# V. ENVIRONMENTAL IMPACTS AND MITIGATION

- **ENVIRONMENTAL IMPACTS AND MITIGATION**

## A. Socioeconomics/Land Use/Aesthetics

### 1. Existing Conditions

#### 1.1 Analysis Methodology

The study area to assess potential impacts to socioeconomics, land use, and aesthetics is defined as the area of the Central Ward of Newark, bordered by Fifth Street and Littleton Avenue to the west, Route I-280 to the north, Hudson Street to the east, and Twelfth Avenue to the south (see Figure V-1).

The primary impact area includes properties within and abutting the affected right-of-way, between Sussex Avenue and West Market Street. The secondary impact area extends approximately 1,000 feet from the project corridor. The northern boundary of the study area was terminated at the Route I-280 right-of-way, since the highway right-of-way will not be directly affected by the proposed project and Route I-280 effectively separates the area to the north from the project area.

A two-phase analysis was conducted to identify and assess potential socioeconomic and land use impacts resulting from the proposed University Heights Connector project. The first phase consisted of documenting the existing character and significant features of the study area, reviewing pertinent planning and zoning documents, and identifying development proposals within the study area.

Field surveys were conducted to determine existing land use, and the status of current development proposals. Interviews with representatives of the City of Newark, the Newark school district, and affected property owners and business operators were conducted to obtain information characterizing community facilities and businesses within the study area.

A photographic inventory of the project corridor was compiled to document the existing visual character of the study area.

The second phase of the study consisted of an assessment of the proposed project's impacts. The socioeconomic impact analysis considered residential, business, and community facility displacements, community cohesion and stability, as well as the project's fiscal impact. The land use impact analysis considered the project's consistency with local and regional plans, its effects on current development proposals within the study area, its consistency with the study area's existing land use pattern, and potential changes to development opportunities within the study area. The visual impact analysis reviewed effects of the proposed street improvements on the aesthetic character of the project corridor.

Insert Figure V-1

## 1.2 Social Characteristics

### 1.2.1 Neighborhoods

The study area includes four distinct neighborhoods, including a residential neighborhood to the west of First Street, an industrial neighborhood to the east of First Street, a residential neighborhood in the northeast corner of the study area, and an institutional neighbrhood to the south. These neighborhoods are characterized as follows:

- The area to the west of First Street, commonly referred to as Roseville, consists of a mostly residential neighborhood with some scattered neighborhood commercial establishments. Residential uses consist of one to four-family residential structures, with a few larger apartment buildings. Ten houses of worship, a public elementrary school, a private elementary school, and the Roseville Branch of the city's library system are located in the neighborhood. This area is also characterized by a significant number of vacant properties and buildings, many owned by the City. Noteworthy is a development of attached single-family residences located at the intersection of Dickerson and Second Streets. Commonly referred to as the Roseville Resurrection development, the development consists of attached single famiy residences that were recently constructed at the four corners of this intersection. In addition, Rosa Realty recently completed a development consisting of two-family residences at the southeast corner of Dickerson and Third Streets. Finally, Sylvan Summer Homes is rehabilitating nine row houses located at the northwest corner of Dickerson and Third Streets. The Central Avenue commercial corridor runs through the southern portion of this neighborhood, and consists of various retail shops, personal services, restaurants, and bars.

- A predominantly industrial neighborhood is located to the east of First Street. This neighborhood is characterized by industrial and commercial establishments, although many of the industrial buildings are vacant. Residential uses are scattered throughout this area. Boys Park, an undeveloped Green Acres site, is located in its north central area. Vacant land and buildings occupy a significant part of the neighborhood, constituting over a third of the neighborhood. Community facilities in this neighborhod include the Essex County Juvenile Detention Center, the Bethany Baptist Church, and the Bethany Christian Academy.

- The area to the south of the First Street corridor largely consists of the University of Medicine and Dentistry of New Jersey (UMDNJ) campus. This area also contains two-low-rise garden apartment developments, two 18-story multifamily buildings, and a pocket of commercial development along the south side of West Market Street. Engine 7 of the Newark Fire Department is located at the intersection of West Market Street and Warren Street, while the Saint Vincent Academy is located just west of the fire station.

- The northeast corner of the study area contains a distinct residential neighborhood that continues eastward to Martin Luther King Boulevard. This area consists of detached one- to four-family residences with some mixed commercial and residential uses along Sussex Avenue. This neighborhoood is characterized by smaller lots and less vacant land, as compared to the Roseville neighborhood.

### 1.2.2 Population and Housing

Data on the demographic characteristics of residents within the study area were obtained from the 1990 and 2000 Censuses. Information pertaining to the number of residents and households in the study area, their race, sex, and age was available from the 2000 Census, while data concerning median household income, persons below poverty level, tenure, and median value of housing units was only available from the 1990 Census. In addition, a residential contact survey conducted by NJDOT in March and April of 2000 provides more specific data regarding the residences located along First Street.

The study area falls within Census Tracts 10, 11, 13, 15, and 82. Table V-1 summarizes the demographic characteristics of residents within the study area. It is noted that the boundaries of the census tracts do not coincide with the boundaries of the study area.

The census data reveal the five census tracts had a population of 12,546 persons in the year 2000, or 4.6 percent of the city's total population. Most the area's residents were non-white (86.8). The census data also show that in 1990, 27 percent of the study area population had a household income below the poverty line. These percentages exceeded those exhibited by the city as a whole, (73.5 and 25.7 percent respectively).

**Table V-1**
**Demographic Characteristics**

| Demographic Characteristic | Census Tract 10 | Census Tract 11 | Census Tract 13 | Census Tract 15 | Census Tract 82 | All Census Tracts | City of Newark |
|---|---|---|---|---|---|---|---|
| Population (2000) | 4,542 | 2,550 | 1,410 | 1,673 | 2,308 | 12,483 | 273,546 |
| Non-White (%) (2000) | 82.8 | 77.6 | 96.7 | 95.6 | 92.5 | 86.8 | 73.5 |
| Hispanic Origin [(1)] (%) (2000) | 32.2 | 15.1 | 8.5 | 14.0 | 4.8 | 18.5 | 29.5 |
| Median Age (2000) | 30.8 | 23.2 | 28.8 | 25.9 | 31.3 | 28.5 | 30.8 |
| Over 65 (%) (2000) | 14.2 | 3.0 | 9.4 | 7.2 | 13.0 | 10.2 | 9.3 |
| Households (2000) | 1,255 | 554 | 429 | 558 | 821 | 2,417 | 91,382 |
| Median Household Income (1990) | $18,750 | $29,000 | $23,681 | $18,792 | $10,327 | NA | $21,650 |
| Persons Below Poverty Level (%) (1990) | 25.3 | 32.3 | 15.0 | 35.0 | 33.5 | 27.3 | 25.7 |

[(1)] Includes persons classified as both white and non-white.
NA = Not available.
Source: U.S. Bureau of the Census, 1990 and 2000.

### 1.2.3 Community Facilities

Community facilities in the study area include a number of churches, schools, and public facilities as shown on Figure V-2. Notable community facilities located within the study area include the following:

- **Sussex Avenue School**. The Sussex Avenue School, with an enrollment of approximately 400 students, occupies the entire block of Sussex Avenue between Second and Third Streets. Although not within the project corridor, this facility to some degree influences pedestrian and vehicular travel patterns in the surrounding area. The school provides elementary education (Grades K-8) to Central Ward neighborhoods.

- **Newark Christian School**. This is a private elementary school located at the northwest corner of the intersection of First Street and Sussex Avenue. This school provides elementary education for grades K-8, with a staff of 12 teachers, administors, and support personnel. Its enrollment for the 1999-2000 school year was 78. The school borders First Street and the project corridor to the south and east, a residential area to the west, and Route I-280 to the north.

- **Saint Vincent Academy**. This private secondary school is located on West Market Street at its intersection with Warren Street. The school enrolls approximately 300 female students in Grades 9-12. The school has a staff of 40 personnel, including teachers, administrators, and support staff. The school is planning to construct a new building at the site to expand its facilities, but will not increase its enrollment.

- **Bethany Christian Academy**. This private school is asssociated with the Bethany Baptist Church, and is located on West Market Street, north of its intersection with Hudson Street. The school, which was constructed within the past five years, has an enrollment of 50 students in Grades pre-K-3. The staff consist of 9 persons, including teachers, administrators, and support staff. The school plans to expand its education program to include Grades 4-6. The property borders a declining industrial neighborhood to the north and east, an automotive establishment to its north, and St. Vincent's Academy and Engine Company #7 to the south.

- **Engine Company 7**. This fire station house is located at the intersection of West Market, Hudson, and Warren Streets. The site includes one pumper (Engine 7) and the battalion chief for Battalion 1. The site is currently staffed by seven firefighters per shift. A rescue squad may be relocated to the existing building in the nrear future, which will increase the number of staff to 12.

- **Liberty Park**. Located at the intersection of West Market Street and Central Avenue in the western section of the study area, this park provides a passive open space which includes park benches and shade trees.

Insert Figure V-2

- **Boys Park**. This site is loated at the intersection of Sussex Avenue and Duryea Street. The property was acquired by the City through the Green Acres program, but has not been developed into a recreational facility.

- **Essex Residential Group Center**. This facility is a group home for juvenile delinquents (14 to 18 years old). It is operated by the state, and has a capacity for 35 residents. The facility has 25 employees, and provides shelter, food, counseling, educational, and medical services for the juveniles placed there.

- **Essex County Juvenile Detention Center**. Operated by Essex County, this secured detention facility is located to the east of the project corridor, on the south side of Sussex Avenue between Duryea and Hecker Streets. The facility was built in 1997, with a capacity for 206 incarcerants. The site already exceeds its design capacity. The site is staffed by approximately 210 personnel, including juvenile detention officers, administrators, and support staff. The facility provides inmates with medical, educational, recreational, and counseling services.

- **University of Medicine and Dentistry of New Jersey**. The university is located to the south of the project corridor, and consists of offices, classrooms, and University Hospital. A prior traffic study indicates that approximately 40 percent of the traffic within the First Street corridor is headed to the university and its hospital.

- **Haitian Baptist Church at the Crossroads**. This religious facility is located at the northwest corner of First Street and Central Avenue. The property contains one building. The church also owns a property along the north side of Central Avenue that it uses for parking.

- **Supernatural Deliverance Tabernacle Church**. This church facility is located at the northwest corner of the intersection of First and Dickerson Streets, and has approximately 100 members. The property contains one building with no off-street parking facilities.

- **Phillips Metropolitan Christian Methodist Episcopal Church**. This church facility is located at the southwest corner of Morris Avenue and Dickerson Street, and fronts Morris Avenue. The property extends along the entire frontage of Dickerson Street between Morris Avenue and First Street, and has 50 feet of frontage on First Street. The property contains one building, as well as off-street parking facilities.

Churches located within the secondary study area include the Iglesia Pentecostal Church, the Kingdom Hall of Jehovah's Witnesses, the Union Baptist Church, the Faith Temple Center, the Grace Bible Tabernacle, the Bethany Baptist Church, and the Williams Temple.

### 1.3. Economic Characteristics

#### 1.3.1 Local Business Activity

Employment information is not maintained at any level more specific than the municipal level by the New Jersey Department of Labor. As a result, businesses were directly contacted to determine the number of employees at each establishment along First Street. The following businesses are potentially affected by the proposed project:

- **Wendy's**: This fast-food restaurant, located at the southwest corner of the intersection of First Street and West Market Avenue, employs twenty-one black, one white, and two Hispanic employees, and draws its business from college students and local workers. Much of its business is conducted at the drive-through window. One employee drives to work, six take a bus, and 17 live within walking distance. The restaurant has 23 off-street parking spaces.

- **Garden State Check Cashing**: This business, located at the southwest corner of the intersection of First Street and Central Avenue, employs one full-time employee and two part-time employees; all black. The business provides check-cashing services for neighborhood residents. Two employees commute by bus, and one employee commutes to work by car. The business occupies a floor area of approximately 500 square feet. A key factor for this business is access to a bus line near a residential neighborhood. Off-street parking is not available at the site.

- **Nubian's Grocery and Deli**: This business is located at the southwest corner of the intersection of First Street and Central Avenue on the ground floor of an unoccupied four-story apartment building. Operated by a sole proprietor, it consists of a grocery store that also prepares fast food for lunch. The grocery store has been in operation since 1996, and employs four black persons who reside in the City. The employees all commute to work by bus. The business occupies an area of approximately 500 to 600 square feet. Off-street parking is not available at the site.

- **Defense Sports Wear**: Located in the same building as the grocery store, this business is also operated by a sole proprietor. The store sells clothing. The store employs three black employees who commute to work by car. All employees are members of the owner's family, and work at the store on a part-time basis. The business, which occupies a floor area of 300 square feet, has been in operation for approximately one year. Off-street parking is not available at the site.

- **Checkers Restaurant**: This fast food restaurant is located at the northeast corner of the intersection of First Street and West Market Street. The owner provided the following information regarding this business. The restaurant employs 43 persons, all black, of which 35 reside in Newark. The remainder of the employees live in Irvington, Orange, East Orange, and Jersey City. Ten of the employees participate in State-sponsored programs, seven are in halfway houses, and three are welfare recipients. One of the halfway house residents has been promoted as a manager. All workers commute to work by bus or live within

walking distance. The restaurant is part of a franchise (Metro Burger, LLC) that owns seven other Checkers restaurants, which are located in East Orange, Passaic, Paterson (2), Jersey City, Toms River, and Sayreville. The franchise employs 300 entry-level team members and 25 managers. The First Street restaurant benefits from the high visibility of the site and the adjacent traffic flow. As a result, it is one of the top 25 Checkers restaurants in the country. The Newark location paid $307,700 in wages to its employees in 2001, and collected $88,200 in State sales tax. In addition, the Newark restaurant serves as the training center for the franchise. Nine current managers got their start in Newark. The loss of the Newark location could jeopardize the entire franchise.

#### 1.3.2 Fiscal Resources

According to the 2000 municipal tax records, the city's tax base was $825,889,225, and the total tax levy for municipal purposes was $78,111,499.

### 1.4 Land Use

#### 1.4.1 Existing Land Use

The study area is typified by a variety of land uses, including public/quasi-public institutions, commercial, office, light industrial, automotive-related activities, and a variety of residential uses. A noteworthy feature of the study area is the presence of a large number of vacant properties and buildings. Significantly, the First Avenue corridor functions as a transitional area, separating two areas with distinctly different land uses. The area to the west of First Street is largely residentially developed while the area to the east is largely developed with industrial and commercial uses. The existing development pattern of the study area is summarized in Table V-2 and shown on Figure V-3.

**Table V-2**
**Total Acreage by Land Use**
**University Heights Connector Study Area**

| Land Use | Land Area (acres) | Percentage |
|---|---|---|
| Public/Quasi-public | 39.2 | 36.2 |
| Residential | 32.2 | 29.7 |
| Industrial | 10.3 | 9.5 |
| Commercial | 4.6 | 4.2 |
| Automotive | 2.2 | 2.0 |
| Restaurant/Bar | 1.9 | 1.8 |
| Office | 1.3 | 1.2 |
| Vacant | 16.7 | 15.4 |
| **Total** | 108.4 | 100.0 |

Source: Land use survey and city tax records.

Insert Figure V-3

The land use of properties required for the proposed project consists of residential uses, two houses of worship, vacant land, and a commercial building.

The development pattern along the west side of First Street is varied and intermittent. Development is concentrated in two parts of the street frontage, with vacant land interspersed. Specifically, the area between Sussex Avenue and New Street consists of 30 properties of which ten properties are residentially developed and sixteen are vacant.

The remaining properties include two churches, a commercial property developed with a three-story building with street level storefronts and vacant upper floor apartments, and an industrial property containing a vacant industrial building. The residential structures have been rehabilitated for occupancy within the past ten years. Tenants at the residential properties use the adjoining vacant lots as unimproved parking lots. The continuity of development in this area is interrupted by vacant lots, which together with the presence of a vacant industrial building detract from the overall aesthetics of this area. The area would benefit from the development or redevelopment of the vacant properties.

Properties situated on the west side of First Street, between Sussex Avenue and West Market Street, occupy an area of 9.4 acres. The area's development pattern is described below:

The percentage of vacant land is higher within the project corridor than the overall study area. Vacant land constitutes 2.0 acres, or 20.2 percent of land within the project corridor. Most of this land is situated on the west side of First Street.

- Residential uses along the project corridor are primarily located on the west side of right-of-way, with the exception of a four-family residence at the southeast corner of First Street and New Street. Residential uses fronting on First Street occupy an area of 1.0 acre, or 8.4 percent of the project corridor.

- Two churches are located in the project area. The Haitian Baptist Church at the Crossroads and the Supernatural Deliverance Revival Tabernacle Church are situated on the west side of First Street, while the rear of the Phillips Metropolitan Christian Methodist Episcopal Church abuts the east side. Overall, churches occupy an area of 1.4 acres, or 14.9 percent of the land within the study area.

- Non-residential development within the project corridor, including industrial, retail, office, and restaurant uses, is concentrated on the east side of First Street. Such uses occupy an area of 5.0 acres on the east side of First Street, but only 0.5 acre on the west side of the street, including a vacant industrial building. Land uses on the east side of the street include the Tuck-It-Away warehouse and the former N.S. Clothing building (closed for business as of January 2002) located between Sussex Avenue and Dickerson Street, an office building at the northeast corner of the intersection of First Street and Central Avenue, the C. Patti Electroplating company at the northeast corner of First and New Streets, and the Checkers fast-food restaurant at the intersection of First and West Market Streets. Commercial uses on the west side of First Street include a fast-food restaurant at

the intersection of First and West Market Streets, and a building containing five storefronts on the south side of intersection of First Street and Central Avenue.

### 1.4.2 Newark Master Plan

The proposed project is consistent with and implements the city's master plan, as summarized below:

- The proposed street improvement project is consistent with the goals, objectives, and principles advanced in the city's master plan. Specifically, this includes plan goals to enhance transportation routes within the City and provide additional recreational facilities for city residents.

- The proposed project positively addresses several problems identified in the city's master plan and reexamination report. First, the 1990 Master Plan found there were inadequate connections between the local street system and regional highways. The 1999 reexamination report found access from city streets to the regional highway system still poses a problem. The proposed action will serve to reduce this problem within the study area.

- The proposed project includes the construction of one link in the Newark Greenway Network, which is designed to enhance pedestrian and bicycle accessibility in the city. When completed, the 18.5-mile Greenway Network will provide connections between Newark's recreational, cultural, and educational resources, and its residential neighborhoods. Within the project corridor, the New Jersey Department of Transportation will construct a Class 1 bikeway as part of the proposed First Street right-of-way improvements.

- The proposed project also furthers a 1990 master plan objective to promote pedestrian and bicycle routes as a means to reduce vehicular trips in the City. The reexamination report notes there have not been any major improvements in the pedestrian and bicycling environment since 1990.

- The reexamination report notes that Newark accounted for 15 percent of all statewide traffic accidents involving pedestrians between 1991 and 1995. The proposed street widening and associated pedestrian circulation improvements will serve to enhance pedestrian safety along this street segment. The proposed action will advance these principles by reconstructing the right-of-way improvements in an attractive manner, and will include provision for safe pedestrian and bicycle circulation through the project area.

The proposed project is also consistent with the circulation objectives of the Newark 1990 Master Plan, which calls for "improved street and intersection capacity in areas of heavy traffic demand."

Additionally, the proposed project is consistent with the City's Draft Node Development and Transportation Plan, dated March 2000, which identifies the University Heights Connector project as a means to enhance traffic circulation along the First Street corridor.

### 1.4.3 Zoning

Zoning within the project area falls under the jurisdiction of the City of Newark. Zoning patterns within the area consist of districts that allow for a wide range of residential, commercial, industrial, and institutional uses. Newark representatives have indicated that the city's zoning map is not consistent with its land use plan and the existing development pattern, and that a comprehensive update is currently being conducted to provide the basis for a new zoning ordinance.

The following zoning districts are located in the study area:

*Residential 3 (R-3)* – This district permits one to four family residences, attached units, as well as all uses permitted in the R-1 and R-2 districts.

*Business 2 (B-2)* – This district permits various intensive commercial uses including laundries, pool and billiard halls, storage warehouses, drive-in restaurants, arcades, as well as rooming and boarding houses.

*Business 4 (B-4)* – This district permits intensive commercial and industrial businesses such as drive-in restaurants, building material storage, machine shops, cement block manufacture, gasoline filling station, etc.

*Industrial 1 (I-1) and Industrial 2 (I-2)* – These districts permit light industrial uses that do not produce excessive noise, smoke, odors, etc.

Figure V-4 illustrates the boundaries of the zoning districts within the study area. The figure shows that properties to be acquired on the west side of First Street are zoned I-1 or B-2, whereas properties to be acquired on the east side are zoned I-2 or B-2.

As noted, the City of Newark is in the process of revising its zoning plan. It is the City's intention to modify the zoning plan to more closely follow the existing pattern of development throughout the city. These changes would not conflict with or limit the design or construction of the proposed project.

### 1.4.4 New Jersey Development and Redevelopment Plan

The proposed project is consistent with the goals and policies of the New Jersey State Development and Redevelopment Plan (SDRP), which designates Newark as a Metropolitan Planning Area (PA1). SDRP goals with respect to PA1 include revitalizing cities and towns and redeveloping urban areas. The proposed project advances these goals. In addition, the project is consistent with the following SDRP policies:

- Revitalize the State's cities and towns.
- Provide adequate public facilities and services at a reasonable cost.
- Preserve and enhance areas of historic, cultural, scenic, open space, and recreational value.
- Ensure sound and integrated planning and implementation statewide.

#### 1.4.5 Proposed Development

Three proposed development projects have been identified in the immediate vicinity of the project area, and are described below:

- *Sylvan Summer Homes, LLC*, is currently rehabilitating the existing vacant row houses at 34-50 Third Street. It is anticipated that the dwelling units will be ready for occupancy in late 2002.
- *New Builders, Inc. – First Street*. New Builders, Inc., has plans to construct three two-family residences on the east side of First Street, just south of Dickerson Street. Two of the structures have been constructed to date.
- *Greenstar Construction – First Street*. Greenstar Construction proposes to construct a two-family residence at Block 1840, Lot 11, which is located on the west side of First Street, just south of Central Avenue. According to an agent of Greenstar Construction, the developer has submitted an application for construction permits, and seeks to start construction upon issuance of the requisite permits. The proposed project requires the acquisition of this property. Greenstar's agent, Lucky Realty Associates, has been advised of the proposed project, and was requested to have a representative of Greenstar Construction contact the project team. Greenstar's representative (Corrado Minervini) spoke with the project team on October 1, 2002, to review project status and schedule, and has been added to the list of stakeholders.

### 1.5 Aesthetics

The northern section of the study area is characterized by its old urban development pattern on lots ranging in size from 2,500 to 10,000 square feet. The area consists of commercial development along the thoroughfares, two- and three-story detached dwellings throughout its residential neighborhoods, scattered multifamily residences, a light industrial area comprised of many vacant or poorly maintained structures, and extensive areas of vacant lots. There is a new residential townhouse development at the intersection of Dickerson and Second Streets, and two developments of two-family residences are planned within this area. Route I-280 blocks views of the area located farther to the north, including any view of Branch Brook Park.

The area to the south of West Market Street is characterized by recent institutional, residential, and commercial development on relatively large development tracts. Lots in this section of the study area range in size from one to three acres. Views into this area from the project corridor are limited to the properties along the east and west sides of Bergen Street, and extend only partly to the south.

There are no significant distant views within the study area, though some locations in the southern portion of the study area offer views of Newark's central business district.

## 2. Impacts

The proposed project is located in the central portion of the study area, and runs between a predominantly residential neighborhood to the west and a predominantly industrial/commercial neighborhood to the east. The proposed project entails the acquisition of privately owned properties located along the right-of-way, and the relocation of residents and businesses at these properties.

### 2.1 Socioeconomic Impacts

#### 2.1.1 Direct Impacts

The proposed project will result in the acquisition of 26 dwelling units with approximately 73 occupants in 11 residential structures on First Street. This includes all 22 dwelling units on the west side of the street and a four-family residence on the east side at the southeast corner of First and New Streets. The affected properties are located at the east end of the Roseville neighborhood, and the proposed project will not adversely affect the remaining portions of this neighborhood located further to the west. In fact, residents attending the Public Information Center held on June 29, 2000, expressed concerns about pedestrian safety and traffic volumes along First Street, as well as a desire to move from the First Street Corridor. As a result, the impact of these property acquisitions is considered to be minor and not expected to adversely impact any of the study area neighborhoods or disrupt existing neighborhood cohesion.

The proposed project also includes the acquisition of two community facilities; the Haitian Baptist Church at the Crossroads and the Supernatural Deliverance Revival Tabernacle Church. The Supernatural Deliverance Revival Tabernacle provides community services including a food bank for nearby residents. A representative of the church indicated that although parishioners reside over a wide area generally spanning several miles, with some church attendees residing as far away as Brookln, NY, or Philadephia, PA, the church would prefer to remain within the immediate neighborhood. The presence of a large number of vacant properties and buildings in the area suggests the church would be able to find a suitable new location. A representative of the Haitian Baptist Church has indicated the church would be amenable to relocation, especially to a site where off-street parking could be provided. The church is currently seeking relocation to a multi-story building located at 168 Clinton Street in East Orange, about two miles west of its current location. They have formally approached the NJDOT Office of Community Relations seeking early compensation for relocation costs to help offset the purchase cost of the new building. Both of these community facilities would be relocated in accordance with federal and state requirements. In view of the vacant land available for relocation in the study area for these facilities, this adverse impact will not be significant.

### 2.1.2 Proximity Impacts

As a result of the acquisition and removal of an existing residence at the southeasterly corner of First and New Streets, the adjoining residence on New Street will border the proposed First Street right-of-way. The proposed improvements will include a 20-foot wide open space that will act to buffer this property from traffic along First Street. In addition, the proposed project will not significantly change the proximity of the First Street right-of-way to properties located along Second Street, as these properties will be located at least 60 feet from the proposed right-of-way boundary and are buffered on their easterly boundaries by mature trees and shrubs. The remaining portions of the properties acquired to enable the project will likely be redeveloped for compatible land uses following the construction of the proposed street improvements, with a greenway consisting of pedestrian and bicycle paths that will buffer the properties located to the west. As a result, the project will not result in any significant adverse proximity impacts to adjacent residential properties.

Current access to Hartford Street from First Street is proposed to be eliminated for traffic safety purposes. The proposed impact of this change to the local traffic circulation pattern is not anticipated to result in any adverse impacts. Currently, Hartford Street is one-way eastbound between First Street and Morris Avenue. Under the proposed project, this segment of Hartford Street will be open to two-way traffic, and access between Hartford Street and First Street will be available from Morris Avenue. While this change may result in slight inconvenience for traffic from the west, the change will make travel from the east more convenient.

### 2.1.3 Indirect and Cumulative Impacts

The proposed project is being constructed to address an existing traffic bottleneck. Stimulation of new development is not a goal of this project, although the proposed project is envisioned as supporting planned development and redevelopment of the city's Central Ward neighborhoods.

Cumulative impacts include the effects of other proposed projects in combination with the proposed University Heights Connector improvements. Other transportation projects planned or under construction in the general vicinity of the project corridor include the Route 21 Roadway and Intersection Improvements project, the Newark-Elizabeth Rail Link, the Route 21 Viaduct and Interchange Improvements, and the Route I-78 West Peddie Street Ramps Realignment. Planned local non-transportation projects include housing construction in the project vicinity. These projects will serve to complement the proposed University Heights Connector project in improving the community.

Because of the local nature of the proposed University Heights Connector, the proposed project is not expected to contribute significantly to new development in combination with other planned improvements in the vicinity. It is possible that significant development in Newark's Central Ward and Central Business District (CBD) may in the long term add traffic to the project corridor, since the ramps provide some degree of access to downtown Newark.

However, planned transportation improvements in and around the Newark CBD are being designed specifically to handle projected downtown traffic. Also, the Newark-Elizabeth Rail Link project is expected to reduce the growth of vehicular traffic in Newark.

The improved First Street corridor is not expected to contribute to traffic flow capacity to the downtown area because it is not being designed to accommodate increased growth and traffic volumes. Hence, the proposed corridor improvements are not considered as a significant factor in stimulating or inducing new development in the project area or elsewhere in Newark.

## 2.2 Business Establishments

### 2.2.1 Business Displacements

The proposed project will result in the acquisition of three active businesses in the project area. These acquisitions will result in the displacement of the business operations and the tenant/owners located on one property (Block 1840 Lot 8) at the southwesterly corner of the intersection of First Street and Central Avenue. The property contains a delicatessen, a clothing store, and a check-cashing establishment.

The proposed project will require frontage and minor property acquisitions from commercial properties located at Block 1838 Lots 1 and 8, and Block 1840 Lot 16. The acquisition of frontage from these properties is not expected to result in any adverse impacts to access or usage of these properties by the tenant/owner operators.

The businesses to be displaced are not labor-intensive employers. In addition, these businesses do not have special site location needs, and do not require that they be adjacent or in close proximity to their present locations. The proposed project is not expected to result in any significant or adverse proximity impacts to project area businesses.

### 2.2.2 Proximity Impacts

The proposed project is not expected to significantly alter local or regional circulation patterns. Existing traffic will be maintained through the project corridor during the construction period. In addition, the construction of proposed project will be staged in order to maintain adequate and safe travel. The proposed project is not expected to result in any significant or adverse proximity impacts to project area businesses.

Current access to Hartford Street from First Street is proposed to be eliminated for traffic safety purposes. The proposed impact of this change to the local vehicular circulation pattern is not anticipated to result in any adverse impacts. Currently, Hartford Street is one-way eastbound between First Street and Morris Avenue. Under the proposed project, this segment of Hartford Street will be open to two-way traffic, and access between Hartford Street and First Street will be available from Morris Avenue. While this change may result in slight inconvenience for traffic from the west, the change will make travel from the east more convenient.

## 2.3 Fiscal Impacts

The proposed project is expected to result in only a minor impact to Newark's ratable base by the acquisition of taxable property. The extent of the property tax loss was determined by calculating the direct dollar loss in taxes collected annually, as well as the percentage of total tax ratables the affected parcels represent to Newark.

The direct dollar loss was calculated by first determining the assessed valuation of the properties to be acquired for the proposed project. The estimated percentages of the city's ratable base and revenue loss were also calculated by dividing the losses in assessment and tax revenue by the ratable base and total tax levy, respectively.

The following is the tax loss calculation used for this analysis:

Taxable Rate Loss Calculation:

| | |
|---|---|
| Total Assessed Net Valuation for City of Newark | $825,889,225 |
| Total Assessed Valuation of Acquired Properties | $188,100 |
| | |
| 2000 Tax Rate for Municipal Purposes | $9.45 per $100 |
| Tax Loss | $17,775 |

Based on the above analysis, the estimated assessed valuation of all property to be acquired by the proposed project is $188,100, which is less than 0.02 percent of the city's total ratable base. The estimated tax loss to Newark ($17,775) represents less than 0.02 percent of the city's total 2000 tax levy. The impact to the City of Newark's tax base is considered negligible. Similarly, the fiscal impact on Essex County and the Newark School District would also be negligible.

## 2.4 Land Use

### 2.4.1 Existing Land Use

The proposed project will require the use of 23 properties within the project corridor, and the demolition of any existing structures on these properties. These include ten residential properties on the west side of First Street, one residential property on the east side of the street, one commercial property on the west side of the street, two churches located on the west side of First Street, and five vacant privately-owned lots on the west side of the street. In addition, the project includes a partial taking of the Checkers site, the Wendy's site and the adjoining lot to the north, and the Koeller industrial site. The proposed project is not anticipated to have any significant adverse impacts to existing land use based on the following:

- The properties to be acquired are sufficiently deep to allow their redevelopment subsequent to the construction of the proposed street improvements. It is anticipated that a strip of land up to 44 feet in width will be utilized for the widening of the First Street right-of-way. The remaining portions of acquired lots will be available for redevelopment for residential, commercial, community, or recreation use. The redevelopment of the remaining properties should minimize the number of vehicular access points along First Street. This will serve to reinforce the intended purpose of the proposed street improvement to eliminate a traffic bottleneck within the project corridor. The redevelopment will be consistent and compatible with surrounding development pattern. The adverse land use effects of eliminating the existing uses would, therefore, be relatively short-lived. In the long term, the project corridor will benefit from the future redevelopment of these properties, which include a consistent development pattern along a significant gateway into the city and substantial improvements to the aesthetics of the corridor.

- The project entails acquiring a narrow strip of land along the frontage of an industrial property located on the west side of First Street about 150 feet south of Sussex Avenue (Koeller property). This property currently contains an unoccupied industrial building, although much of the equipment and machinery formerly used at the site is still stored in the building. The potential continued use of this property for industrial purposes will not be adversely affected by the road widening since the building will remain approximately 100 feet from the proposed boundary of the right-of-way and access to and from First Street will remain. In addition, the property could become a significant part of any future redevelopment of the properties located on First Street between Sussex Avenue and Dickerson Street.

- The proposed project will result in modifications to the existing access and layout of the Checkers fast-food restaurant at the northeast corner of the intersection of First, Hartford, and West Market Streets. The proposed street improvements include the acquisition of the entire street frontage, and much of the existing internal circulation drives within this property, thereby eliminating its access to and from First Street. Discussions have been conducted between the operators of the Checkers franchise, the NJDOT (including the Bureau of Right-of-Way) and the Newark Department of Engineering (Traffic Operations) to review possible site modifications. The current design proposes to maintain the existing use of the site by changing the existing building and parking layout. Those modifications are expected to maintain access to and from northbound First Street and New Street. The NJDOT has indicated its willingness to acquire a property abutting the north boundary of the site (408 New Street) for construction staging purposes; this site may then be transferred to the Checkers operators as partial mitigation for site impacts. On their own initiative, the Checkers franchise has discussed their own acquisition of additional adjoining properties (to the east) to consider further betterments to the site, once modification is made necessary by this project.

- The proposed street improvements will have no effect on the use of properties fronting on adjacent streets. This is due to the continued use of the First Street right-of-way as a transportation corridor, the orientation of the properties away from First Street, and the presence of a sufficient buffer by virtue of their distance from the right-of-way.

- The proposed changes to the right-of-way width and design will not adversely affect the continued use of the remaining properties on First Street, but will rather enhance access to these properties by eliminating the existing traffic bottleneck.

- The depth of the properties adjoining the immediate project corridor is sufficient to buffer existing neighboring development from activities along the First Street corridor. The use of residential properties situated along Second Street will thus not be affected by the proposed street improvements or any subsequent redevelopment of the remainders of the properties acquired for the proposed road-widening project.

#### 2.4.2 Newark Master Plan

The proposed project is not expected to result in any impacts to the city's master plan. The proposed project is compatible with the land use designations for the project area.

#### 2.4.3 Zoning

The proposed project is not expected to result in any impacts to existing zoning patterns. The proposed project is compatible with the city's zoning ordinance.

#### 2.4.4 State Development and Redevelopment Plan

The proposed project is consistent with the strategies, policies, and goals of the SDRP, which seeks reinvestment in the state's urban areas, enhancement of existing transportation facilities, and provision of recreational facilities.

#### 2.4.5 Proposed Development

The proposed project is not anticipated to result in any significant adverse impacts to proposed development projects in the study area, except for the Green Star construction project. The acquisition of the Green Star property for the proposed project is not significant since new development will likely occur on the remainders of acquired properties after completion of the proposed project.

## 2.5 Aesthetics

The proposed project is not expected to affect any uniquely constructed or naturally occurring views within the project area. The proposed project will not introduce any significant structures or appurtenances that would intrude into the area's visual character. Rather, the proposed project will enhance the aesthetic character of the First Street corridor. The proposed widening of First Street will include new shade tree planting strips along both sides of the right-of-way, as well as in the proposed median strip. In addition, the project includes a bikeway on the west side of the right-of-way and new pedestrian sidewalks on both sides of the street. Proposed streetscape improvements will include street lighting, aesthetic pavement treatments for the roadway and sidewalks, and sitting benches with tables. Properties that are acquired as a result of the project will likely be redeveloped for recreational, community, residential, or commercial uses. The visual impact of the proposed project will not extend into the secondary areas. The proposed project will substantially improve the aesthetics of the First Street corridor, providing an attractive gateway to City from Route I-280.

## 3. Mitigation

### 3.1 Residential Acquisitions

All residential relocations will be conducted pursuant to the Federally Assisted Programs act of 1970, as amended in the Federal Uniform Act Amendment, effective March 2, 1989 (Chapter 50 NJ Public Laws of 1989). This law is designed to ensure the prompt and equitable relocation of persons displaced as a result of federally funded projects. The services and payments provided include the following:

- Assistance in finding replacement dwellings;
- Moving expense reimbursement;
- Payment of replacement housing supplements, mortgage interest rate differentials, and closing costs to assist in the purchase of a new home;
- Payment of rent supplements that may be converted to a down payment, enabling a tenant to become a homeowner;
- Last resort housing, if needed; and
- Provision of related support services and assistance.

Suitable housing is available within the City to relocate the affected residents over the course of twelve to eighteen months according to area realtors.

### 3.2 Proximity Impacts

In order to mitigate potential proximity impacts stemming from construction activities near existing residential structures, specifications for all contracts will be drafted to require contractors to comply with all applicable laws, regulations, and orders to reduce these impacts. Such impacts can be adequately mitigated by confining hours of construction to the daytime, and by using appropriate mufflers and vibration dampers designed for the equipment used at the site. As a result, adverse impacts of construction activities to residents proximate to the project area will not be significant.

### 3.3 Business Establishments

The NJDOT Right-of-Way Unit foresees no difficulties in the relocation of the six displaced businesses. All project-related relocation payments and services will be provided pursuant to the Federal Uniform Assistance and Real Property Acquisition for Federal and Federally Assisted Programs Act of 1970, as amended in the Federal Uniform Act Amendment, effective March 2, 1989 (Chapter 50, New Jersey Public Law of 1989). This law is designed to ensure the prompt and equitable relocation and reestablishment of businesses displaced as a result of federally funded projects. Based on this law, the NJDOT Right-of-Way Unit offers a Relocation Assistance Program with the following services:

- Assistance in finding business locations;
- Moving expense reimbursement; and
- Allowance to business in lieu of moving reimbursement.

### 3.4 Community Facilities

The NJDOT Right-of-Way Unit would also administer the relocation of two churches within the project corridor. Project-related relocation payments and services would be provided pursuant to the Federal Uniform Assistance and Real Property Acquisition for Federal and Federally Assisted Programs Act of 1970, as amended in the Federal Uniform Act Amendment, effective March 2, 1989 (Chapter 50, New Jersey Public Law of 1989).

### 3.5 Land Use

The proposed project is not anticipated to have any significant adverse impacts to existing land use, local or regional land use plans, local zoning regulations, or proposed development within the study area. Therefore, no mitigating measures are necessary or proposed.

### 3.6 Aesthetics

The proposed project will not result in any adverse impacts of the aesthetics of the project area. Therefore, no mitigation is necessary or proposed.

## B. Environmental Justice

### 1. Existing Conditions

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* signed by President Clinton on February 11, 1994, requires federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. The goal of Executive Order 12898 is as follows:

> …each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States…

The purpose of the environmental justice review is to determine whether a disproportionate share of the proposed project's adverse impacts are borne by minority and low-income populations.

### 1.1 Identification of Minority and Low-Income Populations

The criteria for designating minority and low-income populations were based on Executive Order 12898 and subsequent guidance as follows: USDOT Order 6640.23 (December 2, 1998) *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*; and, *Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses*, USEPA, December 1997. As set forth in USDOT Order 6640.23, "Minority Population means any readily identifiable group of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans)... Low-Income Population means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans)…"

To determine the potential for impacts to low-income and minority populations, it is necessary to take into account the context of the affected neighborhoods. For the proposed project, the project area neighborhoods consist of those areas in the project area within Census Tracts 10, 11, 13, 15 and 82, as defined by the 2000 US Census. All of these Census Tracts are located within the City of Newark. Therefore, the project neighborhoods (based on US Census Tract data) have been analyzed in comparison to the City of Newark. Section 1.2 of this report describes the character of the project study area, including discussion of residential neighborhoods, study area demographics, and community facilities present in the local community, while Section 2.1 discusses potential project-related impacts to the local community. Section 1.3 of this report discusses local business activity, and Section 2.2 outlines potential impacts to project area businesses. Sections 3.1, 3.2, 3.3 and 3.4 identify mitigating measures that would be implemented to address potential impacts to the project area community.

To identify minority and low-income populations, data concerning race were obtained from the 2000 U.S. Census SF-1 files, while data concerning household income were obtained from the 1990 U.S. Census STF-3 files. The data were organized by census tract and were also used to characterize the City of Newark as a whole. These data are presented in Table V-1.

The project area census tracts can be characterized as having minority and low-income populations. All of the census tracts have non-white populations that exceed the percentage of the non-white population for the City of Newark. In addition, the census tracts exceed the percentage of persons of Hispanic origin for the City of Newark. On average, the project area census tracts, as compared to the City of Newark, have a higher percentage of persons with incomes below the poverty level. The Newark Housing Authority has indicated that none of the residents potentially displaced by the proposed project receive housing assistance. Further, conversations with residents attending the Public Information Center did not reveal a lack of mobility or need to remain close to support services or places of employment within the project study area. On the contrary, residents living in the project corridor expressed a desire to relocate in view of perceived dangerous pedestrian traffic conditions along First Street.

Persons and businesses potentially affected by the proposed project were contacted and provided the opportunity to comment, as described in Section VI of this document.

## 2. Impacts

### 2.1 Determination of Disproportionate Impacts on Minority and Low-Income Populations

The proposed project will not result in any significant adverse impacts to minority or low-income residents or businesses within the project study area. Specifically, although the proposed project will require the acquisition of eleven occupied residential properties and one commercial property with three businesses, these acquisitions are not considered to be a significant adverse impact to the local community. Affected residents can be readily relocated within the City of Newark, likely within the immediately surrounding neighborhoods. In fact, residents along First Street indicated during the Public Information Center (PIC) that current traffic conditions contribute to a reduction in their quality of life. A summary of the comments received at the PIC is provided in Appendix C. Specifically, the factors that were noted were high traffic volumes throughout the day, speeding vehicles, and concerns about pedestrian safety. The businesses to be acquired and displaced are not large employers and their functions and services can be readily relocated to other parts of the project area in adjacent neighborhoods. Three of the business owners present at the PIC have since closed their operations. Project-related impacts to community facilities (two churches) are also not considered to be significant. The Haitian Baptist Church has already identified a new location in East Orange, and is seeking assistance from the NJDOT in their relocation effort. The Supernatural Deliverance Tabernacle Church has previously indicated a preference to remain within the Roseville community in view of their continuing community programs. The proposed project is also not expected to result in any significant adverse noise or air quality impacts within the limits of the project area or nearby neighborhoods.

The proposed project will result in beneficial impacts to minority and low-income population groups in the project area. The project will provide improved transportation facilities through the widening of the First Street corridor, the provision of improved pedestrian and bikeway facilities and services, and an enhancement of streetscape aesthetics within the project corridor, all of which serve the low-income and minority populations that reside or work in the project area and adjacent neighborhoods. The principal intent of the project is to eliminate the existing traffic congestion conditions experienced within the project corridor, especially during the peak travel hours, and to eliminate unsafe traffic conditions.

Further, two other alternatives that meet the project needs would result in greater impacts to minority and low-income populations within the project study area. For instance, if First Street were to be widened along the east side of the right-of-way, at least seven businesses employing about 170 employees would be displaced. Most of the employees at these businesses reside in Newark or adjacent communities. The other alternative (the "West-East Shift Alternative" - see Section VI, F.3) would displace three businesses with 53 employees. Either an east side widening or the east-west shift alignment would displace the Newark Checkers Restaurant. This restaurant bolsters the entire New Jersey

Metro Burger franchise of Checkers, and its loss would place an additional 282 jobs throughout the State at risk. Some of the alternatives (see Table VI-1) would result in severe impacts to community cohesion.

In conclusion, the proposed project will not result in any significant adverse impacts that will disproportionately affect low-income or minority populations. A summary of project impacts related to minority and low-income populations is presented in Table V-3.

**Table V-3**
**Summary of Project Impacts**
**University Heights Connector**

| Impact | Proposed Action | Result/Comments |
|---|---|---|
| Properties acquired | 23 | 48 percent of lots are publicly-owned. |
| Dwelling units displaced | 26 | Ten structures. |
| Residents displaced | 73 | Residents can be relocated within the area. |
| Community facilities displaced | 2 | Both churches are willing to relocate. |
| Businesses displaced | 3 | Three sole proprietors. |
| Employment displaced | 8 | Minimal loss of local employment.. |
| Assessed valuation of acquired properties | $188,100 | Low acquisition cost. |
| Municipal tax Revenue loss | $17,775 | Small loss of municipal tax revenues. |
| Ability to relocate businesses | Feasible | Per local realtors. |
| Ability to relocate residents | Feasible | Per local realtors. |
| Demolition impacts and cost | Smaller frame buildings | Low site preparation cost. |

## C. Air Quality

### 1. Existing Conditions

In order to obtain federal funding for a highway project, it must be demonstrated that the project conforms to an approved Statewide Transportation Improvement Program (STIP). The purpose of the STIP is to provide a plan for the attainment, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS) for each state. The air quality analysis performed for this project provides validation of STIP conformity and adheres to the Clean Air Act Amendments of 1990.
Carbon monoxide (CO) by volume is the most prominent mobile-source pollutant. When assessing the impact of a particular transportation-related project, a CO analysis is the best indicator. The focus of this air quality assessment is micro-scale impacts, i.e., impacts to localized areas immediately adjacent to the roadway.

The microscale analysis centered on a review of signalized intersections that will experience changes in traffic volume and alignment due to the project. An intersection

analysis approach was used since ambient levels of CO are prone to be highest near locations where vehicles tend to accumulate, slow down, and idle for a period of time.

The following are the scenarios and years evaluated in the air quality analysis:

- 2025 "No-Build" conditions; and
- 2025 "Design Year" conditions.

The U.S. Environmental Protection Agency (USEPA) MOB5a_h emissions model, as enhanced by the New Jersey Department of Environmental Protection (NJDEP), and the USEPA approved CAL3QHC air dispersal model were used to perform the air quality analysis. Coordination and consultation with federal and state agencies is an essential part of the air quality evaluation process.

### 1.1 Existing Air Quality

The USEPA defines ambient air in CFR 40, Part 50, as "that portion of the atmosphere, external to buildings, to which the general public has access." In compliance with the Clean Air Act (CAA) and the Clean Air Act Amendments (CAAA) of 1990, the USEPA has promulgated ambient air quality standards and regulations. The National Ambient Air Quality Standards (NAAQS) were enacted for the protection of the public health and welfare. To date, the USEPA has issued NAAQS for pollutants that include: carbon monoxide (CO), sulfur dioxide ($SO_2$), particulates with a diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$), ozone ($O_3$), nitrogen dioxide ($NO_2$), and lead (Pb). Areas that do not meet NAAQS are called non-attainment areas.

There are two types of NAAQS: primary and secondary. Primary standards are designed to protect the public health with an adequate margin of safety. Secondary standards are designed to protect public welfare from any known or anticipated adverse effects of a pollutant, e.g., soiling, vegetation damage, or material corrosion.

Under the CAA and the CAAA, state and local air pollution control agencies have the authority to adopt and enforce ambient air quality standards (AAQS) more stringent than the NAAQS. In addition to the NAAQS, the State of New Jersey has adopted AAQS that specify maximum permissible short-term and long-term concentrations of various contaminants (New Jersey Administrative Code Title 7, Chapter 27, Subchapter 13 – Ambient Air Quality Standards). These standards are generally the same as the NAAQS for criteria pollutants. However, while the national standard for total suspended particulates (TSP) has been replaced by standards for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and particulate matter less than 10 microns in diameter ($PM_{10}$), New Jersey retains its standards for TSP. The New Jersey and National standards for air quality are presented in Table V-4.

Although the USEPA has the ultimate responsibility for protecting ambient air quality, state and local governments have primary responsibility for air pollution prevention and control. The CAAA require states to submit a STIP describing how they will attain and maintain air quality standards in non-attainment areas. The STIP must be approved by

USEPA for each non-attainment criteria pollutant. The NJDEP is responsible for implementing New Jersey's STIP. In order for projects to comply with the CAA and the CAAA, they must conform to the attainment plans documented in the STIP.

The proposed project is located in Essex County, New Jersey, which is classified by the USEPA (40 CFR, Part 81) as a non-attainment area for carbon monoxide and for ozone.

**Table V-4**
**New Jersey and National Ambient Air Quality Standards**

| Pollutant | Averaging Period | New Jersey Primary | New Jersey Secondary | National Primary | National Secondary |
|---|---|---|---|---|---|
| Carbon Monoxide | 8-hour | 10 mg/$m^3$ (9.0 ppm) | 10 mg/$m^3$ (9.0 ppm) | 10 mg/$m^3$ (9.0 ppm) | 10 mg/$m^3$ (9.0 ppm) |
| | 1-hour | 40 mg/$m^3$ (35.0 ppm) | 40 mg/$m^3$ (35.0 ppm) | 40 mg/$m^3$ (35.0 ppm) | 40 mg/$m^3$ (35.0 ppm) |
| Ozone | 8 hour | 0.12 ppm | 0.08 ppm | 0.12 ppm | 0.12 ppm |
| | 1 hour | - | - | 0.08 ppm | 0.08 ppm |
| Nitrogen Dioxide | 1 year | 0.05 ppm (100.0 ug/$m^3$) | 0.05 ppm (100.0 ug/$m^3$) | 0.053 ppm (100.0 ug/$m^3$) | 0.053 ppm (100.0 ug/$m^3$) |
| Lead | 3 months | 1.5 ug/$m^{3)}$ | 1.5 ug/$m^{3)}$ | 1.5 ug/$m^{3)}$ | 1.5 ug/$m^{3)}$ |
| Sulfur Dioxide | 1-year | 0.03 ppm (80.0 ug/$m^3$) | 0.02 ppm (60.0 ug/$m^3$) | 0.03 ppm (80.0 ug/$m^3$) | - - |
| | 24 hour | 0.14 ppm (365.0 ug/$m^3$) | 0.10 ppm (260.0 ug/$m^3$) | 0.14 ppm (365.0 ug/$m^3$) | - - |
| | 3 hour | - - | 0.50 ppm (1300 ug/$m^3$) | - - | 0.50 ppm (1300 ug/$m^3$) |
| Total Suspended Particulates | 1 year | 75.0 ug/$m^3$ | 60.0 ug/$m^3$ | - | - |
| | 24 hour | 260.0 ug/$m^3$ | 150.0 ug/$m^3$ | - | - |
| Inhalable Particulates (PM-10) | 1 year | - | - | 50.0 ug/$m^3$ | 50.0 ug/$m^3$ |
| | 24 hour | - | - | 150.0 ug/$m^3$ | 150.0 ug/$m^3$ |
| Inhalable Particulates (PM-2.5) | 1 year | - | - | 15.0 ug/$m^3$ | 15.0 ug/$m^3$ |
| | 24 hour | - | - | 65.0 ug/$m^3$ | 65.0 ug/$m^3$ |

Source: New Jersey Department of Environmental Protection, 2000

## 2. Impacts

### 2.1 Modeling Results

The proposed improvements to First Street, which include widening, signalization, and signal enhancements, were assumed and have been incorporated into the air quality modeling analysis. Modeling techniques were performed to generate carbon monoxide concentrations at critical intersections, which are comprised of intersections projected to possess a Level of Service (LOS) D, E or F in the design year. Due to the predicted 2025 "Design Year" LOS, computer modeling was required at the First Street intersections with West Market Street, Central Avenue, and Dickerson Street. Table V-5 lists the peak concentration at each critical intersection, the peak traffic period, and the location of the receptor.

**Table V-5**
**Peak One-hour and Eight-hour "Design Year" CO Concentrations (ppm)**

| Intersection (Receptor Location) | Peak Concentration (one-hour/eight-hour) | Peak Period |
|---|---|---|
| First and West Market Streets (southbound approach leg) | 11.0 / 7.7 | AM |
| First Street and Central Avenue (northbound approach leg) | 10.2 / 7.1 | PM |
| First and Dickerson Streets (northbound approach leg) | 9.5 / 6.7 | PM |

Source: Air Quality Technical Environmental Study, Paul Carpenter Associates, Inc., Dec. 2001.
One-hour standard = 35ppm
Eight-hour standard = 9 ppm

The carbon monoxide modeling analysis for the intersection of First and Market Streets, documented the highest AM concentration of 11.0 ppm (one-hour) and 7.7 ppm (eight-hour) at the southbound approach. The concentration at this sidewalk receptor is predicted to be a result of the roadway network and the adjacent approach leg LOS "E".

Carbon monoxide concentrations are predicted to peak during PM traffic periods at First Street and Central Avenue. The highest concentration documented at this intersection occurred at the receptor located adjacent to the northbound approach leg. Peak carbon monoxide concentrations of 10.2 ppm (one-hour) and 7.1 ppm (eight-hour) were predicted.

Improvements proposed to the intersection of First and Dickerson Streets include a new signal. The highest concentration at this intersection is predicted along the northbound approach. The overall LOS during PM traffic periods is listed as "E", although the northbound approach is proposed to operate at a LOS "F." A peak one-hour concentration of 9.5 ppm and a peak eight-hour concentration of 6.7 ppm were predicted.

All one-hour concentrations were predicted to be below the 35 ppm standard. In addition, all eight-hour concentrations were predicted to be below the 9 ppm standard. As a result, the proposed project does not cause or contribute any new violation of any standard, does not increase the frequency or severity of any existing violation of any

standard, and does not delay the timely attainment of any standard or any required interim emission reductions or other milestones. Therefore, the proposed project conforms to the governing STIP and in turn conforms to the Clean Air Act Amendments of 1990.

### 2.2 Construction Impacts

Demolition/construction-related activities can result in short-term impacts to ambient air quality. These impacts are typically related to fugitive dust emissions in and around the site as a result of demolition/construction operations. Other potential air quality impacts from these activities are usually insignificant when equipment is well maintained and operated in well-ventilated areas. The potential for impacts will be short-term, occurring only while demolition or construction work is in progress and local conditions are appropriate.
Fugitive dust emissions typically occur during building demolition, ground-clearing, site preparation, grading, stockpiling of materials, on-site movement of equipment, and material transportation. Fugitive dust emissions are greatest during dry periods, during periods of intense construction activity, and under high wind conditions.

Impacts resulting from traffic disruptions during this period (i.e., decreased roadway capacity) could degrade air quality in the surrounding environs. Traffic disruptions would be greatest at intersections, leading to increased queuing and air quality emissions.

### 2.3 Conformity Determination

The USEPA promulgated the Transportation Conformity Rules (TCR) under the Clean Air Act Amendments, effective on December 27, 1993. The TCR provides criteria for determining conformity to the STIP of transportation plans, programs, and projects that are developed, funded, or approved under Title 23 USC of the Federal Transit Act. The proposed project is located in an ozone non-attainment area; therefore, a conformity determination is required. The conformity requirements are as follows:

- The project must originate from a conforming transportation program (TIP);
- A transportation project that is not from a conforming TIP must contribute to emissions reductions in ozone and CO non-attainment areas; and
- In CO non-attainment areas, the project must eliminate or reduce the severity and number of violations of the NAAQS for CO.

Transportation projects that originate from a Statewide Transportation Improvement Plan (STIP) are considered to conform to the rule. The University Heights Connector project is listed on page 8 in Section II of the FY 2002-2004 STIP and on page 3 (DBNUM 824A) of the Northern New Jersey Transportation Planning Authority's Transportation Improvement Plan for FY 2001-2003.

The results of CO analysis suggest that CO levels will be below the one-hour (35 ppm) and eight-hour (9 ppm) NAAQS. Therefore, the proposed project conforms to the goals set forth in the Clean Air Act Amendments of 1990 and the Final Conformity Rule.

### 3. Mitigation

Mitigation measures to limit particulate emissions during demolition and construction activities include the following:

- Use, where possible, of water or chemicals for dust control in demolition of existing buildings or structures, construction operations, grading of roads, or clearing of land;

- Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials, stockpiles and other surfaces that can give rise to airborne dust;

- Covering, at all times when in motion, open-bodied trucks transporting materials likely to give rise to airborne dust; and

- The prompt removal of earth or other natural materials from paved streets onto which earth or other materials have been deposited.

The potential for fugitive dust emissions from these activities would cease once barren earth is restored by landscaping. Mitigation measures to minimize traffic disruptions during construction will consist primarily of reducing construction traffic during peak-hour periods. This would minimize pollutant emissions during high congestion periods, hence lowering the risk of potential impacts.

## D. Noise

### 1. Existing Conditions

Noise is basically defined as unwanted sound. It is emitted from many sources including airplanes, factories, railroads, power generation plants, and highway vehicles. Highway noise, or traffic noise, is usually a composite of noises from engine exhaust and tire-roadway interaction.

The magnitude of noise is usually described in terms of sound pressure. Since the range of sound pressure varies greatly, a logarithmic scale is used to relate sound pressure to some common reference level, usually the decibel (dB). Sound pressures described in decibels are called sound pressure levels, and are commonly defined in terms of frequency-weighted scales (A or C).

The A-weighted decibel scale is used almost exclusively in vehicle noise measurements because it reflects the frequency range to which the human ear is most sensitive (1,000 to

6,000 Hertz). Sound levels measured using an A-weighted decibel scale are generally expressed as dBA. Throughout this discussion, all noise levels are expressed in dBAs. Several examples of noise pressure levels in dBA are listed in Table V-6.

**Table V-6**
**Examples of Common Sounds**
**A-weighted Sound Level in Decibels (dBA)**

| EXAMPLES | dBA | SUBJECTIVE EVALUATIONS |
|---|---|---|
| Near jet engine | 140 | Deafening |
| Threshold of pain | 130 | |
| Threshold of feeling | 120 | |
| Accelerating motorcycle a few feet away | 110 | |
| Loud auto horn at 10 feet | 100 | Very Loud |
| Noisy urban street | 90 | |
| School cafeteria full of students | 80 | |
| Near freeway auto traffic | 70 | Loud |
| Average conversation | 60 | |
| Average office | 50 | Moderate |
| Soft radio music in apartment | 40 | |
| Average residential home | 30 | Faint |
| Average whisper | 20 | |
| Rustle of leaves in wind | 10 | Very faint |
| Threshold of Audibility | 0 | |

Source: Concepts of Architectural Acoustics, David Egan, McGraw Hill, 1972.

Table V-6 indicates that most individuals in urbanized areas are exposed to fairly high noise levels from many sources as they go about their daily activities. The degree of disturbance or annoyance of unwanted sound depends essentially on three factors:

- The amount and nature of the intruding noise;
- The relationship between background noise and the intruding noise; and
- The type of activity occurring where the noise is heard.

In considering the first of these factors, i.e., amount and nature of the intruding noise, it is important to note that individuals have different sensitivity to noise. Loud noises bother some more than others and some patterns of noise also enter into an individual's judgment of whether or not a noise is offensive. For example, noises occurring during sleeping hours are usually considered to be more of a nuisance than the same noises in the daytime.

With regard to the second factor, i.e., the relationship between background noise and the intruding noise, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). For instance, the blowing

of a car horn at night when background noise levels are typically about 45 dBA would generally be more objectionable than the blowing of a car horn in the afternoon when background noises are likely to be 60 dBA or higher.

The third factor, i.e., the type of activity occurring where the noise is heard, is related to the interference of noises with activities of individuals. In a 60 dBA environment, normal work activities requiring high levels of concentration may be interrupted by loud noises, while activities requiring manual effort may not be interrupted to the same degree.

Since sound is described in logarithmic scale, i.e., dB, sound levels cannot be added by ordinary arithmetic means. In fact, a doubling of the noise source produces only a 3 dB increase in the sound pressure (noise) level. Studies have shown that this increase is barely perceptible to the human ear, whereas a change of 5dB is readily perceptible. As a general rule, an increase or decrease of 10dB in noise level is perceived by an observer to be a doubling of halving of the sound, respectively.

Attempts have been made to regulate many of these types of noises including airplane noise, factory noise, railroad noise, and highway traffic noise. In relation to highway traffic noise, methods of analysis and control have been developed by the Federal Highway Administration (FHWA) and adapted by the New Jersey Department of Transportation, which are described below.

### 1.1 Existing Sound Levels

Existing noise levels were monitored in May 2000, utilizing several noise level meters at five exterior locations within the project study area. Noise monitoring occurred during peak AM and PM noise periods. Noise monitoring locations were focused on First Street with one location on Hartford Street. As part of the proposed project, Hartford Street will be closed at the First/West Market/Bergen intersection. Therefore, to document any change in noise levels this closure may produce, noise monitoring was necessary.

After validation of the noise level prediction model, additional receptors representing sensitive land use within the project study area were modeled. Each leg of the roadway network was field verified for identification of sensitive receptors. The majority of the project study area consists of single-family, two-family, and multi-family dwellings. There are many commercial/light industrial establishments, a few with residences on the upper floors. Existing traffic volumes for each peak hour were input to the Traffic Noise Model (TNM) version 1.0b.

It is important to note that existing noise levels peak in correlation to the traffic peak in the AM. However, in the PM, peak noise was documented from 3:00-4:00, almost one hour prior to the afternoon traffic peak (4:00-5:00 PM). Preliminary twenty-four (24) noise monitoring indicates that noise levels decrease after 4:00 PM. This reduction is due to traffic congestion, forced lower speeds, and thus lower noise levels throughout First Street. Noise modeling for future conditions focused on these peak noise hours.

Two new dwellings have been constructed along northbound First Street, between Central Avenue and Dickerson Street, and building permits have been filed for one additional residence at this location.

The FHWA Noise Abatement Criteria are defined in Table V-7. Fifteen residential dwellings (single, two and multi-family units) and two churches are predicted to possess 2000 existing noise levels that approach or exceed the Category B Noise Abatement Criteria (NAC) of 67 dBA. Ten commercial/light industrial establishments are predicted to possess noise levels that approach or exceed the Category C Noise Abatement Criteria of 72 dBA. The modeling analysis also indicates there are two buildings with upper floor apartments that approach or exceed the Category B NAC.

The northern project limit begins at Sussex Avenue. The Newark Christian School, located just north of Sussex Avenue and outside the project limits, has existing interior noise levels that approach the Category E NAC of 52 dBA.

## 2. Impacts

### 2.1 Methodology

The Federal Highway Administration (FHWA) has established noise abatement criteria based on noise sensitivity of various land uses for motor vehicle noise on roadways constructed with federal funds. The FHWA indicates that noise impacts occur when sound levels approach or exceed the noise abatement criteria, or when there is a substantial increase in sound levels over existing conditions. The FHWA noise abatement criterion for Category B land uses, including residences, is 67 dBA. Noise levels that approach that criterion are defined by FHWA and adopted by the NJDOT as occurring at one (1) dBA less than the criteria levels, or 66 dBA for Category B uses. Substantial increase refers to the net increase in sound levels from existing conditions to that predicted for the design year at the same location and is defined by the NJDOT to be ten (10) decibels or higher.

Information utilized for noise level prediction for the University Heights Connector project study area includes:

- Design plans, profiles and topographic maps;
- Projected traffic volumes, vehicular classification percentages, directional distributions and speeds;
- Information on land use obtained from scale plans, tax maps and on-site observations; and
- Noise measurement study and modeling analysis to describe existing noise levels.

Federal regulations (23 CFR 772) specify that $L_{Aeq}$ or $L_{10}$ noise levels are to be calculated for developed land uses and proposed land use developments that are planned, designed and programmed. These calculations were performed using the Traffic Noise Model (TNM) Version 1.0b, which is capable of predicting noise levels due to stop-and-go and cruise-speed vehicles. In conjunction with these methodologies, the FHWA Noise Barrier Cost Reduction procedure (BCR) was applied. The 2025 “Design Year” noise

levels were compared to existing (pre-construction) noise levels and overall NAC levels to determine the project-related impacts.

### 2.2 No-Build Alternative

2025 "No-Build" conditions, during AM and PM peak periods, were modeled utilizing traffic projections reflected in the "Traffic Operations Report for the University Heights Connector" prepared by Parsons Transportation Group, dated January 2001. The analysis indicates twenty residential structures (single, two and multi-family units) and two churches are predicted to approach or exceed the Category B NAC. Under 2025 "No-Build" conditions, fourteen commercial/light industrial establishments are estimated to approach or exceed the Category C NAC. In addition, upper floor apartments located over commercial establishments exceed the Category B NAC at two locations.

All noise monitoring locations, during 2025 "No-Build" conditions were predicted to increase noise levels by one dBA over existing conditions. One exception was receptor location # 5 (Hartford Street). This receptor was located more than a block east of First Street, across from the Bethany Christian School. Noise levels increased from 61 (Existing) to 63 dBA $L_{Aeq}$ in the 2025 "No-Build" condition.

### 2.3 Build Alternative

There are two ways of assessing the noise impact of a proposed project. The first is to identify all receptor locations possessing "Design Year" noise levels that approach or exceed the NAC (see Table V-7). The term "approach" is defined as one (1) dBA less than the NAC. The second impact criterion includes an assessment of changes in existing noise levels over future "Design Year" levels. Changes of 10 dBA or greater, even though the impact criteria level is not reached, are considered significant impacts.

The alignment of First Street is proposed to shift predominately to the west. A total of eleven residential acquisitions are proposed. Ten residential acquisitions are proposed along the west and one to the east. Two churches and one commercial property will also be acquired. Computer modeling was performed to represent 2025 "Design Year" conditions. Traffic volumes representative of 2025 "Build" conditions were obtained from the "Traffic Operations Report" prepared by Parsons Transportation Group. The 2025 "Design" 66-dBA noise contour is displayed on Figure V-5.

Insert Table V-7

Insert Figure V-5

Seven residential dwellings (single, two and multi-family units) are predicted to possess future "Design Year" noise levels that approach or exceed the Category B NAC. Six of the seven impacted residential dwellings were built in 2000 and 2001. Thirteen commercial/light industrial establishments approach or exceed the Category C NAC within the project study area. Two buildings that include ground-level commercial establishments but upper level apartments possess noise levels that exceed the Category B NAC. These apartments exceeded the NAC under existing and 2025 "No-Build" conditions as well. Table V-8 summarizes the 2025 "Design Year" impacts.

**Table V-8**
**Summary of Impacts**
**2025 "Design Year"**

| Land Use Descriptions | Number of Impacts |
|---|---|
| Residential Structures | 7 |
| Commercial/Light Industrial | 13 |
| Upper Floor Apartments | 2 |

Source: Noise Technical Environmental Study, Paul Carpenter Associates, Inc., December 2001.

Hartford Street will be closed at the First/West Market Street intersection. Therefore, some through traffic will be eliminated on Hartford Street. Receptor location #5, which is directly across from the Bethany Christian School, is predicted to possess peak 2025 "Build" noise levels of 62 dBA ($L_{Aeq}$). This is a decrease of one dBA from 2025 "No-Build" conditions and an increase of one dBA from 2000 existing conditions.

There are no receptor sites within the project limits that are predicted to result in a substantial increase (10 dBA) over existing sound levels. The predicted noise level increase at each of the monitoring locations is shown in Table V-9.

The noise levels obtained at the Newark Christian School, located just outside the northern project limits documented existing noise levels that approach the Category E NAC. The building is currently not air-conditioned and has single-pane windows.

Table V-10 presents a comparison of the number of receptors with noise impacts for the 2000 existing, 2025 No-Build, and 2025 Design Year scenarios.

**Table V-9**
**Existing, "No-Build" and "Design Year" Noise Level Comparison**
**(dBA $L_{Aeq}$)**

| Receptor Location | 2000 Existing | 2025 "No-Build" | 2025 "Design Year" | Existing to "Design Year" Change in Noise Levels |
|---|---|---|---|---|
| #1 – Southbound First Street (between Sussex & Dickerson) | 67 | 68 | 69 | +2.0 |
| #2 – Southbound First Street (between Dickerson & Central) | 63 | 64 | 65 | +2.0 |
| #3 – Northbound First Street (between New & Central) | 75 | 76 | 73 | -2.0 |
| #4 – Southbound First Street (between New & W. Market) | 66 | 67 | 68 | +2.0 |
| #5 – Westbound Hartford Street (between Morris & Hudson) | 61 | 63 | 62 | +1.0 |

Source: Noise Technical Environmental Study, Paul Carpenter Associates, Inc., December 2001.

**Table V-10**
**Comparison of Impacts**
**2025 "Design Year"**

| Location | Number of Impacts 2000 Existing | Number of Impacts 2025 "No-Build" | Number of Impacts 2025 "Design Year" |
|---|---|---|---|
| Residential Structures | 15 | 20 | 7 |
| Churches | 2 | 2 | 0 |
| Commercial/Light Industrial | 10 | 14 | 13 |
| Upper Floor Apartments | 2 | 2 | 2 |

Source: Noise Technical Environmental Study, Paul Carpenter Associates, Inc., December 2001.

### 2.4 Construction Noise

Under the Build Alternative, temporary increases in noise levels will occur during construction. Noise levels due to construction, although temporary, may impact areas adjacent to the project. Overall, construction activities along the project corridor should have a short-term noise impact on sensitive receptors in the immediate vicinity of the construction site. The extent of the construction-associated noise impact depends on the nature of the roadway segment, the construction schedule, and noise characteristics of the construction equipment. These impacts are not expected to be significant and would be limited to areas in close proximity to the construction area.

## 3. Mitigation

Noise abatement strategies are designed to provide substantial sound level reductions. Such mitigation provides no guarantee that traffic noise levels will not exceed FHWA noise criteria at certain times, under certain circumstances; nor does the proposed mitigation protect a receptor from noise disturbances originating from other ambient noise sources such as overhead aircraft and local street traffic.

The FHWA recognizes five methods of noise mitigating treatments for reduction of highway traffic noise at an impacted receptor. The following is a list of possible abatement strategies for mitigating traffic noise impacts:

- Traffic management;
- Roadway alignment alterations;
- Property acquisition to create a buffer zone between source and receptor;
- Installation of noise barriers within the right-of-way; and
- Noise insulation of public use buildings.

The above treatments are evaluated using a number of criteria including public input, safety, and aesthetics, as well as noise abatement potential, implementation cost, and logistical factors.

### 3.1 Traffic Management

Alternate traffic routing schemes and prohibiting specific types of vehicles from using First Street would be considered a traffic management strategy. First Street, via Route I-280, is a necessary route for vehicles to Newark. Applying restrictions would be contradictory to the purpose of the proposed project.

### 3.2 Roadway Alignment Alterations

A number of structure acquisitions have been proposed as part of this project. Due to the chosen alignment, remaining structures to the west of the proposed project are predicted to yield higher noise levels. Designing the roadway so that there is a greater buffer zone between the roadway and receptor may yield lower noise levels. However, this method of noise mitigation is not considered feasible due to the urban character of the area in which the proposed project is located, the location of sensitive receptors on both sides of the streets, and the number of acquisitions that have been proposed.

### 3.3 Property Acquisition

As part of this project, First Street will be widened from its original geometry. In doing so, thirteen structures along the west, and one structure along the east will be acquired. The remainder of the project study area is developed and obtaining additional buffer zones would be impractical.

### 3.4 Noise Barriers

Noise barriers are an effective means of mitigating noise impacts adjacent to roadways. In this instance, a series of breaks in a noise wall would be necessary for access to local

streets and driveways. As a result, noise barriers would not be a practical means of noise mitigation for this project.

### 3.5 Sound Proofing

Specific public use facilities and buildings can be insulated to mitigate noise impacts. No such buildings occur within the project limits.

All of the above potential noise mitigation measures were deemed ineffective in reducing noise levels within the project corridor.

### 3.6 Construction Noise

The standards noise specifications (Standard Specifications for Construction Noise Mitigation) as contained in Section 107.28(b) of the 1989 NJDOT Standard Specifications for Road and Bridge Construction will be incorporated into the project's construction documents. These include:

- All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler.

- Air compressors shall meet current USEPA noise emission exhaust standards.

- Air powered equipment shall be fitted with pneumatic exhaust silencers.

- Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise sensitive areas without portable noise barriers placed between the equipment and noise sensitive sites. Noise sensitive sites shall include: residential buildings, schools, and churches. Portable noise barriers shall be constructed of plywood or tongue-and-groove boards with a noise absorbent treatment on the interior surface (facing the equipment).

- Powered construction equipment shall not be operated before 8:00 am or after 8:00 pm within 150 feet of a noise sensitive site.

## E. Ecology

### 1. Existing Conditions

#### 1.1 Geology, Soils and Groundwater

##### 1.1.1 Geology

The proposed project lies within the Piedmont physiographic province. The bedrock geology of Piedmont deposits in New Jersey is related to sedimentation in the Newark Basin, a northeast-trending structural trough that was created by crustal deformation associated with the opening of the Atlantic Ocean Basin.

The bedrock underlying the proposed project alignment consists of Upper Triassic and Lower Jurassic rocks of the Passaic Formation, the oldest unit of the Brunswick Group. This formation was formerly considered part of the Brunswick Formation, a rock unit term no longer used. Regionally, it consists of sandstones, siltstones, shales, and conglomerates deposited by stream and lake processes within the Newark Basin. These rocks were subsequently folded, fractured, jointed, intruded and tilted, and overlain with lava flows and post-Jurassic sediment.

Bedrock in the project area is the reddish-brown to brownish-red, massive silty to sandy mudstone and siltstone unit of the Passaic Formation (Parker, 1993; Drake and others, 1996). Bedrock is overlain with continuous and unconsolidated Late Wisconsin glacial and modern fill (Stanford, 1988b; Stanford et. al., 1990). The thickness of this overburden of glacial and modern fill decreases to the west.

There are no geologic resources in the project corridor (e.g., minerals) that will be impacted. A constraint placed upon the project throughout the project area due to geologic properties is the ability of the underlying substrate to provide pavement support.

The geologic parameters of the disturbed and underlying units relevant to structure and pavement support will be examined during the development of design and construction plans to ensure that structural integrity of the completed roadway is not compromised. There are no potential impacts that require mitigation measures.

##### 1.1.2 Soils

Ground and soil cover in the project area is urban land consisting of fill material and impervious surfaces. Natural soils underlying the project area consist of gravelly loams derived from the glacial overburden. Surface soils are mapped as Urban Land-Boonton Wethersfield Association (USDA-SCS, 1993). Urban Land, areas where more than 80 of the ground cover is impervious, occurs most frequently. This association consists of well drained and moderately well drained, very deep and deep gravelly loams. These soils are non-hydric and belong to hydrologic group C (slow infiltration rate when thoroughly wetted and slow rate of water transmission).

U.S. Department of Agriculture has no soil survey for Essex County that would provide detailed data (e.g., depth to seasonal high water table and acid properties) or note soil conditions requiring special erosion and sedimentation control measures. Site-specific investigations are necessary to obtain these data. The Engineering Soil Survey for Essex County states that soils within the project area are fair to good for pavement support.

Soils exposed to erosion during construction activities, or fill materials exposed during fill placement, may be eroded and potentially transported to nearby waterways by storm sewers. The construction-period soils erosion/sedimentation and stormwater management plans developed for the proposed project will include measures designed to prevent erosion and sedimentation to these waters.

### 1.1.3 Groundwater

Groundwater occurs in both fractures bedrock and in the unconsolidated overburden. The fractured Passaic Formation is the major source of groundwater in Essex County. The Passaic Formation is characterized by very low primary porosity and permeability, and thus, has limited flow and storage capacity except for discrete water bearing zones of connected features. However, secondary porosity and permeability have developed through fracturing.
In Essex County, the highest yielding wells tapping water-bearing zones within fractured bedrock are generally between 300 and 400 feet deep. There are no potable wells in the vicinity of Newark. All drinking water comes from Passaic County reservoirs.

Groundwater in the overburden of glacial and modern fill is recharged by direct precipitation and from nearby bedrock aquifers. Coarse-grained overburden has a greater capacity to store and transmit groundwater than fractured bedrock. Bedrock wells in area overlain with several feet of unconsolidated sand and gravel tend to have greater yields due to greater infiltration, less surface runoff, and thus, greater recharge.

Groundwater in the Passaic Formation and overburden is Class II-A, with the primary designated water use of providing potable water supply with conventional treatment at its current water quality (New Jersey Groundwater Standards, N.J.A.C. 7:9-6; revised February 1993). Secondary designated uses are agricultural and industrial water. The project corridor does not lie within a USEPA designated Sole Source Aquifer. Groundwater quality in the Newark area is poor due to anthropogenic contaminants.

There will be no adverse impacts to groundwater resources and wells from the infiltration of highway stormwater runoff because changes to the area of impervious surfaces will be too small to affect the quality of runoff, as discussed below. The area of pervious surfaces that may be replaced with impervious surfaces will be small. Any loss in recharge area at the project site will have little impact to the overall recharge to the Passaic Formation aquifer system that extends over a wide region encompassed by numerous counties.

## 1.2 Surface Water

### 1.2.1 Surface Water Quality

Federal Highway Administration research on pollution from highway stormwater runoff shows that pollutant loadings are not dependent on average daily traffic (ADT) (FHWA, 1990). It was concluded that ADT should only be used to distinguish between urban and rural highways. The key factor in highway runoff pollutant loadings is impervious surface area.

Changes in impervious surface areas as a result of the proposed improvements will be too small to affect the content of pollutants in stormwater runoff from the build-up of pollutants or deicing chemicals on the roadway surface. Thus, the proposed improvements will not affect the water quality of nearby waterways to which stormwater runoff is conveyed and discharged by storm sewers.

No mitigation measures to address stormwater runoff after completion of the project other than connecting to the existing stormwater sewer system will be necessary. In addition, the soil and sediment control plans developed for this project will minimize sedimentation to nearby waterways and prevent water quality impacts during construction.

### 1.2.2 Hydrology and Floodplains

The nearest surface water body, Branch Brook Park Lake, is located outside of the project area. Federal Emergency Management Administration (FEMA) maps show there are no 100-year or 500-year floodplains in the project area. The proposed project will not impact surface water hydrology and will not encroach onto floodplains. Mitigation measures will not be needed.

## 1.3 Vegetation

### 1.3.1 Uplands

Vegetation within the project area is typical of an urban area, primarily consisting of mowed turf and shade trees. Shade trees are present along several streets in the project area. The predominant species is London Plane Tree (Platanus) although other species such as Silver Maple (Acer saccharium), Norway Maple (Acer platanoides), and Elm (Ulmus) are present.

Clearing of upland vegetation during construction will result in impacts that occur by cut and fill for the road, including removal and trampling of vegetation, creation of ruts, sedimentation, and the depositing of construction debris. These impacts will be mitigated through cleanup and surface grading to re-establish vegetation as part of the landscaping plan. All street trees removed during construction will be replanted and the proposed project provides for a significant increase in landscaped areas.

### 1.3.2 Wetlands

The U.S. Department of Interior, Fish and Wildlife Service, National Wetlands Inventory (NWI) Map and the NJDEP – Freshwater Wetlands Quarterquad Map of the project area indicate there are no wetlands present within the project study corridor. The absence of wetlands was confirmed by a field reconnaissance of the project area. As a result, the proposed project will not result in impacts to wetlands.

## 1.4 Wildlife

### 1.4.1 Terrestrial and Aquatic Species

Disturbed and developed areas dominate the project area. Upland vegetation is limited to landscape and opportunistic species capable of adapting to disturbed environments. These vegetative communities most likely support populations of small mammals. Songbirds, such as sparrows and blackbirds, may also forage the area.

Potential impacts to wildlife as a result of the proposed project may be attributed to the alteration or elimination of habitat. The project may displace some species into adjacent habitat, but there are enough suitable adjacent habitats to absorb the displaced species.

There are no aquatic habitats in the project area, therefore, no aquatic species will be impacted at the project site. As previously discussed, the proposed improvements will not affect the quality of nearby waterways to which stormwater runoff is conveyed and discharged by storm sewers. Thus, the proposed project will not impact aquatic habitats or species within or outside the immediate construction site.

### 1.4.2 Rare, Threatened and Endangered Species

According to the United States Fish and Wildlife Service (USFWS), except for an occasional transient bald eagle (Haliaetus leucocephalus) or peregrine falcon (Falco peregrinus), no federally listed or proposed endangered, threatened floral or faunal species are known to occur in the project area. According to the NJDEP, Division of Parks and Forestry, Office of Land Management, New Jersey Natural Heritage Program, there are no records of rare plants, animals or natural communities in the project area. The proposed project will not impact any rare, threatened, or endangered species.

## 2. Impacts

The proposed project will not have any significant adverse impacts to any ecological resources found within the project area.

## F. Cultural Resources

### 1. Existing Conditions

Research was conducted to identify known historic and prehistoric archaeological sites in the project area, to determine the potential for archaeological remains to persist in the area of potential effect, to evaluate archaeological remains in the project area in terms of National Register of Historic Places eligibility, and to identify historic archaeological properties that might be affected by the project. Activities included background research, archaeological testing and property-specific documentary research, and an assessment of historic architectural resources in the project area. Detailed results in this research are presented in the technical studies prepared for archaeological and historic architectural resources that have been prepared separate to this Environmental Assessment. These technical studies are identified in Section VIII.

All work for this project was conducted in accordance with the instructions and intent of the National Historic Preservation Act of 1966, as amended; Procedures for the Protection of Historic and Cultural Properties (36 CFR 800); Guidelines for Archaeological Investigation" established by the Office of New Jersey Heritage; and, New Jersey Department of Transportation Scopes of Work for archaeological and historic architectural resources.

#### 1.1 Historic Architectural Resources

The historic architectural evaluation conducted for the proposed project in August 2000 identified a total of 106 resources within the project's area of potential effect. The project area is characterized as a mixed-use urban neighborhood comprised of late nineteenth and early twentieth century dwellings, stores, and industrial warehouses. Of the total 106 historic resources identified, approximately 66 are residential, 24 commercial, 8 are institutional, and the remaining 8 are industrial or former industrial resources. The residential resources are primarily two or three story frame dwellings, either single-family residences, multifamily flats, or apartments. In general, the historic resources in the project area are in fair condition, but exhibit a low degree of architectural integrity. Of the total number of historic architectural resources within the study area, 101 are deemed not eligible for listing on the National Register of Historic Places, as they are neither historically or architecturally significant. In addition, there is a widespread loss of architectural integrity.

Five of the 106 resources evaluated meet the criteria for listing in the National Register: Tuck-It-Away Storage (former Whitehead and Hoag Factory at Block 1880, Lot 20); the Newark Christian School (Seymour/Essex County Vocational School at Block 1883 Lot 40), 34-50 Third Street; 394 New Street; and, 400-406 Central Avenue.

### 1.2 Archaeological Resources

Based on the background research conducted for the project, 19 locations within the project area were considered to have potential for the persistence of archaeological resources (see Table V-11 and Figure V-6). These resources were considered to be most likely associated with domestic occupation and activities prior to inception of city water and sewer services and therefore, have the potential to include features such as privies and/or cisterns that, once they went out of use, were often the repositories for household refuse. After inspection, four of these properties were considered unlikely to have archaeological resources present based on observation of physical conditions that exist. Testing was not performed at four properties due to access limitations.

A follow-up program of Phase IB and Phase 2 archaeological testing, along with associated documentary research, was conducted during November-December 2000 and April-July 2001 to determine whether archaeological resources are present within the proposed improvements corridor.

Ten lots within the project corridor were tested during the Phase IB field program. Only eight of the ten lots that were targeted during the Phase 1B testing were accessible for Phase 2 testing. Seven of these were found to contain archaeological resources eligible for the National Register under Criterion D.

Seven lots still require either Phase 1B testing or completion of Phase 2 testing.

Insert Table V-11 PG 1

Insert Table V-11 PG 2

Insert Figure V-6

The archaeological features found during the Phase 2 testing potentially can yield data relating to a number of important issues. They can shed light on the culture(s) of a working class community in the late 19th century through the early years of the 20th century, and, within that context, on issues such as medicine, health and hygiene, ethnicity and national origin, social class, and the urban African-American experience. The material remains speak to these issues by addressing 1) household consumption, as reflected in the food remains and manufactured goods found in the deposits, and 2) house-lot infrastructure and its relationship to the provision of urban services such as water, sewerage, and garbage disposal. The significance of deposits within individual lots is substantially enhanced by the cumulative data the neighborhood as a whole can yield.

## 2. Impacts

### 2.1 Historic Architecture

Five of the 106 resources evaluated meet the criteria for listing in the National Register: Tuck-It-Away Storage (former Whitehead and Hoag Factory at Block 1880, Lot 20); the Newark Christian School (Seymour/Essex County Vocational School at Block 1883 Lot 40), 34-50 Third Street; 394 New Street; and, 400-406 Central Avenue. These resources were evaluated in light of the proposed improvements to First Street, and it was determined that the proposed project will have no effect on the Newark Christian School, 34-50 Third Street, and 394 New Street, and no adverse effect on Tuck-It-Away Storage. The Newark Christian School is located north of Sussex Avenue and far enough from the area of improvements that they would have no impact on this resource. Similarly, 34-50 Third Street, located two blocks west of the area of improvements and 394 New Street, located approximately one-half block east of the area of improvements, are sufficiently distant from the proposed project and will not be affected. Tuck-it-Away Storage is located adjacent to the area of improvements and would be visually impacted, but not to a degree that would be considered adverse. 400-406 Central Avenue will be acquired and demolished by the proposed project and, therefore, adversely affected. An Individual Section 4(f) Evaluation prepared for this historic architectural resource is provided in Section VI of this EA.

### 2.2 Archaeology

Seven of the properties within the project corridor were found to contain archaeological resources eligible for the National Register under Criterion D. The properties found to contain eligible archaeological resources include the following:

- Block 1840, Lots 11 and 12;
- Block 1846, Lots 15 and 16; and
- Block 1879, Lots 1, 2 and 3.

The lots containing eligible resources are subject to project effects through the widening of First Street, with associated demolition and sidewalk and curb construction. The

truncated properties will be leveled and may subsequently be made available for redevelopment. The archaeological resources would then be vulnerable to disturbance or destruction.

### 2.3 Section 106 Coordination

Section 106 coordination with the New Jersey State Historic Preservation Office has determined that there is one historic building within the project's area of potential effect that would be adversely affected by the proposed project (see Appendix G.)

## 3. Mitigation

### 3.1 Historic Architectural Resources

A narrative and photographic recordation process is recommended to mitigate the proposed demolition of 400-406 Central Avenue. The details of this mitigation measure will be described in a Memorandum of Agreement.

### 3.2 Archaeological Resources

In order to mitigate potential adverse effects of the proposed project, a program of data recovery will be implemented in the rear yard areas of all lots within the project corridor that are found to contain archaeological resources meeting National Register (NR) evaluation criterion D. Although the widening of First Street itself will disturb only the front of each lot, subsequent sale and redevelopment of the lot remainders may lead to disturbances or destruction of the archaeological resources at the rear.

The scope of work for data recovery should also include additional documentary research to further identify the occupants by the remains and to better contextualize the households in time and place, as well as comparative research utilizing the results of analysis of other archaeological sites.

Further, the following properties, which were either not tested or inadequately tested due to access difficulties, should be addressed during later stages of the proposed project. A Memorandum of Agreement will be adopted that stipulates the scope of archaeological testing and the properties at which testing will be performed.

- Block 1840, Lots 13, 14 and 15;
- Block 1840, Lot 16 (Vreeland House);
- Block 1846, Lot 6 (pending hazardous materials assessment);
- Block 1879, Lot 8 (Hawley/Belluno House Site);
- Block 1879, Lot 5 (Redman/Wardell House Site); and
- Block 1879, Lot 6 (Overton/Van Houten House Site).

## G. Hazardous Waste

### 1. Existing Conditions

A Preliminary Assessment (PA) report was prepared as a supporting document to this Environmental Assessment. The objective of the PA was to identify environmentally sensitive parcels within approximately 250 feet of the project corridor. The PA was performed in accordance with the latest NJDOT Procedures Manual guidelines.

The PA included a visual reconnaissance of the study area; a review of readily available Federal, State, and local regulatory records, an examination of historical information, and an evaluation of current and past operations and activities within the study area. The following sources of information were reviewed as part of the PA:

- Sanborn Fire Insurance Rate maps;
- City directories;
- Aerial photographs; and
- State and federal environmental databases, including the NJDEP State Hazardous Waste Program Site Listing, NJDEP Solid Waste Facility Directory, the NJDEP Bureau of Underground Storage Tank Listing, the NJDEP/BUST Enforcement Listing, National Priority List, CERCLIS Listing, RCRA Notifier's Listing, Orphan Sites,

Regulatory agencies directly contacted include the US EPA Region II, New Jersey Department of Environmental Protection (NJDEP), Essex County Health Department, Newark Health Department, Newark Construction Official's Office, and the Newark Fire Department.

Table V-12 lists eleven sites within the study area proposed for acquisition that were found to have the potential to be contaminated based on their historical and current use. An additional 18 properties located within the study area are not proposed for acquisition, but have the potential to impact the proposed project as a result of contaminant migration. Information regarding these properties is summarized in Table V-13.

Insert Table V-12

Insert Table V-13

## 2. Impacts

There are eleven potentially contaminated properties within the proposed project right-of-way and eighteen nearby properties that are potentially contaminated and could impact the right-of-way. It is necessary to conduct further investigations to determine how to address these potentially contaminated properties.

## 3. Mitigation

Based on the findings of the preliminary assessment, the following actions are recommended prior to the acquisition of properties necessary to implement the proposed project, or prior to construction, as noted below:

### 3.1 Geophysical survey

Geophysical surveys are recommended prior to any construction or remedial activities in the area of sidewalks, parking lots, and open areas of properties to be acquired by NJDOT to determine the location of any subsurface anomalies, which may include underground storage tanks, septic tanks, and utilities.

### 3.2 Historical Use Subsurface Investigation

Borings or test pits should be advanced on properties to be acquired by NJDOT that are listed above as having the potential to be contaminated based on historical or current industrial use. Samples should be collected and submitted for laboratory analysis. All sampling should be conducted in accordance with NJDEP Technical Requirements for Site Remediation (TRSR).

Sampling is not recommended for potentially contaminated properties within the project corridor that will not be acquired by NJDOT. However, sampling within the right-of-way adjacent to these properties should be conducted to determine whether historical activities have impacted the properties to be acquired or the proposed street right-of-way.

If laboratory analyses indicate the presence of subsurface soil contamination, groundwater sampling may be required pursuant to the TRSR.

### 3.3 Existing Underground Storage Tanks

Borings should be conducted on properties to be acquired by NJDOT that are suspected to have an underground storage tank. Samples should be collected and submitted for laboratory analysis. All underground storage tanks should be closed in accordance with NJDEP and local regulations.

### 3.4 Further Actions Regarding Soil and Groundwater Contamination

Based upon the findings of the Preliminary Assessment Report, and any additional information obtained from the recommended activities described above, remedial investigations, consisting of soil and groundwater sampling may be needed. Construction specifications and a remedial action workplan should be prepared to address any remedial activities that may be necessary. If necessary and appropriate, a soil reuse plan will be prepared for reuse of contaminated soil within the project right-of-way. Property Acquisition Environmental Cost Estimates should then be prepared for all properties to be acquired that exhibit environmental concerns. Once all remedial activities have been completed, a Remedial Action Report should be prepared.

### 3.5 Issues Concerning Asbestos and Lead

Based on age, the existing structures to be acquired are likely to contain asbestos containing materials (ACM) and lead-based paint (LBP). These buildings should be inspected for ACM and LBP prior to demolition, and demolition should occur in accordance with federal and state laws.

## H. Major Metropolitan Transportation Investment and Congestion Management System Requirements

Under ISTEA, as defined in 450:320(b), of the Metropolitan Planning Regulations published in the Federal Register on October 28, 1993, federal funds may be programmed for the addition of general purpose lanes and capacity for single occupant vehicles in ozone and/or carbon monoxide non-attainment areas if the "project results from a Congestion Management System (CMS) meeting the requirements of 23 CFR 500, Subpart E." While many mandatory aspects of the management systems have been removed by recent federal legislation, the congestion management requirements for projects that significantly enhance single occupancy vehicle capacity in air quality non-attainment areas have been left untouched.

On September 27,1999, the New Jersey Transportation Planning Agency (NJTPA) determined the proposed University Heights Connector project is a spot improvement of a classic bottleneck, and is therefore excluded from further study under the CMS requirements. Correspondence regarding this determination is provided in Appendix D.

## I. Environmental Permits

The proposed project will require the following environmental permits:

- Soil Erosion and Sediment Control Plan Approval
- NJDEP and/or municipal underground storage tank closure permits or approvals.