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Madison Avenue Commuter Rail Corridor Study

Paterson/Hawthorne

Passaic County, NJ

Technical Memorandum #1

REVIEW OF REGIONAL MOBILITY & SMART GROWTH ISSUES

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(080250201)

Introduction

PROJECT OVERVIEW

The purpose of the Madison Avenue Commuter Rail Corridor Study is to investigate how the proposed NJ Transit Passaic-Bergen Passenger Service Restoration Project, which would restore passenger rail service between the Main Line in Hawthorne and State Street in Hackensack, can transform the Passaic County portion of the corridor into a transit oriented environment that will stimulate economic activity, coordinate new and existing transit options, and link to other activity centers. The project will result in a comprehensive strategy on how to integrate existing and future transit modes, land use options, and transit/pedestrian oriented development.

The corridor will be analyzed from a planning, design and traffic engineering perspective with the goal of establishing an understanding of current conditions related to local and regional mobility and smart growth issues, and current transportation system performance; and establishing a vision for potential TOD development and mobility enhancement scenarios.

CORRIDOR DESCRIPTION

The Madison Avenue Commuter Rail Corridor starts in the southeastern corner of Hawthorne and extends south through the eastern portion of Paterson. Maps 1 and 2 illustrate the regional location and local boundaries of the study area. The corridor consists of 2.35 square miles of land running along either side of the proposed Passaic-Bergen Passenger Service Restoration Project. The majority of the corridor – 2.15 square miles or 91.5% – is located in Paterson. The remaining 0.2 square miles, and northern-most portion of the corridor, is in the Borough of Hawthorne. The Paterson portion of the corridor accounts for about one quarter of the entire City, while the Hawthorne portion accounts for about 6% of the Borough.

Map 1 Regional Location

Map 2 Corridor Boundary

1. Demographics

INTRODUCTION

This section provides narrative and graphic descriptions of existing population, economic, and employment conditions in the corridor based on the most up-to-date information available. An understanding of demographics is necessary to draw relationships between population, people's activities and how they travel to/from the various activity centers. The following key demographics for the study area are reviewed and documented in this section.

- Population
- Age distribution
- Resident income and employment
- Resident occupation
- Employment rates
- Labor force education
- Job location and journey to work
- Jobs

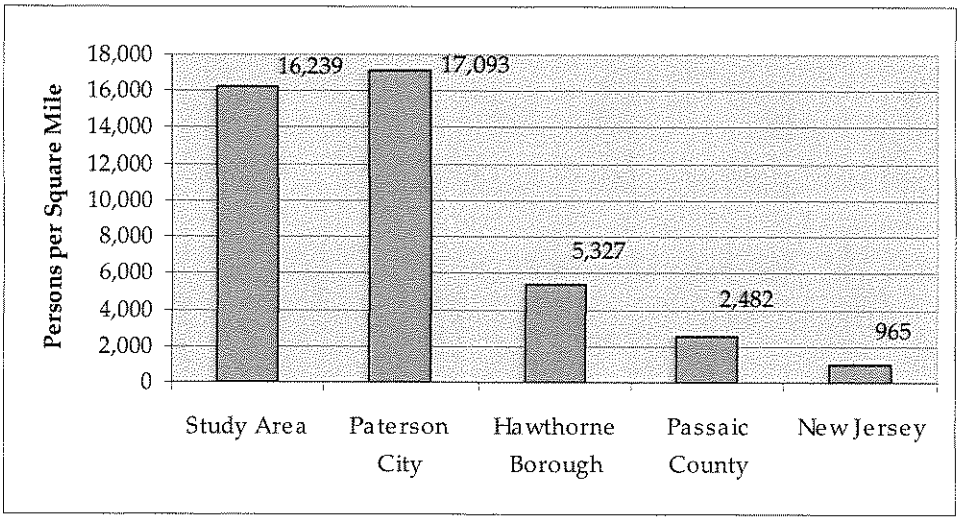
Where data is available, the demographics for the study area are contrasted with similar data for the adjacent municipalities, Passaic County, New Jersey, and other downtown areas including Newark and Trenton to understand and project travel.

For data gathering purposes, 59 census block-groups were identified as wholly or partially inside the corridor as illustrated on Map 1-1. Those block-groups are referred to as the "study area" in the narrative that follows and are considered representative of the condition within the actual corridor. To provide context for the analysis, the study area is compared to the City as a whole, Hawthorne, Passaic County, and New Jersey as appropriate.

TOTAL POPULATION

In 2000 there were 74,861 residents within the study area and a population density of 16,239 persons per square mile. As illustrated in Figure 1-1, the density in the study area was comparable to the overall density in Paterson (17,093), which is the fifth most densely populated municipality in New Jersey. The density in the study area was, however, substantially higher than the density in Hawthorne (5,327), Passaic County (2,482), or New Jersey (965).

Figure 1-1: Population Density Comparison
Study Area, Municipalities, County and State, 2000



Source: US Census 2000

Map 1-1 Block Groups

As shown in Table 1-1, the North Jersey Transportation Planning Authority (NJTPA) population projections for Paterson, Hawthorne, and Passaic County show an increase of approximately 20% from 2000 to 2030. However, the 2006 US Census population estimates for Paterson - 149,220, and Hawthorne - 18,166, indicate little or no growth between 2000 and 2006, running behind NJTPA projections.

Table 1-1: NJTPA Projections
Paterson, Hawthorne and Passaic County, 2000 to 2030

Jurisdiction	2000 Population	2010 Population	2020 Population	2030 Population	2000-2030 Pop. Increase
Paterson	149,220	151,230	164,820	179,530	20.3%
Hawthorne	18,220	18,480	19,470	21,340	17.1%
Passaic County	490,400	513,100	546,600	594,200	21.2%

Source: NJTPA final forecasts, approved 3/15/05

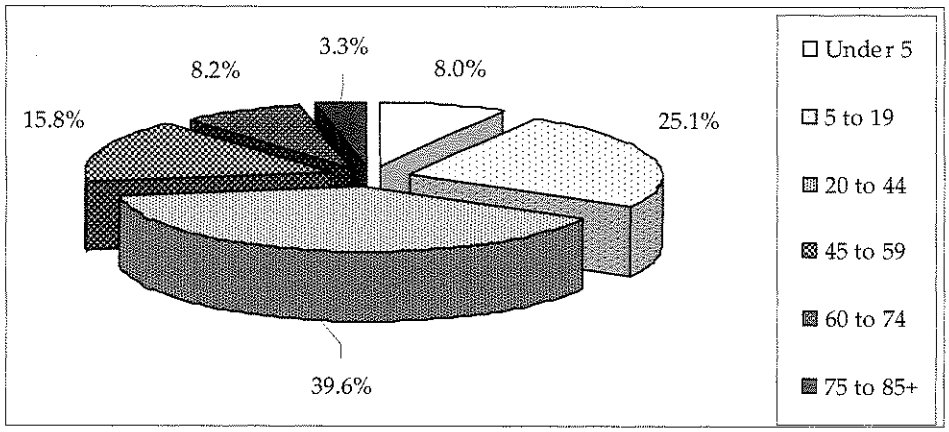
Increased population generally has a direct impact to increase pressure on a transportation system and requires smart planning to enhance capacity and safety. Little or no change in population requires enhancement of the transportation system to accommodate existing demand and generally requires implementation of less costly alternatives.

AGE OF RESIDENTS

As seen in Figure 1-2, residents aged 20 to 44 years old comprised the largest age group in the study area at almost 40%. This age cohort makes up a significant part of the labor force and is an important factor when analyzing workers and commuting patterns. Another significant age group - school aged children ranging from 5 to 19 years of age - comprised one quarter of the study area's population. As seen in Table 1-2, there was no significant difference between the study area and the City in terms of age distribution; and as seen in Figure 1-3, the study area and the City were closely aligned in terms of median age at 30.6 and 30.5 respectively.

The resident population in the study area and in Paterson is more heavily weighted towards a younger population in comparison to the County and State. In 2000, the study area and the City had slightly higher proportions of residents in the under 5, 5 to 19, and 20 to 44 year old cohorts than the County and State and slightly lower proportions in the upper cohorts. In addition, the median age in the study area and City was substantially lower than both the County median (34.8) and statewide median (36.7). Hawthorne's median age was substantially higher at 38.2 years. (See Figure 1-3)

Figure 1-2: Age of Residents in Study Area, 2000



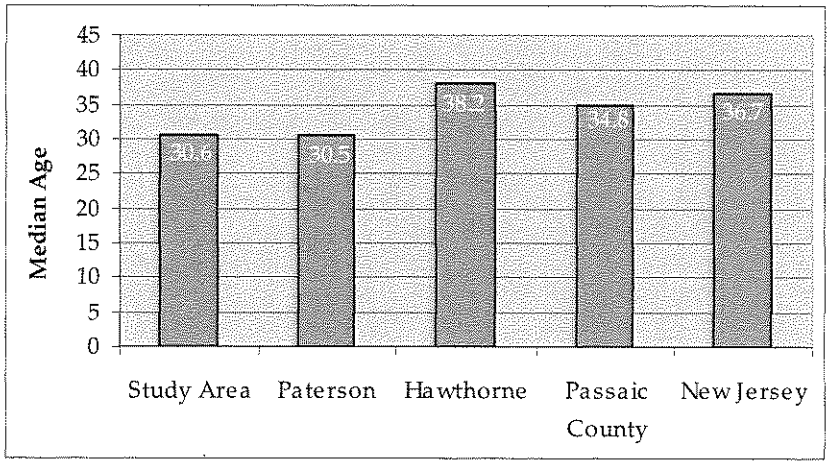
Source: US Census 2000 (Summary File 3)

Table 1-2: Age Distribution Comparison
Study Area, Paterson, Passaic County & NJ, 2000

Age Cohort	Study Area	Paterson	Passaic County	New Jersey
Under 5	8.0%	8.4%	7.4%	6.6%
5 to 19	25.1%	24.5%	21.3%	20.4%
20 to 44	39.6%	40.1%	38.1%	37.1%
45 to 59	15.8%	15.3%	17.4%	18.7%
60 to 74	8.2%	8.0%	9.9%	10.8%
75 to 85+	3.3%	3.6%	5.9%	6.4%

Source: US Census 2000 (Summary File 3)

Figure 1-3: Median Age Comparison
Corridor, Municipalities, County and State, 2000



Source: US Census 2000 (Summary Files 1 and 3)

RESIDENT INCOME & EMPLOYMENT CHARACTERISTICS

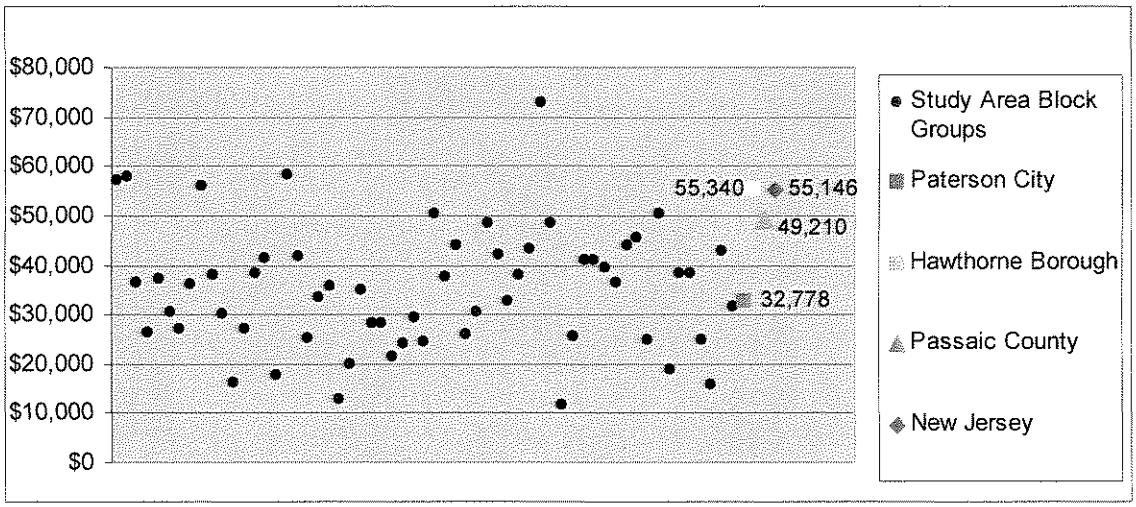
Resident Income

The 1999 median household income of block groups located in the study area ranged from a low of $11,528 (census tract 1828, block group 1) to a high of $72,917 (census tract 1826, block group 1). As seen in Figure 1-4, Paterson's median household income of $32,778 was reflective of the study area while the median income in Hawthorne, Passaic County and statewide was generally higher than the study area.

Most of the block groups in the study area (32%) fell within the $30,000 to $39,000 range for median household income (see Figure 1-5 and Table1-3). About one quarter of the block groups (23.7%) were in the $20,000 to $29,999 range groups; and 20.3% of the block groups were in the $40,000 to $49,999 range. A substantial portion of the study area – approximately 36% of the block groups – fell below the citywide median household income of $32, 778.

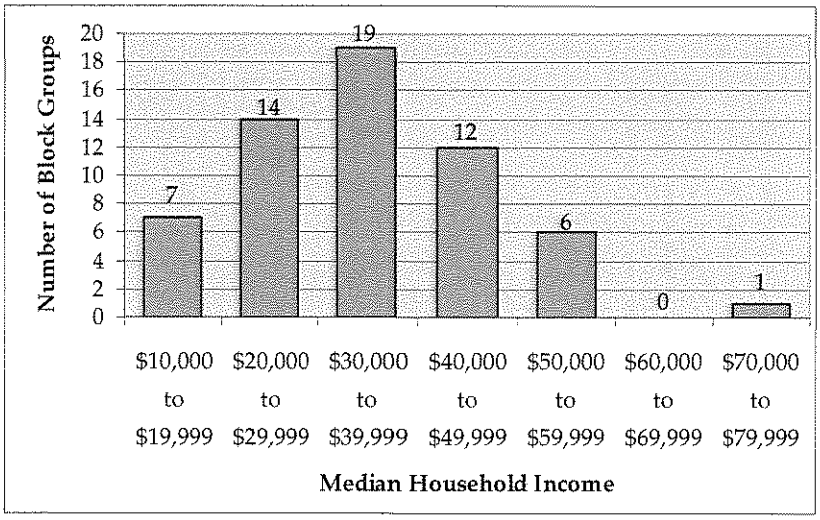
The study area held its share of the City's high and low-income block groups in 2000. Five of the City's 10 highest median household income block groups were located in the study area. Five of the City's 10 lowest median household income block groups were also located in the study area.

Figure 1-4: Median Household Income Distribution



Source: US Census 2000

Figure 1-5: Income Range
Study Area Block Groups, 1999



Source: US Census 2000

Table 1-3: Income Range
Study Area Block Groups, 1999

Median Household Income	% of Total Block Groups
$10,000 to $19,999	11.9%
$20,000 to $29,999	23.7%
$30,000 to $39,999	32.2%
$40,000 to $49,999	20.3%
$50,000 to $59,999	10.2%
$60,000 to $69,999	0.0%
$70,000 to $79,999	1.7%

Source: US Census 2000

As illustrated on Map 1-2, median household incomes were fairly widely distributed over the study area. There was, however, a clustering of lower income block groups within the core of the study area. The block group with the highest median income was located at the eastern end of the study area on the Passaic River. Casual relationships can be drawn between income, resident occupations, employment opportunities, and resident education among other factors that generally define income levels, and by extension, travel behavior, and are discussed in the following sections.

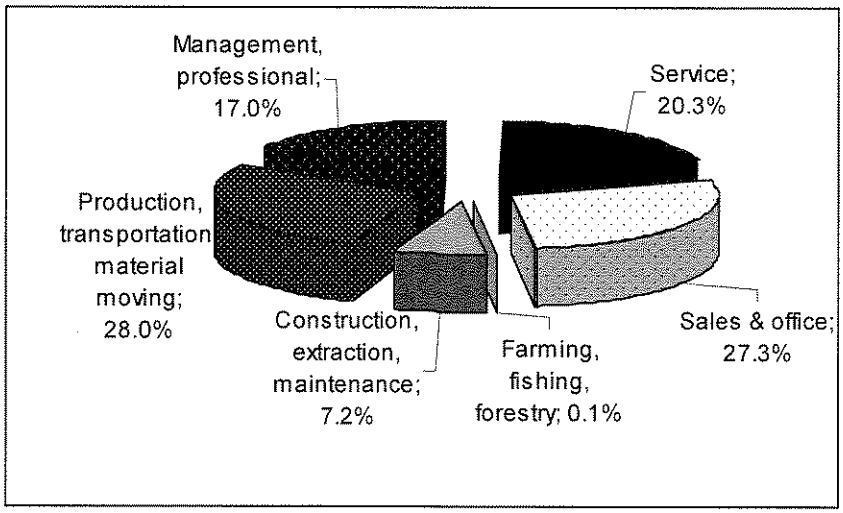
INSERT MAP 1-2: Household Income

Resident Occupation

As illustrated in Figure 1-6, more than one half of the employed residents in the study area were employed in sales and office occupations (27.3%) or production, transportation and material moving occupations (28%) in 2000. The citywide breakdown was about the same (See Table 1-4). Examples of sales and office occupations include consulting, and administrative support occupations. Production, transportation and material moving occupations include air and rail engineers, truck and taxi drivers and postal workers.

While the percent of study area and City residents in sales and office jobs was about the same as the County, State and other New Jersey cities like Newark and Trenton, the percent of residents in management and professional jobs was lower than in Newark and Trenton and much lower than in the County or State. At the same time, a higher percentage of study area and Paterson residents were employed in production, transportation and material moving occupations than in Newark, Trenton, the County or State.

Figure 1-6: Employed Labor Force by Occupation
Study Area Block Groups, 2000



Source: US Census 2000

Table 1-4: Resident Occupation Comparison
Study Area, Paterson, Newark, Trenton, Passaic County, NJ, 2000

Jurisdiction	Management & professional	Service	Sales & office	Farming, fishing & forestry	Construction, extraction & maintenance	Production, transportation & material moving
Study Area	17.0%	20.3%	27.3%	0.1%	7.2%	28.0%
Paterson	16.7%	20.2%	27.7%	0.2%	7.8%	27.4%
Newark	18.9%	21.8%	27.5%	0.1%	10.4%	21.2%
Trenton	21.5%	25.8%	27.6%	0.3%	8.4%	16.3%
Passaic County	30.0%	14.5%	28.6%	0.1%	8.3%	18.4%
New Jersey	38.0%	13.6%	28.5%	0.2%	7.8%	12.0%

Source: US Census 2000

Employment Rates

The relationship between employment and travel has long been established in transportation planning. Majority of trips during the regular work-week are trips to work and a review of employment opportunities and employment rates provides indication as to typical travel.

According to the 2000 Census, which is the most recent data available at the block group level, the average unemployment rate in the study area was 13.6%. That was higher than Paterson's 2000 citywide rate of 8.4%, which was on par with Newark and Trenton (see Table 1-5). According to the NJ Department of Labor, Paterson's unemployment rate stayed about the same in 2007, while Hawthorne and Passaic County rose slightly.

Table 1-5: Private Sector Average Unemployment Rates

Jurisdiction	2000	2007
Study Area	13.6%	NA
Paterson	8.4%	8.3%
Hawthorne	1.9%	2.7%
Newark	8.0%	7.9%
Trenton	7.1%	9.9%
Passaic County	4.6%	5.3%
New Jersey	3.7%	4.2%

Source: US Census 2000; NJ Dept of Labor Annual Labor Force Estimates

Labor Force Education

In 2000, the US Census reported that slightly less than one third of the population in the study area age 25 and over had a high school diploma as the highest form of educational attainment (see Table 1-6). This was about equal to the citywide and countywide rates; and to Newark and Trenton. In the same year, both the study area and the City lagged behind the County and the State in terms of residents with associate or bachelor's degrees.

Table 1-6: Educational Attainment
(Expressed as a % of 25+ population)

Jurisdiction	High school diploma (includes equivalency)	Some college, no degree	Associate or bachelor's degree	Graduate or professional degree
Study Area	31.8%	15.2%	8.8%	2.9%
Paterson	32.4%	14.9%	8.5%	2.8%
Newark	30.5%	15.2%	9.3%	3.0%
Trenton	32.0%	17.4%	9.5%	3.5%

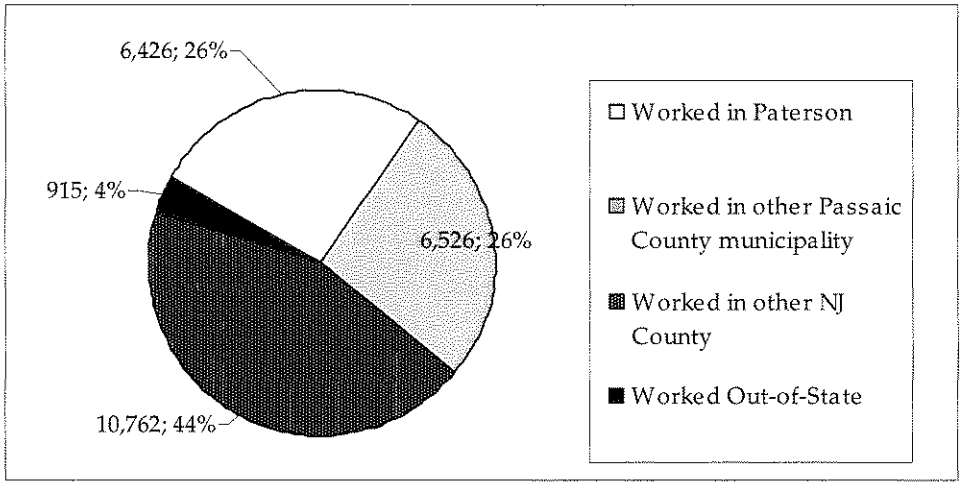
Jurisdiction	High school diploma (includes equivalency)	Some college, no degree	Associate or bachelor's degree	Graduate or professional degree
Passaic County	31.2%	16.7%	18.3%	7.0%
New Jersey	29.4%	17.7%	24.1%	11.0%

Source: US Census 2000

Job Locations & Journey to Work

In 2000, 26% of the residents in the Paterson portion of the study area worked in Paterson. Another 26% worked in some other Passaic County municipality. The largest percentage, 44%, worked in another county in New Jersey. Only 4% worked out of state.

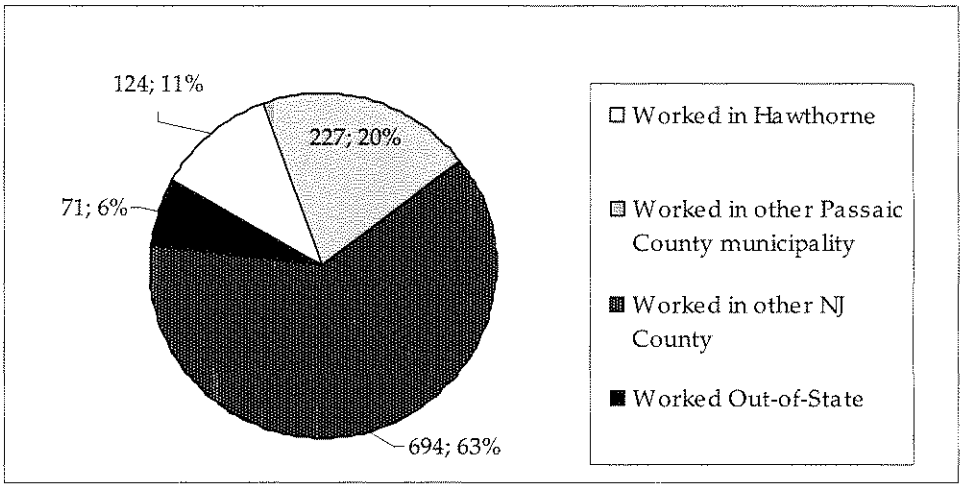
Figure 1-7: Job Locations for Paterson Residents in the Study Area



Source: US Census 2000 (Summary File 3)

In 2000, 11% of the residents in the Hawthorne portion of the study area worked in Hawthorne. Another 20% worked in some other Passaic County municipality. The largest percentage, 63%, worked in another county. Only 6% worked out of state.

Figure 1-8: Job Locations for Hawthorne Residents in the Study Area



Source: US Census 2000 (Summary File 3)

More refined data is not available at the block group level but is available for the City as a whole. As seen in Table 1-7, 27% of Paterson residents commuted to jobs within the City in 2000, far exceeding any other destination. The next highest employment destination was Wayne at 8%. Altogether, only seven municipalities outside of Paterson captured more than 2% of Paterson commuters. The remaining commuters were spread over 149 other municipalities.

Table 1-7: Place of Work for Paterson Residents in 2000 (Exceeding 2% of Total Commuters)

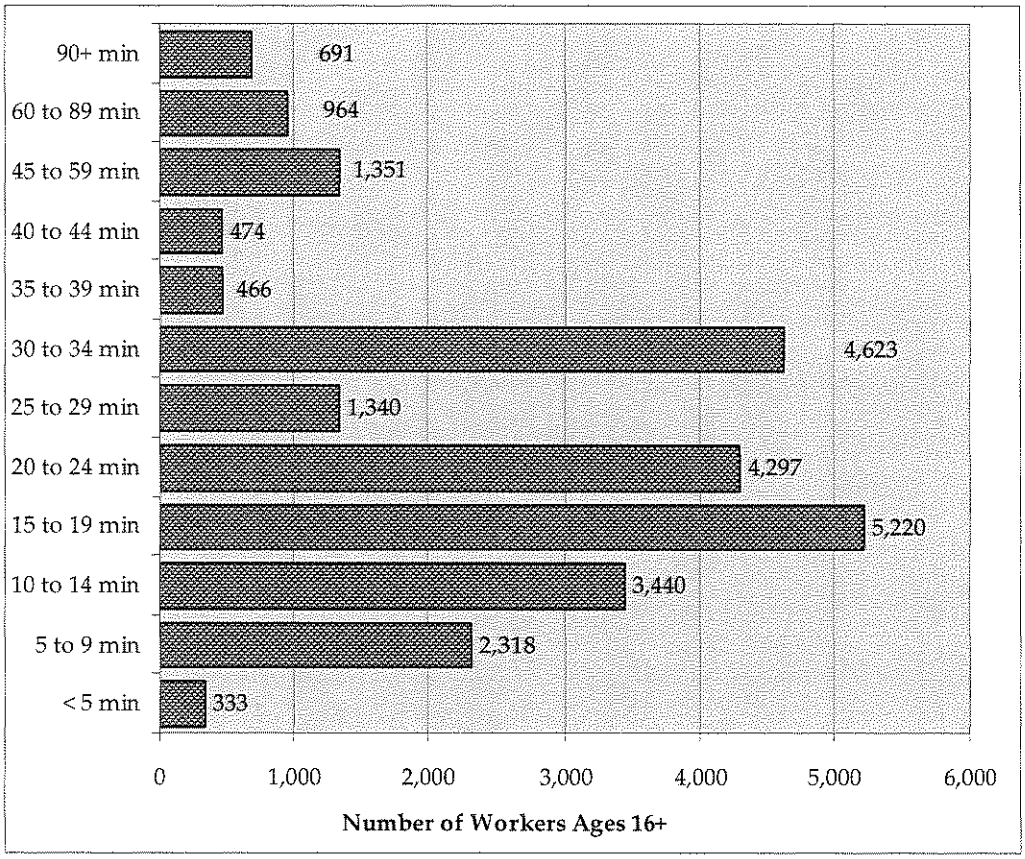
Place of Work	Commuters	Percent of all Commuters
Paterson	13,545	27.4
Wayne	4,055	8.2
Clifton	2,670	5.4
Totowa	2,355	4.8
Paramus	1,810	3.7
Passaic	1,350	2.7
Fair Lawn	1,185	2.4
Hackensack	1,080	2.2

Source: US Census Transportation Planning Package, 2000

As illustrated in Figure 1-9, the majority of residents within the study area travel under 25 minutes to get to work. Figure 1-10 shows that the majority of commuters (80.2%) drove alone to work, 12.2% use mass transit, including bus, rail and taxicabs, 5.3% walk to work, and the remaining 2.4% are categorized under "miscellaneous," and include either bicycling to work or working from home. The percentage of people driving alone to work is significant in the study area and although detailed capacity analysis of the transportation system will be conducted as Task 2 and 4 of the Study, the following are some of the items that generally contribute to tendency to be over-dependent on the automobile:

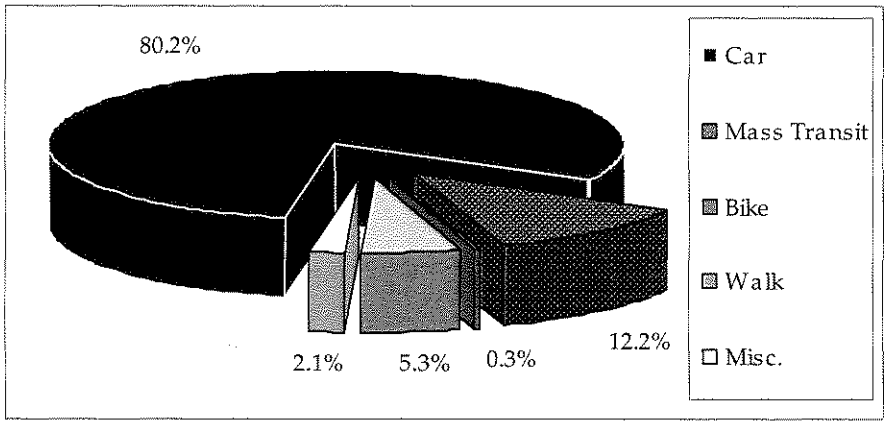
- Travel time savings (if majority are commuting by car for 25 minutes, a bus ride would be approximately the same only with walk times on either end)
- Personal convenience
- Roadway capacity and perceived delay
- Unreliable or insufficient alternative modes
- Ease of access to opportunities, jobs etc and parking availability
- Perceived safety
- Perceived security
- Trip chaining
- Automobile ownership

Figure 1-9: Travel Time to Work in the Study Area



Source: US Census 2000 (Summary File 3)

Figure 1-10: Mode of Transportation in the Study Area



Source: US Census 2000 (Summary File 3)

AT PLACE EMPLOYMENT

This section looks at the jobs actually located in the corridor area as opposed to the jobs held by the residents of the corridor area discussed in the previous section.

The US Census reports employment statistics at the zip code level by the North American Industry Classification Standards (NAICS). While this analysis attempts to capture the corridor area, zip code districts do not adhere neatly to corridor or municipal boundary lines. Map 1-2 illustrates the locations of the zip codes that cover the corridor. Two zip codes (07501 in Paterson and 07506 in Hawthorne) were omitted as they extended substantially beyond the boundaries of the corridor. Map 1-2 also illustrates the zip codes that were used in this analysis - 07503, 07504, 07513, 07514, and 07524. Although not ideal, these zip codes at least provide a representative snapshot of conditions within close proximity of the corridor.

In 2006, there were 1,165 businesses located in the subject zip codes, employing 16,362 people. These zip codes held 52% of Paterson's businesses and 62% of Paterson's employees. Retail Trade, Manufacturing, and Other Services (except Public Administration) were the top three industries in these zip codes (see Table 1-8). Examples of retail trade include car dealers, furniture sales, food, clothing, and book retail sale. Examples of manufacturing include commercial bakeries, and chemical, metal, and plastics manufacturing. Other services include general automotive repair, computer and office machine repair and maintenance, personal care services (beauty and nail salons), pet care, funeral services, religious organizations, and laundry services.

Retail Trade was the most common business type not only in the study area zip codes, but in the City, County and State as well. Major differences were noted in the manufacturing sector, where the study area and the City had higher ratios of manufacturing businesses than the County or State; and in the professional, scientific & technical service sector where the study area and City were underrepresented compared to the County and State.

Almost 60% of the business establishments in the subject zip codes employed between one to four persons (see Table 1-9) in 2006, the same as in the City, County and State. Only about 4% of the businesses within the subject zip codes employ 50 people or more, again reflecting the City, County and State .

Table 1-8: Types of Businesses by % of Total, 2006

Type of Industry	Study Area*	Paterson*	Passaic County	New Jersey
Forestry, fishing, hunting, and agriculture	0.0%	0.0%	0.0%	0.1%
Mining	0.0%	0.0%	0.1%	0.0%
Utilities	0.0%	0.0%	0.0%	0.1%
Construction	9.7%	7.8%	11.5%	10.5%
Manufacturing	15.9%	12.0%	7.1%	3.8%
Wholesale trade	10.0%	8.1%	7.2%	6.6%
Retail trade	16.1%	22.1%	16.0%	14.4%
Transportation & warehousing	3.7%	2.8%	2.6%	3.0%
Information	0.5%	1.1%	1.1%	1.7%
Finance & insurance	2.1%	3.4%	4.4%	5.5%
Real estate & rental & leasing	2.2%	2.7%	3.6%	4.0%
Professional, scientific & technical service	3.0%	5.2%	9.7%	13.0%
Management of companies & enterprises	0.2%	1.3%	0.5%	0.6%
Admin, support, waste mgt, remediation service	4.5%	5.1%	5.8%	5.5%
Educational services	0.3%	1.6%	1.0%	1.3%
Health care and social assistance	8.8%	8.7%	10.7%	10.4%
Arts, entertainment & recreation	0.6%	3.2%	1.1%	1.5%
Accommodation & food services	7.9%	6.0%	7.0%	7.8%
Other services (except public administration)	13.6%	8.5%	10.1%	9.8%
Unclassified establishments	0.9%	0.4%	0.4%	0.4%
Total	**100.0%**	**100.0%**	**100%**	**100%**

Source: US Census, 2006 Zip Code / County Business Patterns, North American Industry Classification System (NAICS)

* Note: The employment data is for informational purposes and is taken from NAICS zip code data that might not adhere to study area or municipal boundary lines.

Table 1-9: Businesses by Employment Size by Zip Code, 2006
(Expressed as a % of total business establishments)

Location by Zip Code	Number of Employees								
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000 or more
	Percent of Total Jobs								
Paterson 07503	59.1%	15.3%	13.3%	9.3%	1.6%	0.5%	0.7%	0%	0.2%
Paterson 07504	58.6%	19.0%	7.8%	8.6%	2.6%	3.4%	0%	0%	0%
Paterson 07513	56.8%	19.6%	11.5%	6.8%	2.7%	2.0%	0.7%	0%	0%
Paterson 07514	61.8%	17.2%	9.7%	8.0%	2.5%	0.4%	0%	0.4%	0%
Paterson 07524	51.4%	23.6%	11.8%	7.3%	3.2%	2.3%	0.5%	0%	0%
Study Area	**57.9%**	**18.2%**	**11.5%**	**8.2%**	**2.3%**	**1.3%**	**0.4%**	**0.1%**	**0.1%**
Paterson	**60.5%**	**16.8%**	**11.4%**	**7.6%**	**2.1%**	**1.1%**	**0.4%**	**0.0%**	**0.0%**
Passaic County	**59.4%**	**17.2%**	**11.0%**	**7.6%**	**2.6%**	**1.6%**	**0.4%**	**0.1%**	**0.1%**
New Jersey	**57.7%**	**17.8%**	**11.7%**	**7.8%**	**2.7%**	**1.7%**	**0.4%**	**0.1%**	**0.1%**

Source: US Census, 2006 Zip Code / County Business Patterns, NAICS

Map 1-2 Zip Codes

Employment Projections

The New Jersey Transportation Planning Authority (NJTPA) projects a 22.9% increase in employment for Paterson between 2000 and 2030, which would surpass employment growth rates in Hawthorne and Passaic County as well as Newark and Trenton.

Table 1-10 Employment Projection
Paterson, Hawthorne, Passaic County

	2000	2010	2020	2030	2000-2030
Jurisdiction	**Employment**	**Employment**	**Employment**	**Employment**	**Employment Increase**
Paterson	43,540	43,680	48,290	53,530	22.9%
Hawthorne	7,910	7,930	8,390	8,750	10.6%
Newark	160,010	161,690	172,910	180,420	12.8%
Trenton*	58,566	59,764	60,802	61,725	5.4%
Passaic County	191,500	192,200	205,100	226,000	18.0%

Source: NJTPA final forecasts, approved 3/15/05, *DVRPC, published 8/07

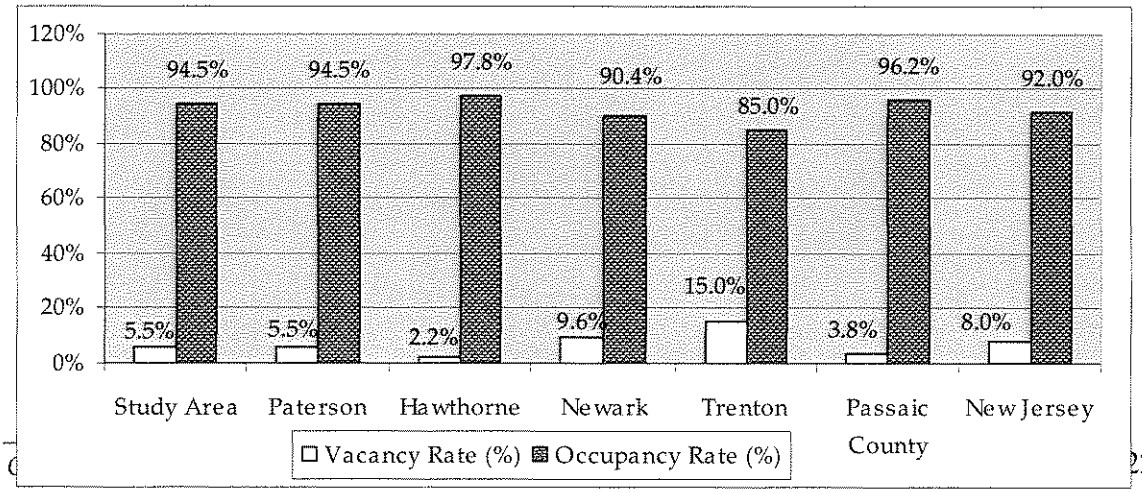
An increase in employment translates to increased demand for transport. Forecasting future traffic conditions must take into account economic activity and any changes in land use.

HOUSING CHARACTERISTICS

Housing Occupancy

In 2000, there were 22,622 housing units in the study area of which 94.5% were occupied and 5.5% were vacant. The vacancy rate in the study area matched the City's 5.5% rate. The vacancy rate was substantially lower in Hawthorne (2.2%) and Passaic County (3.8%) but substantially higher in Newark (9.6%), Trenton (15%) and statewide (8%). (See Figure 1-11 and Table 1-11.)

Figure 1-11: Occupancy Status
Study Area, Municipalities, County, State



Source: US Census 2000

Table 1-11: Housing Unit Occupancy Status and Vacancy Rate
Study Area, Municipalities, Passaic County, NJ, 2000

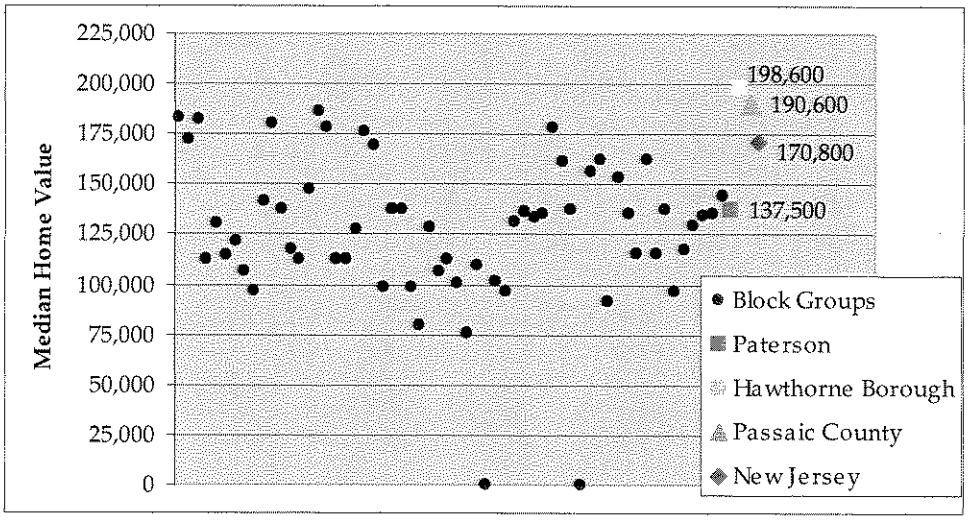
	Study Area	Paterson	Hawthorne	Newark	Trenton	Passaic County	New Jersey
Occupied Units	22,622	44,710	7,260	91,382	29,437	163,856	3,064,645
Vacant Units	1,242	2,459	159	8,759	4,406	6,192	245,630
Total	23,864	47,169	7,419	100,141	33,843	170,048	3,310,275
	Study Area	**Paterson**	**Hawthorne**	**Newark**	**Trenton**	**Passaic County**	**New Jersey**
Vacancy Rate (%)	5.5%	5.5%	2.2%	9.6%	15.0%	3.8%	8.0%

Source: US Census 2000 (Summary File 1)

Housing Value

In 2000, the median housing value among the census block groups in the study area ranged from a low of $75,900 (census tract 1823 block group 1) to a high of $185,700 (census tract 1811 block group 4). As seen in Figure 1-12, the median housing value citywide was reflective of the study area. The median housing value in Hawthorne, Passaic County and statewide was generally higher than the study area.

Figure 1-12: Median Housing Value Distribution
Block Groups, Municipalities, County and State, 2000



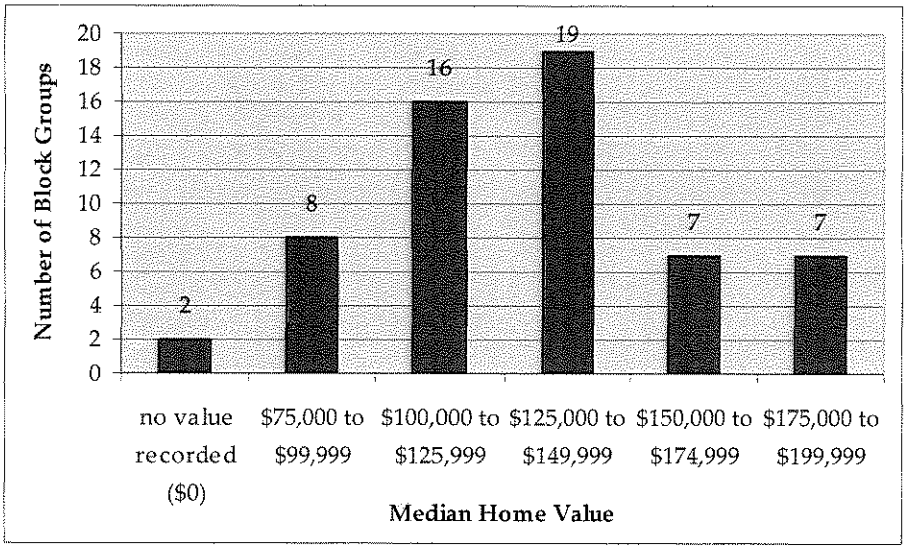
Source: US Census 2000

Most block groups in the study area (32%) fell within the $125,000 to $149,999 range for median housing value (see Figure 1-13 and Table 1-12). The $100,000 to $125,999 range

had 16, or 27.1% of block groups. There were no block groups that maintained a median housing value higher than $199,999.

Similar to the income levels discussed earlier, the study area held its share of the City's high and low housing values in 2000. Five of the City's 10 highest median housing value block groups were located in the study area. Two of the City's 10 lowest median housing value block group were also located in the study area.

Figure 1-13: Median Housing Value
Study Area Block Groups, 2000



Source: US Census 2000

Table 1-12: Median Housing Value
Study Area Block Groups, 2000

Median Home Value	% of Block Groups in Range
no value recorded ($0)	3.4%
$75,000 to $99,999	13.6%
$100,000 to $125,999	27.1%
$125,000 to $149,999	32.2%
$150,000 to $174,999	11.9%
$175,000 to $199,999	11.9%

Source: US Census 2000

As illustrated on Map 1-5, median housing values were fairly widely distributed over the study area. There was, however, a clustering of lower housing values within the core of the study area. The block groups with the highest median housing values were found in the northern end of the study area and to the east of the core.

INSERT MAP 1-5 Housing Values

Household Income and Housing Value

There does not appear to be a direct correlation between household income and housing values in the study area. As seen in Tables 1-13 and 1-14, the top ten block groups in terms of income do not match up with the top ten block groups in terms of housing value. Similarly, the bottom 10 block groups in terms of income do not match up with ten lowest block groups in terms of housing value. For example, only four of the top ten block groups in terms of income are also in the top 10 for housing value. The 10th ranked block group actually ranks last (59th) in housing value. The same disparity exists among the bottom 10 block groups for income where three of the block groups rank among the top 10 in housing value including the 55th ranked block group in terms of income , which ranks third in housing value. On the flip side, the highest housing values do not necessarily attract the highest household incomes in the study area as seen in Table 1-14.

Table: 1-13: Household Income and Housing Value Comparison for Top 10 and Bottom 10 Income Block Groups

Census Tract	Block Group	Median Household Income Rank	Median Housing Value Rank
		Top 10	
1826	1	1	12
1811	2	2	40
1434	5	3	8
1434	1	4	2
1811	5	5	6
1825	4	6	5
1831	6	7	16
1826	5	8	11
1826	4	9	13
1826	3	10	59
		Bottom 10	
1813	2	50	9
1823	6	51	52
1814	3	52	56
1814	2	53	51
1831	1	54	27
1808	1	55	3
1811	1	56	36
1821	1	57	46
1814	1	58	18
1828	1	59	10

Source: US Census

Table: 1-14: Housing Value and Household Income Comparison for Top 10 and Bottom 10 Median Housing Value Block Groups

Census Tract	Block Group	Median Housing Value Rank	Median Household Income Rank
		Top 10	
1811	4	1	24
1434	1	2	4
1808	1	3	55
1810	3	4	30
1825	4	5	6
1811	5	6	5
1813	1	7	40
1434	5	8	3
1813	2	9	50
1828	1	10	59
		Bottom 10	
1813	3	50	41
1814	2	51	53
1823	6	52	51
1829	3	53	49
1810	1	54	44
1827	1	55	13
1814	3	56	52
1823	1	57	39
1823	3	58	37
1826	3	59	10

Source: US Census

Age of Housing

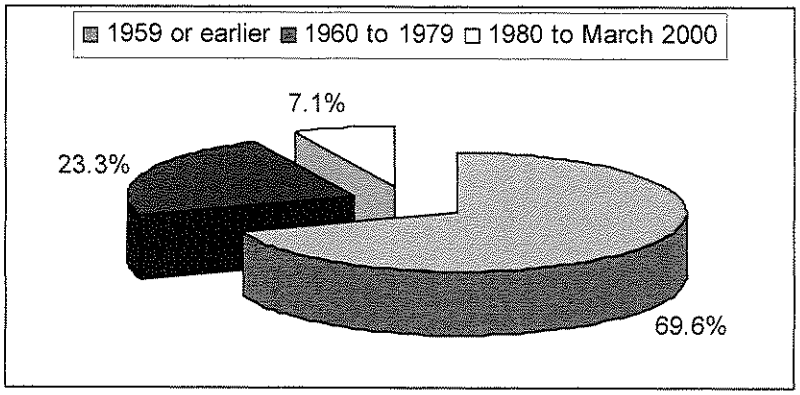
As seen in Tables 1-15 and 1-16, and Figure 1-13, the housing stock in the study area and citywide is quite old. In 2000, almost 70% the housing structures in the study area and the City were built prior to 1959. This was only slightly higher than the overall county housing stock, however, where 63% of the structures were built prior to 1959. Only 7% of the housing stock in the study area had been built between 1980 and 2000 (Table 1-16) compared to 8% in the City, 11.5% countywide, and 22.8% statewide..

Table 1-15: Year Structure Built
In Study Area, 2000

	Housing Units	Percent
Built 1999 to March 2000	101	0.4%
Built 1995 to 1998	361	1.5%
Built 1990 to 1994	389	1.6%
Built 1980 to 1989	857	3.6%
Built 1970 to 1979	1,872	7.8%
Built 1960 to 1969	3,694	15.5%
Built 1950 to 1959	4,072	17.0%
Built 1940 to 1949	4,498	18.8%
Built 1939 or earlier	8,045	33.7%
Total	**23,889**	**100%**

Source: US Census 2000

Figure 1-13: Age of Study Area Housing Stock, 2000



Source: US Census 2000

Table 1-16: Year Structure Built
Study Area, Paterson, Passaic County, NJ, 2000

Jurisdiction	% 1959 or earlier	% 1960 - 2000	% 1980 - 2000
Study Area	69.6%	30.4%	7.1%
Paterson	68.3%	31.7%	8.0%
Passaic County	63.0%	37.0%	11.5%
New Jersey	47.3%	52.7%	22.8%

2. Land Use and Zoning

EXISTING LAND USE

As indicated in Table 2-1, the corridor is mostly residential in character, comprising 46% (485 acres) of the area. There is almost an even split between commercial and industrial uses, at 18% and 16% respectively. The corridor contains very limited vacant land (37 acres) and tax-exempt (non-government) properties (30 acres). Parks and open space, public schools and other public property account for 6% (63 acres) of the corridor.

Table 2-1: Existing Corridor Land Use, 2008

Existing Land Use	Acreage	Percentage
Residential	485	46%
Commercial	186	18%
Industrial	166	16%
Railroad	49	5%
Vacant Land	37	4%
Church, Cemetery & Other Exempt Property	30	3%
Apartment	30	3%
Parks & Open Space	23	2%
Public School	20	2%
Public Property	20	2%
Water	9	1%
Total	**1,054**	**100**

Source: New Jersey Association of County Tax Board 2008

As illustrated on Map 2-1, the commercial and industrial uses are generally located adjacent to the railroad with a large concentration of industrial uses located along the Passaic River, between Getty and Beckwith Avenues (in the southern portion of the study area), and in the eastern foot of the study area adjacent to the proposed Vreeland Avenue station. Commercial and general business uses are concentrated in line with the railroad and Madison Avenue, but also along major thoroughfares including 21st Avenue, Market Street, Broadway, and River Street. The residential and apartment uses are generally located beyond the railroad. The core area contains a large block of commercial uses between Madison Avenue and 18th Street, and a concentration of exempt properties along Broadway. Residential uses in the core area, like the rest of the study area, are located beyond the railroad and major thoroughfares.

Map 2-1 Land Use

EXISTING ZONING

Existing zoning in the corridor largely reflects the existing land use such that the majority of the study area is zoned for residential uses (see Map 2-2).

In Paterson, nearly half of the study area or 669 acres is zoned for either low-medium or high-medium density residential uses (see Table 2-2). The next largest zoning category in Paterson is Heavy Industrial - mainly located along the Passaic River, and in the southern portion of the study area on either side of Railway Avenue. The 4th Ward Redevelopment Plan (RP-4W) covers 148 acres (11%) of the corridor and the 5th Ward Redevelopment Plan (RP-5W) covers 64 acres (5%). The core area contains both redevelopment plan areas and the B-2 and R-3 zoning districts.

Table 2-2: Existing Zoning
City of Paterson, 2008

Zone	Acreage	Percentage
Low Medium Density Residential (R-2)	378	27%
High Medium Density Residential (R-3)	291	21%
Heavy Industrial (I-2)	152	11%
4th Ward Redevelopment Plan (RP-4W)	148	11%
Light Industrial (I-1)	122	9%
Mixed Use (MU)	73	5%
5th Ward Redevelopment Plan (RP-5W)	64	5%
General Business (B-3)	55	4%
Community Business (B-2)	38	3%
Single Family Residential (R-1)	32	2%
Hospital Support (H-2)	15	1%
Neighborhood Business (B-1)	10	1%
High Density Residential (R-4)	1	0%
Total	**1,379**	**100**

Source: Passaic County and www.ordinance.com

In Hawthorne, the corridor is largely zoned for industrial uses comprising 73 acres or 60 percent (see Table 2-3). The I-1 Zone is located along the Passaic River, consistent with the adjacent industrial zoning in Paterson. The next largest zone category is the One- and Two-Family Residential Zone (R-2) - located adjacent to and beyond the railroad. There is a limited corridor along Lafayette Avenue zoned for commercial and office uses.

Table 2-3: Existing Zoning
Hawthorne Borough, 2008

Zone	Acreage	Percentage
Industrial (I-1)	73	60%
One- and Two-Family Residential (R-2)	35	28%
Medium Density Apartments (R-3)	7	6%
Offices, Professional, and Institutional (O-1)	4	3%
Neighborhood Commercial (B-1)	4	3%
Total	**123**	**100**

Source: Passaic County and www.ordinance.com

Map 2-2 Zoning

ENVIRONMENTAL FEATURES

This section provides a general overview of the environmental resources in the corridor specifically wetlands, flood hazard areas, threatened or endangered species habitat, historic resources, and known contaminated sites. All of these features are illustrated on Map 2-3. This section also provides a summary of the NJ Transit Environmental Impact Statement for the entire rail corridor completed in November 2007.

Wetlands & Flood Hazard Areas

According to NJDEP data, there is only one delineated wetland in the corridor. It is located on the bank of the Passaic River in Hawthorne.

The flood hazard areas occur primarily along the Passaic River in the northern part of the corridor, straddling the Paterson-Hawthorne municipal border. There are small pockets of flood zones throughout the corridor that appear to be reflective of isolated street flooding.

Threatened or Endangered Species Habitat

As the corridor is mostly developed and urbanized, there is a limited presence of threatened and endangered species habitat. Only a limited corridor of bobcat habitat is located along the existing NJ Transit Main Line, and proposed Passaic/Bergen DMU rail line in Hawthorne. The accuracy of this data requires field investigation and verification by the NJDEP.

Historic Resources

There are a limited amount of historic resources located within the corridor. The southern portion of the Eastside Park Historic District (listed on the National and State Registers in 2004) overlaps the southeastern leg of the corridor between East 42nd Street, 20th Avenue, and Vreeland Avenue. Small portions of the Barbour Park Historic District are located in the corridor, and the Masonic Temple is located in the core of the corridor on Broadway. The Barbour Park Historic District received an opinion of eligibility from the State Historic Preservation Officer in 1991, and the Masonic Temple received a SHPO opinion in 2004 and a Certificate of Eligibility (COE) in 2006.

SHPO opinions are issued in response to a federally funded activity that will have an effect on historic properties not listed on the National Register. A COE satisfies a prerequisite to apply for funds from the New Jersey Historic Trust, as well as several county preservation funding programs.

Known Contaminated Sites

As indicated in Table 2-4, there were 51 known contaminated sites located in the corridor as of February 2006. These sites include gas stations, auto repair garages, and other warehouse and manufacturing uses. It should be noted that NJDEP updated the list of known contaminated sites in March 2008 but that the information is not yet available in a data base suitable for mapping.

Table 2-4: Known Contaminated Sites, 2006

#	Site Name	Site Location	Remediation Level
1	237 18th Avenue	237 18th Avenue	C1
2	346-348 24th Street	346-348 24th Street	C1
3	431-433 18th Street	431-433 18th Street	C1
4	433 11th Avenue	433 11th Avenue	C1
5	453 East 23rd Street	453 East 23rd Street	C1
6	669 Market LLC	669 Market LLC	C1
7	857 Madison Avenue	857 Madison Avenue	C1
8	Abandoned gasoline service station	761-765 Main Street	C2
9	Amtech Inc. Paterson Gear Motor Div.	845 East 25th Street	C3
10	Atlantic Coast Fibers	510 East 35th Street	C1
11	Boulevard Body and Fender	58-64 First Avenue	C2
12	Calgon Corp.	200 Wagaraw Road	D
13	Cambridge Factors	251 Vreeland Avenue	C2
14	Cardinal Color Inc.	50 -56 First Avenue	C2
15	Citgo-Busto's Auto	Market and 24th Streets	C2
16	Coastal Service Station	246 Market St. & RR Ave.	C1
17	Continental Baking Co.	534 Ellison Street	C2
18	Dover Labs Inc.	182 Cedar Street	C3
19	Facile Holdings Inc.	155-179 6th Avenue	C2
20	Facile Holdings Inc.	185 6th Avenue	B
21	First Paterson Operating Company Inc.	81 First Avenue	C2
22	H&B Petroleum Co.	791 East 25th Street	C1
23	Heterene Inc.	295 Vreeland Avenue	C1
24	Hills Auto Parts	785 Main Street	C1
25	Homestake Chemical Corp.	85 Levine Street	C2
26	I.P. Container Corp.	864 East 25th Street	C2
27	Joseph Masiello Homes	255 Atlantic Street	C1
28	Kem Manufacturing Co Inc.	9-21 East 23rd Street	C1
29	Kirker Enterprises Inc.	1 East 11th Street	C3
30	Madison Avenue Garage	738 Madison Avenue	C2
31	Morton International Inc.	335 McLean Boulevard	D
32	N.C. Automated Inc.	785 East 27th Street	C2
33	Okonite Co.	959 Market Street	C2
34	Paterson Auto Service Inc.	650 Market Street	C2
35	Paterson Citgo	473 Broadway	C2
36	Power Battery Co Inc.	543 East 42nd Street	C1
37	Rebco Realty	1171-1225 Madison Avenue	C2

#	Site Name	Site Location	Remediation Level
38	Rickburn Park	359 McLean Boulevard	C1
39	Riverside Fire House	236 Lafayette Street	C1
40	Riverside Linen Supply	179 Lafayette Street	C2
41	Shell Service Station	92 Lafayette Avenue	C2
42	Texaco Service Station #100171	197 Route 20 North	C2
43	The Alan I. Wolpert Trust	784-798 21st Avenue	C2
44	The Coca Cola Bottling Co. of NY	263 McLean Boulevard	C2
45	Trio Dyeing and Finishing Co. Inc.	440-450 East 22nd Street	C2
46	Univar USA Inc.	109 5th Avenue	D
47	U-Save Service Station (former)	601 Madison Avenue	C2
48	Valley Freight Systems	925 Market Street	C1
49	Whitney Rand Manufacturing Corp.	505 Ellison Street	C2
50	Wilkinson Co.	554-570 East 22nd Street	C2
51	Yankee Linen	63 2nd Avenue	C2

NOTE:
C-1 - No Formal Design - Source Known or Identified-Potential Groundwater contamination
C-2 - Formal Design - Known Source or Release with Groundwater Contamination
C-3 - Multi-Phased RA - Unknown or Uncontrolled Discharge to Soil or Groundwater
B - Single Phase RA - Single Contamination Affecting Only Soils
D - Multi-Phased RA - Multiple Source/Release to Multi-Media Including Groundwater

Source: NJDEP, February 2006

NJ Transit Environmental Impact Statement

In November 2007, NJ Transit completed an Environmental Impact Statement for the proposed Passaic Bergen Passengers Service Restoration project for the entire rail corridor - from Hawthorne Borough in Passaic County to Hackensack City in Bergen County. The EIS assessed potential environmental impacts as a result of the proposed project, and evaluated mitigation strategies. The EIS determined the following:

- As the proposed project would be almost entirely contained within the existing NYS&W rail ROW and within a highly urbanized area, land and water resources would not be impacted significantly.

- Wetland losses of less than one acre would be mitigated through replacement, restoration, and protection.

- The proposed project will provide an alternative mode of transportation in place of the car, potentially causing the reduction of fuel consumption and overall pollutant emissions.

- Air quality is not expected to be diminished or violate the National Ambient Air Quality Standards.

- The proposed project is consistent with State Plan goals to reinforce existing urban centers and increase economic competiveness and attractiveness as places to live.

- Parks and recreation facilities will not be directly affected by the proposed project. Quiet zones will be established near proposed stations to mitigate the noise from train horns. Train horn requirements at grade crossings would not be enforced.

- Traffic signal timing at four intersections in Paterson would require changes to eliminate any conflicts between the operation of the train and vehicular circulation.

- Public education workshops, specifically directed towards children would be undertaken to teach children about the need of caution associated with trains.

- Potential mitigation measures for vibration could include locating switches and other vibration-causing track elements away from residential neighborhoods, and by installing vibration isolators between tracks, ties, and ballast.

- The proposed project is not spread disproportionately to low-income and minority populations. Increased access to transit and revitalization of existing urban centers would result from the presence of the stations. Seven of the nine proposed stations would be located in Paterson and Hackensack – minority and low-income Census tracts – and the residents would benefit from the increased transit opportunities.

- The proposed project and land around the stations would most likely attract development consistent with TOD, compared to less dense and auto-dependent development.

- The proposed project would not negatively impact the existing historic aesthetics of the communities largely because the railroad already exists. However, during construction, the proposed Wagaraw Road Yard and Shop in Hawthorne and the proposed Broadway Station in Paterson would require monitoring of borings and excavation, and documentation of any identified aesthetic, archaeological and/or historic architectural resources.

Map 2-3 Environmental Features

3. Local and Regional Planning Context

This section provides an analysis of the relationship of local and regional plans to the Madison Avenue Corridor. Overall, the plans are consistent with each other in terms of recommendations and strategies identified for the corridor and core area. The plans generally support the redevelopment and revitalization of the corridor, recognize the importance of restoration of passenger rail service to increase transit opportunities for the surrounding area residents, and support transit-oriented and mixed-use development within the core area.

PATERSON CITY MASTER PLAN REEXAMINATION REPORT

The 2003 Paterson City Master Plan Reexamination Report recommends the restoration of the NYS&W freight railroad right-of-way for passenger service.

The Reexamination report recommends zoning changes, specifically within the industrial areas in the study area, and to consolidate tracts of land along the freight line right-of-way for redevelopment.

HAWTHORNE BOROUGH MASTER PLAN REEXAMINATION REPORT

The 2000 Hawthorne Borough Master Plan Reexamination Report outlines a number of recommendations and changes related to the impending commuter rail service restoration, and the need to encourage pedestrian traffic and transit use. The following additional items of concern relating to the corridor were included in the Reexamination Report:

- Recent trend of conversion of one- and two-family residences into commercial uses;
- Traffic on Lafayette Avenue; and
- Conversion of industrial uses on Wagaraw Road.

PASSAIC COUNTY STRATEGIC REVITALIZATION PLAN

Funded by an Office of Smart Growth planning grant, Passaic County developed a strategic revitalization plan largely with the purpose to promote regional efficiencies through inter-jurisdictional coordination and cooperation, and target public investments for the greatest positive impact. Ten revitalization strategies were identified in Paterson.

The following strategies directly relate to the Madison Avenue rail corridor and core area.

- The Broadway/Madison intersection, located within the core area and near the proposed Madison Avenue rail station, was identified as having the potential to be part of a light rail corridor, and serve as a future redevelopment node.

- The 4th and 5th Wards were identified as areas of future investment. Streetscape improvements were recommended for the Madison Avenue corridor including a boulevard design, trees, curbs, sidewalks, and improved transit opportunities.

- The Bergen-Passaic Light Rail Corridor was specifically identified as a major revitalization strategy. The plan noted that properties along the rail corridor presently contain underutilized industrial land, and with passenger service restored, redevelopment and adaptive reuse of the buildings would be anticipated.

PATERSON RESEARCH INITIATIVE

The Paterson Research Initiative Final Report was completed in May 2007 by the Infrastructure Planning Program of NJIT's New Jersey School of Architecture. The report was funded by an OSG grant with the following goals:

- To revitalize Paterson's cultural resources,
- To expand and coordinate transportation opportunities, and
- To foster a sustainable and equitable mix of housing types.

The report identifies implementation activities for the immediate, near- and longer-term future. The following outlines the report's recommended implementation strategies as they relate to the Madison Avenue rail corridor and core area.

A transit village is recommended as a short-term implementation strategy for housing production at the proposed Madison Avenue rail station within the core area. The City owns approximately four acres of vacant and underutilized property around the proposed station, and strip style retail including automotive retail and light industrial uses surround the station. The report recommends the gradual introduction of mixed use development on the city-owned parcels, and revisions to the existing zoning to permit mixed use.

The station's platforms, as indicated in the NJIT report, would be integrated with a plaza, retail complex, and multi-family residential units. Mixed use buildings would be

designed to accommodate retail space on the first floor, and office above. The train station would serve as an activity center and visual focus for the neighborhoods.

The Passaic-Bergen passenger service restoration line forms the eastern edge of the 4th Ward Redevelopment Area. The existing zoning in the 4th Ward Redevelopment Area that is adjacent to the rail line is Light Industrial (I-1). Numerous vacant, abandoned, or underutilized former industrial buildings are located in the I-1 Zone and present safety concerns and inhibit progressive redevelopment. Generally, the report recommends infill in the 4th Ward with mixed use, commercial/residential structures, and public plazas with Rosa Parks Boulevard, Governor and Carroll Streets serving as the main corridors. The report includes detail of a proposed infill strategy with prototypical housing types

The 4th and 5th Wards, and core area depend on the Broadway corridor as their primary commercial corridor. The report recommends the restoration of the entire Broadway corridor streetscape as it relates to the 4th and 5th wards. The streetscape restoration would be a mid-term transportation strategy, and develop in line with the ward redevelopment plans. The report recommends revising the Broadway corridor zoning for consistency with the zoning for Main Street, and require new building design that brings the buildings to the front of the street with parking location in the rear or side of the structure.

The report recommends transit-oriented-development centered on the proposed Vreeland Avenue rail station to organize the fragmented lots that exist today and link the broken street grids. The zoning is mixed at the center with low density residential to the north and south, and medium and high residential densities to the west, and industrial zones in the core. The TOD plan is meant to form a cohesive public, commercial, transportation hub with mixed-use redevelopment, pedestrian friendly walks, and parking. The proposal introduces mixed use blocks of 3 and 4 story residential townhouses with ground floor retail.

FOURTH AND FIFTH WARD REDEVELOPMENT PLANS

In December 2002, the Paterson City Council accepted the City Planning Board's recommendation and adopted resolutions declaring ten study areas within the City as "an area in need of redevelopment" including concentrated residential areas in the 4th and 5th Wards. In November 2003, the redevelopment plans for the 4th and 5th Wards were adopted by the City Council. The two redevelopment plans converge at Broadway and Madison and cover much of the central portion of the corridor including the core area (see Maps 2-2 and 3-1).

Both redevelopment plans look to promote the best of Paterson's eclectic housing stock, which features an array of housing types and architectural styles in a traditional urbanist pattern characterized by front porches, small setbacks, vertical windows, sloping roofs, traditional materials, coordinated color schemes, architectural features such as gables and dormers and amenities such as street trees and ornamental fencing. The plans recommend that all new housing in the redevelopment areas should emulate and conform to this traditional urbanist pattern. Both plans also look to promote the best qualities of traditional commercial design with extensive standards for façade and streetscape treatments that are meant to preserve or create a vibrant, human scale street environment in the commercial districts.

Map – 3-1 Redevelopment Areas

Fourth Ward Redevelopment Plan

The 4th Ward redevelopment area is located between Broadway, Madison Avenue, Lafayette Street and the Erie Railroad Viaduct. The stated purpose of the redevelopment plan is to redevelop and revitalize the 4th Ward through the implementation of new residential, commercial, streetscape and circulation standards, specifically to improve the conflicting land use pattern, and generally poor conditions of the former industrial buildings. The redevelopment area is organized into six land use districts and one overlay zone including:

- Single and Two-Family Medium Density Residential;
- Single and Two-Family Medium High Density Residential;
- Senior Residential;
- General Commercial;
- Community Grocery;
- Light Industrial Transitional; and
- Public Overlay Zone.

Within the corridor, the Single and Two-Family Medium High Density Residential District is the predominant land use district, specifically along Madison Avenue, 18th Avenue, and west of the rail line with commercial and light industrial districts mixed in between. The General Commercial district is located along Rosa Parks Boulevard between Governor and Broadway, along the entire stretch of Broadway, and between Madison and 19th Avenues.

The intent of the Single and Two-Family Medium High Density District is to permit a more intensive residential use of land with various types of dwellings. Density is maintained in medium range, while building height is kept low enough to be generally compatible with one and two-family residential development. Permitted uses include single, two, and three to four-family dwellings, and neighborhood commercial uses.

The General Commercial District is intended to provide sufficient space in appropriate locations for a wide variety of commercial and service activities, generally located along major thoroughfares like Rose Parks Boulevard and Broadway. Permitted uses include:

- Retail stores and shops
- Restaurants (no drive-throughs)
- Banks
- Art galleries and art supply stores
- Artist live-work lofts
- Funeral homes
- Child care centers

The intent of the Community Grocery district is to provide a location for a community-oriented supermarket and associated commercial uses that may be accessed by foot or automobile. This district is located adjacent to the existing NJ Transit Main Line to the west of the study area in a former heavy manufacturing area, which is undergoing transformation to residential neighborhoods. This district is intended to provide a transition between heavier activities and residential neighborhoods and provide essential neighborhood services.

The block bounded by Hamilton Avenue, Carroll Street, Fair Street and Rosa Parks Avenue is zoned as a public overlay in the redevelopment plan. School #6 is located at the western end of this block. At the time of the redevelopment plan (November 2003) the school was undergoing renovation. The plan recommends that the City and the Paterson Public Schools work together to locate and create a new community school that would incorporate facilities for the community. The entire block was zoned as a government overlay to provide for the possible construction of a new facility. The existing school would remain as a "swing school" during the development and construction of the other Paterson Public Schools. It could then be used as a community facility, such as a senior center or job training center.

Fifth Ward Redevelopment Plan

The 5th Ward redevelopment area is located to the south of the 4th Ward between Broadway, Madison Avenue, Market Street, Rosa Parks Boulevard, Oak Street, Martin Street, Cedar Street, Chestnut Street, 21st Avenue, and Straight Street. The stated purpose of the redevelopment plan is to redevelop and revitalize the 5th Ward through the implementation of new residential, commercial, streetscape and circulation standards, specifically to improve development trends and conditions in the area surrounding two of the City's public schools: Eastside High School and P.S. 15.

The redevelopment area is organized into four districts and one overlay zone, including:

- Single and Two-family Medium Residential;
- Single and Two-family Medium-High Residential;
- Neighborhood Commercial;
- General Commercial; and
- Public Overlay zone.

The rail corridor is mostly within the Medium-High Density Residential (MHD) District. The MHD District is intended to provide for a more intensive residential use of land through medium densities and building height in scale with 1- to 2-family development. The MHD District permits single-family, two-family dwellings, and 3-4-family dwelling

units, in addition to neighborhood commercial establishments (first floor with residential above, conditional).

Within the corridor, the Neighborhood Commercial District extends along Market Street, and the General Commercial District is centered on the intersections of Park and Madison Avenues, and Broadway and Madison Avenue. Both commercial districts are intended to provide retail and personal services to residents, in addition to providing for a more intense, wider variety of commercial uses in appropriate locations. The Neighborhood Commercial District permits the following uses:

1. Retail shops
2. Bakeries
3. Confectionaries
4. Pharmacies
5. Restaurants (without drive-through)
6. Florists
7. Grocery stores
8. Banks
9. Dry cleaning laundries
10. Newsstands
11. Barber shops and salons
12. Child care centers
13. Private and storefront clubs (cond.)

The General Commercial District permits many of the Neighborhood Commercial uses, in addition to funeral homes, art galleries, and artist live-work lofts.

4. Transportation System Performance

TRANSPORTATION SYSTEM NETWORK

Paterson City has a transportation system that accommodates automobiles, buses, trucks, bicyclists, and freight rail. The study area has in place a roadway network which is linked to the regional highways and provides accessibility to/from other parts of Passaic County, New Jersey, New York and Pennsylvania, among others. The transportation system also provides pedestrian amenities including sidewalks and crosswalks, primarily along the street network. In addition, the roadway network supports the bus transit service in Paterson City. Freight is transported by rail as well as truck deliveries. With the restoration of the planned Passaic-Bergen Passenger Rail Line, the overall transportation system will likely benefit with enhanced accessibility and mobility.

This section discusses the existing and potential functionality issues of the transportation system from a multimodal and intermodal standpoint. Additionally, concerns regarding parking, capacity, safety, accessibility and connectivity, as documented in available studies are discussed and where possible, correlations are drawn against demographics and land use characteristics, which fundamentally define travel. Recommendations to enhance accessibility and mobility as well as pedestrian access and parking along Market Street documented in the Safety Improvement Initiative Phase II dated June 2008 are also reviewed and will be incorporated in the development of alternate improvements to address existing and future traffic concerns. Detailed analyses to investigate concerns for excessive queuing and delay at the intersection of Madison Avenue with Ellison Place due to the rail crossing documented as concerns of the local residents at the conceptual stages will be conducted as part of Task 4 to develop alternative solutions.

ROADWAY NETWORK

Description of Study Area Roadways and General Traffic Conditions

The study area has a series of two-way streets and one-way pair streets generally set out on a grid system with the north-south roadways labeled "avenues" and the east-west roadways labeled "streets." The majority of the streets are however two-way, providing 12-16 FT wide travel lanes and up to 8 FT wide shoulders or parallel parking. The streets are generally straight and level. These streets, which form the study area roadway system, are well connected to highway transportation, including Interstate 80, the Garden State Parkway, US-46, and NJ-19, NJ-20 and NJ-208. Table 4-1 summarizes the characteristics of the key roadways in the study area.

In terms of functional classification of the major roadways within the study area, Broadway and Madison Avenue (County Route 649) are classified as major arterials; 18th

Street (County Route 653) and Market Street as minor arterials; while Van Houten Street, Ellison Street, Park Avenue, 20th Avenue, 21st Avenue, and Rosa Parks Boulevard are classified as collector streets. The classification is based on size, function and accessibility, with arterials generally carrying most of the through and regional traffic.

Broadway and Madison Avenue, which are arterials carry the most through and local traffic and generally experience congestion. Market Street also carries significant through traffic also experiencing peak hour and midday congestion. 21st Avenue is also a significant through road, but owing to the uses along this street (commercial and industrial) there is less automobile traffic along this roadway. Rosa Parks Boulevard, north of Park Avenue serves as a significant north-south route through the area but does not experience as much congestion as the arterial streets.

Table 4-1: Study Area Roadway Characteristics

Name	Jurisdiction	Description	Roadway Width[1]	Speed Limit[2]
11th Avenue	Local	Two-Way Roadway	20 FT	25 MPH
12th Avenue	Local	Two-Way Roadway	40 FT	25 MPH
Hamilton Avenue	Local	One Way Eastbound	35 FT	25 MPH
Broadway	Local	2-Way Roadway	45 FT	25 MPH
Ellison Place	Local	One-Way Eastbound west of East 18th Street	30 FT	25 MPH
Park Avenue	Local	One-Way Westbound west of East 18th Street	40 FT	25 MPH
East 18th Street (CR 653)	Passaic County	Two-Way Roadway	30 FT	25 MPH
Madison Avenue (CR 649)	Passaic County	Two-Way Roadway	48 FT	25 MPH
East 22nd Street	Local	Two-Way Roadway	36 FT	25 MPH
East 23rd Street	Local	Two-Way Roadway	35 FT	25 MPH
Rosa Parks Blvd.	Local	Two-Way Roadway	36 FT	25 MPH

1 - Roadway widths measured from curb to curb, predominant widths shown, may vary
2 – Speed limits are per urban standards and as documented in NJDOT Straight Line Diagrams 2007

Description of Study Area Intersections and General Traffic Conditions

The following is a description of the study area intersections including geometry, traffic control, pedestrian amenities, parking and land uses at the corners. Intersections are the primary focus when evaluating the capacity and safety of a roadway network since this is where traffic flow conflicts exist as opposed to along the roadway segments. For instance, a 4-approach intersection will experience up to 32 conflicting flows, not including any bus stop, parking or pedestrian maneuvers proximate to the intersection.

To resolve traffic flow or turning conflict maneuvers, as in other urban areas in New Jersey, the intersections within the core study area have a mix of signal controlled intersections and stop-controlled intersections. Of the 71 intersections in the core study

area, 19 are signal-controlled. The traffic signals are generally coordinated and are maintained by the City of Paterson. A coordinated signal system allows mainline traffic to flow as to achieve the maximum flow thru multiple intersections along a corridor.

Map 4-1 illustrates the core study area roadway network including traffic circulation as designated (one-way vs. two-way) and the locations of traffic signals.

Map 4-1: Roadway Network

The following are descriptions for the key study area intersections:

Rosa Parks Boulevard at Broadway

Rosa Parks Boulevard intersects Broadway to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on an 85-second cycle during the weekday morning and evening peak hours. The northbound approach of Rosa Parks Boulevard provides a shared left turn/through/right turn lane and has a 36 FT wide cartway. The southbound approach of Rosa Parks Boulevard provides a shared left turn/through/right turn lane and has a 30 FT wide cartway. The eastbound approach of Broadway provides a shared left turn/through/right turn lane and has a 40 FT wide cartway. The westbound approach of Broadway provides a shared left turn/through/right turn lane and has a 40 FT wide cartway. There is however no centerline striping or crosswalks at the intersection. There is a bus stop on the northerly and southerly sides of Broadway west of the intersection. All approaches of the intersection have curbing and sidewalks. Within the vicinity of the intersection parking is permitted on both sides of all approaches, with the exception of the easterly approach of Rosa Parks Boulevard south of the intersection. The Land uses at the intersection include an apartment building on the northwest corner, a church on the southwest corner, a pre-school on the northeast corner, and a commercial building on the southeast corner.

East 18th Street at 11th Avenue

East 18th Street intersects 11th Avenue to form an unsignalized four-leg intersection with stop control on the eastbound and westbound approach of 11th Avenue. The northbound approach of East 18th Street provides an 18 FT wide shared left turn/through/right turn lane and has a 36 FT wide cartway. The southbound approach of East 18th Street provides a 17 FT wide shared left turn/through/right turn lane and has a 34 FT wide cartway. The eastbound approach of 11th Avenue provides a shared left turn/through/right turn lane and has a 30 FT wide cartway. The westbound approach of 11th Avenue provides a shared left turn/through/right turn lane and has a 41 FT wide cartway. There is however no centerline striping on 11th Avenue but there are crosswalks at the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on both sides of all approaches, with the exception of the easterly approach of East 18th Street south of the intersection which is restricted to 15 minute parking. Land use in the area is primarily residential, with the exception of a liquor store on the southeast corner of the intersection.

East 18th Street at 12th Avenue/16th Street

East 18th Street intersects 12th Avenue/16th Street to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on an 85-second cycle during the weekday morning and evening peak hours. The northbound approach of East 18th Street provides a 12 FT wide shared left turn/through/right turn lane and has a 30 FT wide cartway. The southbound approach of East 18th Street provides a 17

FT wide shared left turn/through/right turn lane and has a 34 FT wide cartway. The eastbound approach of 16th Street provides a shared left turn/through/right turn lane and has a 33 FT wide cartway. The westbound approach of 12th Avenue provides a shared left turn/through/right turn lane and has a 40 FT wide cartway. There is however no centerline striping on 12th Avenue/16th Street but there are crosswalks at the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on both sides of all approaches, with the exception of the northbound approach of East 18th Street south of the intersection and the eastbound approach of 16th Avenue west of the intersection. Land uses at the intersection include a church on the northwest corner, an automobile repair shop on the southwest corner, a residence on the northeast corner, and a church on the southeast corner.

East 18th Street at Hamilton Avenue

East 18th Street intersects Hamilton Avenue (one-way in the eastbound direction) to form an unsignalized four-leg intersection with stop control on the eastbound approach of Hamilton Avenue. The northbound approach of East 18th Street provides a 14 FT wide shared through/right turn lane and has a 30 FT wide cartway. The southbound approach of East 18th Street provides an 18 FT wide shared left turn/through lane and has a 34 FT wide cartway. The eastbound approach of Hamilton Avenue provides a shared left turn/through/right turn lane and has a 35 FT wide cartway. There is however no centerline striping on Hamilton Avenue and there are no crosswalks. Railroad tracts intersect the intersection from the southeast corner to the northwest corner along with rail-crossing warning signals. All approaches of the intersection have curb and sidewalk, with the exception of the easterly approach of East 18th Street south of the intersection. Within the vicinity of the intersection parking is permitted on both sides of all approaches, with the exception of the northbound and southbound approach of East 18th Street. Land uses at the intersection include a church on the northwest corner, an abandoned commercial building on the southwest corner, a commercial building on the southeast corner and an automobile repair shop on the northeast corner.

East 18th Street at Broadway

East 18th Street intersects Broadway to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on an 85-second cycle during the weekday morning and evening peak hours. The northbound approach of East 18th Street provides a 15 FT wide shared through/right turn lane and has a 30 FT wide cartway. The southbound approach of East 18th Street provides a 12 FT wide shared through/right turn lane and has a 30 FT wide cartway. The eastbound approach of Broadway provides a shared through/right turn lane and has a 42 FT wide cartway. The westbound approach of Broadway provides a shared through/right turn lane and has a 47 FT wide cartway. At each approach, the left turn movement is prohibited. There is however no centerline striping or crosswalks across Broadway. There are crosswalks across East 18th Street and there is a bus stop on the northerly and southerly edges of Broadway west of the intersection. Within the vicinity of the intersection parking is

permitted on both sides of all approaches, with the exception of the northbound and southbound approach of East 18th Street. Land uses at the intersection include an apartment building on the northwest corner, a church on the southwest corner, an automobile repair shop on the northeast corner, and a liquor store on the southeast corner.

East 18th Street at Ellison Place/Street

East 18th Street intersects Ellison Place/Street (one–way in the eastbound direction, west of the intersection) to form a four-leg intersection controlled by a by a two-phase actuated-coordinated traffic signal operating on an 85-second cycle during the weekday morning and evening peak hours. The northbound approach of East 18th Street provides a 12 FT wide shared through/right turn lane and has a 30 FT wide cartway. The southbound approach of East 18th Street provides a 15 FT wide shared left turn/through lane and has a 30 FT wide cartway. The eastbound approach of Ellison Street provides a shared left turn/through/right turn lane and has a 30 FT wide cartway. The westbound approach of Ellison Place provides a 20 FT wide defacto left turn lane and shared through/right turn lane and has a 40 FT wide cartway. There is centerline striping and crosswalks at the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is prohibited on all approaches, with the exception of the eastbound approach of Ellison Street west of the intersection. Land uses at the intersection include residents on the northwest corner and southwest corner, a pharmacy on the northeast corner, and a supermarket on the southeast corner.

East 18th Street at Park Avenue

East 18th Street (one-way traveling southbound, south of the intersection) intersects Park Avenue (one–way traveling westbound, west of the intersection) to form an unsignalized four-leg intersection with stop control on the southbound approach of East 18th Street. The southbound approach of East 18th Street provides a 15 FT wide shared left turn/through/right turn lane and has a 30 FT wide cartway. The westbound approach of Park Avenue provides a shared left turn/through/right turn lane and has a 40 FT wide cartway. There is however no centerline striping on Park Avenue, but there are crosswalks at the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches. Land uses at the intersection include residential on the northwest corner, a deli on the and southwest corner, a liquor store on the northeast corner, and a barber shop on the southeast corner.

Madison Avenue at Park Avenue

Madison Avenue intersects Park Avenue to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on a 75-second cycle during the weekday morning and evening peak hours. The northbound approach of Madison Avenue provides a 15 FT wide shared left turn/through/right turn lane and has a 48 FT wide cartway. The southbound approach of Madison Avenue provides a 25 FT wide

shared left turn/through/right turn lane and has a 48 FT wide cartway. The eastbound approach of Park Avenue provides a shared left turn/through/right turn lane and has a 40 FT wide cartway. The westbound approach of Park Avenue provides a shared left turn/through/right turn lane and has a 40 FT wide cartway. There is however no centerline striping on Park Avenue and there are no crosswalks at the intersection. There is a bus stop on the northerly and southerly sides of Park Avenue west of the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches. Land uses at the intersection include a deli on the northwest corner, a fast food restaurant on the southwest corner, a funeral home on the northeast corner, and a residence on the southeast corner.

Madison Avenue at Ellison Place

Madison Avenue intersects Ellison Place to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on a 75-second cycle during the weekday morning and evening peak hours. The northbound approach of Madison Avenue provides a 27 FT wide shared left turn/through/right turn lane and has 4 FT wide paved median with a 57 FT wide cartway. The southbound approach of Madison Avenue provides a 25 FT wide shared left turn/through/right turn lane and has a 4 FT wide paved median with a 57 FT wide cartway. The eastbound approach of Ellison Place provides a 20 FT wide shared left turn/through lane and a 24 FT wide channelized right turn lane. The eastbound approach of Ellison Place has a 2 FT wide paved median and a 66 FT wide cartway. The westbound approach of Ellison Place provides a 17 FT wide shared left turn/through/right turn lane and has a 42 FT wide cartway. There is centerline striping and crosswalks at the intersection. Railroad tracts intersect the intersection from the southeast corner to the northwest corner along with rail-crossing warning signals. All the approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches, with the exception of the easterly side of Madison Avenue north of the intersection and the northerly side of Ellison Place east of the intersection. Land uses at the intersection include a pharmacy on the northwest corner, a restaurant on the southwest corner, an unstriped parking lot on the northeast corner, and fenced lot on the southeast corner.

Madison Avenue at Broadway

Madison Avenue intersects Broadway to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on a 75-second cycle during the weekday morning and evening peak hours. During the morning and evening peak hours, the northbound left turn movement is restricted by use of an electronic sign located next to the signal. The northbound approach of Madison Avenue provides an 11 FT wide exclusive left turn lane and a 22 FT wide shared through/right turn lane and has a 60 FT wide cartway. The southbound approach of Madison Avenue provides a 10 FT wide exclusive left turn lane and a 19 FT wide shared through/right turn lane and has a 48 FT cartway. The eastbound approach of Broadway provides an exclusive left turn lane and a shared through/right turn lane and has a 48 FT wide cartway. The

westbound approach of Broadway provides a 10 FT wide exclusive left turn lane and a 19 FT wide shared through/right turn lane and has a 48 FT wide cartway. There is however no centerline striping along Broadway. There are crosswalks at the intersection. There is a bus stop on the easterly and westerly edges of Madison Avenue north of the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches, with the exception of the westerly side of Madison Avenue south of the intersection which is restricted to thirty minutes and the southerly side of Broadway east of the intersection which is restricted to one hour. Land uses at the intersection include a gas station on the northwest corner, a laundromat on the southwest corner, and fast-food restaurants on both the northeast and southeast corners.

Madison Avenue at Hamilton Avenue

Madison Avenue intersects Hamilton Avenue (one-way traveling eastbound) to form an unsignalized four-leg intersection with stop control on the eastbound approach of Hamilton Avenue. The northbound approach of Madison Avenue provides a 23 FT wide shared through/right turn lane and has a 49 FT wide cartway. The southbound approach of Madison Avenue provides a 23 FT wide shared left turn/through lane and has a 49 FT cartway. The eastbound approach of Hamilton Avenue provides a shared left turn/right turn lane and has a 29 FT wide cartway. There is however no centerline striping on Madison Avenue and there are no crosswalks at the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches. Land uses at the intersection are primarily residential on each corner of the intersection.

Madison Avenue at 12th Avenue

Madison Avenue intersects 12th Avenue to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on a 75-second cycle during the weekday morning and evening peak hours. The northbound approach of Madison Avenue provides a 25 FT wide shared left turn/through/right turn lane and has a 48 FT wide cartway. The southbound approach of Madison Avenue provides a 24 FT wide shared left turn/through/right turn lane and has a 48 FT cartway. The eastbound approach of 12th Avenue provides a shared left turn/through/right turn lane and has a 40 FT wide cartway. The westbound approach of 12th Avenue provides a 20 FT wide shared left turn/through/right turn lane and has a 42 FT wide cartway. There is however no centerline striping on 12th Avenue although there are crosswalks at the intersection. There is a bus stop on the easterly edge of Madison Avenue south of the intersection and westerly edge Madison Avenue north of the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches. Land uses at the intersection include automobile related uses on the northwest, northeast and southeast corners, as well as a deli on the southwest corner.

Madison Avenue at 11th Avenue

Madison Avenue intersects 11th Avenue to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on a 75-second cycle during the weekday morning and evening peak hours. The northbound approach of Madison Avenue provides a 24 FT wide shared left turn/through/right turn lane and has a 48 FT wide cartway. The southbound approach of Madison Avenue provides a 23 FT wide shared left turn/through/right turn lane and has a 47 FT cartway. The eastbound approach of 11th Avenue provides a shared left turn/through/right turn lane and has a 41 FT wide cartway. The westbound approach of 11th Avenue provides a 22 FT wide shared left turn/through/right turn lane and has a 44 FT wide cartway. There is however no centerline striping on 11th Avenue, but there are crosswalks at the intersection. There is a bus stop on the easterly side of Madison Avenue south of the intersection and westerly approach of Madison Avenue north of the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches. Land uses at the intersection include an abandoned building on the northwest corner, a residence on the southwest corner, a parking lot on the northeast corner, and a salon on the southeast corner.

East 22nd Street at 11th Avenue

East 22nd Street intersects 11th Avenue to form an unsignalized four-leg intersection with stop control on the northbound and southbound approach of East 22nd Street. The northbound and southbound approaches of East 22nd Street are slightly offset, creating a skewed intersection. The northbound approach of East 22nd Street provides a shared left turn/through/right turn lane and has a 36 FT wide cartway. The southbound approach of East 22nd Street provides a shared left turn/through/right turn lane and has a 35 FT cartway. The eastbound approach of 11th Avenue provides a shared left turn/through/right turn lane and has a 42 FT wide cartway. The westbound approach of 11th Avenue provides a shared left turn/through/right turn lane and has a 42 FT wide cartway. There is however no centerline striping on East 22nd Street, but there are crosswalks at the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches. Land uses at the intersection include an aluminum supply company on the northwest corner, a parking lot on the southwest corner, a residence on the northeast corner, and a church on the southeast corner

East 22nd Street at Broadway

East 22nd Street intersects Broadway to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on a 75-second cycle during the weekday morning and evening peak hours. The northbound approach of East 22nd Street provides a shared left turn/through/right turn lane and has a 36 FT wide cartway. The southbound approach of East 22nd Street provides a shared left turn/through/right turn lane and has a 35 FT cartway. The eastbound approach of Broadway provides a 23 FT wide shared left turn/through/right turn lane and has a 49 FT wide cartway. The westbound approach of Broadway provides a 25 FT wide shared left turn/through/right

turn lane and has a 50 FT wide cartway. There is however no centerline striping on East 22nd Street but there are crosswalks. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches, with the exception of Broadway west of the intersection which is restricted to one hour and the southerly approach of Broadway east of the intersection which is restricted to thirty minutes. Land uses at the intersection include residences on the northwest and northeast corners, a deli on the southwest corner, and a restaurant on the southeast corner.

East 22nd Street at Park Avenue

East 22nd Street intersects Park Avenue to form a four-leg intersection controlled by a two-phase actuated-coordinated traffic signal operating on a 70-second cycle during the weekday morning and evening peak hours. The northbound approach of East 22nd Street provides a shared left turn/through/right turn lane and has a 36 FT wide cartway. The southbound approach of East 22nd Street provides a shared left turn/through/right turn lane and has a 36 FT cartway. The eastbound approach of Park Avenue provides a 20 FT wide shared left turn/through/right turn lane and has a 40 FT wide cartway. The westbound approach of Park Avenue provides a 20 Ft wide shared left turn/through/right turn lane and has a 40 FT wide cartway. There is however no centerline striping on East 22nd Street but there are crosswalks. Railroad tracts intersect the intersection from the southeast corner to the northwest corner along with railroad warning signals. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches. Land uses at the intersection include an automobile repair shop and tax office on the northwest corner, a Laundromat on the southwest corner, a deli on the northeast corner, and a salon on the southeast corner.

East 23rd Street at Broadway

East 23rd Street intersects Broadway to form an unsignalized four-leg intersection with stop control on the northbound and southbound approach of East 23rd Street. The northbound approach of East 23rd Street provides a shared left turn/through/right turn lane and has a 36 FT wide cartway. The southbound approach of East 23rd Street provides a shared left turn/through/right turn lane and has a 35 FT cartway. The eastbound approach of Broadway provides a 24 FT wide shared left turn/through/right turn lane and has a 48 FT wide cartway. The westbound approach of Broadway provides a 24 FT wide shared left turn/through/right turn lane and has a 48 FT wide cartway. There is however no centerline striping on East 23rd Street and crosswalks only exist across Broadway. There is a bus stop on the northerly side of Broadway east of the intersection and the southerly approach west of the intersection. All approaches of the intersection have curb and sidewalk. Within the vicinity of the intersection parking is permitted on all approaches; with the exception of the westerly approach of East 23rd Street south of the intersection which restricts parking on weekdays from 7:00AM to 6:00PM for daycare student drop off/pick up. Land uses at the intersection

include a residence on the northwest corner, a daycare on the southwest corner, a church on the northeast corner, and an apartment building on the southeast corner.

Pedestrian Amenities

As described above, the majority of the streets have sidewalks. Only some intersections have crosswalks and handicap ramps. Map 4-2 shows the existing pedestrian amenities.

Significant pedestrian traffic utilizes the sidewalk and crosswalk but jaywalking is apparent along the major roadways (particularly Broadway, Madison Avenue and Market Street) during the off-peak hours. Field observations in September, when school was open, did not identify any unique pedestrian traffic volumes during the off-peak. Pedestrians crossing midblock weaved between parked cars to cross the street. During the evening peak hours, pedestrian traffic was noted to be significant along Broadway and Madison Avenue and most people generally crossed at the intersections and not midblock. The apparent excessive street-widths without medians for refuge are not appropriate or safe for pedestrian crossing.

Recommendations of the Safety Improvement Initiative Phase II to install countdown pedestrian heads and stamped asphalt crosswalks at the intersection of Madison Avenue and Market Street as well as initiating a Safe Routes to School project would enhance pedestrian circulation and access to schools. An interview with the school administrator in September revealed that enhancements to pedestrian amenities as well as access to/from the proposed train station has the potential to encourage more students/parents to walk to/from the school. Other recommendation to be developed as part of Task 4 will include traffic calming and duplication of the pedestrian crossing enhancements suggested Safety Improvement Initiative at additional locations to improve and encourage walkability.

Parking Facilities

The majority of the roadways in the study area have on-street parking on either one or both the sides of the traveled way as discussed in the descriptions of the various roadways and intersections above. Map 4-3 illustrates the designated on-street parking facilities including durations for which parking is permitted. Additionally, the map illustrates available surface lots in the area including the parcels currently owned by the Parking Authority which are located in the immediate vicinity of the proposed train station.

Preliminary observations during the summer identified that on-street parking spaces along Broadway, Madison Avenue and Market Street were significantly parked. Most of the residential streets and the streets proximate to the school were lowly parked during the day. The parking utilization in September was observed to be similar to the summer

months. An interview with the school administrator and observations of parking utilization proximate to the school identified a unique shared parking phenomenon: the teachers and staff park along adjacent streets and there is no apparent shortage for parking since the residents utilize the on-street parking spaces during the evening and when they leave for work, the teachers and staff park in those spaces. Although there are no designated drop-off areas, parents generally drop their children along 15th Street and E. 22nd Street.

Considerations to convert a number of streets to one-way pairs with angle parking will facilitate additional parking to support any future uses around the train station and encourage any park-n-ride for the proposed train. Preliminarily, it is recommended to the County that 14th Avenue and Ellison Place east from Madison Avenue to E. 22nd Street be converted to a one-way pair with angle parking. Similarly, 14th Avenue and 15th Avenue can also be converted to a one-way pair with angle parking from 22nd Street to 33rd Street. Additionally, making Ellison Place one-way eastbound from Madison Avenue and one-way westbound west of Madison Avenue and providing parking will not only enhance the parking availability but also help mitigate any congestion and safety concerns including pedestrian access to the core and train station at this intersection.

Map 4-2: Pedestrian Amenities

Map 4-3 Parking Facilities

TRANSIT NETWORK

Bus Transit Service

NJ Transit provides bus service to the study area, Paterson City and the surrounding municipalities. The bus routes provide transit access and circulation in the local area as well as Paterson City, New York, Wayne and others. The core study area is served by bus routes #171 and #770 that run along Broadway; routes #746, #748 and #971 run along Madison Avenue; and routes #161 and #744 that run on Park Avenue. Of these bus routes, #161, #171 and #740 are operated by New Jersey Transit while the others are operated by New Jersey Transit Contract Carriers.

As documented earlier, based on the 2000 Census data, only approximately 12% of the residents of the study area commuted utilizing mass (predominantly bus) transit. While New Jersey Transit has realized an increase in bus ridership of approximately 3.7% in the last year (2007–2008), the actual statistics pertaining to the study area are not available at this time. It is however likely that longer haul bus ridership to/from Paterson also increased. Increase in bus/transit ridership can be attributed to a number of factors including recent hikes in gas prices which have generally reduced the mode share for automobiles. Shorter trips (25 minutes or less), which as indicated earlier account for majority of the work trips in the study area (61%) likely maintained their modal shares. The likelihood for people commuting less than 25 minutes to work to switch to other modes is less likely unless the alternate mode offers more benefits including comfort, convenience, reliability, lesser costs, and lower travel time, among others; as documented in recent studies. For example, if driving to work takes 25 minutes, switching to bus transit, which would include a walk trip to the bus stop, a bus ride (which could take the same 25 minutes or more), and a walk trip at the destination can be viewed by a motorist as less convenient and more time consuming. Notwithstanding this, the decision for a motorist to switch to commute by bus may be based on costs.

The following table summarizes the current (2007) ridership for a typical day for the various bus routes that traverse the study area.

Table 4-2: Typical Daily Bus Ridership

Bus Route #	Ridership
161	7300
171	1750
704	2650
712	4600
770	2200
744	2500
746	1100
748	1050
971	100

Map 4-4 illustrates the existing bus transit service in the study area including the location of bus stops.

Table 4-3: Bus Transit Service

BUS ROUTE	ORIGIN	DESTINATION	VIA		OPERATING TIMES	
					Weekday	Saturday/Sunday
161	Paterson (Broadway Station)	NYC (Port Authority)	Market Street	Route 46	4:55AM–1:49AM	5:15AM–12:52AM/ 6:00AM–12:50AM
171	Paterson (Broadway Station)	NYC (GWB)	Broadway	Route 4	5:00AM–2:08AM	6:00AM–2:06AM/ 6:45AM–2:10AM
704	Paterson (5th Ave & 26th Street)	Wayne (Willowbrook Mall)	5th Avenue	McBride	5:40AM–10:26PM	6:05 AM–10:26PM/ 9:04AM–8:27PM
712	Hackensack (Bus Transfer)	Wayne (Willowbrook Mall)	Market Street	Union Blvd.	5:18AM–11:12PM	6:05AM–11:00PM/ 10:10AM–8:35PM
744	Wayne (Preakness S.C.)	Passaic (Bus Transfer)	Park Avenue		5:21AM– 10:17PM	5:20AM–7:39PM
746	Wayne (Willowbrook Mall)	Ridgewood Downtown	Madison Avenue	Broadway	5:30AM–8:07PM	8:00AM–7:05PM
748	Wayne (Willowbrook Mall)	Ridgewood Downtown	Madison Avenue	Broadway	5:40AM–11:10PM	7:30AM–8:21 PM
770	Paterson (Broadway Station)	Hackensack (Bus Transfer)	Broadway		5:00AM–11:47PM	6:00AM–10:58PM/ 7:00AM–8:50PM
971	Paterson (Madison Avenue)	Totowa Industrial Park	Madison Avenue	I-80	5:45AM–8:45AM; 3:33PM–6:39PM	N/A

Map 4-4 Bus Transit Map

Bus stops

A review of the bus transit network in the study area identifies the following bus stop conditions and the bus network in general:

- The bus stops in the study area are located along the major roadways – Broadway, Madison Avenue, Market Street, Park Avenue, Rosa Parks Boulevard and 5th Avenue. The bus stops appear to generally be located proximate (1/8 mile or less) of commercial land uses along these roadways. The residential areas located off these major corridors require walking trips of 1-4 blocks to access the bus stops. Shorter walking trips (within 800 FT) are most attractive to non-captive transit riders.
- The pedestrian network (sidewalks) and on-street parking in the study area provides connectivity to access the bus stops. The wide streets as well as on-street parking make it convenient to drop-off or pick-up passengers near the bus stops without blocking thru traffic.
- There are no shelters at the bus stops. Shelters generally provide convenient waiting areas including shelter from acute weather. They are however prone to vandalism and abuse. It is possible that construction of bus shelters at selected locations including near the proposed train stations in the study area may improve the perception of the quality of transit service which generally has a positive impact on ridership.
- Approximately 60% of the bus stops are located downstream of intersections and the remainder are located upstream of the intersections. There are no midblock bus stops and the need for midblock crossing to catch a bus is eliminated. Bus stops located downstream of intersections generally have less delay impacts to thru vehicles. However, the unique situation in the study area is that the roadways supporting bus routes are generally 20-24 FT wide per travel direction and buses do not block through traffic.

Recommendations to enhance access and convenience to bus/train ridership will be reviewed with NJ Transit. Connectivity to/from the train station(s) and the bus stops as well as coordinated scheduling is generally attractive for transit utilization.

Passenger Rail Service

There is currently no active passenger rail service within the study area. The nearest passenger rail is via the main line that runs from Hawthorne via Paterson Station located west of the study area and south and east to Hackensack, and therefore excludes the study area. The number of boardings and alightings at the Paterson Station is extremely low (less than 10 people) for the trains that stop at the station. As documented in the Paterson Master Plan, trains leaving from the Paterson Station serve no major employment centers directly, which could be one of the factors for low rail ridership in the study area.

The proposed Passaic-Bergen Line project which is under final design by NJ Transit and is projected to be under construction in 2009 will restore passenger rail service through the study area and will enhance rail service and accessibility to opportunities in the study area as well as Hackensack and the Route 46 corridor. As shown on Map 4-4, the proposed train stations within the study area from north to south are:

- Hawthorne Station
- 6th Avenue Station
- Lafayette Street Station
- Madison Ave/Broadway Station
- 20th Street Station
- Route 20/Vreeland Avenue Station

Passenger rail service will generally include 15-minute headway service during the peak hours and 30-minute headway service during the off peak. NJ Transit projects that the highest ridership will be between 3PM and 4PM. NJ Transit predicts that the Broadway/Madison Ave Station in Paterson would have the highest daily boardings of all the stations on the Passaic-Bergen rail line, with River St, Lafayette St and Vreeland Ave next in order.

Jitney Services

Jitney services generally operate on a fixed route, often with a flexible schedule. Spanish Transportation, a private firm in Paterson is the primary operator for jitney services in the City, linking Main Street through South Paterson, and Broadway to Elmwood Park, with final destinations in New York City and Jersey City. Other locations served from Paterson include Fort Lee, Union City, Garden State Plaza, Teaneck, Hackensack, and Clifton. In recent years however, there have been additional competition by other operators including NJ Best Way Transit Corporation and Meadowlink, primarily serving downtown Paterson and linking to adjoining municipalities. There is however

limited service to the study area and the nearest service are along Broadway in the downtown area. Spanish Transportation has expressed significant interest to extend their service to the areas around the proposed train station. By providing service to/from the residential areas and other land uses to train passengers to/from work opportunities in cities such as Hackensack and beyond, they foresee their service as complimenting the proposed train service.

Although no accurate ridership statistics have recently been obtained, Spanish Transportation estimates that they now serve approximately 5-10% more passengers per day as compared to 2001. In 2001, they claimed to carry approximately 17,500 passengers per day including 11,250 on its Port Authority of New York route and 6,250 on its George Washington Bridge route. Local trips within Paterson currently account for approximately 25% of the passengers served but it is anticipated that the percentage would increase with increased need to access the new train service.

Paratransit

The study area is served by various forms of transportation with flexible routes and schedules including taxicabs, limousines, and senior citizen and community center vans. There are eight listed taxi companies and numerous limousine companies in Paterson. The taxi companies are located primarily to the west of the study area in the downtown. Limousine service is more accessible to the study area and is more readily utilized by the local residents within the study area.

There are other paratransit services that provide transportation to senior centers, nursing homes and medical facilities. The services are primarily owned by the various institutions and take residents to medical appointments, shopping and other recreation.

Businesses offering day-labor jobs utilize private vans or hire jitneys to collect workers in the downtown as well as in the study area in the morning and return them in the evening.

Freight Transportation

The New York, Susquehanna and Western Railway (NYSW) operates a freight rail which traverses the study area and Paterson. NYSW has over 400 miles of track in New York, New Jersey, and Pennsylvania and serves over 85 Customers transporting a wide range of commodities such as plastics, lumber, food products, paper products, motor vehicles, chemicals, aggregates, and metals for customers in New Jersey and Pennsylvania, and feed ingredients, lumber and other building materials, chemicals and aggregates for customers in New York State.

NYSW has a station in Paterson City where loading/unloading generally occurs. There is no station within the core of the study area even though the freight trains run on the tracks proposed to be shared by the Passaic-Bergen Line passenger rail service. Although the freight trains typically run during non-commuter peak hours, vehicles waiting for the train to cross at the intersection of Ellison Place and Madison Avenue experience long queues and delay. The delays tend to spill over to other adjacent intersections. A quantitative analysis will be included as part of Task 2 and Task 4.

Truck deliveries generally occur along Broadway and Madison Avenue. Where on-street parking is unavailable, delivery trucks tend to double-park or park in no-parking zones near intersections, thereby blocking through traffic and impeding turning movements.

More significant truck traffic within the study area utilizes 20th and 21st Avenues to access and serve commercial and industrial uses. There are however no apparent restrictions to truck traffic along the roadways in the core study area even though most streets access residential land uses. Neither the Circulation Element of the Master Plan, nor the City Ordinance highlights any truck route designation for the core study area.

APPARENT CONGESTION & NETWORK SAFETY

Apparent Congestion

As noted previously, approximately 50% of the workers in Paterson commute for less than 20 minutes. The majority of residents within the study area travel under 25 minutes to get to work. The majority of commuters (80.2%) drive alone to work, 12.2% use public transportation, 5.3% walk to work, and the remaining 2.4% either bike to work or work from home (See Figures 1-9 and 1-10). The relatively high automobile use is indicative of a relatively convenient and easy commute. Any congestion experienced by automobiles is also experienced by alternative modes including bus and taxi cab except these alternate modes can result in longer commute overall.

These commuting characteristics result in peak hour congestion between 7AM and 9AM and from 4PM to 7PM. More specifically, as observed in recent traffic counts and traffic data documented in the EIS prepared by NJ Transit, the major roadways generally experience congestion from 7-8AM and from 4:30-5:30PM. Figure 4-5 illustrates the existing peak hour traffic volumes on the study area network. Table 4-3 shows the operating conditions expressed as levels of service at the various intersections in the study area.

Levels of service are criteria outlined in the Highway Capacity Manual published by the Federal Highway Administration which rank intersections based on delay per vehicle. For signalized intersections, levels of service are computed for each approach to the intersection as well as for the overall intersection. For unsignalized intersections, levels of service are calculated for critical movements only, typically the minor street approach to an intersection and the left turn movements from the major street. The levels of service (LOS) are A through F, with LOS A being the least delay and LOS F being failing conditions experiencing congestion. The following table illustrates the LOS criteria.

Table 4-4 Levels of Criteria

Intersection Level of Service	SIGNALIZED	UNSIGNALIZED
	Stopped Delay Per Vehicle (sec)	Stopped Delay Per Vehicle (sec)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Additional criteria to evaluate congestion levels included in the table below that is particularly useful in recommendation and design of turning lanes is queue length. The 95th percentile queue length is utilized for design. However, average queue lengths typically represent what is generally observable in the field since by definition, the 95th percentile is more conservative.

Table 4-5 Levels of Service

			2008 Existing Conditions					
			AM Peak Hour			PM Peak Hour		
Intersection	Movement		LOS	Delay	95th% Queue	LOS	Delay	95th% Queue
Madison Avenue and 11th Avenue	EB	Left/Thru/Right	C	22	78	C	30	195
	WB	Left/Thru/Right	C	25	148	F	157	472
	NB	Left/Thru/Right	A	3	34	A	4	21
	SB	Left/Thru/Right	A	8	135	A	9	182
	Overall		B	10		D	46	
Madison Avenue and 12th Avenue	EB	Left/Thru/Right	B	20	78	C	25	146
	WB	Left/Thru/Right	C	26	155	C	31	200
	NB	Left/Thru/Right	A	6	111	A	8	91
	SB	Left/Thru/Right	A	7	117	A	7	131
	Overall		A	11		B	14	
12th Avenue and East 18th Street	EB	Left/Thru/Right	B	14	74	C	21	224
	WB	Left/Thru/Right	B	18	128	C	32	269
	NB	Left/Thru/Right	A	6	46	B	15	212
	SB	Left/Thru/Right	B	12	92	B	14	159
	Overall		B	11		C	20	
17th Avenue and Madison Avenue	WB	Left/Thru/Right				C	24	16
	NB	Left/Thru/Right	A	6	123	A	7	173
	SB	Left/Thru/Right	A	10	138	A	7	166
	Overall		A	7		A	7	
Broadway and East 18th Street	EB	Left/Thru/Right	B	10	203	A	10	202
	WB	Left/Thru/Right	B	12	248	B	16	329
	NB	Left/Thru/Right	C	27	180	C	32	235
	SB	Left/Thru/Right	C	27	130	C	32	233
	Overall		B	16		B	20	
Broadway and Madison Avenue	EB	Left	B	16	82	B	15	60
	EB	Thru/Right	B	12	138	B	13	196
	WB	Left	A	9	47	A	9	28
	WB	Thru/Right	B	11	138	B	12	160
	NB	Left	B	19	21	F	122	159
	NB	Thru/Right	C	23	273	E	76	580
	SB	Left	B	17	28	E	56	76
	SB	Thru/Right	C	21	216	C	32	390
	Overall		B	16		D	39	

Table 4-5 Levels of Service (continued)

			2008 Existing Conditions					
			AM Peak Hour			PM Peak Hour		
Intersection	Movement		LOS	Delay	95th% Queue	LOS	Delay	95th% Queue
Broadway and East 22nd Street	EB	Left/Thru/Right	A	5	69	A	6	120
	WB	Left/Thru/Right	A	10	217	A	9	188
	NB	Left/Thru/Right	C	21	88	D	39	255
	SB	Left/Thru/Right	C	21	115	D	36	242
	Overall		B	11		B	18	
Market Street and Madison Avenue	EB	Left	B	14	28	B	15	57
	EB	Thru/Right	C	23	289	C	22	268
	WB	Left	C	21	56	B	19	49
	WB	Right	A	3	40	A	5	54
	NB	Thru	B	17	237	C	22	365
	NB	Right	A	6	25	A	8	33
	SB	Thru/Left	B	18	259	C	33	403
	Overall		B	17		C	22	
Park Avenue and East 22nd Street	EB	Left/Thru/Right	B	12	67	B	13	106
	WB	Left/Thru/Right	B	15	184	B	14	135
	NB	Left/Thru/Right	A	7	30	A	3	16
	SB	Left/Thru/Right	A	8	50	B	11	84
	Overall		B	12		B	11	
Park Avenue and Madison Avenue	EB	Left/Thru/Right	B	17	27	B	18	75
	WB	Left	B	19	35	B	19	30
	WB	Thru/Right	C	29	256	C	25	204
	NB	Left/Thru/Right	D	43	600	F	85	757
	SB	Left/Thru/Right	B	15	239	B	17	340
	Overall		C	30		D	49	
Ellison Place and Madison Avenue	EB	Left/Thru/Right	B	19	120	C	32	311
	WB	Left/Thru/Right	B	19	56	B	16	51
	NB	Left/Thru/Right	A	6	65	D	51	601
	SB	Left/Thru/Right	A	15	259	B	15	317
	Overall		B	12		C	33	
Ellison Place and East 18th Street	EB	Left/Thru/Right	B	13	112	B	16	202
	WB	Left/Thru/Right	A	4	40	A	5	50
	NB	Thru/Right	B	16	116	B	17	158
	SB	Left/Thru	A	9	47	C	22	215
	Overall		B	11		B	16	
17th Avenue and East 22nd Street	WB	Left/Thru/Right	A	<1	16	A	5	12
	NB	Left/Thru/Right	B	11	21	B	12	61
	SB	Left/Thru/Right	A	9	33	A	10	50
	Overall		A	6		B	10	

A review of Table 4-5 above identifies the following key congestion-related issues:

- **Market Street and Madison Avenue** – The intersection currently experiences acceptable levels of service "C" or better during both peak hours studied. However, northbound and southbound 95th percentile queue lengths are calculated to be approximately 10 and 16 vehicles during the weekday morning peak hour and 14 and 16 vehicles during the evening peak hour. The average northbound and southbound queue lengths are calculated to be approximately 6 and 3 during the morning peak hour and 9 and 10 vehicles during the evening peak hour.
- **Park Avenue and Madison Avenue** – The intersection currently experiences acceptable levels of service "C" or better during both peak hours studied, with the exception of the northbound shared left turn/through/right turn movement which currently operates at levels of service "D" and "F" during the weekday morning and evening peak hours, respectively. The northbound 95th percentile queue lengths are calculated to be approximately 24 vehicles during the weekday morning peak hour and 30 vehicles during the weekday evening peak hour. The average northbound queue length is calculated to be approximately 6 vehicles during the weekday morning peak hour and 22 vehicles during the weekday evening peak hour.
- **Broadway and Madison Avenue** – The intersection currently experiences acceptable levels of service "C" or better during the weekday morning peak hour. During the weekday evening peak hour, the intersection operates at levels of service "C" or better with the exception of the northbound left turn movement, northbound through/right turn movement, and the southbound left turn movement, which operate at levels of service "F", "E", and "E", respectively. Similarly, the northbound through/right turn movement 95th percentile queue length is calculated to be approximately 23 vehicles during the weekday evening peak hour. The average northbound through/right turn movement queue length is calculated to be approximately 15 vehicles during the weekday evening peak hour.

Apparent congestion resulting from significant traffic volumes and turning movement conflicts as well as constrained geometry and traffic control and how the relate to crash rates in the corridor will be evaluated as part of Tasks 4 to identify necessary short and long term mitigation.

The NJ Transit EIS projections for the corridor in 2025 identify that congestion will worsen with or without the passenger rail service, and while it appears that the rail service may add to delays in automobile traffic at the intersections proximate to the train station, the passenger trains will provide additional options for commuters and potentially increase capacity and lessen congestion on the street network owing to diverted automobile trips. Future traffic conditions with and without the train station

and any anticipated development proximate to the train station will be evaluated as part of Task 4.

Congestion as a result of delays waiting for the freight train is also apparent. Through a review of signal timing/phasing and in collaborative effort with NYSW, NJ Transit and other stakeholders, alternatives to mitigate concerns arising from freight movement in the core study area can be identified. Preliminary data indicates that freight trains will run when passenger trains generally are not and such planning, complemented with timing/phasing can mitigate congestion on the roadway network proximate to the train crossing.

Roadway Network Safety

As identified from the crash data in the files of Passaic County, the study area experienced a significant number of crashes between 2002 and 2006 (5-year period), which generally raises roadway safety concerns. Table 4-6 below summarizes the crash history for the 5-year period in the study area. Map 4-5 shows the crash locations for the same time-period. Note that the crash data is not disaggregated by type or time of day.

The intersection of Broadway and Madison Avenue experienced the highest number of crashes (118) within the 5-year period. This accounted for approximately 24% of the total number of crashes within the study area and this location is a definite safety concern. The crashes included vehicle-vehicle crashes as well as 11 vehicular-pedestrian crashes and injuries.

The intersection of E 22nd Street and 14th Avenue also experienced a significant number of crashes (75) within the 5-year period. This accounts for approximately 13% of the total number of crashes within the study area. There was 1 pedestrian crash with an injury at this intersection.

The intersection of Madison Avenue and Park Avenue also experienced a significant number of crashes (63) within the 5-year period. This accounts for approximately 13% of the total number of crashes within the study area. There were 3 pedestrian crashes with injuries at this intersection.

Other intersections of concern which experienced between 40 and 55 crashes during the 5-year period include Madison Avenue with 12th Avenue, Broadway with 18th Street, Broadway with Rosa Parks Boulevard, 18th Street with 16th Avenue, Rosa Parks Boulevard with Park Avenue, 22nd Street with 12th Avenue and 22nd Street with 14th Avenue.

A detailed review as to how to mitigate the crashes will be evaluated as part of Task 2 upon review of detailed data including the crash types and times of day as to develop inferences for crash causes and trends, and potential mitigation.

Table 4-6: Total # of Crashes, 2002-2006

Location/Intersection	# Crashes Total	Av. #Crashes/year	% of Total
Madison Ave & 12th Ave	46	9	5%
Madison Ave & Hamilton Ave	35	7	4%
Madison Ave & 14th	19	4	2%
Madison Ave & Ellison St	46	9	5%
Madison Ave & Park Ave	63	13	6%
Madison Ave & 16th Ave	21	4	2%
Broadway & Madison Ave	118	24	12%
Broadway Ave & E 18th St	55	11	6%
Broadway Ave & E 23rd St	16	3	2%
Broadway Ave & E 22nd St	27	5	3%
Broadway & Rosa Parks Blvd	46	9	5%
18th St & 12th St	16	3	2%
18th St & Godwin Ave	12	2	1%
18th St & Hamilton Ave	24	5	2%
18th St & Fair St	7	1	1%
18th St & Ellison St	26	5	3%
18th St & 16th St	45	9	5%
18th St & Park Ave	47	9	5%
Rosa Parks & Godwin Ave	16	3	2%
Rosa Parks & Hamilton Ave	15	3	2%
Rosa Parks & Fair St	14	3	1%
Rosa Parks & Van Houten	7	1	1%
Rosa Parks & 16th St	15	3	2%
Rosa Parks & Park Ave	40	8	4%
Rosa Parks & Pearl St	15	3	2%
Rosa Parks & Ellison St	27	5	3%
E 22nd & 12th Ave	40	8	4%
E 22nd & Hamilton Ave	7	1	1%
E 22nd & 14th Ave	75	15	8%
E 22nd & 15th Ave	7	1	1%
E 22nd & Ellison St	16	3	2%
E 22nd & Park Ave	25	5	3%

Source: Passaic County Planning Department

Map 4-5 Crash History

INTERMODAL AND MULTIMODAL CONNECTIVITY

Seamless intermodal and multimodal connectivity is typically highly desirable and is a major consideration for choosing not to drive. Promoting walking, biking, and transit usage is achieved through enhanced accessibility and connectivity including quality of service, and perceived efficiency and convenience. The study area roadway network accommodates automobile, bus, taxi-cab, bicycle and pedestrian traffic with some degree of intermodal connectivity as presented below. The proposed train service has the potential to enhance transit as well as intermodal service to the study area, including promoting walk-trips to the train station. With parking generally designated along the study area roadways as well as in parking lots, the opportunity for park-n-ride and/or kiss-n-ride can be explored further to connect the auto mode with bus and future rail. Enhanced and attractive alternative transportation typically lower the automobile's mode share.

Pedestrian connectivity can be enhanced at intersections through installation of additional crosswalks, pedestrian actuation, and attractive streetscape among other smart design principles. As noted in the redevelopment plans, provision of textured or raised crosswalks would enhance pedestrian safety at key conflict points. Additionally, where handicap ramps are lacking at the intersections, provision should be made. Where necessary, amenities to accommodate the hearing impaired should be installed.

Although there is no defined bike network in the study area, bicyclists to/from the local area have the opportunity to share both the sidewalks and the relatively wide streets such as Madison Avenue with pedestrian and vehicular traffic except along Broadway. The volume of traffic, parking maneuvers, and pedestrian traffic along Broadway makes bike maneuvers difficult and would require a designated bike lane to work. However, striping out a bike lane along Broadway may not be appropriate given the volume of traffic and parallel parking. Provision of bike racks along Broadway and other commercial facilities could promote biking.

The existing bus network provides for inter-bus transfer. As indicated in Table 4-2 and illustrated on Map 4-4, the various bus routes interconnect, facilitating transfer opportunities. Coordination of schedules for the various bus routes is an important passenger service. The bus stops located along Madison Avenue at Broadway and at Park Avenue facilitate passenger transfers to/from the various bus routes. As noted in *Access & Mobility 2030: Refining Transportation Strategies* by NJTPA, bus routes in Paterson should be designed to compliment the proposed Passaic-Bergen passenger rail line.

Proximate to the proposed Broadway/Madison Avenue station, there are four bus stops within one block of the planned station. The bus stops are suitably located as to facilitate connection to/from the train. Coordination of train schedules with bus service will

enhance connectivity between rail and bus service. Additionally, the streets, parking and sidewalks in the area of the proposed station will provide for intermodal connectivity. In addition, any designation for additional parking for the train station to be developed and evaluated as part of the visioning process would facilitate opportunities for park-n-ride or kiss-n-ride. Other proposed stations within the study area also have bus stops located proximate to the proposed train stations and should enhance intermodal connectivity.

As documented in the NJ Transit Environmental Impact Study for the restoration of the Passaic-Bergen Passenger Rail, the proposed passenger rail service will likely result in a shift from automobile use. Typical commuter automobile shifts include total change to avoid driving and utilize transit, or partial change including park-n-ride among others. Park-n-ride can be evaluated and managed through an assessment of the market trends and policies including parking pricing. Additionally, pedestrian access to Broadway to/from the Madison Avenue Train Station will add to the quality of service to patrons along Broadway and attract ridership. The following table summarizes the EIS projections as to mode shift:

Table 4-7: Auto-Rail Mode Shift Projections

DESCRIPTION	NJTPA DEMOGRAPHICS		PASSAIC COUNTY DEMOGRAPHICS	
DMU SCHEDULE (headway)	15-minute peak 30-minute off-peak	15-minute All day	15-minute peak 30-minute off-peak	15-minute All day
RIDERS	480	630	580	905
TRIPS	950	1260	1160	1810
AUTO TRIPS DIVERTED	(550)	(650)	(570)	(800)

Source: EIS, NJ Transit, 2008

Predictions based on the Passaic County Demographics are more conservative predicting 44%-49% of the projected rail users will have shifted from utilizing their automobiles. The NJTPA Demographics predict 51%-57%. The predictions are based on models and appear reasonable. The proportion of total automobile users who will continue to drive is generally low at the onset except that recent trends in high gas prices are likely to increase the propensity to switch from the automobile to transit/rail. Peak train ridership is predicted to occur between 3:00 PM and 4:00 PM

Although there are no specific data as it pertains to modal shift of other transportation modes including taxi, limousine service and jitneys, these modes, which are already actively serving Paterson and the study area will likely continue to provide alternative transportation to the study area and links to the new passenger train service. Their operation in a non-fixed schedule is the primary attraction to their riders.

5. Transportation Investments

The North Jersey Transportation Planning Authority's Transportation Improvement Program (TIP) was reviewed to identify projects selected for study, design, right-of-way purchase, or construction within the study area, Paterson and Passaic County. The current TIP, which covers fiscal years (FYs) 2008 through 2011, and was effective on October 1, 2007, does not include any highway transportation investments for the study area.

The highway transportation projects listed within the TIP in the proximity of the study area pertain to regional accessibility and mobility and are not likely to have a direct impact on the study area. The projects will however enhance regional access and mobility including access to the Willowbrook Mall through the Passaic Avenue improvement project.

The TIP includes the following two transit projects which include the study area:

- The Passaic-Bergen NYS&W Project Draft Environmental Impact Statement (DEIS)
- The Comprehensive Bergen-Passaic Bus Study

The DEIS, which was completed by NJ Transit for the restoration of Passaic-Bergen passenger rail service outlines the potential benefits of this rail line. The restoration of the passenger rail service will likely enhance travel along the corridor as well as stimulate economic activity, coordinate new and existing transit options, and link to other activity centers. The Madison Avenue Commuter Rail Corridor Study is at the cutting edge of transit oriented development that will integrate the advent of the passenger rail service with land uses and transportation alternatives and improvements that will translate into enhanced quality of life, travel and economic vitality in the corridor. The passenger rail service is currently in the final design stage by NJ Transit. Construction was anticipated to start in 2008 with revenue service scheduled to start in 2009.

The Comprehensive Bergen-Passaic Bus Study likely to be commissioned in fall 2008, will aim to develop strategies to meet projected transit accessibility and mobility needs and patterns in the northeastern portion of New Jersey, including assessing bus access and mobility issues in the George Washington Bridge toll plaza area. It is envisaged that this study will recommend short-term transit mobility improvements and will develop a network of buses to access planned future rail service, such as the Passaic-Bergen Rail Link.

These two transit projects will enhance connectivity between the transit modes and will likely benefit transit service and ridership as well as alternative access for residents and

commuters in Paterson as well as adjoining municipalities including suburban employment centers like Hackensack and the Route 46 corridor.

6. Financial Resources

Based on extensive research of federal and state programs, the following are potential funding sources for which the County is eligible. In addition, the funding application submission deadlines for the programs have been included. Most of the grants that are being offered by the State of New Jersey now must apply using the SAGE software program. Grant professionals from our staff are available to assist with the SAGE software or any application processes.

POTENTIAL FUNDING SOURCES

NJDOT Centers of Place Program – provides funding for municipalities that have been designated as a Center of Place by the New Jersey Department of Community Affairs. The program funds non-traditional transportation improvements that advance the municipal growth objectives and improve quality of life. Awards range from $60,000 to $170,000. Funding announcements are made annually in May. The grant must be submitted electronically through the State's System for Administering Grants Electronically (SAGE) Program.

NJDOT Municipal Aid Program – provides funding to municipalities with road improvement projects such as resurfacing, rehabilitation or reconstruction and signalization plans, with special attention going to those applications that support walking and bicycling in their communities. In FY08, the Department Of Transportation (DOT) has set aside 10% of these funds to projects such as pedestrian safety improvements, bikeways and streetscapes. NJDOT expects projects to be delivered to construction award within eighteen (18) months of grant agreement execution. Funding announcements are made annually in May. The grant must be submitted electronically through the State's System for Administering Grants Electronically (SAGE) Program.

DOT Transportation Enhancement Program (T-21) – funds are available for design, right of way acquisition, and construction. Solicitation packages are usually sent out in the winter to every municipality and county inviting them to submit an application in one or more of twelve (12) eligible categories, including: pedestrian and bicycle facilities; safety and educational activities for pedestrians and bicyclists; acquisition of scenic easements and/or historic sites or historic highway programs; landscaping and other scenic beautification; historic preservation, rehabilitation and operation of historic transportation buildings; structures and facilities and preservation of abandoned railway corridors; removal of outdoor advertising; archeological planning and research environmental mitigation to address water pollution due to highway run-off or reduce vehicle-caused wildlife mortality while maintaining habitat connectivity establishment of transportation-related museums.

NJDOT Transportation Village – The New Jersey Department Of Transportation (NJDOT) Transit Village Grant Program is designed to assist municipalities who have

been formally designed as Transit Villages by the Commissioner of Transportation and the inter-agency Transit Village Task Force. The Transit Village Initiative was created to redevelop and revitalize communities around transit facilities to make them an appealing choice for people to live, work and play, thereby reducing reliance on the automobile.

NJDOT Safe Streets to Transit – The New Jersey Department of Transportation (NJDOT) Safe Streets to Transit Program provides funding to counties and municipalities in improving access to transit facilities and all nodes of public transportation. The objectives of the program include: to improve the overall safety and accessibility for mass transit riders walking to transit facilities; to encourage mass transit users to walk to transit stations; to facilitate the implementation of projects and activities that will improve safety in the vicinity of transit facilities (approximately one-half mile for pedestrian improvements). The SSTT Program provides $5,000,000 over five years for pedestrian safety improvements in areas surrounding transit facilities. This initiative is funded from the state Transportation Trust Fund and provides $1,000,000 each year. Funds are made available annually in June. The grant must be submitted electronically through the State's System for Administering Grants Electronically (SAGE) Program.

NJDOT Transportation Enhancement Program - Transportation Enhancement (TE) projects are designed to foster more livable communities, preserve and protect environmental and cultural resources and to promote alternative modes of transportation. Funds are available for design, right of way acquisition and construction. Selection of TE projects involves the participation of civic and environmental groups, the transportation community and other government organizations. Eligible categories include: provision of facilities for pedestrians and bicyclists; provision of safety and educational activities for pedestrians and bicyclists; acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs; landscaping and other scenic beautification; historic preservation, rehabilitation and operation of historic transportation buildings; structures and facilities, preservation of abandoned railway corridors; control and removal of outdoor advertising; and archeological planning and research environmental mitigation to address water pollution due to highway runoff or reduce vehicle-caused wildlife mortality while maintaining habitat. TE funds are to be used only for projects that enhance quality of life while reaching the greatest number of people.

NJDOT Local Aid Infrastructure Fund – Subject to funding appropriation, a Local Aid Infrastructure Fund is established to address emergencies and regional needs throughout the State. Any county or municipality may apply at any time. These projects are approved at the discretion of the Commissioner.

NJDOT County Aid – County funds are appropriated by the Legislature annually for the improvement of public roads and bridges under County jurisdiction. Public transportation and other transportation projects are also included. Counties are allotted

funds not less than their combined total of 1984 appropriated Federal Aid Urban System funds and State match including their portion of any non-attributable funds made available to Small Urban Areas. The maximum allotment is $300,000. Counties will be required to submit applications by February 1, 2009.

NJDCA Office of Smart Growth Downtown Business Improvement Zone Loan Fund – provides low-interest loans to any municipality with one or more established Special Improvement Districts (SID) or the district management corporation of an existing SID. Loan funds may be used to purchase, lease, condemn or acquire land or an interest therein as necessary for right of way or other easement to or from the zone; relocate and move persons displaced by the acquisition of land; the rehabilitation and redevelopment of land; acquisition, construction, reconstruction, rehabilitation or installation of parking and other public facilities and improvements; costs of appraisals or other professional services directly related to effectuating the improvement. Loans up to a maximum of $100,000 at 0% interest do not require matching funds; loans between $100,001 and $500,000 at 0% interest require a dollar-for-dollar match This program is made available annually each June. The grant must be submitted electronically through the State's System for Administering Grants Electronically (SAGE) Program.

NJDCA Special Improvement District Challenge Grant – provides funding for municipalities that do not have an existing Business Improvement District (BID) or Special Improvement District (SID) but do have a compact, mixed-use downtown or neighborhood commercial corridor. These Challenge Grants are intended to support professional planning activities, design, development, and most importantly, implementation of a Business (Special) Improvement District, the revenue from which may support an existing Downtown Management Corporation (e.g. a local Main Street Program) or where none exist, a newly created one. The maximum award is $10,000. This program is made available annually each February. The grant must be submitted electronically through the State's System for Administering Grants Electronically (SAGE) Program.

NJDCA Community Development Block Grant (CDBG) Program – provides state funds for a wide range of community development activities toward neighborhood revitalization, economic development, and improved community facilities and services. CDBG funds have been used to fund pedestrian improvements, including streetscape improvements, sidewalk installation, curb ramps, and building modifications to meet ADA requirements. CDBG funds can also be used to help construct neighborhood centers, rehabilitate public and private buildings, and provide planning assistance for community development activities.

NJDCA Main Street New Jersey – provides designated Main Street New Jersey with technical assistance and training of proven value in revitalizing historic downtowns. The program helps municipalities improve the economy, appearance and image of their central business districts through the organization of local citizens and resources. Every

two years, the Department of Community Affairs (DCA) accepts applications and designates selected communities to join the program. These communities receive valuable technical support and training to assist in restoring their Main Streets as centers of community and economic activity.

APPENDIX

For

Madison Avenue Commuter Rail Corridor Study

Paterson/Hawthorne

Passaic County, NJ

Technical Memorandum #1

REVIEW OF REGIONAL MOBILITY & SMART GROWTH ISSUES

SECTION 1:

HOUSING STOCK AND WALKABILITY