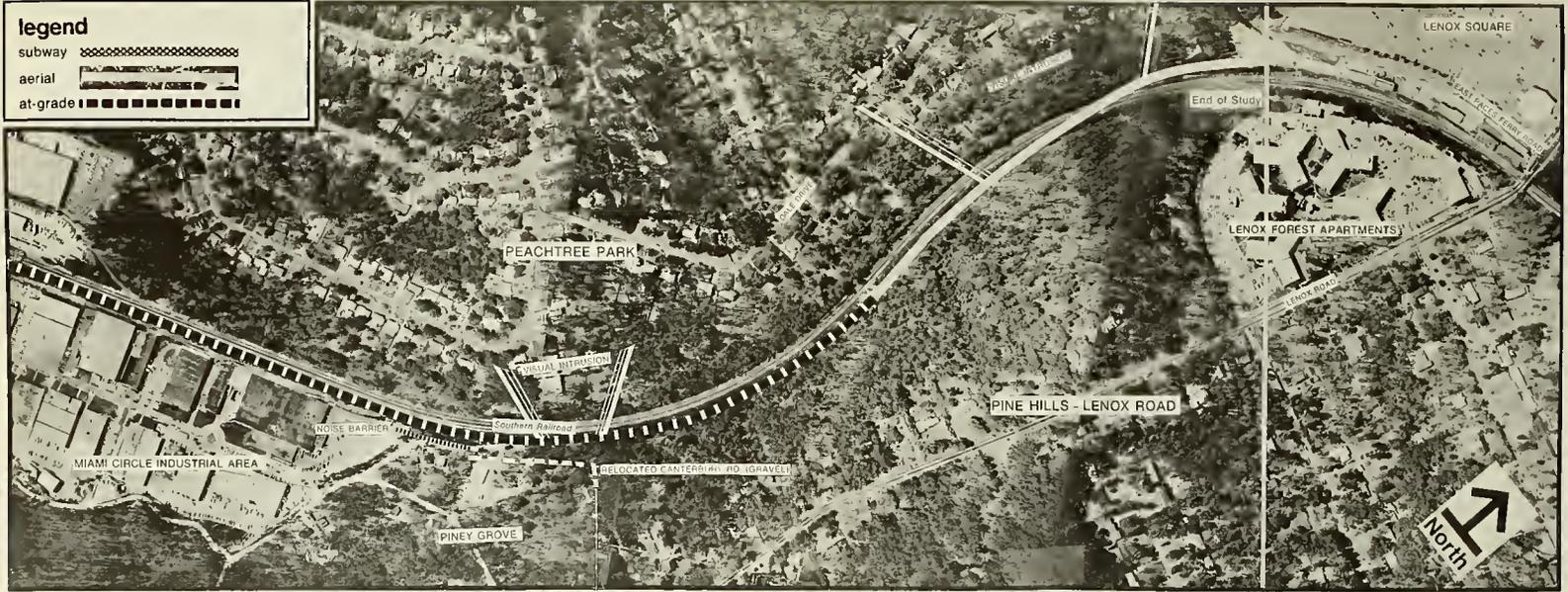


Fig. 4.2b: IMPACTS OF AMBASSADOR APARTMENTS ALTERNATIVE

**legend**

- subway
- aerial
- at-grade



RESIDENTIAL TAKES	
COMMERCIAL TAKES	
TRANSPORTATION	RELOCATED CANTERBURY ROAD (GRAVEL)
VISUAL IMPACTS	
NOISE IMPACTS	
STATION INFORMATION	

AMBASSADOR APARTMENTS ALTERNATIVE

ONE THOUSAND FEET



diameter, is located quite near the alignment. Although alive, it is not in good condition; a 6" high 2" cavity runs through the tree. The tree may die as a result of MARTA construction.

Open space #13 to the north of the Ambassador Apartment complex has an intermittent stream flowing through it and has dense growth and hardwoods. Special care will be taken to construct the line in this area including the use of minimum construction easements. As much of the vegetation will be kept as practical with special care given to the large hardwood trees. A retaining wall will be seriously considered on the east side from the portal to approximately station 311+00 and if at all practical selected for the final design. The design and construction of the culvert and headway will be done with special attention to preserve as much vegetation and atmosphere of the stream as possible.

#### 4. Noise:

##### a. Referendum Alternative:

Analysis indicates there are four areas where intermittent, short-term train pass-by noise levels would be above the maximum acceptable level of 75 dBA for average residential neighborhoods without the construction of barrier walls. The four areas are: (1) the single-family residential area along Sharondale Drive (2,400 feet); (2) along Canterbury Road (700 feet); (3) north of Burke Road (2,300 feet); and (4) north toward the end of the study area (1,000 feet) (see Figure 4.3B). All line segments in these areas are at-grade. Acoustical barriers totalling 6,500 feet would thus be needed.

##### b. Ambassador Apartments Alternative

This alternative requires the use of two segments of noise barriers. One, on the south side of the tracks, will run from the portal across Piedmont, a distance of 1,100 feet. It will lower the train bypass noise as the train passes in back of Hansel and Gretel Nursery and Piedmont North Academy. It will also lower the noise for the tenants in the East Wesley Apartments across Piedmont Road along Button Drive. With the barriers maximum intermittent, short-term bypass, noise will drop from a 82-83 dBA range to a 71-72 dBA range, which is acceptable for this land use.<sup>1</sup> For further discussion see Appendix C.

The second section of noise barriers will be a 200-foot long barrier on the south side of the tracks to buffer the Piney Grove houses. In all, 1,300 feet of noise barriers will be required for this alternative. This will reduce noise in this area to 73 dBA or below.

#### 5. Visual Intrusion:

##### a. Referendum Alternative:

The Referendum Alignment would cause some visual intrusion for 6,400 feet, 42 percent of its 15,300-foot length. Approximately 90 residential units would have a clear view of the Referendum Alignment for at least part of the year, about half that number for all of it.

<sup>1</sup>Institute for Rapid Transit, Guidelines and Principals for Design of Rapid Transit Facilities, May 1973, p. 42.

The Lindbergh Drive Station and the bridge over Lindbergh Drive would dominate the area no matter how pleasing their designs. The Piedmont Road Station, by converting a wooded area to a parking lot would make a significant visual change in that area.

b. Ambassador Apartments Alternative:

The Ambassador Apartments alternative may be seen by 30 homes during part of the year over a total of 2,000 feet. The Ambassador Apartment Alternative also depresses much of the line in cut section or in tunnel. It goes under Lindbergh Drive, not over it; the station is below grade level, not up in the air; and the line is on the opposite side of the Southern Railroad tracks, not in the back yards of residences.

There will be two areas with more visual intrusion. The four houses along Canterbury Road in the Piney Grove area will have the rapid rail tracks on their side of the freight tracks and not the other. The second point of increased visual intrusion is toward the north end of the study area where the MARTA tracks bridge over the freight tracks. This will make the line easier to see from the several houses in the area.

6. Transportation:

a. Referendum Alternative:

By intercepting traffic from the north on Piedmont Road and from the east on Marion Road at or before the Marion/Piedmont intersection, the Referendum Alternative helps reduce traffic at the more critical intersections to the south. The Lindbergh/Piedmont intersection will be affected by this alternative to the same extent as it would under the Ambassador Apartments Alternative. Minor improvements to the Lindbergh Drive approaches would be needed (specifically right turn lanes) with the addition of MARTA traffic. However, the Georgia DOT improvement of this intersection will provide ample capacity for all traffic. The Morosgo Drive intersection will not be affected by this alternative.

Some increase in traffic through neighborhoods, particularly Garden Hills would occur, but would not expect to be over 50 additional cars during the peak period. MARTA traffic forecasting models do not indicate substantial cross traffic from Peachtree Road to the stations.

b. Ambassador Apartments Alternative:

With this alternative traffic on Piedmont Road from the north and traffic on Marion Road from the east will have to continue to the Morosgo/Piedmont intersection before entering the station in the morning peak hour. This places a burden on this inadequately designed intersection. It will have to be redesigned and rebuilt along with the station construction. The radius of curvature from the north on Piedmont right into Morosgo Drive will have to be enlarged. This will require encroachment into the Athens Garage property. A number of lanes on Morosgo Drive approaching from the west will have to be increased and widened to accommodate exiting left turn movements in the evening peak hour. Details of this design will have to be studied further and approved by the City of Atlanta traffic engineers. Existing (1979) volumes and volume/capacity calculations with and without MARTA traffic are available upon request.

The initial 1560-car capacity projected for the parking lot has subsequently been increased to account for two factors. First, should the construction of the North Atlanta busway not occur or be delayed, parking demand at the Lindbergh Center Station will increase to 1840. Second, should the HOV ramps off I-85 onto Lindbergh Drive be useable by car pools (this was not allowed in the initial assumptions) demand will reasonably increase further to 2050. These two revised assumptions are reasonable and have become part of the basis for MARTA's estimate of parking lot capacity.

There is no difference either in the low level of additional cars (50 during the peak hour) expected to use local streets in the Garden Hills neighborhood to get to and from the station.

## 7. Air Quality:

### a. Referendum Alternative:

The original Environmental Impact Study and supplemental studies indicate no air quality problems associated with this alternative.

### b. Ambassador Apartments Alternative:

Detailed macroscale and microscale analyses of the single Lindbergh Center Station indicate there will be no air quality problems associated with its operation. See appendices for documentation.

## B. SHORT-TERM IMPACTS

### 1. Transportation:

#### a. Referendum Alternative:

The construction of this alternative would result in periods of congestion. None of the streets would be closed at any time. Temporary detouring of traffic around the immediate construction activity will be necessary at Peachtree Hills Avenue south of Lindbergh Drive for 6 months. The construction of the MARTA bridge structures over Lindbergh Drive and Piedmont Road would also require detouring around those immediate construction activities for several weeks. There will be no detouring of traffic through residential streets.

#### b. Ambassador Apartments Alternative:

The construction of this alternative will result in periods of congestion. None of the streets will be closed at any time. Temporary detouring of traffic around the immediate construction activity will be necessary at Lindbergh Drive, Garson Drive, Morosgo Drive, and Piedmont Road (at the Southern Railroad bridge). There will be no detouring of traffic through residential streets.

### 2. Construction:

#### a. Referendum Alternative:

In addition to the traffic impacts, construction noise, dust and movement of heavy equipment in and out of the two station sites would occur for a period of 2½ years. Residential areas along Peachtree Hills, Sharondale

Drive and the residential area north of Piedmont Road and west of the railroad are highly susceptible. Detailed discussion of measures used by MARTA to mitigate construction impacts is contained in Supplement One<sup>2</sup> and incorporated by reference.

b. Ambassador Apartments Alternative:

In addition to the traffic impacts, construction noise, dust and movement of heavy equipment will occur for a period of 2½ years. There will be some retention ponds. Except for the stretch of track along Canterbury Road, these annoyances will not be close to any residences. Canterbury Road will be relocated and for about one year will be heavily used by heavy equipment. Access from both directions will be maintained at all times. A detailed discussion of measures used by MARTA to lessen construction impacts is contained in Supplement One.<sup>3</sup>

3. Water Quality:

a. Referendum Alternative:

The construction of the bridge span over Peachtree Creek will require a U.S. Army Corps of Engineers' permit. The span will be well over 50 feet above the 100-year flood level (EL.807). Some of the support piers will be within the flood plain and will require cofferdams to allow foundation construction. Settling tanks will be required to remove sediment from the cofferdam dewatering discharge. A detailed flood hazard evaluation will be performed during final design. Not only will a U.S. Army Corps of Engineers' permit be obtained but its requirements will be incorporated into the contract documents if this alternative is implemented. Additionally pertinent Georgia and City of Atlanta requirements will also be included both in the Peachtree Creek floodplain and in the other construction areas.

b. Ambassador Apartments Alternative:

The bottom of the span across Peachtree Creek will be 26 feet above the 100-year flood level. However, two support piers will be in the floodplain and will require cofferdams to allow foundation construction. Settling tanks will be required to remove sediment from the cofferdam dewatering discharge. A detailed flood hazard evaluation will be performed for this site to accurately determine flood levels, flood discharges, and flood velocities for use in the final design of the bridge. A U.S. Army Corps of Engineers permit will be needed and, as indicated by the letter in Appendix B, discussions with the Corps have started.

In addition to the Corps requirements, any pertinent Georgia or City of Atlanta erosion and sediment requirements will be followed. This is also the case in other construction areas of the line segment where erosion will occur. In many cases sedimentation basins will be provided to detain site runoff so that peak discharge from the site is not anticipated. In any case, measures will be taken (such as scheduling grading operations to periods of low anticipated runoff, limiting the size of unprotected graded areas and similar measures.

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<sup>2</sup>Supplement One to Final Environmental Impact Statement, MARTA System.  
Project GA-03-0008, prepared by Urban Mass Transportation Administration,  
September, 1975.

<sup>3</sup>Ibid.

Special care will be taken to preserve the present condition of the intermittent stream running from Piedmont Road to and behind the property the property at 2646 Piedmont Road, the Hansel and Gretel Nursery School, Inc. The design and construction of the culvert and associated walls will be with special care to preserve as much of the natural vegetation and atmosphere as possible.

### C. UNAVOIDABLE ADVERSE IMPACTS

#### 1. Referendum Alternative:

The long-term impacts of this alternative, which have been discussed above and are therefore only summarized here, would be these:

- a. fifty-four residences relocated;
- b. eight businesses relocated;
- c. at least 15 acres of open space taken for the MARTA facilities;
- d. a view of the rail line from 90 residences during at least part of the year for a total of 6,400 feet; and
- e. probable intrusion into neighborhood areas of incompatible land uses;
- f. possible additional noise along 5,800 feet of line; and
- g. up to 87,000 yards of excavation spoils.

#### 2. Ambassador Apartments Alternative:

The long-term unavoidable adverse impacts which have already been discussed and which are only summarized here are these:

- a. Thirty-six residences relocated. These units at the Ambassador Apartments are being converted to condominiums. MARTA is initiating purchase of these units and may have to relocate far fewer than 36 tenants.
- b. eight businesses relocated, and two businesses requiring partial takes;
- c. a view of the rail line from residences during at least part of the year for a total of 2000 feet;
- d. possible additional noise level for 1300 feet of line; and
- e. up to 100,000 cubic yards of excavation spoils.

### D. SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

#### 1. Referendum Alternative:

Short-term uses would include typical noise, dust, and erosion impacts associated with heavy construction. Limited traffic congestion and visual blight would also occur during construction.

In the long-term the alternative will provide the surrounding area convenient rapid transit service throughout the MARTA region.

2. Ambassador Apartments Alternative:

By consolidating two stations into one, each scheduled train will have one less station stop to make. Electrical energy consumption used to accelerate will be cut by one-half under this alternative, as will that needed for station lighting and equipment functioning. Thus, the Ambassador Apartment Alternative will consume considerably less energy than will the Referendum Alternative.

E. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS

1. Referendum Alternative:

The construction of the Referendum Alternative will irreversibly and irretrievably commit approximately \$50 million in construction money and materials. It will do so for a plan which will encourage other private and public sector development in the immediate station area. This development could irretrievably change the stability of the surrounding residential neighborhoods.

2. Ambassador Apartments Alternative:

This alternative will also commit approximately \$50 million dollars in money and materials. It will do so for a plan which promotes the type of land use desired without affecting the nearby residential neighborhoods.

# CHAPTER 5

## HISTORIC PROPERTIES (SECTION 106) DETERMINATIONS AND PARKLAND (SECTION 4(f)) STATEMENTS

### A. HISTORIC RESOURCES

The National Historic Preservation Act of 1966, as amended, directs Federal agencies to take into account the effect of their proposed undertakings on any properties on or eligible for the National Register of Historic Places. If a proposed undertaking affects such properties, Federal agencies must obtain the comments of the Advisory Council on Historic Preservation prior to project implementation.

There are no historic properties to be found within the historic preservation study corridor done for this document. A concurrence letter to that effect from the State Historic Preservation Officer is made part of this document.

MARTA will continue to perform pre-construction archaeological studies of the line section and have its archaeologists monitor construction activity as it has been doing under its initial construction program.

### B. PARKLANDS

Section 4(f) of the Department of Transportation Act of 1977 states that: "It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public parks and recreational lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation shall not approve any program or project which requires the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of National, State or local significance as so determined by the Federal, State or local officials having jurisdiction thereof, or any land from an historic site of National, State or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use."

There are no 4(f) properties proposed to be used within the study area.



# Department of Natural Resources

PARKS AND HISTORIC SITES DIVISION

November 26, 1979

Joe D. Tanner  
COMMISSIONER

Henry D. Struble  
DIRECTOR

Mr. Richard Stanger  
Manager, Urban Design  
Department of Planning and Public Affairs  
MARTA  
2200 Peachtree Summit  
401 W. Peachtree Street, N.E.  
Atlanta, Georgia 30308

RE: Lindbergh Center Area  
Supplement #2, Draft EIS

Dear Mr. Stanger:

We have reviewed the structural survey for the Lindbergh Center area and concur with your finding that there are no structures on or eligible for the National Register of Historic Places in this limited area.

As we discussed in our meeting of November 21, 1979, after we receive the additional information which you plan to provide for our review, we can comment on the eligibility of the structures on the remainder of the North Line.

Sincerely,

A handwritten signature in cursive script that reads "Elizabeth A. Lyon".

Elizabeth A. Lyon, Ph.D., Chief  
Historic Preservation Section  
State Historic Preservation Officer,  
Acting

EAL:sks

Copies to: Thomas Eubanks, Office of the State Archaeologist (SCCN:79-09-07-07)  
Barbara Hogan, DNR Comprehensive Review (SCCN: 79-09-07-07)

FIGURE 5.1: Letter from State Historic Preservation Officer

# CHAPTER 6

## A. INTRODUCTION

The circulation period for the Draft EIS began on February 14, 1980 and ended April 14, 1980. During that period twelve commenting letters were received from federal, state, and local agencies. The official public hearing was held March 24, 1980 in the MARTA Board Room. Six people made oral comments. A total of eighteen different commenters responded. All substantive comments received on the Draft EIS are included in this chapter with a response provided to each comment. The comments are paraphrased, the author is identified and the page(s) in the text where the comment is addressed in more detail is noted along with a summary of the response. The changes in the text are identified by a vertical bar in the margin.

Agencies or groups who commented are indicated by an asterisk in the "List of Recipients" section of the Appendix.

## B. COMMENTS AND RESPONSES BY TOPIC

### 1. Alternatives

#### Comment 1:

Can the Ambassador Apartments gully/streambed be used as a right-of-way?  
(Russell Jones)

#### Response 1:

No, the MARTA track alignment requires large smooth curves for the train to operate at 60 mph. The stream meanders to erratically for MARTA to use it as its alignment.

#### Comment 2:

Can the Line proceed immediately east of the Railroad tracks with the station there as well? (Center for Disease Control)

#### Response 2:

It is feasible but would require taking at least three large commercial structures, and make traffic and pedestrian access more difficult, (II-5)

#### Comment 3:

How exactly will the under Piedmont Road Alternative preclude development?  
(Center for Disease Control)

#### Response 3:

It would not preclude it, but constrain it because of the weight limitations on building above a subway box. (II-5)

## 2. Traffic and Transportation Impacts

### Comment 4:

Several commenters noted that the 1974 traffic counts and conditions were out-of-date and should be updated. (U.S. DOT, Office of the Secretary; EPA, Region IV; Edith Hammond)

### Response 4:

New 1979 counts have been added to the analysis. They include new street improvements since 1974. (II-12, 13; III-6, IV-8, 9)

### Comment 5:

Will there be adequate parking? (Atlanta, Bureau of Planning)

### Response 5:

The station parking demand has been increased to 2050 as explained. (IV-9)

### Comment 6:

What will be MARTA's financial responsibility for the Piedmont/Lindbergh intersection? (Atlanta, Bureau of Planning)

### Response 6:

None. Improvement is noted on pages II-13, III-6, and IV-8

## 3. Floodplains and Water Quality

### Comment 7:

Impacts on the Peachtree floodplain are not adequately addressed. (Department of the Interior, Office of the Secretary, Department of the Army)

### Response 7:

Impacts have been better documented. The Corps of Engineers have been contacted and the necessary studies will be done to obtain a permit. Much of this work requires further engineering work which awaits approval of this document. (II-13, IV-10)

## 4. Noise Impacts

### Comment 8:

Justify use of L50 noise parameter? What is the effectiveness of the noise barriers? (Center for Disease Control)

### Response 8:

The L50 noise level is used only to determine the type of area to make sure the proper maximum train noise criterion is used. In-situ tests indicate a noise reduction of 9 to 10 dBA.

Comment 9:

What will the noise be like at the Hansel and Gretel Nursery, Inc. and what will the alignment be? (Anne Williams)

Response 9:

The track will be on fill either as an embankment or behind a retaining wall. The recommendation is for a retaining wall. The barrier will be accoustical panels or masonry wall extending typically 5-8 feet above the ground. The barrier will reduce sound levels 9 to 10 dBA to acceptable levels for the land use. (page II-13, IV-7)

## 5. Relocations and Displacements

Comment 10:

The business and residential impacts need to be updated. Measures to assist in the relocation need to be discussed. (U.S. DOT, Office of the Secretary)

Response 10:

The relocations have been updated to include the partial takes of the Athens Garage and Hansel and Gretel Nursery properties. Relocation policy is briefly discussed. (IV-6)

## 6. Air Quality

Comment 11:

Supporting documentation should be included for air quality conclusions. (U.S. DOT, Office of the Secretary; Center for Disease Control; EPA, Region IV)

Response 11:

This documentation is included in Appendix A.



# LIST OF RECIPIENTS

## I. FEDERAL AGENCIES

- A. Department of Transportation, Assistant Secretary for Policy and International Affairs
- \*B. Department of Transportation, Regional Representative of the Secretary
- C. Department of Transportation, Federal Railroad Administration
- \*D. Department of Transportation, Federal Highway Administration, Division Office, Atlanta, Georgia
- \*E. Environmental Protection Agency, Atlanta, Georgia
- F. Environmental Protection Agency, Washington, D.C.
- \*G. Department of Housing and Urban Development, Region IV Office, Atlanta, Georgia
- \*H. Department of Interior
- \*I. Department of Agriculture
- K. Department of Commerce
- L. Interstate Commerce Commission
- M. Advisory Council on Historic Preservation
- \*N. Department of the Army, Corps of Engineers, Atlanta District
- O. Office of Management and Budget
- \*P. Department of Health and Human Services, Center for Disease Control

## II. GEORGIA STATE AGENCIES

- A. Office of the Governor
- B. Department of Natural Resources
- \*C. Department of Transportation
- D. Department of Community Affairs

## III. REGIONAL AND LOCAL AGENCIES

- A. Atlanta Regional Commission
- B. Fulton County, Planning Bureau
- C. DeKalb County, Planning Bureau
- D. City of Atlanta
  - 1. Department of the Mayor
  - \*2. Department of Budget and Planning
  - 3. Department of Parks Libraries and Cultural Affairs
  - 4. Department of Community and Human Development
  - 5. Department of Public Safety
  - 6. Department of Environments and Streets

NOTE: (\*) Written comments were received from those agencies indicated by an asterisk.

IV. INTERESTED PARTIES

- A. Peachtree Park Neighborhood Association
- B. Garden Hills Neighborhood Association
- C. Broadview-Morosgo Neighborhood Association
- D. Peachtree Hills Neighborhood Associations
- E. All Businesses to be relocated
- F. Ambassador Apartments
- G. Atlanta Chamber of Commerce
- H. Local Libraries
- I. Neighborhood Planning Unit "B"

V. OTHER PERSONS COMMENTING ON THE DRAFT DOCUMENT

- 1. Mr. James H. Edwards - Storey Theatres, Incorporated, President
- 2. Miss Edith Hammond - Neighborhood Planning Unit "B", Moderator
- 3. Mr. Russell S. Jones - Ambassador Apartments, Resident
- 4. Mr. Karl D. Burgess - Ambassador Apartments, Resident
- 5. Miss Anne Williams, Day Care Center, Owner
- 6. Mr. Sam Hatcher, Danda West Limited, Attorney

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# APPENDICES

- A. AIR QUALITY ANALYSIS
- B. PEACHTREE CREEK CONSTRUCTION PERMIT,  
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- C. NOISE



# A. AIR QUALITY ANALYSIS

## MARTA PIEDMONT-LINDBERGH ENVIRONMENTAL IMPACT STATEMENT

This report presents the results of an air quality analysis which was conducted to supplement the original MARTA EIS for the Referendum line. The supplementary analysis evaluates the impact of combining the Lindbergh Drive and Piedmont Road Stations (including realignment of the rail line) on air quality. The realignment considered in this analysis is relatively minor, however, and would have no appreciable impact on air quality. Consequently, in the air quality analysis presented below, only the impact of combining the Referendum line Lindbergh Drive and Piedmont Road Stations was considered. Both macroscale and microscale analyses were performed. The macroscale analysis considered the total quantity of pollutants emitted (carbon monoxide, non-methane hydrocarbons, and nitrogen oxides) in the station parking lot areas. The microscale analysis estimated carbon monoxide concentrations immediately adjacent to the combined Lindbergh Center station. Both analyses were performed for the MARTA system opening year 1985. Due to stringent federal emission standards and vehicle turnover, the values for later years will be less than 1985 values. In addition, the traffic data used represents the traffic predictions for the design year 1995, which are higher than those for 1985. Traffic data used for the two analyses were provided by Parsons Brinckerhoff-Tudor-Bechtel.

### MACROSCALE ANALYSIS

Total emissions or pollutant burdens were calculated for both the combined Lindbergh Center Station and the referendum line Lindbergh Avenue and Piedmont Road Stations to determine the impact of the proposed changes on the air quality in the area. The pollutant burdens calculated consisted of estimated peak hour and daily emissions of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NO<sub>x</sub>) associated with the parking facilities. These quantities were calculated using the procedure outlined in the U.S. Environmental Protection Agency publication "Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9: Evaluating Indirect Sources."<sup>1</sup> In particular, "Appendix E, Method for Estimating Emissions in Vicinity of Municipal Parking Lots," was used directly for this analysis. According to the procedure outlined

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<sup>1</sup>U.S. EPA, Office of Air and Waste Management, Office of Air Quality Planning and Standards; "Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9: Evaluating Indirect Sources", EPA-450/4-75-001 (January 1975); Air Pollution Technical Information Center, Research Triangle Park, N.C. 27711.

in this publication, total emissions from a parking lot may be estimated using the following equation:

$$Q = \frac{(EF) * (V) * (S) * (RT)}{60}$$

where:

- Q = total emissions, gm/hr.
- EF = average vehicle emission factor, gm/veh-mi.
- V = traffic volume demand in parking lot, veh/hr.
- S = average speed in the parking lot, mi/hr.
- RT = average running time per vehicle in the parking lot, min.
- 1/60 = conversion factor from Hr, <sup>-1</sup> to min. <sup>-1</sup>

Vehicle emission factors used in the analysis are summarized in Table 1. Those emission factors were computed using the methodology and data provided in the U.S. Environmental Protection Agency (EPA) Publication, Mobile Source Emission Factors.<sup>2</sup> Emission values used in Volume 9 are contained in U.S. Environmental Protection Agency (EPA), "Compilation of Air Pollution Emission Factors" Publication Ap-42; Supplement #5 to the second edition.<sup>3</sup> These emission values have since been revised and are presented in the EPA Publication "Mobile Source Emission Factors". In order to account for these changes in emission values the predicted CO concentrations determined in volume 9 were adjusted to reflect the emission factors presented in Mobile Source Emission Factors. Vehicle emission factors are a function of duty diesel trucks or buses, etc., model year, vehicle speed, year of operation, regional altitude, ambient temperature, hot versus cold engine start (Hot starts occur only when a vehicle is restarted less than 1 hour after it has been shut off in the case of the catalyst equipped vehicle of four hours for a non-catalyst equipped vehicle) and the percentage of vehicles operating in a cold engine condition (i.e., running fewer than eight and a half minutes after a cold start). When a vehicle is restarted in a cold condition it runs less efficiently than it does after the engine has warmed up.

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<sup>2</sup>U.S. EPA, Office of Air and Waste Management, Office of Transportation and Land Use Policy; Mobile Source Emission Factors (For Low Altitude Areas Only); (March 1978) Washington, D.C. 20460

<sup>3</sup>U.S. EPA, "Compilation of Air Pollution Emission Factors"; Publication Number AP-42; Supplement #5 to the Second Edition; Air Pollution Technical Information Center, Research Triangle, Park, N.C.

This lower engine efficiency results in higher emissions. At indirect sources, such as the station parking lots being studied in this analysis, where vehicles are likely to sit for substantial periods of time, the cold start problem may significantly affect emissions in the vicinity of a source. The extent of the impact of cold-starting vehicles depends on a number of factors including ambient temperature and engine size. The effect of ambient temperature on exhaust emissions has been studied by EPA and the ambient temperature which resulted in the highest emission factor was used in the macroscale analysis. Worst case ambient temperature and hot-cold engine operating conditions used in the macroscale analysis are summarized in Table 2.

The 1985 traffic volume demand figures for the three parking facilities provided by Parsons Brinckerhoff-Tudor-Bechtel are summarized for peak-hour and average 24-hour conditions in Table 3. Average vehicle speeds in the parking lots were assumed to be 10 mi/hr. The average running time per vehicle trip (note, one vehicle visiting the parking lot makes two trips - one coming, one going) used in the analysis were those stated in the draft MARTA Environmental Impact Statement, Volume 3: Technical Appendices.<sup>4</sup> - park and ride, 3.75 minutes per car entering during the peak-hour and 7.5 minutes per vehicle on a 24-hour basis; kiss and ride, 7.5 minutes per car entering and; buses, 5 minutes per bus entering to pick up and discharge passengers.

The results of the macroscale analysis using the worst case ambient temperature and hot-cold engine operating conditions are summarized in the Table 4. It can be seen that as a net result of adding together the peak hour pollutant burdens for the two separate stations, the combined CO burden will be slightly less than the combined Lindbergh Center Station CO burden but somewhat higher for HC and NO<sub>x</sub> pollutant burdens. The 24-hour CO and HC pollutant burdens are less for the combined Lindbergh Center Station than the total of the two separate stations burden. The NO<sub>x</sub> burden attributable to the combined Lindbergh Center Station is slightly more than the total burden of the separate stations. The Lindbergh Center Station, however, will be located in an area characterized by mostly industrial land use. Both the Lindbergh Drive and the Piedmont Road Stations, on the other hand, would have been located in more sensitive residential areas. The benefit to these areas should offset any increase in pollutant concentrations in the industrial area surrounding the Lindbergh Center Station.

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<sup>4</sup>U.S. Urban Mass Transportation Administration and Metropolitan Atlanta Rapid Transit Authority. Draft MARTA Environmental Impact Statement, Volume 3: Technical Appendices, VII. Air Quality Impact (September 1972) page A-7.

Table 2. Worst Case Vehicle Operating Conditions

<u>Park and Ride</u>	<u>Peak-Hour Conditions</u>	<u>24-Hour Average Conditions</u>
◦ engine operating condition	100% cold	80% cold
◦ type of engine start	100% cold	100% cold
◦ ambient temperature	20° F	20° F
<u>Klss and Ride</u>		
◦ engine operating condition	0% cold	20% cold
◦ type of engine start	100% cold	100% cold
◦ ambient temperature	20° F	20° F

Table 3. 1985 Traffic Volume Demand\*

	Automobiles		
	<u>Park &amp; Ride</u>	<u>Kiss &amp; Ride</u>	<u>Buses</u>
<u>Lindbergh Center Station</u>			
peak-hour	455	215	40
24-hour	1200	860	330
<u>Lindbergh Drive Station - Referendum Line</u>			
peak-hour	100	70	15
24-hour	250	280	110
<u>Piedmont Road Station - Referendum Line</u>			
peak-hour	340	180	30
24-hour	900	720	210

\* All traffic data supplied by Parsons Brinckerhoff-Tudor-Bechtel.

Table 4 1985 Pollutant Burden (Worst Case Condition)

1 9 8 5

PEAK HOUR (WORST CASE)

<u>STATION</u>	<u>CO(gm/hr)</u>	<u>HC(gm/hr)</u>	<u>NOx(gm/hr)</u>
Lindberg Center Station	61,443	5,024	1,918
Lindberg Drive-Referendum Line	14,610	1,219	598
Piedmont Road-Referendum Line	46,639	3,824	1,467
Combined Lindberg Dr. and Piedmont Rd.-Referendum Line	61,249	5,043	2,065

1 9 8 5

24 HOUR (WORST CASE)

	<u>CO(tons/yr)</u>	<u>HC(tons/yr)</u>	<u>NOx(tons/yr)</u>
Lindberg Center Station	97.82	8.06	3.93
Lindberg Drive-Referendum Line	23.36	1.96	1.12
Piedmont Road-Referendum Line	74.67	6.13	2.72
Combined Lindberg Dr. and Piedmont Rd.-Referendum Line	98.03	8.09	3.90

## MICROSCALE ANALYSIS

The purpose of the microscale analysis is to determine whether the proposed facility will violate the National Ambient Air Quality Standards (NAAQS) for CO.

The highest concentrations of CO associated with an indirect source, such as a station parking lot, most frequently occur in the vicinity of access roads, nearby intersections and entrance/exits to or from the facility. The microscale CO impact analysis therefore focuses on the relationship between the traffic of nearby intersections and entrance/exit locations. The key traffic parameters associated with CO emission levels are:

Volume Demand. The average number of vehicles wanting to pass a given point during a given time period (e.g. 1-hour, 8-hour etc.)

Capacity. The maximum possible number of vehicles which has a reasonable expectation of passing a given point during a given time period under unstable flow traffic conditions (e.g. level of service E).

Volume Demand to Capacity Ratio. The ratio of volume demand to capacity.

Signal Cycle Length. The amount of time required for all phases of a traffic signal to occur once.

Green Time to Signal Cycle Ratio. The fraction of the time that a traffic light is green at a given intersection approach.

Unimpeded Intersection Approach Capacity. The maximum number of vehicles that could be accommodated by a signalized intersection approach if the signal were always green.

Volume demand provides an estimate of the source's impact on traffic and is an important indicator of emissions when there is little or no congestion on access roads. Highly congested traffic conditions result in increased vehicle running times, lower operating speeds closer spacing between vehicles and increased emissions. The volume demand to capacity ratio  $V/C$  provides an indicator of congestion on those portions of nearby roadways which are not near intersections. Green time to signal cycle ratio is a key determinant of the capacity of an intersection approach to an indirect source facility's ability to accommodate traffic volume demand. The average length of queues forming at such an intersection is directly proportional to the proportion of time that a signal cycle is not green. Signal cycle length is also a determinant of queuing at an intersection approach. The shorter the signal cycle length, the shorter the average queue length when the light is red. However, the shorter the cycle length the more frequently that queuing is likely to occur.

Microscale CO concentrations associated with the proposed Lindbergh Center Station were estimated for sensitive receptor locations on sidewalks along Piedmont Road (See Figure 1) in the vicinity of the facility, following the screening procedure recommended in reference 1. The Piedmont Road site was chosen for the analysis because of large traffic volume demand, high volume to capacity ratio and its proximity to the proposed Lindbergh Center Station (location is immediately adjacent to the station parking lot). The screening procedure divides a typical block into three zones -- one for each approach intersection and one midblock section. Average CO concentrations due to vehicular emissions on the adjacent street along the sidewalk centerline at breathing height may be determined by averaging the contributions from each of the three zones according to the following expression:

$$CO = \frac{(CO)_1 * X_1 + (CO)_2 * X_2 + (CO)_3 * X_3}{X_1 + X_2 + X_3}$$

where  $CO_1$ ,  $CO_2$  and  $CO_3$  are concentrations of CO in ppm for each zone and  $X_1$ ,  $X_2$ , and  $X_3$  are the respective zone lengths. The zone lengths and individual concentrations are functions of the above mentioned traffic parameters. Traffic data used in the microscale analysis are shown in Table 5.

#### PEAK ONE-HOUR CONCENTRATIONS

One-hour CO concentrations were calculated for a signal cycle length of 60 seconds. The average one-hour CO concentration along the sidewalk centerline, three meters from Piedmont Road, for this signal cycle was 11.0 ppm for the year 1985. These concentrations are attributed solely to traffic in the immediate vicinity of the indirect source. In order to obtain the total concentration at this location two additional quantities -- the ambient or background CO concentration of 0.8 ppm was assumed, and the impact of emissions from within the proposed parking facility were accounted for by adding an additional 2.0 ppm increment to the one-hour background concentration (limited data collected by EPA suggest that this value is conservative). The total average one-hour CO concentration at a representative receptor location along Piedmont Road would therefore be 14.0 ppm for 1985. The value is below the one-hour National Ambient Air Quality Standards (NAAQS) which permit a maximum level of 35 ppm as a maximum acceptable level not to be exceeded more than once in a year in any locality.

Total eight-hour traffic volumes used for the peak eight-hour analysis were assumed to be five times the peak hour volume. This assumption represents a conservative estimate of traffic volumes traveling on Piedmont Road during the peak eight-hours. The predicted eight-hour CO concentration for the year 1985 is 2.5 ppm using a 0.6 persistence factor. An ambient background CO concentration of 0.8 ppm was assumed and an additional 0.8 ppm was added to the predicted 8-hour value. The total 8-hour CO concentration at the receptor location would then be 4.1 ppm. This value is below the National Ambient Air Quality Standards which permit a maximum value of 9.0 ppm.

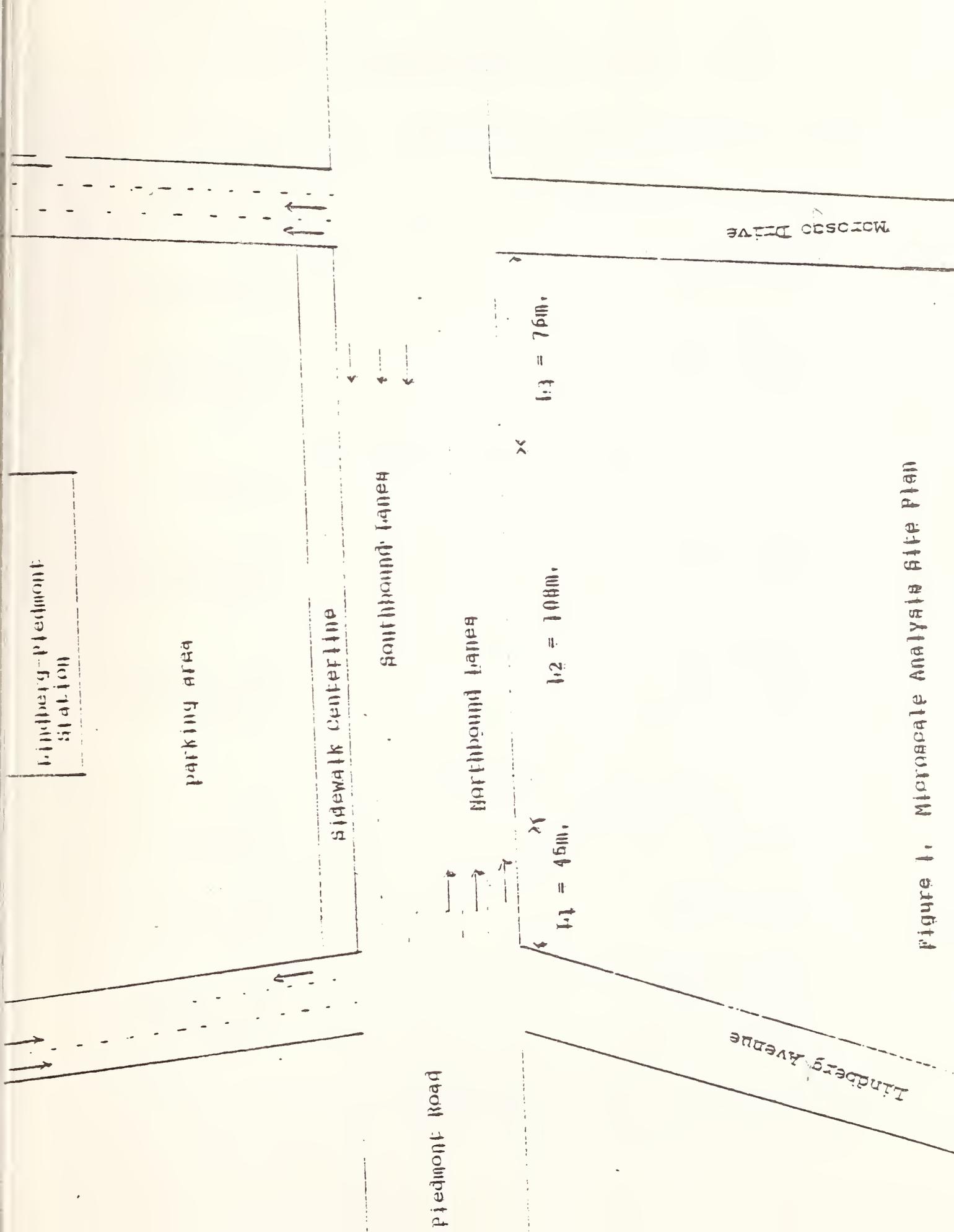


Figure 1. Microscale Analysis Site Plan

Table 5. 1885 Traffic Data for Microscale Analysis  
of 1 - Hour CO Concentrations\*

INTERSECTION PIEDMONT ROAD AND LINDBERGH DRIVE

Number of cycles per hour	60
Green time to cycle length	0.8
Queue length	45 meters
<u>Upstream Lanes</u>	
Number of lanes	3
Volume per lane	567 vehicles/hr.
<u>Downstream Lanes</u>	
Number of lanes	3
Volume per lane	633 vehicles/hr.
Capacity per lane	730 vehicles/hr.
V/C	0.84

PIEDMONT ROAD BETWEEN MOROSGO DRIVE AND LINDBERGH DRIVE

Length of Midblock Section	108 meters
<u>Northbound Lanes</u>	
Number of lanes	3
Volume per lane	633 vehicles/hr.
Capacity per lane	750 vehicles/hr.
V/C	0.84
<u>Southbound Lanes</u>	
Number of lanes	3
Volume per lane	567 vehicles/hr.
Capacity per lane	667 vehicles/hr.
V/C	0.85

INTERSECTION PIEDMONT ROAD AND MOROSGO DRIVE

Number of cycles per hour	60
Green time to cycle length	0.7
Queue length	76 meters
<u>Upstream Lanes</u>	
Number of lanes	3
Volume per lane	633 vehicles/hr.
<u>Downstream Lanes</u>	
Number of lanes	3
Volume per lane	567 vehicles/hr.
Capacity per lane	667 vehicles/jr.
V/C	0.85

\*Traffic Data supplies by Parsons Brinckerhoff-Tudor-Bechtel.

## CONCLUSION

Estimates of peak one-and eight hour CO concentrations at representative sensitive receptor locations in the vicinity of the proposed facility indicate that neither the National Ambient Air Quality Standards for CO nor the Georgia One-Hour Standard will be violated. Furthermore, the effect of the proposed Lindbergh Center Station on macroscale air quality is marginal. Selection of a preferred alternative should, therefore, be based on factors other than air quality.





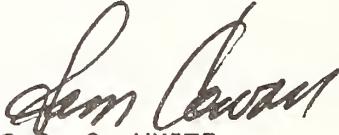
SADPD-F  
Mr. J. Fraser

11 March 1980

Mr. Kothari informed us that MARTA has made an inquiry to our Mobile District regarding a permit for the proposed construction. They will inform you in the near future of any requirements in that regard.

We hope that this information satisfies your immediate needs. Let us know if we can be of further service.

Sincerely,

  
for C. G. WHITE  
Chief, Planning Division

## C. NOISE

MARTA uses in its design guidelines certain train noise criteria. These conform to the American Public Transit Association's published guidelines for the design of rapid transit facilities. These criteria have been determined from a long history of determination of maximum single event noise levels which are found acceptable in the three main general categories of residential area and from total noise exposure calculations for typical transit system scheduling. Tables C-1, C-2, and C-3 are reproduced directly from MARTA design manuals.

In the vicinity of Piedmont Road the measurements indicated a nighttime average ambient level (L50) of 48 to 52 dBA.

Compared to other residential areas this indicates that the area could be classified as a busy urban residential or average semi-residential/commercial area with 80 dBA maximum train noise as the design criteria. However, the actual land use does not agree with this and assessment as "average" residential with 75 dBA maximum train noise is the appropriate design choice.

In terms of comparative noise levels, in "quiet" residential areas the typical well muffled automobile passing by at about 25 mph produces 70 dBA levels at the front of residences along the street. This is similar to the criteria for maximum train noise in such areas. Thus, the transient noise or noise of brief excursions for the transit trains is of the same or similar levels to street traffic transient noise which is considered acceptable or appropriate for the area, i.e., of much lower level than noisy motorcycles or trucks but comparable to well muffled and controlled autos. Similarly, in average residential areas the street traffic produces 10 percentile or typical maximum levels of 70 to 75 dBA - excluding noisy or improperly muffled vehicles - and the appropriate design for maximum train noise in such areas is 75 dBA. Again, this results in train noise maximum levels being similar to other acceptable transient noise in the area and minimizes train noise impact.

The design for the Piedmont Road area, with acoustical barriers, of 71 to 73 dBA for the train noise at residential buildings is appropriate based on the land use type and is less than the ambient noise level measurements indicated should be acceptable. Thus, the design should result in small or acceptable impact from the train noise.

Note, again, that it is not realistic to limit and design for median levels rather than "peak" or maximum noise levels, and that is not the MARTA design procedure. The use of the median levels observed is only as an aid in defining the train noise criteria appropriate for an area.

To lessen noise in critical areas MARTA uses noise barriers. MARTA uses two types of barriers:

- a. Concrete panels of the outer edge of aerial structure deck for aerial structures, and
- b. Masonry walls or panels extending from ballast to appropriate height for ballast and tie at-grade tracks.

TABLE C-1

GENERAL CATEGORIES OF COMMUNITIES  
ALONG TRANSIT SYSTEM CORRIDORS

<u>Area Category</u>	<u>Area Description</u>	<u>Typical (Average L<sub>50</sub>*) Ambient Noise Level</u>
I	<u>Low density</u> urban residential, open space park, suburban	40-50 dBA - day 35-45 dBA - night
II	<u>Average</u> urban residential, quiet apartment and hotels, open space, suburban residential, or occupied outdoor area near busy streets.	45-55 dBA - day 40-50 dBA - night
III	<u>High density</u> urban residential, average semi-residential/commercial areas, parks, museum and non-commercial public building areas.	50-60 dBA - day 45-55 dBA - night
IV	<u>Commercial</u> areas with office buildings, retail stores, etc., primarily daytime occupancy. Central business district.	60-70 dBA
V	<u>Industrial</u> areas or freeway and highway corridors.	Over 60 dBA

\*L<sub>50</sub> is the median noise level.

Noise level guidelines for train operations should be derived considering the five general categories of community areas, defined in Table 2-7-3, and should also include consideration of the type of building. Single event maximum noise level design goal guidelines for airborne noise from trains in each of the area categories and for several types of buildings or occupancies are given in Table 2-7-C.

TABLE C-2

GUIDELINES FOR MAXIMUM AIRBORNE NOISE  
FROM TRAIN OPERATIONS

<u>Community Area</u> <u>Category</u>	<u>Single Event Maximum</u> <u>Noise Level Design Goal</u>		
	<u>Single</u> <u>Family</u> <u>Dwellings</u>	<u>Multi-</u> <u>Family</u> <u>Dwellings</u>	<u>Commerical</u> <u>Buildings</u>
I Low Density Residential	70 dBA	75 dBA	80 dBA
II Average Residential	75	75	80
III High Density Residential	75	80	85
IV Commercial	80	80	85
V Industrial/Highway	80	85	85

These design goal guidelines are applied to nighttime operations because the sensitivity to noise is greater at night than during daytime hours. These guidelines should be applied outdoors and references to the building or area under consideration but not closer than 50 ft from track centerline. Because of the transient nature of train noise, community acceptance should be expected if the noise levels do not exceed these guidelines at night at the affected buildings or use areas.

For some types of buildings or occupancies maximum noise level limits should be applied regardless of the community area category and the designer should be particularly careful in locating surface or aerial transit lines adjacent to auditoriums, TV studios, schools, theatres, amphitheatres and churches. Table 2-7-D lists guidelines for maximum airborne noise from train operations in these areas.

TABLE 2-7-D

GUIDELINES FOR MAXIMUM AIRBORNE  
NOISE FROM TRAIN OPERATIONS

<u>Building or</u> <u>Occupancy Type</u>	<u>Single Event Maximum</u> <u>Noise Level Design Goal</u>
Amphitheatres	60 dBA
"Quiet" Outdoor Recreation Areas	65 dBA
Concert Halls, Radio and TV Studios, Auditoriums	70 dBA
Churches, Theatres, Schools, Hospitals, Museums, Libraries	75 dBA

In both cases the barriers are located close to the trains and are of sufficient total height to effectively shield all noise sources on the transit vehicles and track. For aerial structures the typical height is 5 ft and for at-grade tracks about 8 ft. Design calculations and in-situ tests of barriers installed on MARTA East-West line structures indicate noise reductions of 9 to 10 dBA for both configurations. The barrier designs have been determined to be cost effective by the results achieved along the East-West line.

The  $L_{50}$  noise parameter is used only as an aid in defining the appropriate design criterion to apply to a particular neighborhood. The impact assessment is largely based on  $L_{max}$  with the secondary consideration of  $L_{eq}$  and  $L_{dn}$  in determining the appropriate  $L_{max}$  for each area. The values for  $L_{max}$  are selected to provide acceptable  $L_{eq}$  or  $L_{dn}$  while still avoiding excessive  $L_{max}$ . In most cases  $L_{max}$  is the governing factor because of the relative levels of short duration train noise and the typical background or residual noise levels.



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