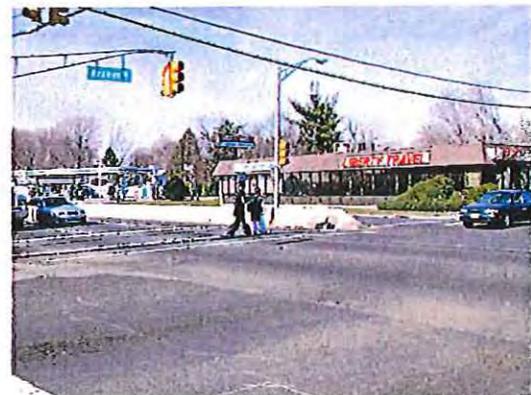




**ROUTE 18
PEDESTRIAN CROSSING STUDY
TO ENHANCE SAFETY AND
PUBLIC TRANSIT USE
Volume 1**



**Middlesex County Department of Planning
September, 2005**



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TABLE OF CONTENTS

	Page
Executive Summary	viii - ix
I. Introduction	1
II. Goals and Objectives	2
III. Project Analysis	2-12
Census Data Analysis-Journey to Work	2-3
The Route 18 Corridor	3-7
Sidewalk Survey	3-4
Route 18 Corridor East Brunswick Accident Data	5-7
Land Uses	7-8
Pedestrian Traffic Generators	9-13
Bus Stops	9
Park and Ride Facilities	9
Pedestrian Traffic Counts	10
Schools	11
Employment Facilities	11
Malls	11-12
Recreation Facilities	12
IV. Intersection Analysis	13-34
Types of Improvements	14
Enhanced Crosswalks	14
Pedestrian Signs	14
Ramp Treatments	14

TABLE OF CONTENTS, Continued

Intersections	Page
Neilson Parking Garage	16
Naricon Place	17
South Woodland Avenue	18
Edgeboro Road	19
Tices Lane	20
West Prospect Street	21
Highland Street	22
West Ferris Street	23
Milltown Road	24
Cranbury Road	25
Arthur Street	26
Race Track Road	27
Cindy Way/Brunswick Square Mall	28
Bike Path Extension to Brunswick Square Mall	29
Rues Lane	30
Hillsdale Road	31
New Route 18 Bridge Over the South River, CSX and Main Street	32
County Routes 516/527 Interchange	33
Pedestrian Overpass at St. Thomas the Apostle Church and School	34
V. Pedestrian and Transit Improvements Along the Corridor	35-38
Short Range Improvements	35-36
Long Range Improvements	36-37
Transit Improvements	37-38
VI. Public Outreach	38-39
VII. Funding	39

TABLES

Table No.		Page
Table 1	Route 18 Corridor Census Tracts Journey to Work 1990-2000	2-B
Table 2	Route 18 Corridor Census Tracts Mean Travel Time to Work 1990-2000	2-C
Table 3	Route 18 Corridor Municipalities Journey to Work 1990-2000	3-A
Table 4	Route 18 Corridor Sidewalk Survey	3 - 4
Table 5	NJDOT Traffic Counts	5-C
Table 6	NJ 18 Corridor, East Brunswick Accidents 1999-2003	7-A , 7-B
Table 7	Summary of Activity Within Middlesex County Strategic Planning Areas December, 2003	8-B
Table 8	Park & Ride Facilities in East Brunswick	9
Table 9	Bus Lines Serving the NJ 18 Corridor	10
Table 10	Bicycle and Pedestrian Corridor Case Study Cost Estimates	14-C

FIGURES

Figure No.		Page
Figure 1	NJ 18 Corridor Region	1-A
Figure 2	Study Area Intersections NJ 18 Corridor	1-B
Figure 3	Route 18 Corridor Study and Selected Sample Highway Segments	1-C
Figure 4	NJ Route 18 Corridor Census Tracts 2000 Middlesex County, N.J.	2-A
Figures 5-7	NJDOT Straight Line Diagrams, NJ 18	3-B, 3-C, 3-D
Figure 8	Example of the Lack of Sidewalk Continuity on Route 18	3-E
Figure 9	Proposed Pedestrian Crossing Improvements NJ 18 Corridor East Brunswick and Old Bridge Townships	5-A
Figure 10	Traffic Volumes NJ 18 Corridor	5-B
Figure 11	Accidents, NJ 18 Corridor Intersections East Brunswick Township 1999-2003	7-C
Figure 12	Land Uses, NJ 18 Corridor	7-D
Figure 13	Zoning, NJ 18 Corridor	8-A
Figure 14	Middlesex County Strategic Planning Areas	8-C
Figure 15	Bus Stops, NJ 18 Corridor East Brunswick and Old Bridge Townships	9-A
Figure 16	Bus Lines, NJ 18 Corridor	10-A
Figure 17	Proposed Pedestrian Crossing Improvements NJ 18 Corridor East Brunswick and Old Bridge Townships	13-A
Figure 18	Typical Crosswalk and Refuge Island Treatment	14-A
Figure 19	Typical Ramp Treatments	14-B
Figure 20	Aerial Photograph, Neilson Parking Garage	16-A
Figure 21	Bus Stop and Crosswalk Tower Center Boulevard Southbound	16-B
Figure 22	Bus Stop and Crosswalk Tower Center Boulevard Northbound	16-C
Figure 23	Excerpt from 1990 East Brunswick Master Plan	16-D

FIGURES, continued

Figure No.		Page
Figure 24	Aerial Photograph, Naricon Place	17-A
Figures 25	Route 18 Southbound and Naricon Place	17-B
Figure 26	Route 18 Northbound Pedestrian Crosswalk at Naricon Place	17-C
Figure 27	Aerial Photograph, South Woodland Avenue & Eggers Street	18-A
Figure 28	NJ 18 Pedestrian Overpass near South Woodland Avenue And Eggers Street	18-B
Figure 29	Bus Stop on NJ 18 Southbound near Eggers Street	18-C
Figure 30	Aerial Photograph, Edgeboro Road	19-A
Figure 31	Route 18 Southbound at the Edgeboro Road Reverse Jughandle	19-B
Figure 32	Bus Stop on NJ 18 Northbound at Old Bridge Turnpike And Edgeboro Road	19-C
Figure 33	Aerial Photograph, Tices Lane	20-A
Figures 34-40	NJDOT Roadway Improvements to NJ Route 18 and Tices Lane	20-B – 20-H
Figure 41	Aerial Photograph, West Prospect Street	21-A
Figure 42	Aerial Photograph, Highland Street	22-A
Figure 43	Aerial Photograph, West Ferris Street	23-A
Figure 44	Route 18 and West Ferris Street	23-B
Figure 45	Aerial Photograph, Milltown Road	24-A
Figure 46	Milltown Road Overpass from Route 18 Northbound	24-B
Figure 47	Milltown Road Sidewalk and Stairway from the Ramp To Route 18 Southbound	24-C
Figure 48	Aerial Photograph, Cranbury Road	25-A
Figure 49	Cranbury Road Ramp at Route 18 Southbound	25-B
Figure 50	Cranbury Road Sidewalk and Stairway from the Ramp To Route 18 Southbound	25-C
Figure 51	Aerial Photograph, Arthur Street	26-A
Figure 52	High School Students Crossing Route 18 at Arthur Street	26-B

FIGURES, continued

Figure No.		Page
Figure 53	Aerial Photograph, Race Track Road	27-A
Figure 54	Bus Stopping Near Side Southbound NJ 18 at Race Track Road	27-B
Figures 55 & 56	Bus Passenger Crossing NJ 18 at Race Track Road	27-C – 27-D
Figure 57	Aerial Photograph, Cindy Way	28-A
Figure 58	Pedestrians Crossing Route 18 at Cindy Way	28-B
Figure 59	Bus Stop in the Brunswick Square Mall	28-C
Figure 60	Aerial Photograph, Brunswick Square	29-A
Figure 61	Map, East Brunswick Bikeway/Pedway Plan	29-B
Figure 62	Bicycle Storage Rack in the Brunswick Square Mall	29-C
Figure 63	Aerial Photograph, Rues Lane	30-A
Figure 64	Rues Lane and Route 18 Northbound	30-B
Figure 65	Aerial Photograph, Hillsdale Road	31-A
Figure 66	Route 18 Section 4E & 6E Bridge Replacement	31-B
Figure 67	Route 18 and Hillsdale Road	31-C
Figure 68	Aerial Photograph, New Route 18 Bridge Over the South River, CSX and Main Street	32-A
Figure 69	New Route 18 Bridge Over the South River, CSX and Main Street	32-B
Figure 70	Aerial Photograph Route 18 and Middlesex County Routes 516/527 Old Bridge Township	33-A
Figure 71	Route 18/CR 516/527 Feasibility Assessment Plan Old Bridge Township	33-B
Figure 72	Aerial Photograph, Pedestrian Crossing St. Thomas the Apostle Church & School Old Bridge	34-A
Figure 73	Pedestrian Bridge Over Route 18 at St. Thomas The Apostle Church & School	34-B

APPENDICES

	Page
Appendix A. Census Data Analysis	A-1-A-3
Table A-1, Population and Age by Census Tract	A-5
Table A-2, Persons Under 18 and Over 65 by Census Tract	A-6
Table A-3, Households and Income by Census Tract	A-7
Table A-4, Population, Age, Households and Income for East Brunswick, Old Bridge, South River and Middlesex County	A-8
Table A-5, Workforce by Census Tract	A-9
Table A-6, Occupations by Census Tract	A-10, A-11
Table A-7, NJ Department of Labor Covered Employment for East Brunswick Township	A-12
Table A-8, Housing Types by Census Tract	A-13
Table A-9, Age of Housing by Census Tract	A-14
Appendix B. Windshield Survey of the Route 18 Corridor Study Area	B-1 – B-8
Eating Establishments	B-1
Hotels and Motels	B-1
Malls	B-2
Businesses	B-3 – B-7
Schools	B-8
Recreation Facilities	B-8
Appendix C. Funding Sources	C-1 – C-4
Appendix D. Summary of Meetings With East Brunswick And Old Bridge Townships	D-1, D-2
Appendix E. A Report on the Results of a Survey Conducted Among Passengers Boarding Buses Along Route 18 In East Brunswick, NJ	E-1 – E-17
Appendix F. Traffic Signal Timings for Route 18 Intersections In East Brunswick and Old Bridge	F-1 – F-20
Appendix G. Route 18 Corridor Problem Statements	

ROUTE 18 PEDESTRIAN CROSSING STUDY

EXECUTIVE SUMMARY

New Jersey Route 18 is a major urban principal arterial highway, a north-south divided roadway that serves as a major route to the New Jersey shore, traversing Middlesex and Monmouth Counties. The portion of NJ 18 in East Brunswick Township has evolved into a major retail shopping corridor and employment center, featuring a regional shopping center, strip malls of all sizes, office buildings, a major hotel and office complex, motels, car dealerships and many small businesses housed in free standing buildings on both sides of the highway.

NJ 18 is also served by a number of local and New York City bound commuter buses. Many local riders board the buses at two bus stations, while others use park and ride facilities and board the buses at bus stops along the highway.

The shopping and employment centers and the buses along NJ 18 are major pedestrian generators, yet these facilities are virtually inaccessible to shoppers, workers and transit passengers. Walking along the highway is difficult because sidewalks are intermittent or nonexistent. Crossing NJ 18 is hazardous.

The goal of this study is to provide safe pedestrian access along NJ 18 in East Brunswick and Old Bridge Townships. The objectives are:

- identify existing problem areas, including key intersections and pedestrian crossings;
- recommend improvements that will enhance safe and convenient pedestrian and bicycle access to shopping, employment and other centers along NJ 18;
- enhance safe pedestrian access and mobility for bus commuters; reduce reliance on the automobile;
- improve accessibility for low income, minority and mobility impaired populations by making public transit safe and convenient.

The study area for the initial phase of the study is the portion of NJ 18 between Naricon Place in East Brunswick Township and Middlesex County Route 516 in Old Bridge Township. The study area contains seventeen major intersections/pedestrian crossings. Deficiencies that impede safe pedestrian access at each crossing are identified and improvements that would enhance pedestrian safety are recommended. The second phase of the study will include the portion of NJ 18 from the overpass at St. Thomas the Apostle Church and School to Route 9 in Old Bridge Township.

The key intersections in East Brunswick are:

Neilson Parking Garage*	Milltown Road
Naricon Place	Cranbury Road
South Woodland Avenue and Eggers Street	Arthur Street
Edgeboro Road	Race Track Road
Tices Lane	Cindy Way, Brunswick Square Mall
West Prospect Street	Rues Lane
West Ferris Street	Hillsdale Road

The key intersections in Old Bridge are:

New Route 18 Bridge over the South River, Conrail (CSX), and Main Street
Middlesex County Routes 516 and 527 interchange
Pedestrian overpass near St. Thomas the Apostle Church

Improvements that would enhance pedestrian and bicycle safety and accessibility along the entire NJ 18 corridor in East Brunswick and Old Bridge are also recommended. These include short range, long range and transit improvements.

Public outreach and community involvement will be accomplished by including all stakeholders in the planning process. Recommendations for improvements at each key intersection will be reviewed by the stakeholders, including the Middlesex County Transportation Coordinating Committee Bicycle-Pedestrian Task Force, East Brunswick Traffic Safety Board, the New Jersey Department of Transportation (NJDOT), Middlesex County Planning and Engineering Departments, Keep Middlesex Moving (KMM), New Jersey Transit, Coach USA/Suburban and Academy Bus Companies.

KMM conducted a survey of bus passengers in June, 2004. The results of the survey are included in the study.

* This fronts directly on Tower Center Boulevard, which parallels Route 18.

ROUTE 18 PEDESTRIAN CROSSING STUDY TO ENHANCE SAFETY AND PUBLIC TRANSIT USE

I. INTRODUCTION

Middlesex County has experienced significant growth in population and employment during the past decade. This growth has resulted in major increases in vehicular traffic volumes, particularly along major roadways such as N.J. Route 18, a major urban principal arterial highway. Route 18 is a north-south divided highway that serves as a major route to the New Jersey shore, connecting I-287 in Piscataway Township, Middlesex County and N.J. Route 138 in Wall Township, Monmouth County. Figure 1, page 1-A, is an aerial view of the Route 18 region within Middlesex County.

The portion of Route 18 in Middlesex County, particularly the sector between East Brunswick and Old Bridge Townships, provides vehicular access to employment centers throughout New Jersey via the New Jersey Turnpike, I-287, U.S. Route 1 and other major roadways. Route 18 in East Brunswick is also a land service highway, providing access to local and regional commercial development. In addition, the Route 18 corridor in East Brunswick and Old Bridge is served by several local and New York bound commuter buses.

Daily traffic volumes along this stretch of Route 18 range from 52,000 to 107,000. Congestion along this intensely developed corridor has resulted in an increasing number of vehicular and pedestrian traffic accidents. Pedestrian safety is of particular concern. The commercial facilities attract customers and employees, but are practically inaccessible to pedestrians, bicyclists and public transit users because of inadequate crossings and the lack of sidewalks. Access to many commercial, retail and employment areas along Route 18 is currently very hazardous. It is difficult to walk between these areas and bus stops along the highway. This is evident in the fact that in the last several years, people crossing Route 18 have been killed, including a person who was crossing the highway to get to a local bus to New Brunswick after leaving the department store where she worked.

This study examines N.J. Route 18 between Naricon Place in East Brunswick Township and the Middlesex County Route 516/527 Interchange in Old Bridge Township, focusing on the need for improved pedestrian facilities. Figure 2, page 1-B, shows the study area. Figure 3, page 1-C, shows the NJ 18 corridor from US Route 1 in New Brunswick to US Route 9 in Old Bridge. A subsequent study will examine the section of NJ 18 from Route 516 to Route 9 in Old Bridge.

FIGURE 1
NJ 18 CORRIDOR REGION
EAST BRUNSWICK AND OLD BRIDGE TOWNSHIPS

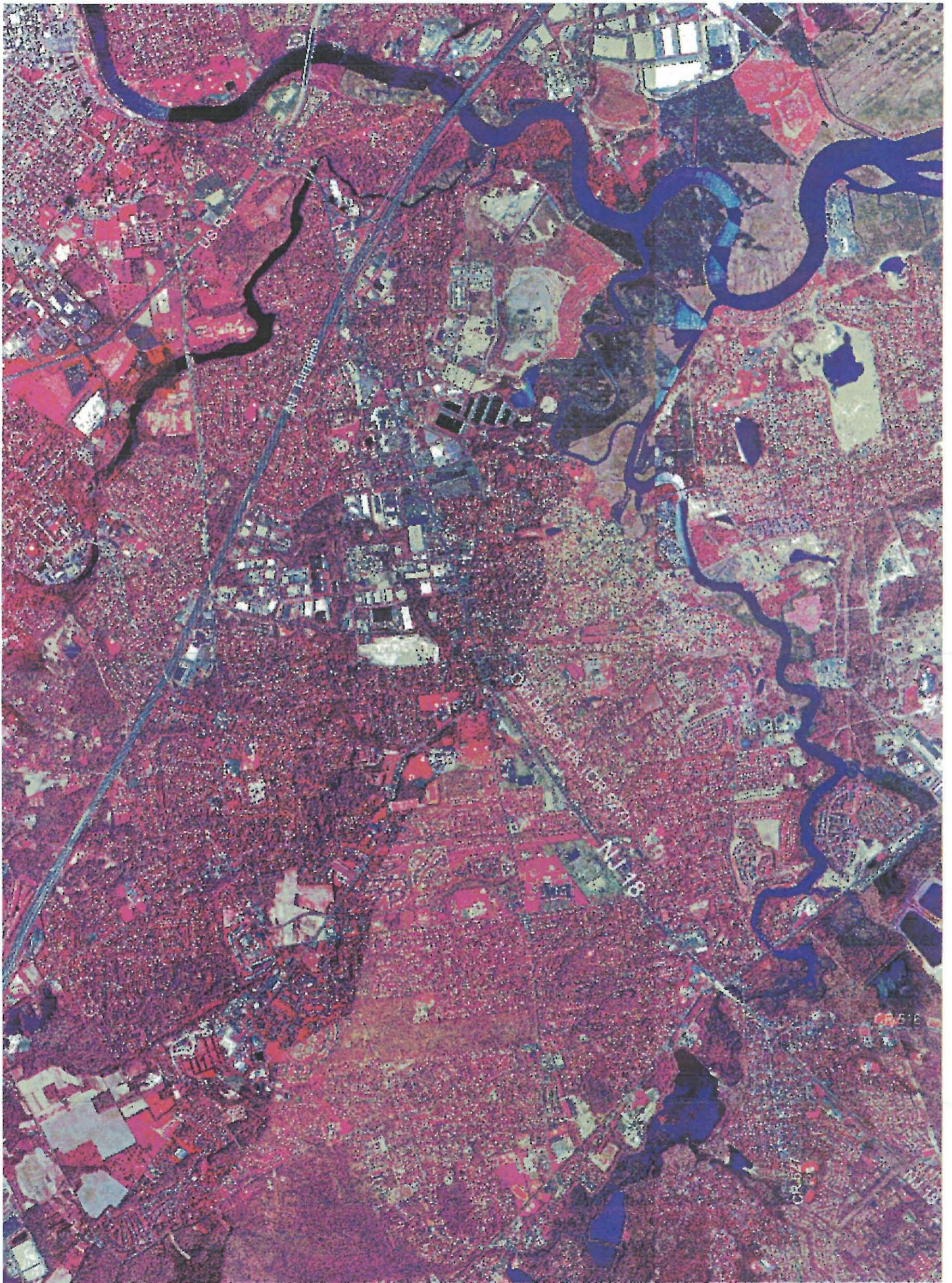
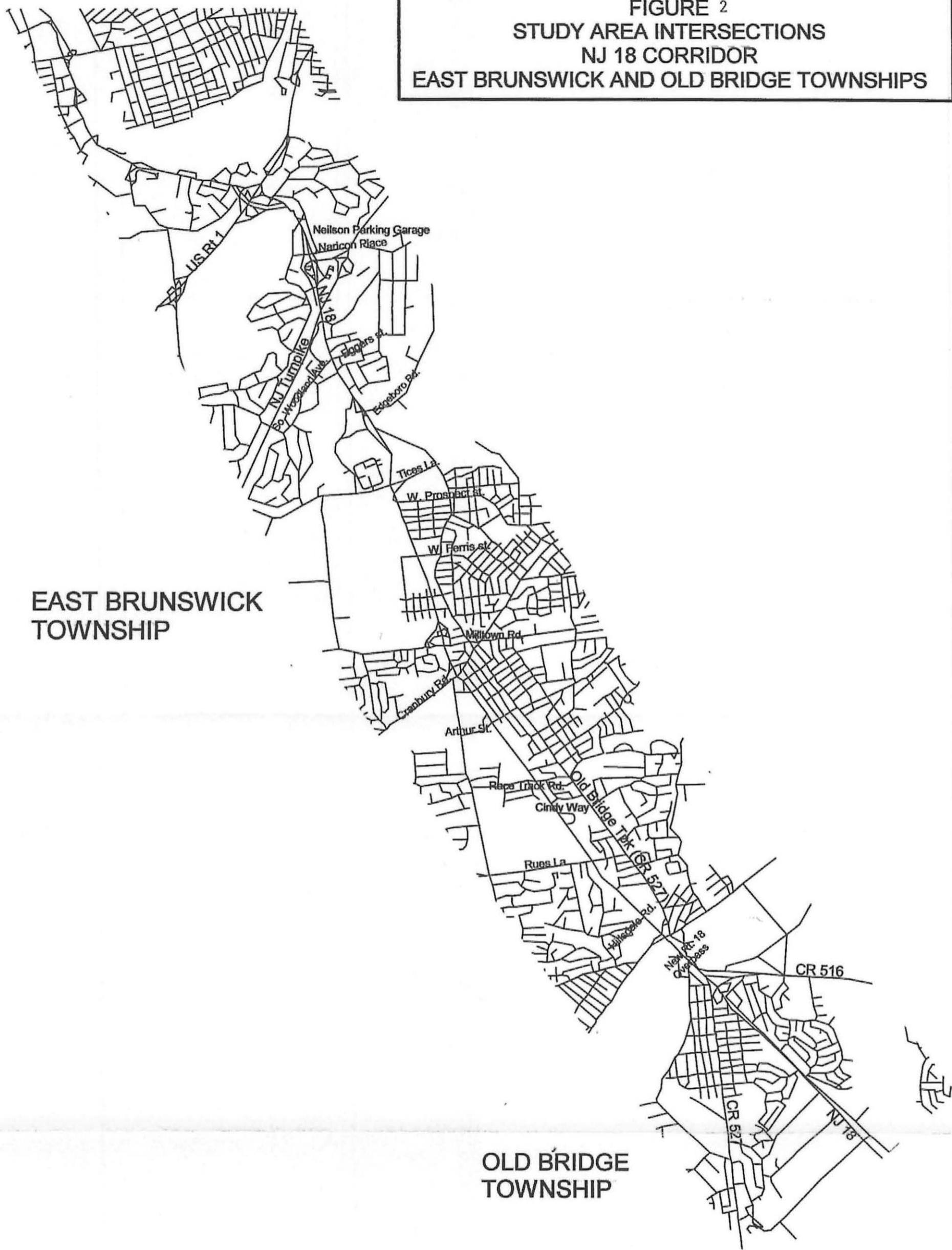


FIGURE 2
STUDY AREA INTERSECTIONS
NJ 18 CORRIDOR
EAST BRUNSWICK AND OLD BRIDGE TOWNSHIPS



**EAST BRUNSWICK
TOWNSHIP**

**OLD BRIDGE
TOWNSHIP**

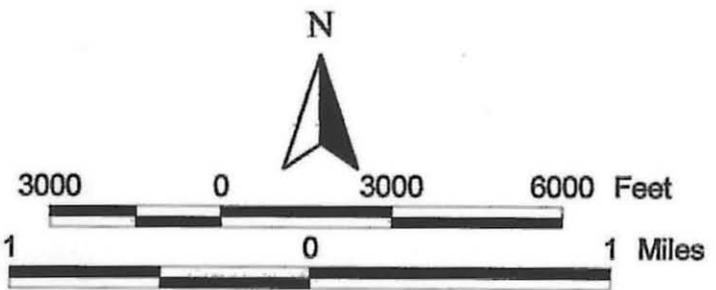
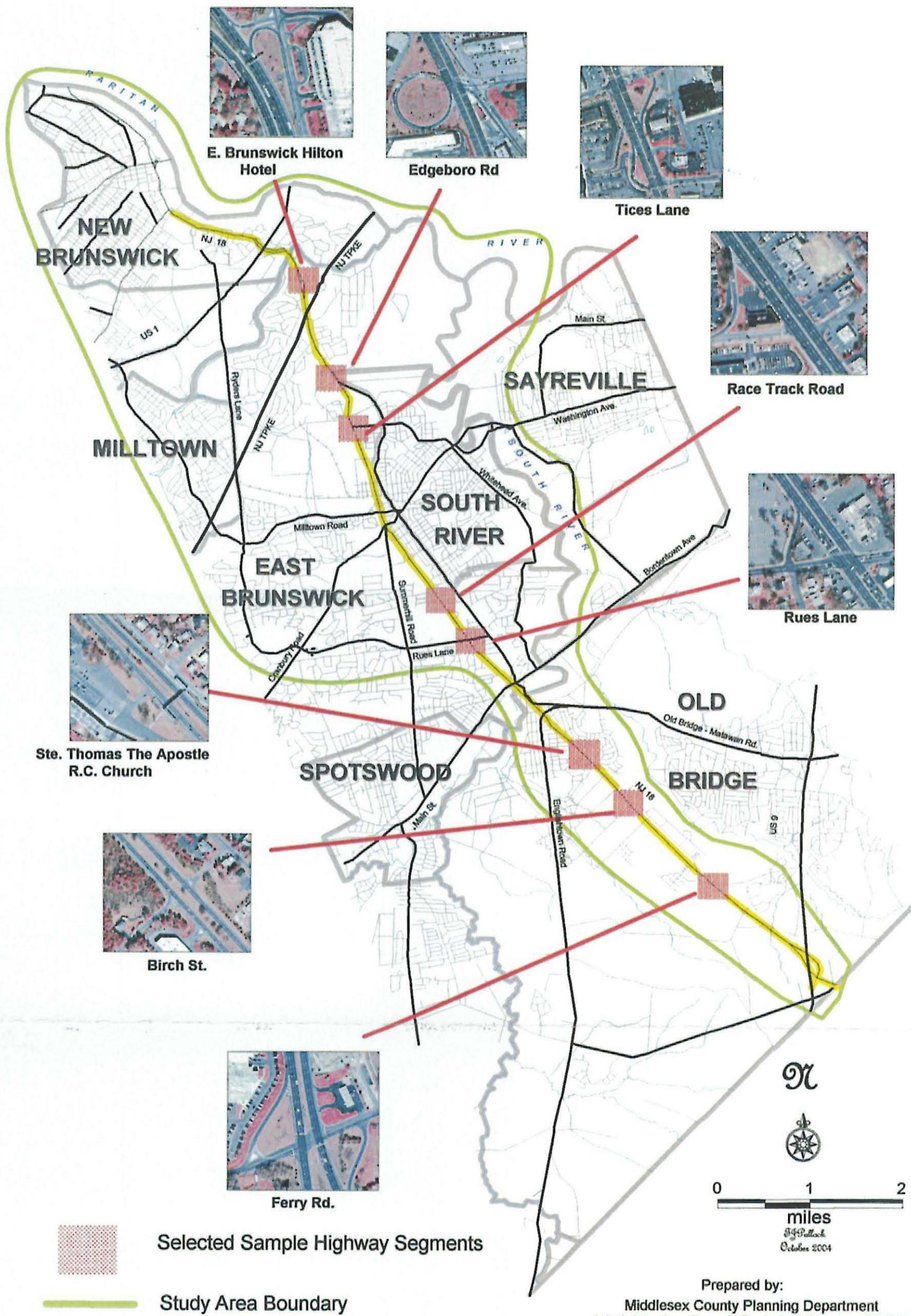


Figure 3

Route 18 Corridor Study & Selected Sample Highway Segments



II. GOALS AND OBJECTIVES

The goal of this study is to provide safe pedestrian access along Route 18 between Naricon Place in East Brunswick and Route 516 in Old Bridge (the Corridor).

The objectives are to:

- Identify existing problem areas along the commercialized section of the corridor, including key intersections and pedestrian crossings.
- Recommend improvements that will enhance safe and convenient pedestrian and bicycle access and mobility to shopping, employment, education and other activity centers along the corridor.
- Enhance safe pedestrian access and mobility for commuters and other persons using local and New York bound buses along the corridor.
- Reduce reliance on the automobile and enhancing the use of alternate travel modes by making access to commercial, recreational, educational and employment sites and commuter bus service safer and more appealing.
- Improve accessibility for low income, minority and mobility impaired populations by making public transit and non-motorized modes of transportation safer and more convenient for those who do not drive or cannot afford an automobile.

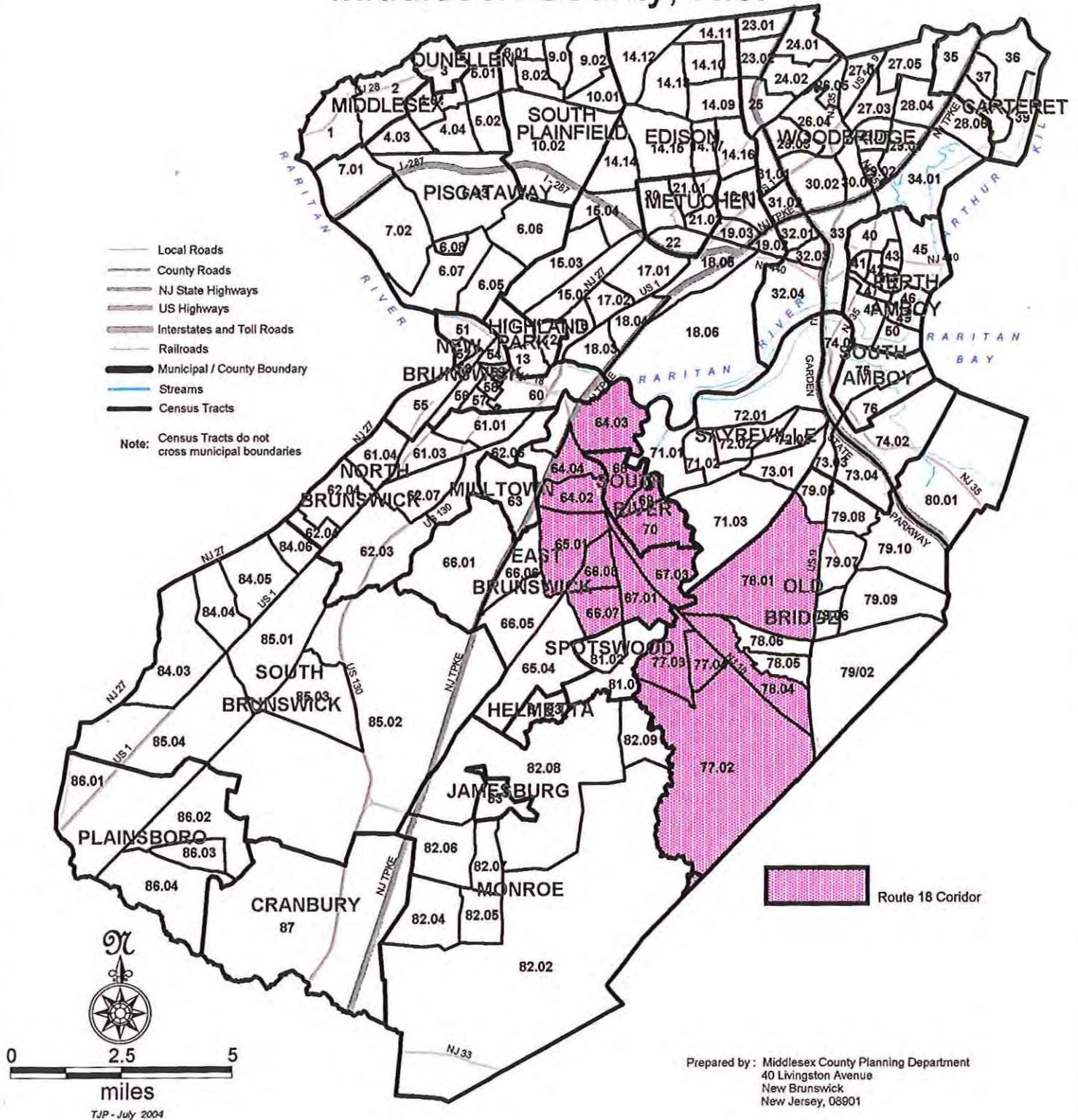
III. ANALYSIS

Figure 4, page 2-A, shows the census tracts along the NJ 18 corridor in the study area. The primary means of travel for workers living in these census tracts, according to the 2000 Census, was driving alone. More than 70 percent drove alone, while 11.4 percent carpooled, 9.0 percent used public transit, 2 percent walked and 0.1 percent bicycled. The transportation choices were similar in 1990; however, the numbers decreased, sometimes dramatically, between 1990 and 2000. This could be due to an aging population, loss of jobs, and changing employment patterns. Carpooling decreased by 18.3 percent, public transit by 24.7 percent and walking by 16.3 percent. Public transit and carpooling increased in a few census tracts, primarily in Old Bridge and South River. There were also increases in the number of persons walking to work in a few tracts. Bicycling to work fell by 65.8 percent. Increased traffic congestion and lack of adequate pedestrian and bicycle facilities presumably contributed to the overall decrease in walking and cycling to work. Table 1, page 2-B, shows 1990 and 2000 Journey to Work data for the census tracts.

Mean travel time to work for the census tracts increased by 5.7 minutes between 1990 and 2000; from 29.7 minutes in 1990 to 35.6 minutes in 2000. Mean travel time to work for the census tracts is shown in Table 2, page 2-C.

Figure 4

N.J. Route 18 Corridor CENSUS TRACTS - 2000 Middlesex County, N.J.



**Table 1
Route 18 Corridor
Journey to Work
1990-2000**

Census Tract	Drove Alone			Carpool			Public Transit			Walked to Work			Bicycled to Work		
	1990	2000	Change	1990	2000	Change	1990	2000	Change	1990	2000	Change	1990	2000	Change
64.02	992	279	-713	223	18	-205	75	26	-49	44	14	-30	0	15	15
64.03	949	279	-670	100	18	-82	105	26	-79	4	14	10	0	5	5
64.04	1,951	937	-1,014	274	85	-189	235	148	-87	50	5	-45	0	0	0
65	2,236	1,752	-484	173	242	69	189	252	63	40	43	3	5	0	-5
66.07	1,427	1,034	-393	130	153	23	96	192	96	5	5	0	8	0	-8
66.08	1,420	1,125	-295	290	147	-143	522	245	-277	22	2	-20	0	0	0
67.01	1,744	1,466	-278	274	139	-135	257	170	-87	33	37	4	0	0	0
67.02	1,706			244			182			67			12		12
67.03		1,466			139		170				37		0		-37
68	1,519	2,266	747	267	256	-11	61	370	309	80	31	-49	13	0	-13
69	972	1,496	524	265	373	108	50	74	24	61	87	26	11	0	-11
70	2,569	1,020	-1,549	405	415	10	110	41	-69	115	86	-29	0	0	0
77.02	929	1,625	696	91	272	181	57	112	55	36	101	65	6	0	-6
77.03	1,107	1,293	186	158	210	52	76	158	82	0	27	27	5	0	-5
77.04	1,130	947	-183	197	150	-47	226	160	-66	4	7	3	0	0	0
78.01	1,331	947	-384	106	150	44	267	145	-122	18	7	-11	0	0	0
78.04	1,932	1,370	-562	318	104	-214	338	150	-188	22	0	-22	13	5	-8
TOTALS	23,914	19,302	-4,612	3,515	2,871	-644	3,016	2,269	-747	601	503	-98	73	25	-48

Table 2
Route 18 Corridor
Mean Travel Time to Work (In Minutes)
1990-2000

Census Tract	1990	2000	Change
64.02	25.5	32.2	6.7
64.03	30.5	33.5	3
64.04	28	34.3	6.3
65	29.8	34.2	4.4
66.07	34	40.6	6.6
66.08	38.1	38.6	0.5
67.01	31.4	36.4	5
67.02	30.7		
67.03		39.1	
68	23.2	28.8	5.6
69	22.7	30	7.3
70	24.6	31.9	7.3
77.02	25.3	37.3	12
77.03	29.3	37.4	8.1
77.04	33.3	36.4	3.1
78.01	35	41.7	6.7
78.04	34.1	37.3	3.2
TOTALS	29.7	35.6	5.7

Source: 1990 and 2000 U.S. Census

Table 3, page 3-A, shows 1990 and 2000 Journey to Work data for Middlesex County and the municipalities in the study area. East Brunswick, Old Bridge and South River combined experienced a modest increase in single occupancy vehicles between 1990 and 2000, while carpooling, public transit and walking to work decreased. Bicycling to work increased in East Brunswick and Old Bridge, and fell dramatically in South River.

All means of transportation, except walking to work increased in Middlesex County between 1990 and 2000. Public transit increased by 15 percent, bicycling by 19.5 percent, carpooling by 3.6 percent and driving alone by 1.6 percent. Walking fell by 10.0 percent.

The Route 18 Corridor

Route 18 is classified as a major urban principal arterial highway. The 5.5 mile corridor between Naricon Place in East Brunswick and County Route 516 in Old Bridge is a six lane, north-south, bituminous concrete roadway (one lane in each direction, with a passing lane), separated by a concrete “Jersey Barrier,” as depicted in Figures 5-7, pages 3-B,C and D, the New Jersey Department of Transportation 1998 Straight Line Diagrams for the corridor.

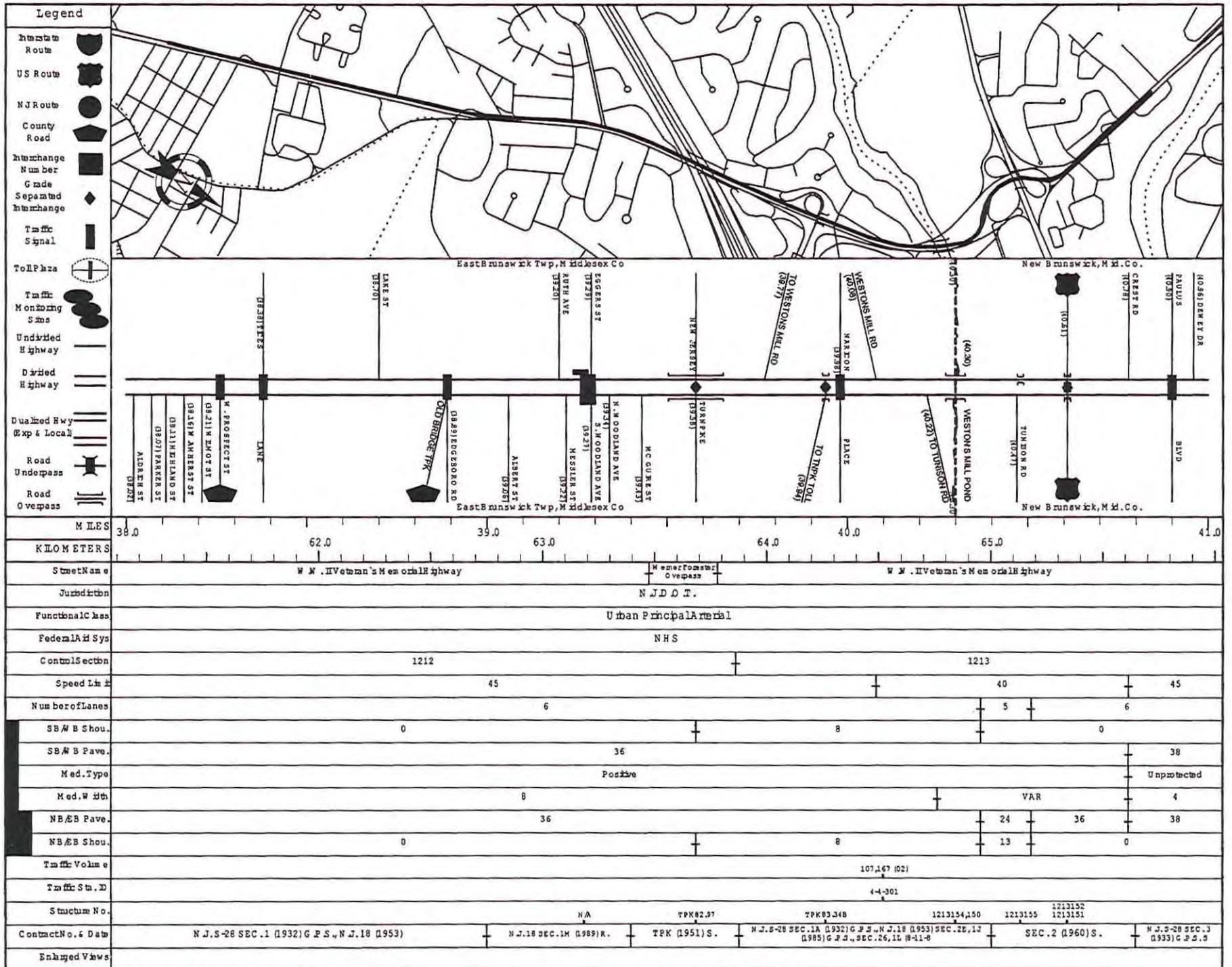
Sidewalks along the north and south bound sides of the corridor are intermittent, providing few safe options for pedestrians. Figure 8, page 3-E, is an example of the lack of sidewalk continuity along NJ 18. Sidewalks are also interrupted by curb cuts along the entire corridor; and in many areas lacking sidewalks, there are clearly defined dirt paths (“cow paths”) used by pedestrians. The Middlesex County Planning department staff conducted a “windshield survey” of sidewalks along the corridor, shown in Table 4, below.

Table 4
Sidewalk Survey
Southbound:

- Tower Center/Naricon Place area – no sidewalk
- Turnpike bridge – five foot sidewalk
- Eggers Street – cow path to the Ramada Inn
- Sidewalk in front of Turnpike Plaza office building
- Pedestrian bridge area – no sidewalk
- Loehmann’s Plaza – no sidewalk. Access, in the rear of Loehmann’s Plaza, to the next mall, the apartments and Tices Lane is via a two lane access road that parallels NJ 18.
- There are sidewalks on NJ 18 at Lake Avenue and the Plaza Central Mall.
- Past Lake Avenue – sidewalk on NJ 18 in front of KFC
- From Tices Lane on NJ 18 – sidewalk in front of Pizza place, Hess station, all along this area from Tices Lane
- West Ferris Street – sidewalk along NJ 18
- Milltown Road – no sidewalk, and there is a cow path
- Arthur Street, near the Fleet Bank – sidewalk along NJ 18 (this is where high school students cross NJ 18).

**Table 3
Route 18 Corridor
Municipalities
Journey to Work
1990-2000**

Municipality	Drove Alone			Carpool			Public Transit			Walked to Work			Bicycled to Work		
	1990	2000	Change	1990	2000	Change	1990	2000	Change	1990	2000	Change	1990	2000	Change
East Brunswick	18,084	18,185	0.5%	2,405	2,011	-16.3%	2,307	2,011	-6.6%	370	265	-1.4%	32	62	30.0%
Old Bridge	21,765	22,106	1.6%	3,407	2,781	-18.3%	4,069	3,367	-17.0%	452	366	19.0%	24	45	93.0%
South River	5,060	5,251	3.7%	937	1,221	30.3%	221	319	44.0%	256	214	-16.4%	24	0	-100.0%
Totals	44,909	45,542	1.4%	6,749	6,013	-10.9%	6,597	5,697	-13.6%	1,078	845	-21.6%	80	107	34.0%
Middlesex County	265,974	270,256	1.6%	38,988	40,402	3.6%	27,326	31,419	15.0%	11,260	10,115	-10.0%	783	936	19.5%

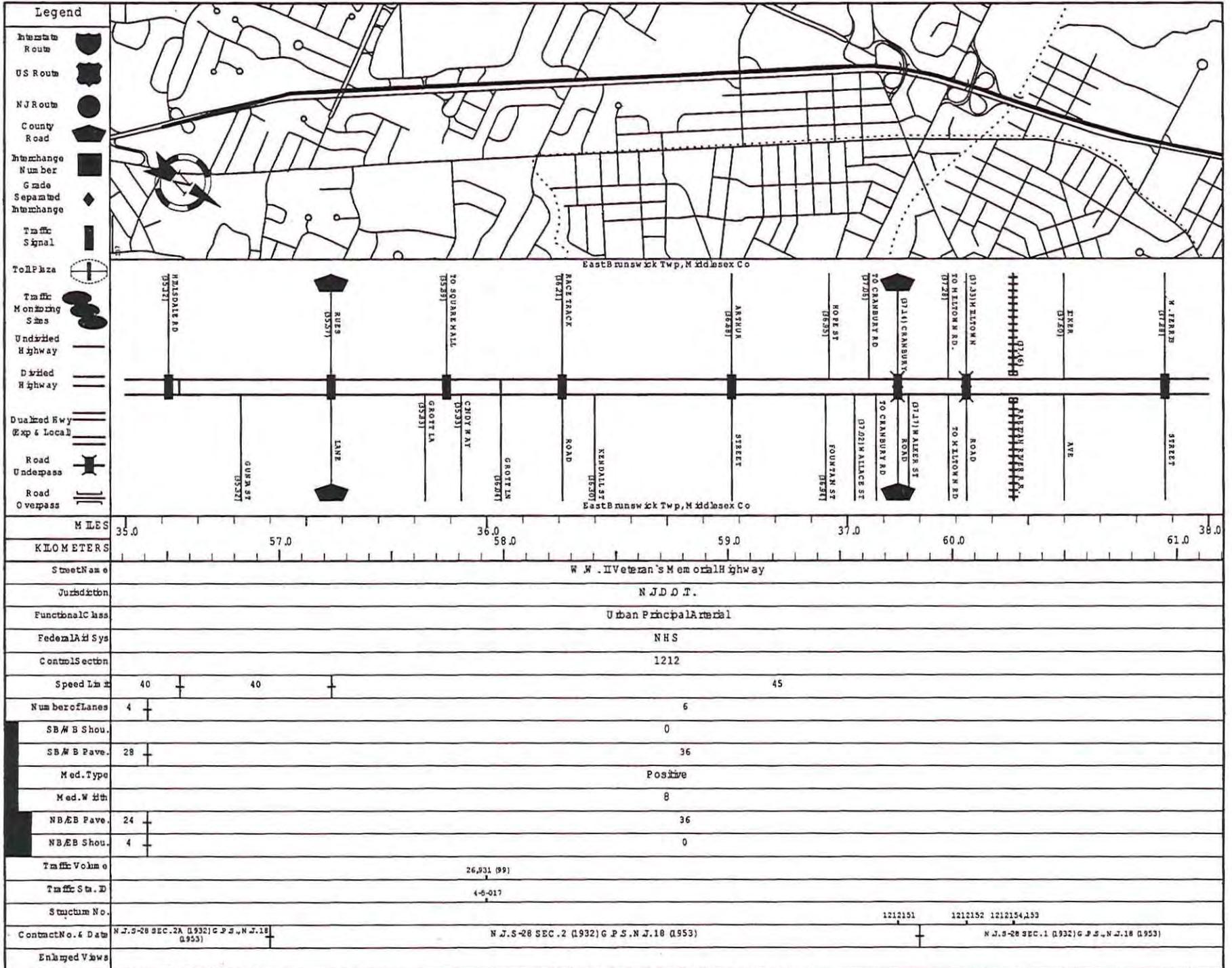


3-B

SRI= 00000018__

Date last inventoried: March 2002

Source: NJDOT Straight Line Diagrams. March. 2002



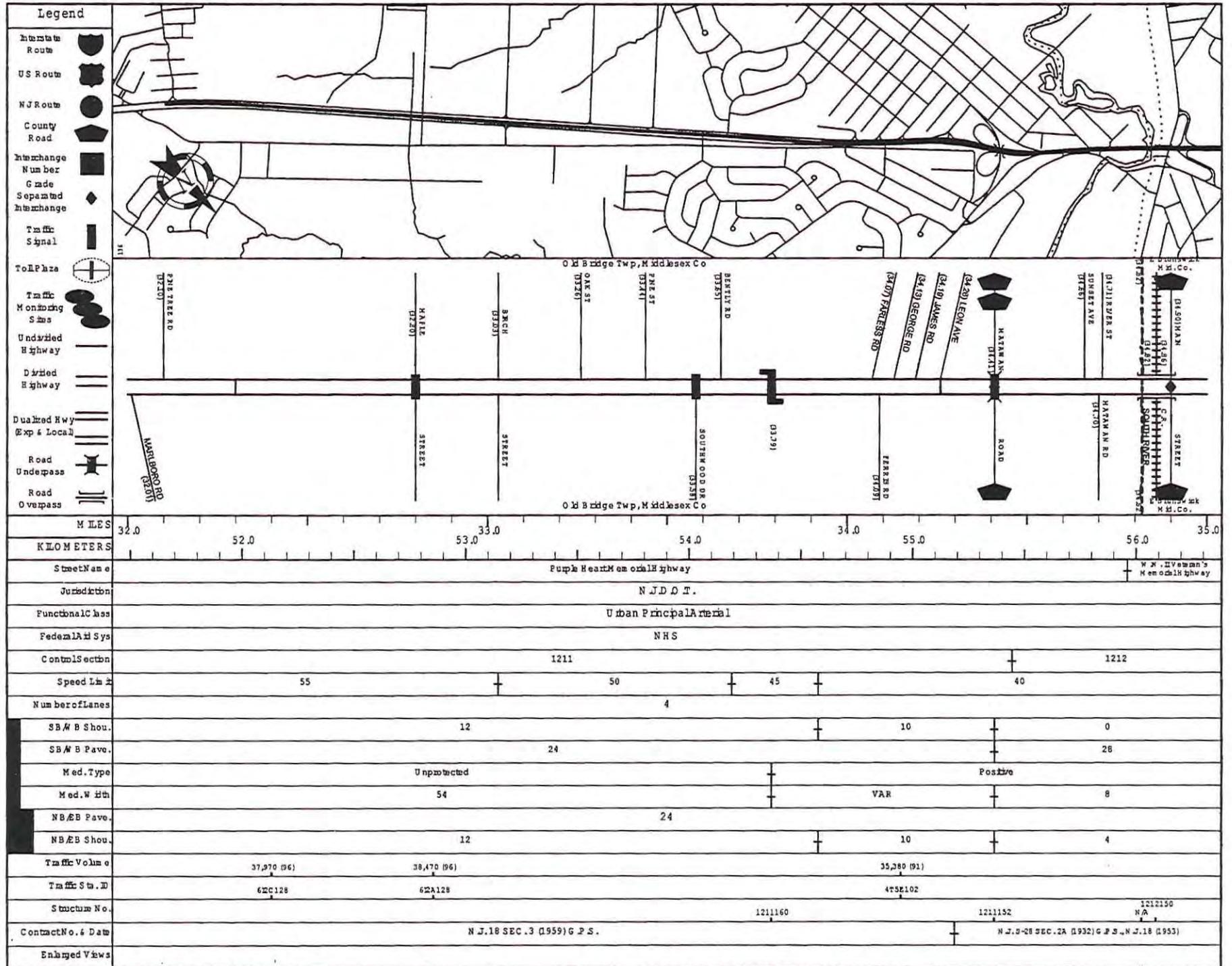
3-C

SRI= 0000018

Date last inventoried: March 2002

Source: NJDOT Straight Line Diagrams, March, 2002

3-D



SRI= 00000018

Date last inventoried: March 2002

Source: NJDOT Straight Line Diagrams, March, 2002

Figure 8



This is an example of the lack of sidewalk continuity on Route 18.



Table 4
Sidewalk Survey
Southbound, continued

- No sidewalk by Huffman Koos, but there is sidewalk at K Mart on NJ 18; also in front of Pathmark and Home Depot
- Brunswick Square Mall – no sidewalk on NJ 18. This entire area, including the mall, is not pedestrian friendly
- There is a sidewalk along Rues Lane to the Middlesex County Vocational-Technical School, but none on NJ 18 in this area.
- There is sidewalk on NJ 18 from Rues Lane to the Accura dealership.
- NJ 18 from the Accura dealership to Old Bridge – no sidewalks. This area is hazardous to pedestrians.
- St. Thomas the Apostle Church and School, south of the County Route 516/527 interchange – there is a pedestrian bridge. Southwood Drive, south of County Route 516 – this area is dangerous to pedestrians. Chain link fencing has been erected to encourage use of the pedestrian overpass.

Northbound:

- There is sidewalk on NJ 18 on the new Main Street Bridge, but it ends at the off ramp.
- Hillsdale Road – there is sidewalk on NJ 18 to the Mobil Station – about 100 feet past the on ramp and 50 feet before Hillsdale.
- There is a sidewalk on NJ 18 by the Red Lobster, Denny's, etc., across from the Brunswick Square Mall.
- Milltown Road area – no sidewalk; exceptions are sidewalk under the bridge and over the bridge on the south side.
- West Ferris Street to the Mid State Mall – no sidewalk.
- No sidewalk over the Turnpike bridge.
- No sidewalk from Edgeboro Road to Naricon Place.

The corridor is not bicycle friendly because of high traffic volumes, speed limit and lack of shoulders. There are bicycle facilities in the vicinity of NJ 18. The newly constructed bikeway along realigned Ryders Lane, Summerhill Road and Rues Lane will provide access to the Middlesex County Vocational Technical School on Rues Lane and ultimately to the Brunswick Square Shopping Center.

Many county and municipal roads intersect NJ 18 along both sides of the corridor. Most of the intersections are signalized. NJDOT installed an adaptive real time traffic control system in 1996 in an attempt to move traffic and alleviate congestion. This system was more recently changed to

operate on the conventional time of day signal control synchronized by a separate closed loop system.

Pedestrians, particularly persons utilizing the bus system along the corridor, cross NJ 18 at the key intersections shown in Figure 9, page 5-A, "Proposed Pedestrian Crossing Improvements NJ 18 Corridor East Brunswick and Old Bridge Townships." This study focuses on the crossings shown on this map. The crossings will be examined in detail and recommendations will be proposed in Section III of this report.

The average speed limit in the study area is 45 miles per hour. Annual Average Daily Traffic Volumes (AADT) at key intersections on NJ 18, ranged from 52,240 to 107,167 in 1999 and 2002, according to NJDOT. 1999 volumes at the intersection of NJ 18 and Cindy Way, near the Brunswick Square Mall, were 52,240. Counts at Naricon Place, near the Neilson Parking Garage were 74,771 in 1999 and 107,167 in 2002. 1999 volumes near Arthur Street were 58,070. Counts at Cranbury Road (Middlesex County Route 535) were 58,180 in 1999. This information is shown on Figure 10, page 5-B, "Traffic Volumes NJ 18 Corridor East Brunswick and Old Bridge Townships." Traffic volume data are shown in Table 5, "New Jersey Department of Transportation Bureau of Data Development Coverage Counts 5 Year AADT Comparison Report In County/Municipal/Route/Milepost/Street For Year Ending 2002," page 5-C .

Route 18 Corridor Accident Data

Staff reviewed 2,651 East Brunswick Police Department reports on accidents in the NJ 18 corridor study area from 1999 to 2003. The majority of accidents were rear end collisions. These were, typically, accidents where a driver untimely responded to a stimulus such as a traffic signal change, turning vehicle or lane change. The following comments point to recurring problems at key intersections in the study area.

- **NJ 18 at Naricon Place (440 accidents)**

A merge problem at the NJ TURNPIKE Exit 9 entrance creates a funnel effect for traffic entering the single lane ramp. Queuing single file is not workable at peak times when volume exceeds capacity at the approach to the Exit 9 entrance ramp. Traffic operations breakdown and lane change accidents occur frequently when back-ups reach beyond US-1. The slow feed, tight ramp turn and design obsolescence of the entrance calls for action to ease the flow of traffic. The study urges the NJ TURNPIKE to re-design the Turnpike-on ramp from Southbound NJ-18.

A second weave-lane change problem exists at NJ-18/NJ TURNPIKE Exit 9 Ramp onto NJ-18 Northbound, where traffic separates to NJ-18 and US-1 northbound. A ramp redesign or treatment at that location is needed as well. The study urges the NJ-TURNPIKE to include that redesign in their entire Exit 9 Concept Redevelopment Plan.

- **South Woodland Ave. and Eggers Street (280 accidents)**

There is a pedestrian overpass located on the south side of the intersection which has stairs. ADA design standards require ramps that can accommodate wheel chairs, scooters, bicycles Segways, and walkers who cannot handle stairs. There was a bicycle and pedestrian accident in the 5-year period researched at this intersection. The bus stops are in high volume traffic lanes

FIGURE 9
Proposed Pedestrian Crossing Improvements
NJ 18 CORRIDOR
EAST BRUNSWICK AND OLD BRIDGE TOWNSHIPS

**EAST BRUNSWICK
TOWNSHIP**

**OLD BRIDGE
TOWNSHIP**

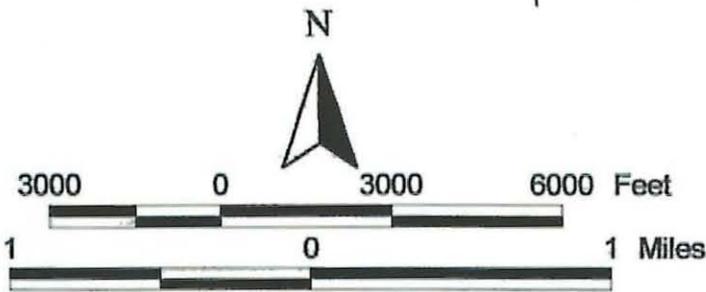
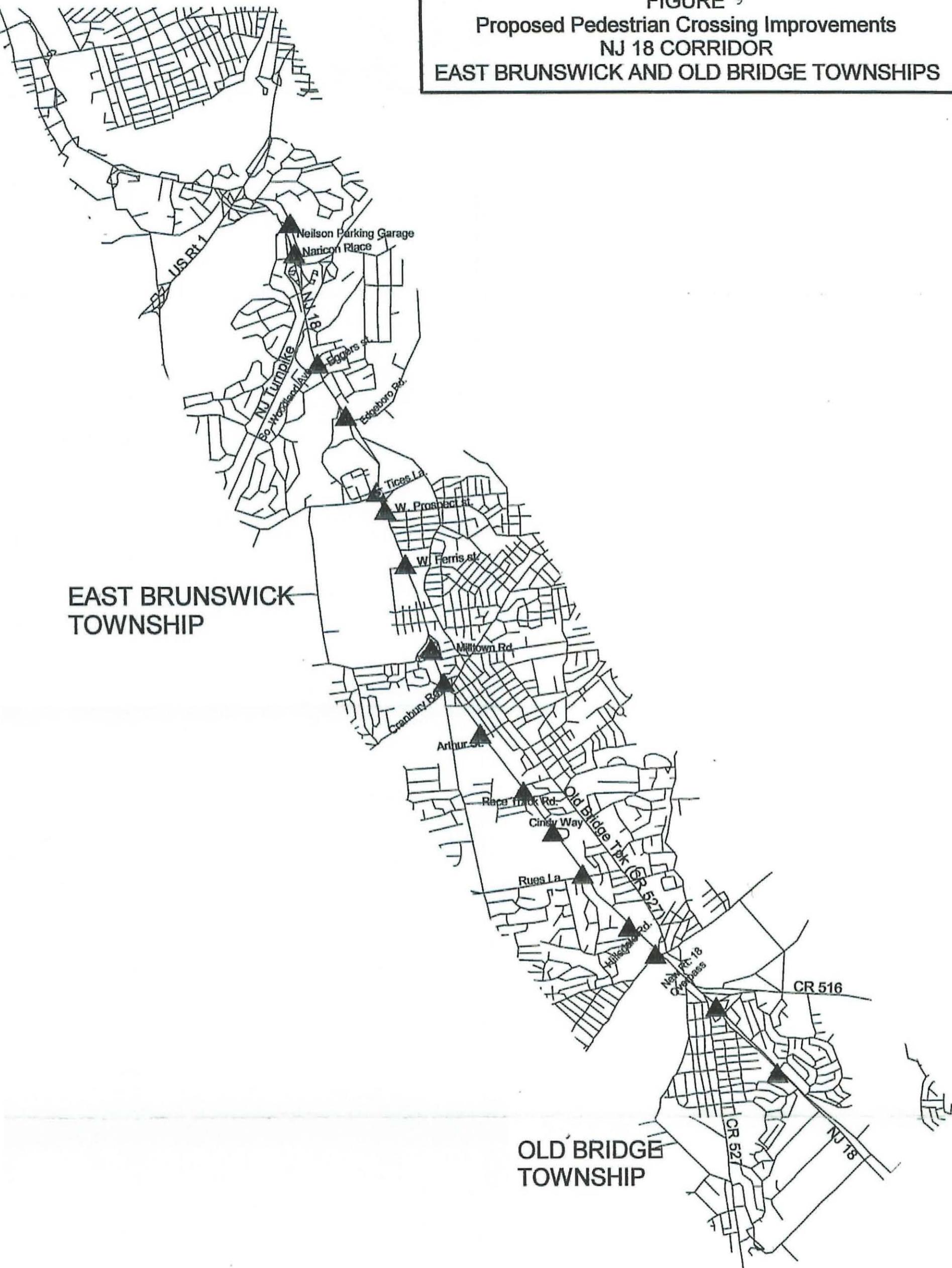
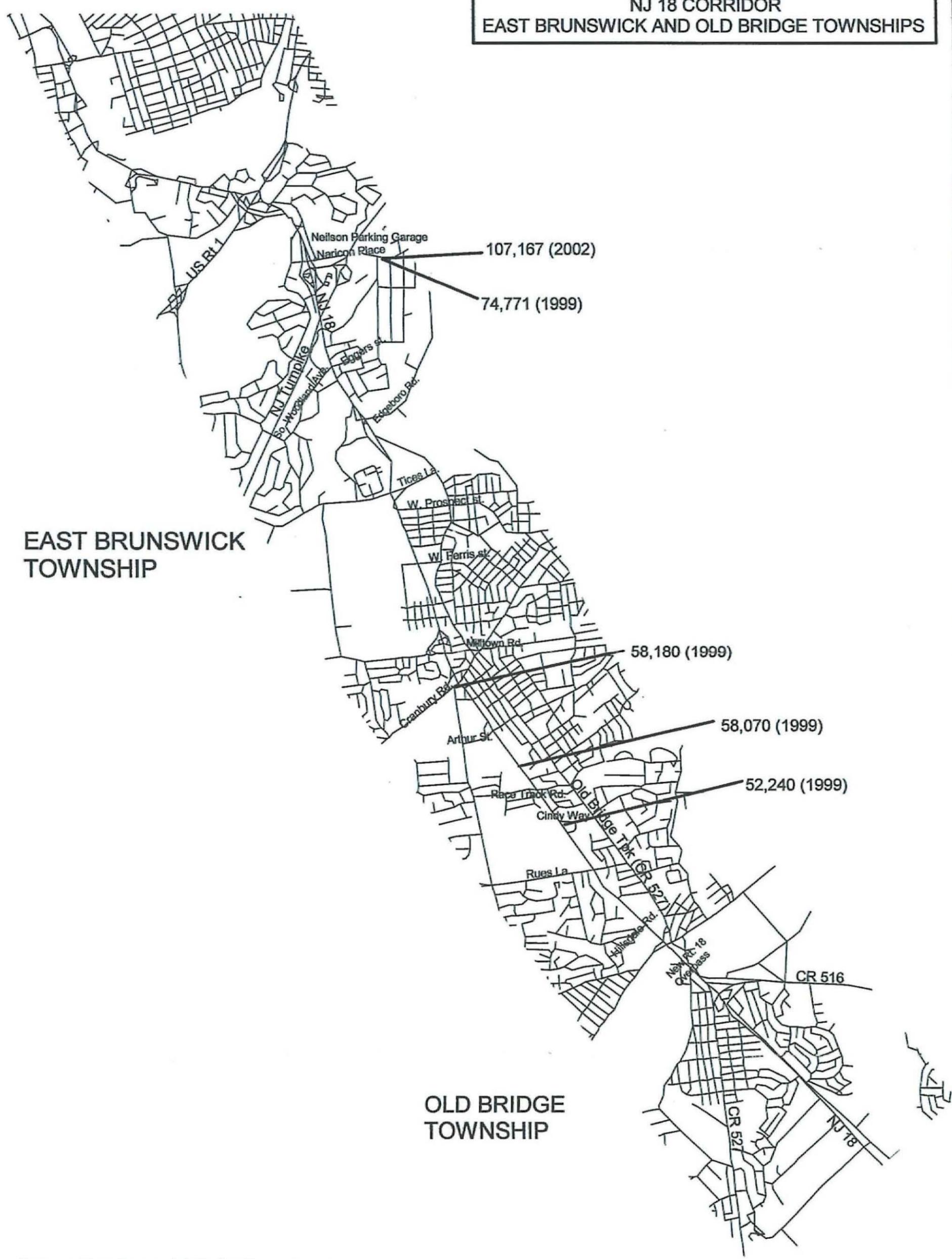
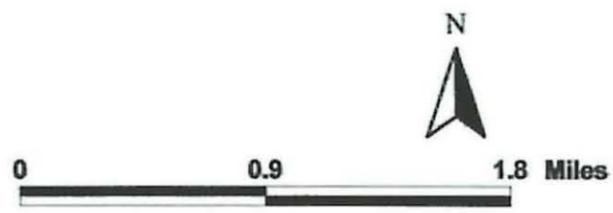


FIGURE 10
TRAFFIC VOLUMES
NJ 18 CORRIDOR
EAST BRUNSWICK AND OLD BRIDGE TOWNSHIPS



Source: East Brunswick Police Department



NEW JERSEY DEPARTMENT OF TRANSPORTATION
 BUREAU OF DATA DEVELOPMENT
 COVERAGE COUNT 5 YEAR AADT COMPARISON REPORT
 IN COUNTY/MUNICIPALITY/ROUTE/MILEPOST/STREET FOR YEAR ENDING 2002

STATION NO.	ROUTE STREET NAME LOCATION	MILEPOST	COUNTY NAME	MUNICIPALITY JURISDICTION	DATE	YEARLY PAT. NO.	AADT	REMARK
4-4-630	M041178 JENSEN ST BET DEXTER & BRIAN RDS	.00	MIDDLESEX	EAST BRUNSWICK TWP MUNIC	03/24/1999 09/03/2002	2 2	2468 2946	
4-4-614	M041063 KINGS RD BET JACKSON ST & EARL RD	.00	MIDDLESEX	EAST BRUNSWICK TWP MUNIC	03/17/1999 11/13/2002	2 2	160 194	
9-2-013	I 95 NEW JERSEY TURNPIKE B INTERCHANGE 9 & 10	83.35	MIDDLESEX	EAST BRUNSWICK TWP TOLL	12/31/1999 12/31/2000 12/31/2001 12/31/1998	1 1 1 1	167500 158900 197400 165800	
912C138	NJ 18 B RUES LN & RACE TRACK RD	35.90	MIDDLESEX	EAST BRUNSWICK TWP	11/17/1999		52240	
4-5-017	NJ 18 BET RUES LANE & RACE TRACK RD	36.00	MIDDLESEX	EAST BRUNSWICK TWP STATE	11/10/1999	2	26902	
912C139	NJ 18 B RACE TRACK RD & ARTHUR ST	36.45	MIDDLESEX	EAST BRUNSWICK TWP	11/18/1999		58070	
912A138	NJ 18 B ARTHUR ST & RACE TRACK RD	36.45	MIDDLESEX	EAST BRUNSWICK TWP	11/17/1999		52760	
912A139	NJ 18 RACE TRACK RD B SUSAN LN & NJ 18	36.90	MIDDLESEX	EAST BRUNSWICK TWP	11/18/1999		58180	
912D138	RACE TRACK RD B WINDSOR DR & NJ 18		MIDDLESEX	EAST BRUNSWICK TWP	11/17/1999		8800	
912B138	RACE TRACK RD B WINDSOR DR & NJ 18		MIDDLESEX	EAST BRUNSWICK TWP	11/17/1999		8560	
4-4-613	M041392 EDGEBORO RD JUST NORTH OF CONVERTY CT	.00	MIDDLESEX	EAST BRUNSWICK TWP MUNIC	05/30/2001 05/04/1998	2 2	2654 1968	
4-4-615	M041093 FERN RD BET RT 535 & OLD STAGE RD	.00	MIDDLESEX	EAST BRUNSWICK TWP MUNIC	05/23/2000	2	3618	
4-4-301	NJ 18 B ARTHUR ST & CRANBURY RD	40.10	MIDDLESEX	EAST BRUNSWICK TWP STATE	02/20/2002 06/29/1999	2 2	107167 74771	

Source: NJDOT Bureau of Data Development Coverage Count 5 Year AADT Comparison Report In County/Municipality/Route/Milepost/Street for Year Ending 2002

nearside northbound and far side southbound. The lane change to go around stopped buses adds conflict points to the left turning conflict points at cross street traffic. Having upgrades at this intersection for safety are warranted and important to the NJ-18 Corridor. The U-turn access to northbound NJ-18 off Eggers Street under NJ TURNPIKE is clearly important. It eliminates at least one left turn conflict point and needs to be enhanced and properly signed.

- **Edgeboro Road (510 accidents, combined with Old Bridge Turnpike, County Route 527)**

The NJ-18 reverse jughandle has two stacking lanes. Long, wide trucks spill over taking up two lanes and sideswipe vehicles alongside. Wider lanes would help this problem. Long term recommendations in the study call for a grade separation at this intersection.

- **Old Bridge Turnpike (510 accidents, combined with Edgeboro Road)**

NJ-18 northbound is joined by Old Bridge Turnpike at an on-ramp with no acceleration lane. The driver must access the active NJ-18 traffic lane when there are gaps in traffic. The acute angle requires drivers to be clear ahead and behind to their left. The rear-end accidents at the on-ramp at the location suggest confusion, drivers are uncertain; that is they start up and change their minds and abort their take-off leaving following vehicles to follow suit or rear-end them. Having to cross the mouth of Edgeboro Rd. creates additional conflict point adding to confusion.

- **Tices Lane (282 accidents), West Prospect Street (224 accidents)**

Tices Lane has been redesigned and will be improved in the future along with West Prospect which is part of the jughandle relocation and redesign with Highland Street. It also includes a new retail access point on NJ-18 southbound, a bus pull-off northbound at Tices Lane nearside, and improved traffic flows which will improve safety.

- **West Ferris Street (225 accidents)**

Rear-end accidents are the main type of collision at West Ferris Street. There are near side bus stops at West Ferris Street and ample space for the stops after the jughandle ramps. Extending sidewalks, pedestrian countdowns, enhanced crosswalks and ramp treatments at this intersection would all improve pedestrian safety at West Ferris Street.

- **Overpass at Milltown Road (165 accidents) and Cranbury Road (95 accidents)**

Milltown Road and Cranbury Road are overpasses and operate without a traffic signal on NJ-18. Bus stops under the overpasses were eliminated years ago. The low accident numbers reflect no stops and controlled ramp access points.

- **Arthur Street (166 accidents)**

Arthur Street is a simple signal controlled cross street, which had 166 accidents in 5 years, a preponderance of rear-enders. East Brunswick High School students cross here. Approach

sidewalks are on the north side, westbound and southside, eastbound. The crosswalk is on the north side.

- **Race Track Road (174 accidents)**

Race Track Road has a busy commuter park and ride lot on NJ-18 southbound at the Home Depot with 250 commuter weekday crossings and boardings from 6 to 8 A.M., when traffic is light. The bus stop at Windsor Pharmacy northbound necessitates a lane change for cars which produces conflict points. Two collisions with cars behind buses pulling into travel lanes demonstrate the design problem. The pedestrian crossings are high volume yet only one accident in five years. Irwin Elementary School is $\frac{3}{4}$ mile from the crossing. Few children from the school cross. East Brunswick has no crossing guards on NJ-18.

- **Cindy Way (128 accidents)**

There is no bus stop on NJ 18 at Cindy Way. The local bus routes 818 and 811 stop inside the Brunswick Square Mall at Ruby Tuesdays. Pedestrian volume is moderate and accident levels low.

- **Rues Lane (233 accidents)**

Rues Lane has a failing volume/capacity ratio during peak hours. Pedestrian traffic is light. New York buses stop near side there and there is no park & ride lot. Accidents rank fifth in the Study Area, 233 in 5 years.

- **Hillsdale Rd. (130 accidents)**

Hillsdale Road southbound can present a problem due to a steep grade. Traffic operations design improvements were made as part of the Main Street/Conrail/South River overpass reconstruction project.

- **Main Street (177 accidents)**

Main Street has reopened after the bridge replacement. The NJ 18 southbound off-ramp has a steep grade. Accidents appear to have diminished since the new bridge reopened.

Table 6, entitled "NJ 18 Accidents East Brunswick 1999-2003," on pages 7-A & B, and Figure 11, entitled "Accidents-NJ 18 Corridor Intersections East Brunswick Township 1999-2003" on page 7-C, are based on staff review of East Brunswick Police Department accident reports and show the number of accidents at each of the key intersections each year between 1999 and 2003.

Land Uses

Land uses along the corridor are predominately urban, as shown on Figure 12, page 7-D, "Land Uses NJ 18 Corridor East Brunswick and Old Bridge Townships. The corridor is almost completely developed, with minimal areas of open space, open water and wetlands.

**Table 6
NJ 18 Accidents
East Brunswick
1999 - 2003**

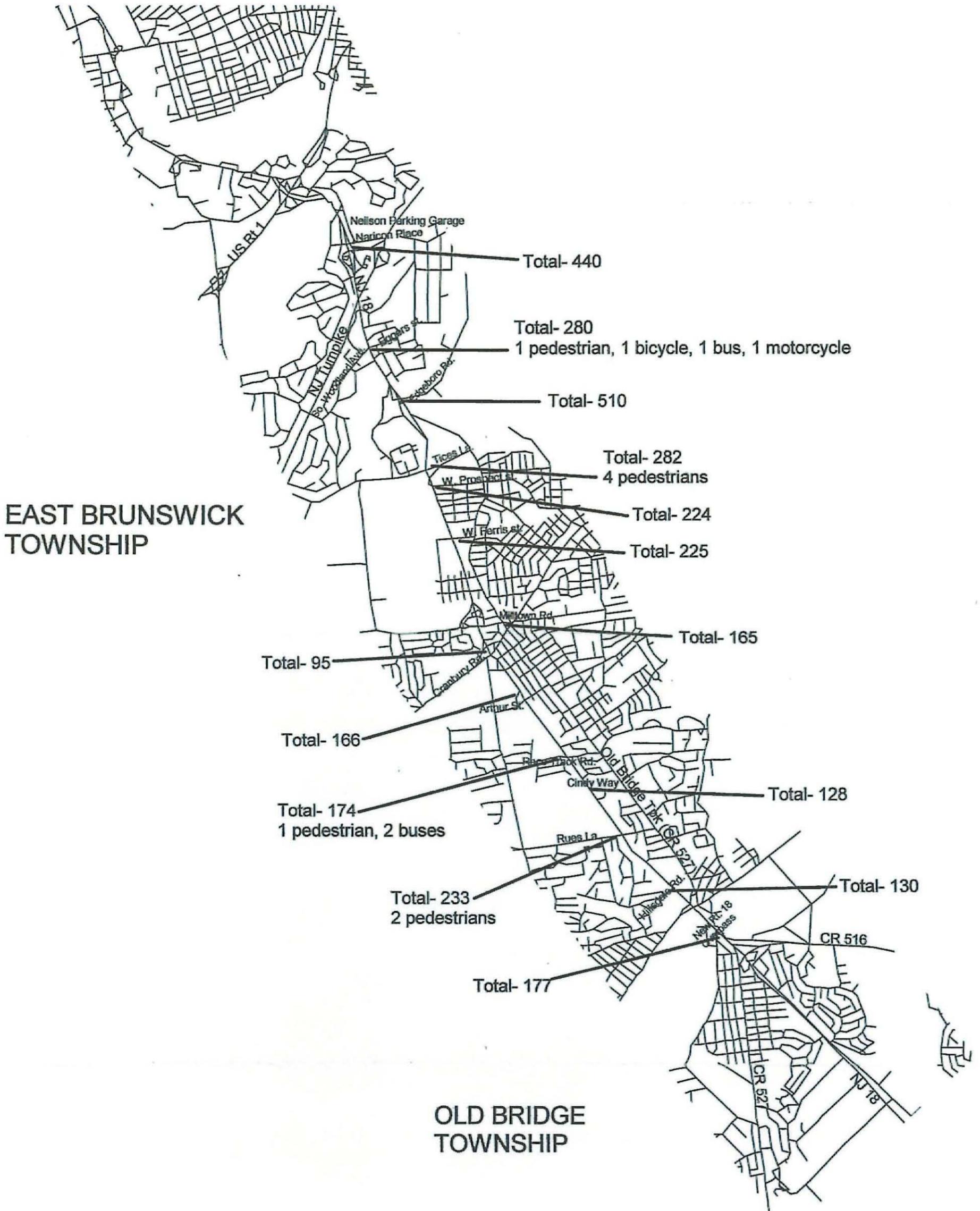
Location (Intersection with NJ 18)	Year	Number of Accidents	Comments
Naricon Place	2003	94	
	2002	89	
	2001	120	
	2000	76	
	1999	61	
			440
South Woodland Avenue & Eggers Street	2003	53	One motorcycle
	2002	54	
	2001	53	1 pedestrian; 1 bus
	2000	78	
	1999	42	1 bicyclist
			280
Edgeboro Road	2003	91	
	2002	118	
	2001	130	
	2000	85	
	1999	86	
			510
Tices Lane	2003	59	3 pedestrians
	2002	55	
	2001	54	
	2000	64	1 pedestrian
	1999	50	
			282
West Prospect Street	2003	40	
	2002	57	
	2001	40	
	2000	55	
	1999	32	
			224
West Ferris Street	2003	42	
	2002	55	
	2001	40	
	2000	48	
	1999	40	
			225
Milltown Road	2003	51	
	2002	35	
	2001	15	
	2000	30	
	1999	34	
			165
Cranbury Road	2003	22	
	2002	8	
	2001	26	
	2000	24	
	1999	15	
			95

**Table 6
NJ 18 Accidents
East Brunswick
1999 - 2003**

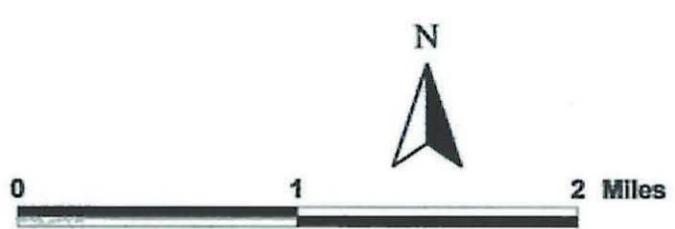
Location (Intersection with NJ 18)	Year	Number of Accidents	Comments
Arthur Street	2003	32	
	2002	37	
	2001	41	
	2000	28	
	1999	28	
		166	Total accidents 1999 - 2003
Race Track Road	2003	28	
	2002	44	1 pedestrian
	2001	40	1 bus; 2 cars behind the bus
	2000	36	1 bus; 3 cars behind the bus
	1999	26	
		174	Total accidents 1999 - 2003
Cindy Way	2003	24	
	2002	25	
	2001	23	
	2000	25	
	1999	31	
		128	Total accidents 1999 - 2003
Rues Lane	2003	55	
	2002	30	
	2001	62	2 pedestrians
	2000	41	
	1999	45	
		233	Total accidents 1999 - 2003
Hillsdale Road	2003	21	
	2002	25	
	2001	39	
	2000	23	
	1999	22	
		130	Total accidents 1999 - 2003
Main Street	2003	5	
	2002	36	
	2001	37	
	2000	70	
	1999	29	
		177	Total accidents 1999 - 2003
Total accidents NJ 18 corridor East Brunswick 1999 - 2003		2651	8 pedestrians; 1 bicycle; 1 motorcycle; 3 buses

Source: East Brunswick Police Department

FIGURE 11
ACCIDENTS NJ 18 CORRIDOR INTERSECTIONS
EAST BRUNSWICK TOWNSHIP
 1999-2003



Source: East Brunswick Police Department



An analysis of tax maps for properties along the corridor shows that residential is the predominate land use. Figure 13, page 8-A, "Zoning NJ 18 Corridor East Brunswick and Old Bridge Townships, shows that most residential development is single family, with 1 to 2.5 dwelling units per acre. There are pockets of higher density single family and multifamily dwellings, at 5 or more dwelling units per acre, adjacent to or within walking distance of NJ 18 and the Old Bridge Turnpike, as shown on Figure 13.

2000 Census data show that single family dwelling units constituted 77.7 percent and buildings with ten or more units constituted 8.6 of the housing stock within the corridor. The data show minimal increases in housing stock due to the lack of vacant land suitable for development. Single family housing increased by just 5.9 percent between 1990 and 2000 while multifamily units decreased by 0.6 percent. Residential building permit data compiled by the State of New Jersey Department of Labor show that only 79 permits were issued in 2002, all for single family dwelling units.

Most of the properties immediately adjacent to NJ 18 are commercial. There is a mobile home park on northbound NJ 18 between Aldrich and Ferris Streets, with access on the highway.

NJ 18 serves as the "downtown" for East Brunswick. From Tower Center through the township, NJ 18 is an intensely developed commercial corridor, a land service highway with many at-grade crossings and curb cuts serving the numerous strip malls, car dealerships, service stations, and free standing small business establishments such as banks, diners and fast food restaurants. There is one regional shopping facility, the Brunswick Square Shopping Mall. The strip malls range in size. Some, such as the Mid State Mall, Loehmann's Plaza and Brunswick Hills, are large, containing numerous retail businesses and significant parking facilities. Most are smaller in size with limited parking.

There are no schools or public buildings adjacent to the corridor in East Brunswick; however, four schools are within walking distance of NJ 18: East Brunswick High School on Cranbury Road; Middlesex County Vocational Technical School on Rues Lane; Irwin School on Race Track Road; and Churchill Junior High School on Norton Road. St Thomas The Apostle Catholic Church and School in Old Bridge are situated on southbound NJ 18.

The Planning Department staff conducted a "windshield survey" of specific land uses along the corridor. The results of the survey are shown in Appendix B, pages B-1 – B-8.

While the corridor appears completely built out, development and redevelopment has occurred. Table 7, page 8-B, "Summary of Activity Within Middlesex County's Strategic Planning Areas", shows 2002 and 2003 development activity in the Route 18 Strategic Planning Area, which includes the corridor study area.

Nonresidential development increased, with 370,243 additional square feet in 2002 and 496,202 additional square feet in 2003. Nonresidential development increased, with 952 additional dwelling units in 2002 and 1,308 in 2003. The number of new residential and nonresidential parking spaces also increased, with 2,319 additional spaces in 2002 and 2,631 in 2003. Figure 14, page 8-C, shows the Middlesex County Strategic Planning Areas.

Table 7

SUMMARY OF ACTIVITY WITHIN MIDDLESEX COUNTY STRATEGIC PLANNING AREAS

December 2003

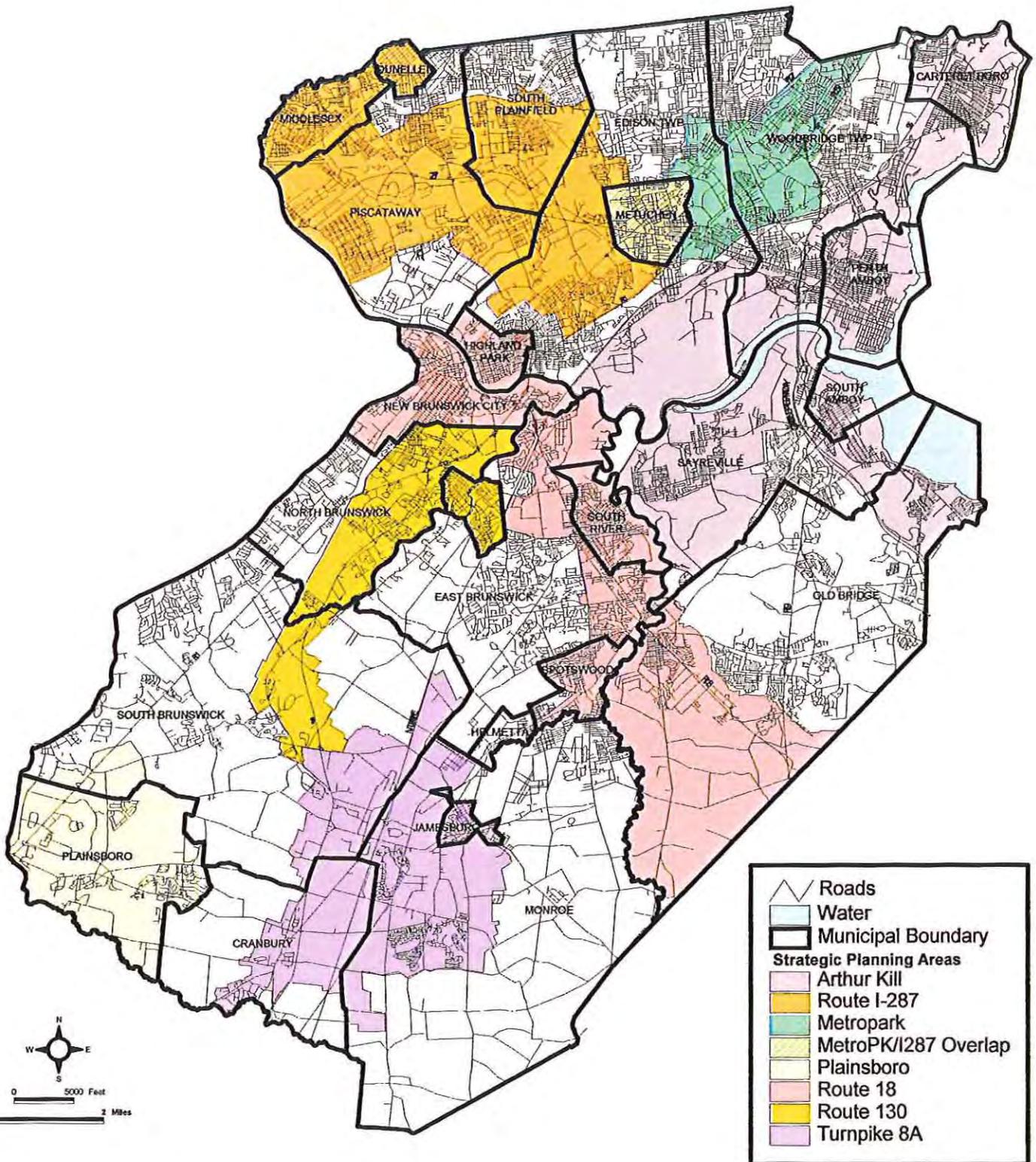
SPA	# Plans	Acres	Additional Dwelling Units	Additional Non-Residential Bldg. Area	Additional Sq. Ft.	Additional Parking Spaces	Acres of Open Space	New Driveways on County Roads
Arthur Kill								
Current Month	5	25.78	3		4,170	13	0.00	0
Year to Date 2003	78	769.47	792		880,357	3,489	0.00	12
Year to Date 2002	105	1,393.74	873		2,647,626	4,364	17.40	NA
Interstate 287								
Current Month	4	149.04	5		0	7	0.00	0
Year to Date 2003	100	825.54	148		1,985,974	5,623	0.00	13
Year to Date 2002	93	698.77	491		657,402	2,874	1.60	NA
MetroPark								
Current Month	10	56.60	12		102,771	911	0.00	2
Year to Date 2003	44	121.49	312		471,963	1,577	0.00	14
Year to Date 2002	58	630.09	449		480,893	1,163	35.02	NA
Plainsboro/Forrestal								
Current Month	2	150.12	204		0	142	0.00	1
Year to Date 2003	17	452.25	369		206,015	618	143.84	3
Year to Date 2002	9	613.54	302		481,320	2,015	267.10	NA
Route 18								
Current Month	16	226.79	386		60	95	3.18	0
Year to Date 2003	62	1,169.77	1,308		496,202	2,631	36.03	10
Year to Date 2002	32	319.64	952		370,243	2,319	0.00	NA
Route 130								
Current Month	0	0.00	0		0	0	0.00	0
Year to Date 2003	10	54.71	15		112,261	2,306	0.00	5
Year to Date 2002	19	150.66	23		23,421	132	0.00	NA
Turnpike Exit 8A								
Current Month	0	0.00	0		0	0	0.00	0
Year to Date 2003	34	809.57	175		2,343,462	2,708	53.08	9
Year to Date 2002	38	1,251.89	231		3,246,125	2,464	67.89	NA
No SPA								
Current Month	32	345.70	438		229,832	340	24.89	1
Year to Date 2003	246	5,219.32	4,338		1,722,175	5,625	590.16	30
Year to Date 2002	248	3,127.49	3,268		1,087,736	6,742	558.04	NA

Key: Arthur Kill (Akill), Interstate 287 (I287), MetroPark (MPK), Plainsboro/Forrestal (PF)
Route 18 (Rt18), Route 130 (Rt130), Turnpike Exit 8A (TP8A)

Source: Report Prepared for the Middlesex County Planning Board
Land Development Review Committee, December, 2003

Figure 14

Middlesex County Strategic Planning Areas



Pedestrian Traffic Generators

Major pedestrian traffic generators along the corridor are:

- Bus stops
- Bus park and ride facilities
- Schools
- Employment facilities
- Regional, neighborhood and strip malls
- Recreational Facilities

Bus Stops and Bus Park and Ride Facilities

Fixed route bus service generates the most pedestrian traffic along NJ 18 in East Brunswick and Old Bridge. The corridor is served by New Jersey Transit and Suburban Transit/Coach USA, which provide local bus service and commuter buses to New York and Jersey City. Suburban/Coach USA also has daily bus service to Atlantic City.

Local riders board the buses along NJ 18. New York City and Jersey City bound passengers board buses at the Neilson Parking Garage bus station at Tower Center Drive near Exit 9 of the New Jersey Turnpike, the East Brunswick Transportation Center park and ride on the Old Bridge Turnpike (County Route 527), and along NJ 18, utilizing park and ride facilities at Race Track Road, Brunswick Hills Shopping Center and the Circuit City Shopping Center. Other commuters who live within walking distance board local and New York or Jersey City buses along NJ 18.

Figure 15, page 9-A, shows the park and ride facilities and bus stops along the corridor in East Brunswick and Old Bridge.

Table 8, below is a list of park and ride facilities along NJ 18 in East Brunswick

Table 8
Park & Ride Facilities

<u>Park & Ride Facility</u>	<u>Number of Parking Spaces</u>
East Brunswick Transportation Center	1,000
Neilson Parking Garage	1,070
Race Track Road Park and Ride	260

Table 9, below shows the Route 18 bus lines serving the corridor and their destinations.

**Table 9
NJ 18 Bus Lines**

<u>Bus Line</u>	<u>Destination</u>
NJTransit	
811	Local-New Brunswick/South River serving Brunswick Square Mall
818	Local-New Brunswick/Old Bridge serving Mid-State Mall
815	Local-New Brunswick/Woodbridge Center serving Mid-State Mall
68	East Brunswick/Jersey City serving East Brunswick Transportation Center
134	New York City
138 via Ferry Road	New York City
138 via Summerhill Road/ Ryders Lane	New York City
Suburban/Coach USA	
100	New York City
400	New York City
600	New York City

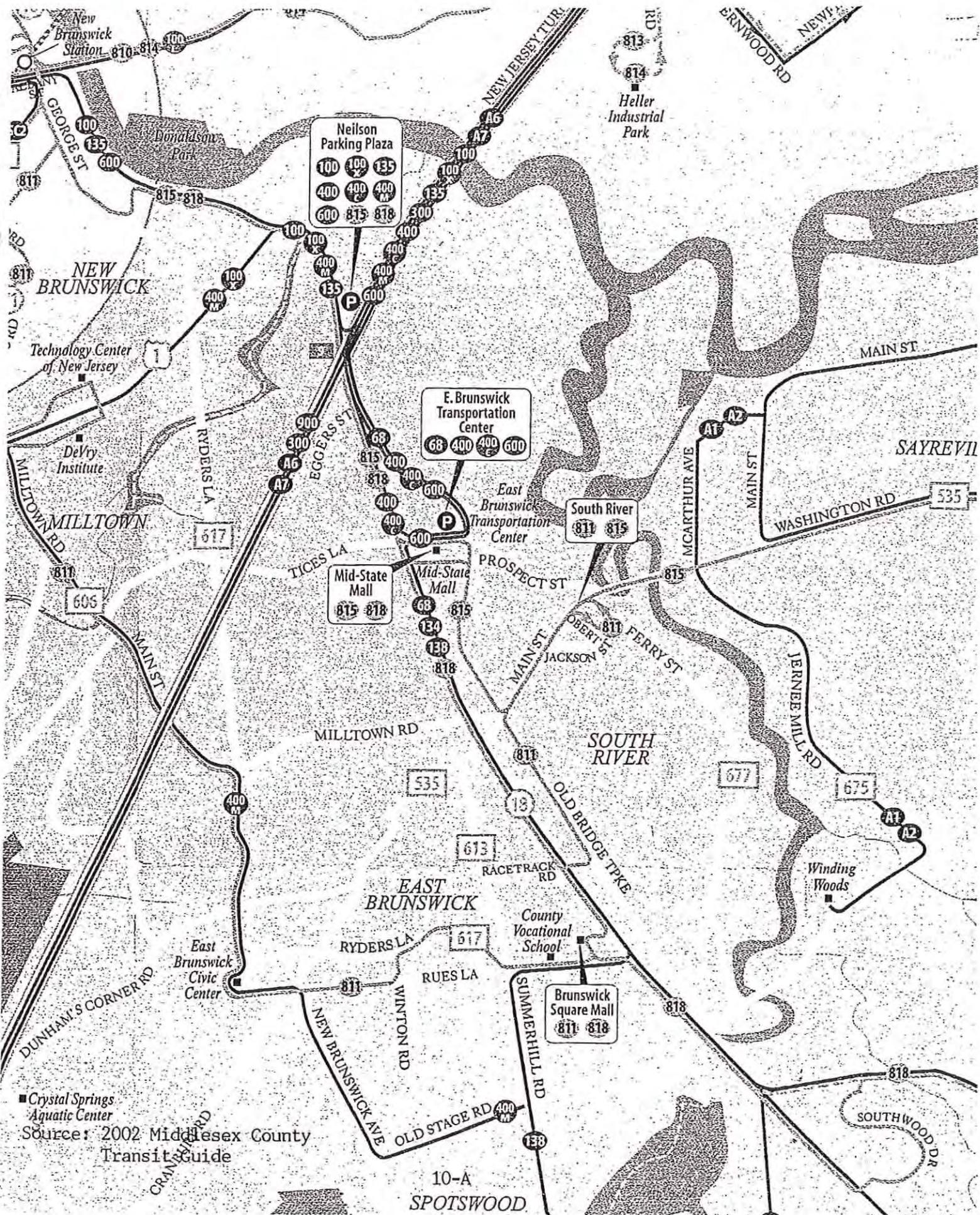
Figure 16, page 10-A, is an excerpt from the *2002 Middlesex County Transit Guide* that shows the location of New Jersey Transit and Suburban/Coach USA bus stops along the NJ 18 corridor in East Brunswick, Old Bridge and South River.

The Middlesex County Planning Department staff conducted pedestrian traffic counts at two locations along NJ 18 in East Brunswick on August 20 and 30, 2003, the intersections of Tice's Lane and Race Track Road.

Staff observed 245 pedestrians crossing the highway at Race Track Road in East Brunswick on August 2003, 132 between 6:00-7:00 a.m.; and 113 between 7:00-8:00 a.m. Virtually all of the pedestrians crossed the highway to board New Jersey Transit buses 68, 138, 134 bound for New York City, and 68 bound for Jersey City. Most crossed at the crosswalk, and a few crossed over the barrier mid-block, some distance from the traffic signal.

Most of the pedestrians walked from the Race Track Road park and ride lot, across the jug handle ramp in front of Rt. 18 Sports, to the crosswalk and traffic signal on NJ 18. Most crossed the highway in 15 seconds, half the time of the 30 second pre-programmed green signal. Three

Figure 16
Bus Lines NJ 18 Corridor



Source: 2002 Middlesex County
Transit Guide

10-A
SPOTSWOOD

persons crossed NJ 18 at 8:44 a.m. to board the NJ Transit local bus to New Brunswick. Two bicyclists crossed between 8:00 and 9:00 a.m.

Ninety-two persons, including 10 bicyclists, crossed either NJ 18 or Tice's Lane between 4:00-7:00 p.m. on August 13; 29 from 4:00-5:00, 33 between 5:00-6:00, and 30 from 6:00-7:00. Some were commuters returning from New York City. Most were persons going to and from commercial and industrial work sites on or near NJ 18.

Schools

Schools in many Middlesex County municipalities, especially walking communities such as South River, New Brunswick and Highland Park, generate significant amounts of pedestrian traffic. The majority of pupils in East Brunswick, particularly those in the four schools closest to NJ 18, do not walk to school. There are no school crossing guards or police presence along NJ 18 to supervise children crossing the highway. They cross at their own risk. Although crossing the highway is hazardous for children, Middlesex County Planning Department staff has observed high school age pupils crossing NJ 18 at the Arthur Street and Cranbury Road intersections.

Pupils at St. Thomas the Apostle School in Old Bridge cross NJ 18 via the pedestrian overpass.

Employment Facilities

The U.S. Census workforce data and covered job counts from the New Jersey Department of Labor provide an overview of employment in the study area along NJ 18. Actual employment is far greater. There are workers in employment facilities ranging from sizeable office complexes, "big box" and department stores, large hotels, supermarkets and automobile dealerships to small office, retail and service businesses in strip malls and converted Cape Cod houses. Staff counted 159 businesses during the windshield survey conducted in July, 2003, including 43 eating establishments. The survey did not include businesses within the Brunswick Square Mall, not visible from the car, or the industrial and warehouse facilities off Edgeboro Road and the Old Bridge Turnpike.

Most of the employment facilities along the corridor are not major pedestrian generators, though there are a few people living near their jobs who walk to work. Most employees drive; however, many do not. These employees work as maids and custodians in the hotels and motels along NJ 18; as kitchen and counter help in nearly every eating establishment; as custodians in the malls and offices; and as warehouse laborers. Some get to work in car and van pools, some bicycle, but most take the bus. They can be seen at any time of day or night, walking to the bus stop or waiting for a bus.

Regional, Neighborhood and Strip Malls

Shoppers, for the most part, drive to the regional, neighborhood and strip malls, where there is ample parking. Some shoppers go by bus. The malls would generate much more pedestrian and bicycle traffic if they were more accessible. Providing continuous sidewalks, bikeways, bicycle

storage facilities and safe crossings along NJ 18, for example, would entice bus passengers and shoppers within walking and cycling distance to the malls.

Regional malls serve as the “downtown” for teenagers living in the suburbs. Brunswick Square Mall is no exception. Some local teens either drive to the mall or are dropped off by their parents, some ride their bicycles, but many walk, even though access to the mall is not pedestrian friendly. There are no sidewalks along NJ 18 and no continuous sidewalks within the mall itself.

Recreation Facilities

There are some recreation facilities on or near the NJ 18 corridor in East Brunswick. These include the movie theater complex within the Brunswick Square Shopping Mall; Mid-State Bowling, located in the Mid-State Mall; Bally’s Fitness Center on Edgeboro Road; Middlesex and Flip Over Gymnastics Academies, which are near NJ 18. There are four parks in East Brunswick and one in Old Bridge within walking distance of NJ 18.

These facilities are easily reached by car, and they could be accessible to pedestrians or bicyclists if there were continuous sidewalks, clearly marked and signed crosswalks, bikeways and bicycle storage racks.

Windshield survey results showing malls, eating establishments, hotels, motels, schools, recreation facilities and other pedestrian generators are shown in Appendix B, pages B-1 through B-8.

IV. INTERSECTION ANALYSIS

Figure 17, page 13-B, shows the pedestrian crossings at the 17 key intersections in the NJ 18 study area.

East Brunswick

1. The Neilson Parking Garage
2. Naricon Place
3. South Woodland Avenue and Eggers Street
4. Edgeboro Road
5. Tices Lane
6. West Prospect Street
7. West Ferris Street
8. Milltown Road
9. Cranbury Road
10. Arthur Street
11. Race Track Road
12. Cindy Way, Brunswick Square Mall
13. Rues Lane
14. Hillsdale Road
15. New Bridge over the South River, Conrail (CSX), and Main Street

Old Bridge

16. Middlesex County Routes 516 and 527 interchange
17. Pedestrian Overpass at St, Thomas the Apostle Church and School

Areas targeted for improvements include:

- At grade intersections
- Overpasses
- Underpasses
- Bus stations
- Bicycle routes
- Land use connections
- Shopping centers

Recommended improvements include enhanced crosswalks, ramp treatments, pedestrian signals, and enhanced crosswalks.

Enhanced Crosswalks

The crosswalk should be designed for maximum pedestrian safety.

- It should be highly visible to motorists and pedestrians
- It should contrast with the pavement, e.g., high contrast “zebra” striping
- There should be a pedestrian refuge island, with a textured, colored platform between the north and southbound lanes

Figure 18, page 14-A, is an example of a typical crosswalk and refuge island treatment.

Pedestrian Signals

Installation of a crossing countdown at the signal will tell the pedestrian how much time he or she has to cross the highway. The signal starts at 30 seconds and counts down to zero. Other signal improvements include “walk,” “don’t walk” symbols.

Ramp Treatments

To enhance ramps for maximum pedestrian safety:

- Install an enhanced crosswalk, with curb cuts, at the ramp
- Install a sign telling motorists that pedestrians are crossing at the ramp

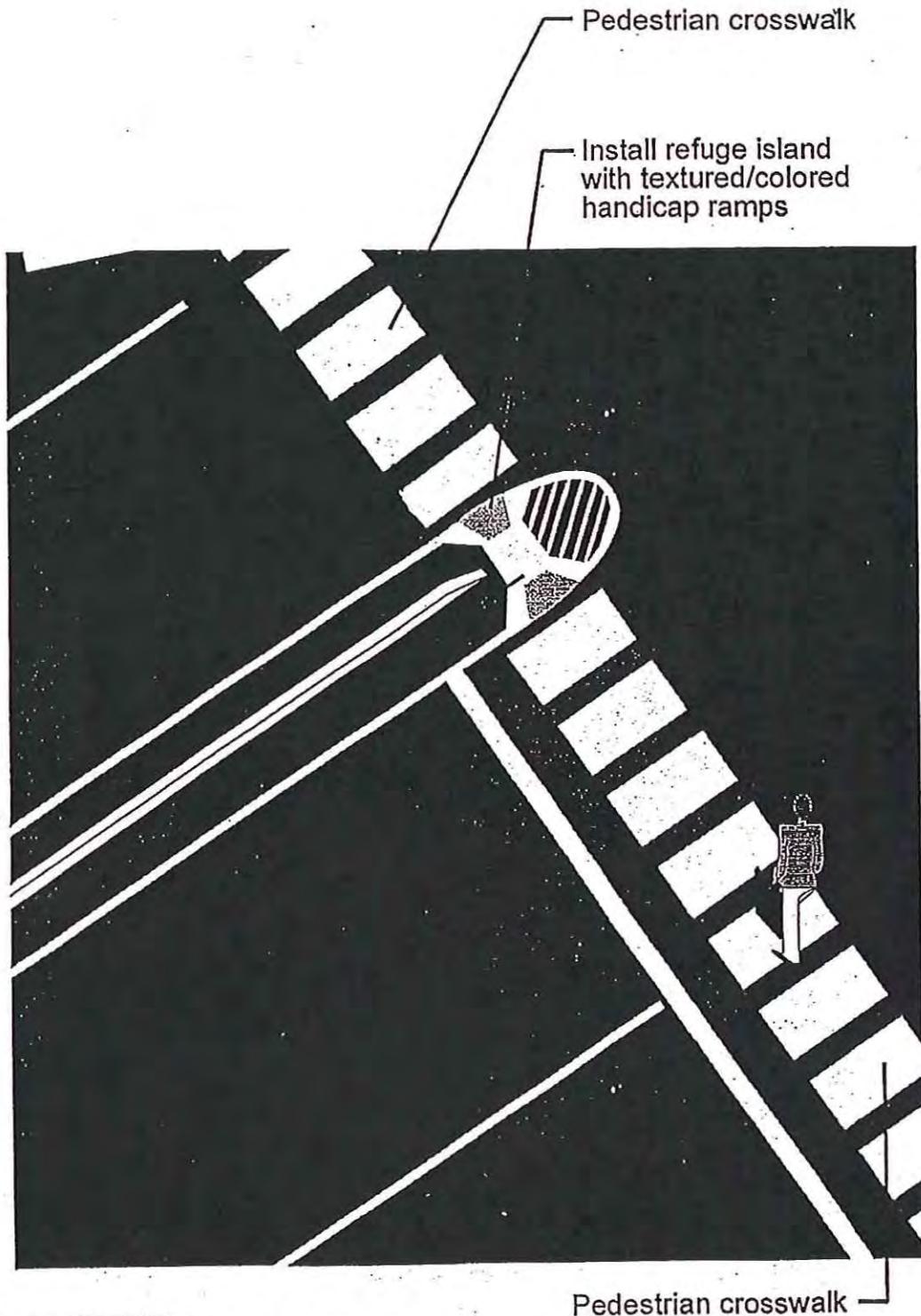
Figure 19, page 14-B, shows typical ramp treatments.

Other recommended improvements include

- Curb ramps
- Sidewalks
- Pedestrian signs
- Striping
- Enhanced lighting
- Cul-de-sacs.

Table 10, page 14-C, shows New Jersey Department of Transportation cost estimates for bicycle and pedestrian improvements.

Figure 18
Typical Crosswalk and Refuge Island Treatments



Source: Route One Corridor Bicycle & Pedestrian Case Study Mercer and Middlesex Counties, New Jersey, Prepared for New Jersey Department of Transportation Prepared by The RBA Group Greenways Incorporated Bicycle Federation of America, December, 1997

(070300.CS_ES/G)

Table 10
Bicycle and Pedestrian Corridor Case Study

Cost Estimates
(Typical Target Areas)

At-Grade Intersection Improvements (typical)

<u>Item</u>	<u>Quantities Unit</u>	<u>Cost/Unit</u>	<u>Total Cost</u>
Enhanced crosswalks	4 EA	\$200.00	\$800.00
Ped signals	8 EA	1,000.00	8,000.00
Ped signing	4 EA	250.00	1,000.00
Median treatments w/barrier	LS		42,000.00
Sidewalks	400 LF	18.00	7,200.00
Curb ramps	4 EA	350.00	1,400.00
		TOTAL	\$60,400.00

Overpasses (typical)

Sidewalks	2,000 LF	\$18.00	\$36,000.00
Bike lane striping	2,000 FT	.50	1,000.00
Bike lane signing	8 EA	250.00	2,000.00
Curb ramps	8 EA	350.00	2,800.00
Enhanced crosswalks	4 EA	150.00	600.00
		TOTAL	\$42,400.00

Underpasses (typical)

Sidewalks	2,000 LF	\$18.00	\$36,000.00
Curb ramps	8 EA	350.00	2,800.00
Highway Lighting	LS		55,000.00
Enhanced crosswalks	4 EA	200.00	800.00
Bike striping	2,000 FT	.50	1,000.00
Bike signing	4 EA	250.00	1,000.00
		TOTAL	\$95,945.00

Source: Route One Corridor Bicycle & Pedestrian Case Study
Mercer and Middlesex Counties, New Jersey, Prepared for
New Jersey Department of Transportation, Prepared by the
RBA Group Greenways Incorporated Bicycle Federation of
America, December, 1997

Bus stop signs and shelters that are damaged or are in disrepair should be replaced. This should be done by contacting:

Donald Pigford, Jr.
Senior Field Representative
NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
(973) 491-8671

The next section of the Route 18 Pedestrian Transit Study consists of a description of each key intersection, followed by proposed improvements that would make the crossing safe for pedestrians and bicyclists.

Neilson Parking Garage, East Brunswick Township

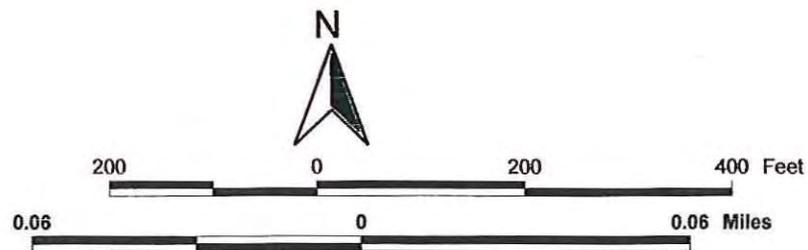
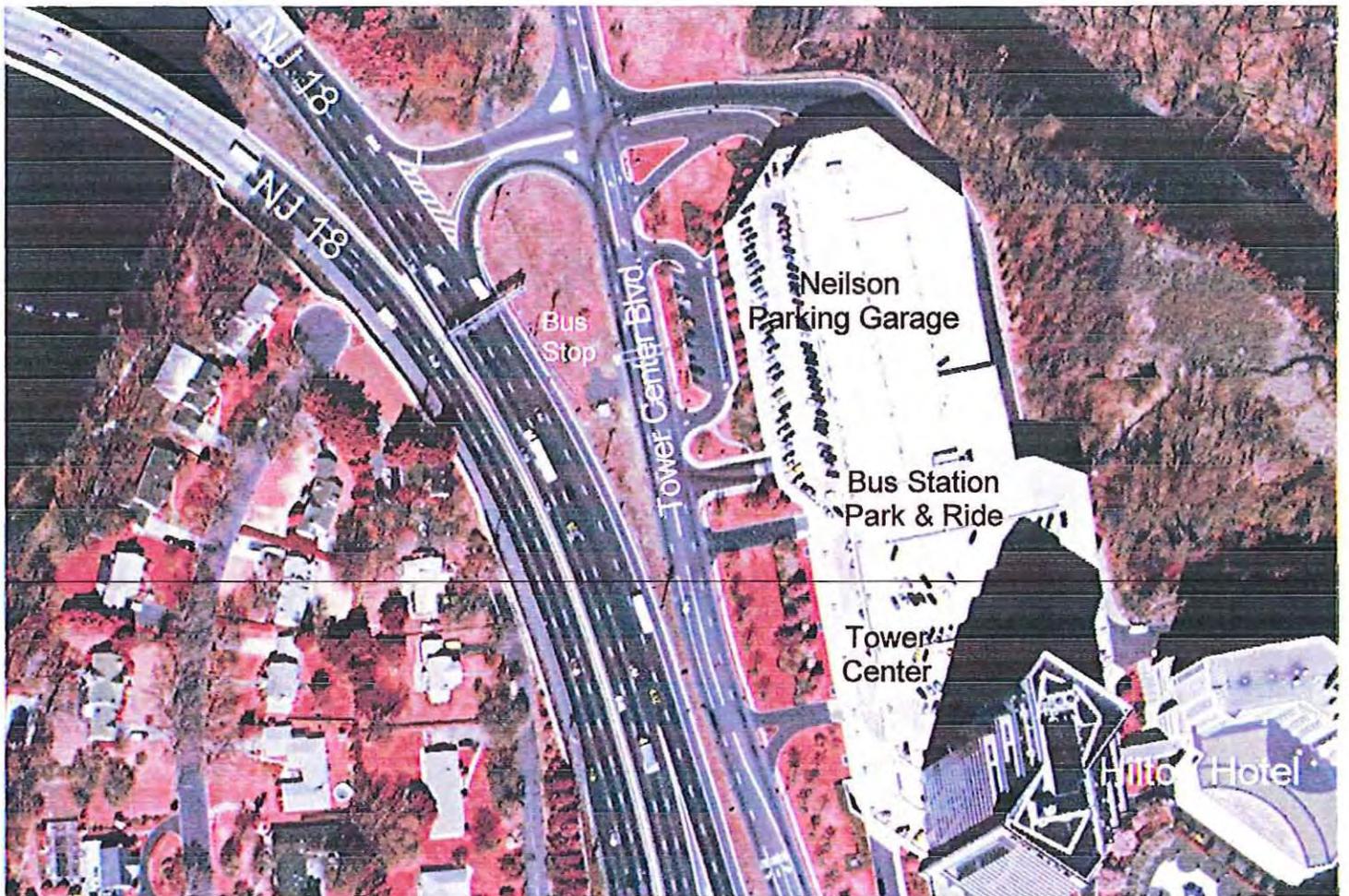
Figure 20, page 16-A, is an aerial photograph showing the Neilson Parking Garage, the bus station park and ride, Tower Center office buildings, and the Hilton Hotel in East Brunswick. There is a passenger drop off area. There are bus stops on both sides of Tower Center Boulevard and a mid-block, unsignalized pedestrian crossing.

The Suburban Transit/Coach USA bus company has requested that shelters be installed for local bus passengers. This is also a transfer point for New York buses, which pull through the garage entrance, where there is a ticket window and waiting area. Local routes 815 and 818, pick up and drop off on Tower Center Drive. Taxi cabs also pick up and drop off passengers. A bus shelter at this location would clarify the local from the New York bus stops. Figures 21 and 22, pages 16-B and 16-C, show the bus stops, crosswalks, pick up and drop off sites.

Recommended improvements for the Neilson Parking Garage area are:

- Bus stops and bus stop designators
- Bus shelters
- Enhance the crosswalks on NJ 18 and Tower Center Boulevard
- Provide pedestrian-activated crossing countdown (30-0 seconds) traffic signal at NJ 18 and Naricon Place to clearly show pedestrians how much time they have to cross the highway.
- Enhance the existing sidewalks
- A long term project at this location: connect the proposed bicycle path from the Rutgers University Cook/Douglass campus to the Tower Center through the Weston Mill Pond Preserve, shown on Figure 23, page 16-D.

Figure 20
**Neilson Parking Garage
East Brunswick Twp.**



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March 2005

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Figure 21



Local bus stop and crosswalk at Tower Center Boulevard southbound, across from the pick-up/drop-off site for the Neilson Park and Ride garage and bus station. There is no sidewalk. There is no bus shelter.

Figure 22



Bus stop and crosswalk and pick-up/drop-off site on Tower Center Drive northbound at the Neilson Park and Ride garage and entrance to the bus station.

PLATE 35

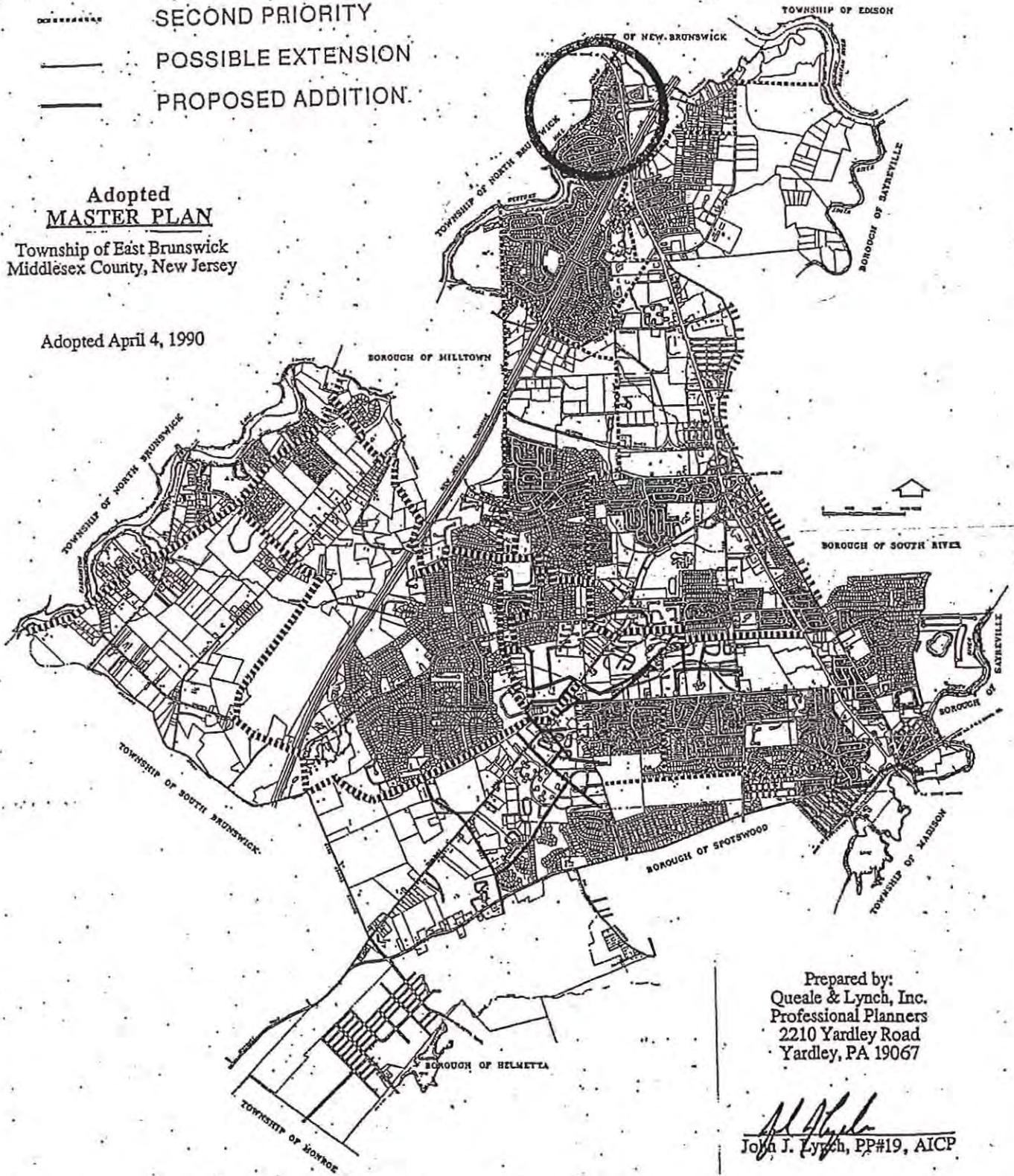
BIKEWAY/PEDWAY PLAN

-  FIRST PRIORITY
-  SECOND PRIORITY
-  POSSIBLE EXTENSION
-  PROPOSED ADDITION

Adopted MASTER PLAN

Township of East Brunswick
Middlesex County, New Jersey

Adopted April 4, 1990



Prepared by:
Queale & Lynch, Inc.
Professional Planners
2210 Yardley Road
Yardley, PA 19067


John J. Lynch, PP#19, AICP

Naricon Place, East Brunswick Township

Figure 24, page 17-A, shows Naricon Place where it intersects NJ 18 and Tower Center Drive in East Brunswick. Also shown are the portion of the Lawrence Brook section of East Brunswick that abuts southbound NJ 18 and, near northbound NJ 18, the toll plaza on the New Jersey Turnpike, the Neilson Parking Garage, Tower Center and the Hilton Hotel. The north side crosswalk has pedestrian-activated buttons on indicator lights on both sides of NJ 18 at Naricon Place. The timing is 30 seconds to cross the highway. This appears to work.

There is a crosswalk across Tower Center Boulevard from Naricon Place on the south side. The crosswalk buttons on the traffic signal do not work. Pedestrians are directed to the north side of the Naricon Place bridge. There is no crosswalk over Naricon Place at Tower Center Boulevard. The bridge over the Exit 9 northbound NJ TURNPIKE ramp has a narrow sidewalk, which ends at the edge of the bridge. Figures 25 and 26, pages 17-B and 17-C show NJ 18 north and southbound at Naricon Place.

Improvements recommended for the Naricon Place intersection are:

- Enhance the crosswalks on NJ 18, Naricon Place, and Tower Center Boulevard.
- Provide a pedestrian-activated crossing countdown (30-0 seconds) traffic signal at NJ 18 and Naricon Place to clearly show pedestrians how much time they have to cross NJ 18.
- Install sidewalk, with appropriate ramp treatments, on NJ 18 southbound from Naricon Place north side of the intersection to Eggers Street.
- Install a crosswalk on Naricon Place at three stop lines at NJ 18 south, NJ 18 north, and Tower Center Boulevard.
- Extend the sidewalk on the bridge over the Exit 9 northbound NJ TURNPIKE ramp to the pedestrian signal on both sides of the bridge.

Figure 24 Naricon Place East Brunswick Twp.

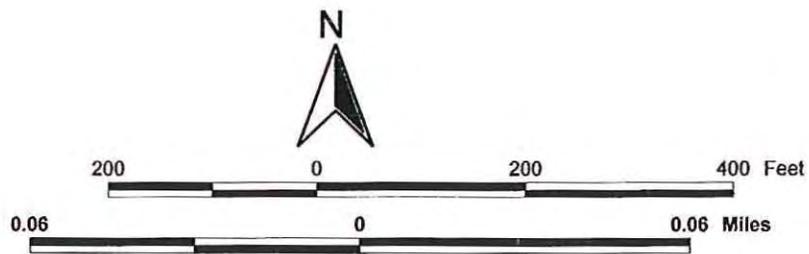


Figure 25



Route 18 Southbound and Naricon Place. This was repaved without a pedestrian crosswalk.

Figure 26



Pedestrian Crosswalk, Route 18 Northbound at Naricon Place.

South Woodland Avenue and Eggers Street

Figure 27, page 18-A, shows the intersections of NJ 18 at South Woodland Avenue and Eggers Street in East Brunswick. Also shown are the East Brunswick Ramada Inn and the Turnpike Plaza office complex on southbound NJ 18. There is a high volume of pedestrians, primarily bus commuters, crossing NJ 18 at South Woodland Avenue and Eggers Street. There is a strip mall and a bus stop on NJ 18 northbound, south of South Woodland Avenue. There is also a pedestrian overpass, without a canopy, at this location. The overpass has stairs which do not comply with ADA standards. Figures 28 and 29, pages 18-B and 18-C, show the pedestrian overpass at the Pine Ridge strip mall, and the bus stop on NJ southbound near Loehmann's Plaza mall.

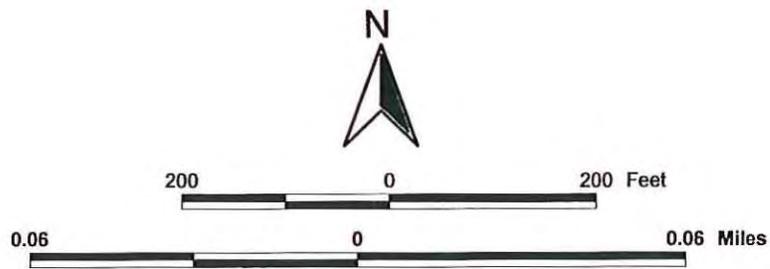
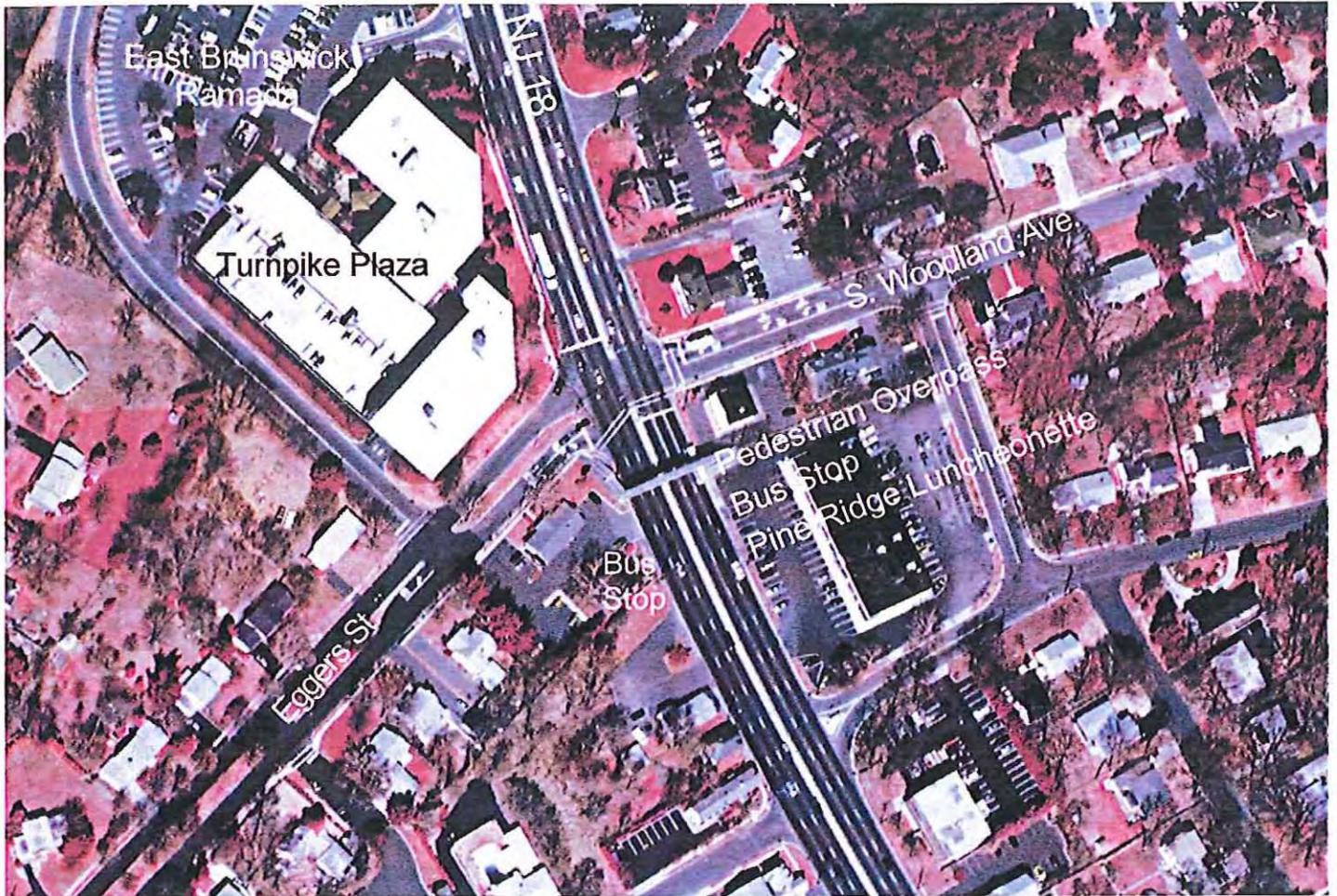
There is a crosswalk and pedestrian-activated traffic signal at South Woodland Avenue; however, pedestrians are not aware of the green time. This crosswalk is not highly visible, particularly at night. There is only one bus loading/unloading slot on northbound NJ 18. This is hazardous because there is not enough room between the guard rail and bus door when more than one bus loads or unloads, causing conflicts between pedestrians and the rail. With snow, there is no space to unload.

The East Brunswick Ramada Inn and Turnpike Office Complex are located on southbound NJ 18, north of Eggers Street. There is a bus stop on NJ 18 southbound, south of Eggers Street. There is no crosswalk at Eggers Street. There is no sidewalk at this location; however, there is a "cowpath," which is used by pedestrians, chiefly bus commuters. There is a pedestrian-activated traffic signal at NJ 18 and Eggers Street; however, pedestrians are not aware of the green time.

Improvements recommended for South Woodland Avenue and Eggers Street intersections are:

- Enhance the crosswalks on NJ 18 at South Woodland Avenue and Eggers Street
- Install a crosswalk on Eggers Street
- Install a pedestrian-activated crossing countdown (30-0 seconds) traffic signal on NJ 18 to clearly show pedestrians how much time they have to cross the highway.
- Sidewalks on southbound NJ 18 from Eggers Street to Edgeboro Road and northbound NJ 18 from Messler Street to the Kinko's strip mall.
- Create a passenger drop-off break in the guard rail for a second bus on NJ 18 northbound.
- Bring the pedestrian overpass into ADA compliance; install a canopy to protect pedestrians during inclement weather

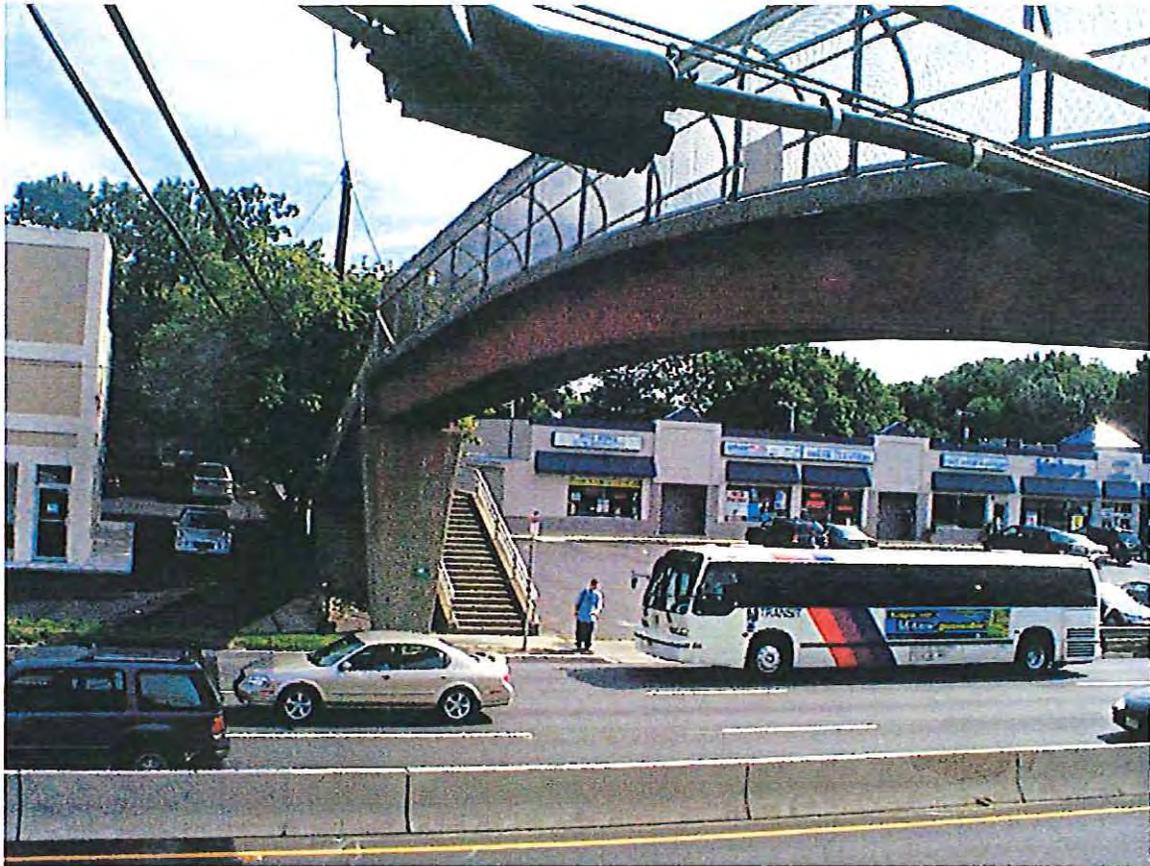
Figure 27
S. Woodland Ave. & Eggers St.
East Brunswick Twp.



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March 2005

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Figure 28



NJ 18 Pedestrian Overpass at Pine Ridge Luncheonette/Kinko's near South Woodland Avenue and Eggers Street
Note: the stairs are not ADA compatible

Figure 29



Bus stop on NJ 18 South, far side of pedestrian overpass at Eggers Street. There is no sidewalk from the driveway shown to Loehmann's Plaza at Edgeboro Road.

Edgeboro Road

Figure 30, page 19-A, is an aerial photograph showing the intersection of Edgeboro Road and the Old Bridge Turnpike (Middlesex County Route 527) with NJ 18 in East Brunswick. Also shown are the reverse jug handle, Loehmann's Plaza shopping center and the adjacent Gap shopping center on southbound NJ 18 and the strip mall on Edgeboro Road.

The intersection of NJ 18, Edgeboro Road and the Old Bridge Turnpike has more conflict points than at a normal cross street due to the configuration of the intersection. Old Bridge Turnpike crosses the mouth of Edgeboro Road and merges with NJ 18 southbound as an access ramp. The reverse jug handle and traffic patterns create many turning movements. Figure 31, Page 19-B shows NJ 18 at the reverse jug handle. This intersection is especially hazardous for pedestrians, most of whom are bus commuters. There is no pedestrian crosswalk across NJ 18. There are bus stops on the far side southbound and near side northbound.

Figure 32, page 19-C, shows the bus stop on NJ 18 northbound at the Old Bridge Turnpike and Edgeboro Road. There are no sidewalks, and the large, round landscaping stones on northbound NJ 18 makes pedestrian access very difficult. Commuters wait for the bus at this location. There are four pedestrian-activated buttons on the traffic signals; however, pedestrians are not aware of how much time they have to cross the highway (30 seconds).

Recommended improvements for the Edgeboro Road/Old Bridge Turnpike intersection are:

- Enhance crosswalks on NJ 18, Edgeboro Road and the Old Bridge Turnpike.
- Eliminate the portion of barrier that obstructs pedestrian movements and proposed crosswalks from the southwest to the southeast quadrant of the intersection, and between bus stops on the south side of NJ 18.
- Provide ramp treatments on the north side of Edgeboro Road.
- Install a pedestrian-activated countdown (30-0 seconds) at the traffic signal on NJ 18 to clearly show pedestrians how much time they have to cross the highway.
- Install sidewalks on NJ 18 southbound from the Edgeboro Road reverse jug handle to Eggers Street and from the reverse jug handle to the sidewalk at the Gap.
- Connect the bus stops on southbound NJ 18 to northbound NJ 18 with a crosswalk.
- Install sidewalks on NJ 18 northbound to the bus stops.
- Install a bus stop pad on southbound NJ 18.
- Install sidewalk to Loemann's Plaza.
- Long term recommendation: Install a grade separation with pedestrian access. This project is in the North Jersey Transportation Planning Authority Regional Transportation Plan, and has been recommended by Middlesex County for advancement into the Project Development Work Program and the Transportation Improvement Program.

Figure 30 Edgeboro Rd. East Brunswick Twp.

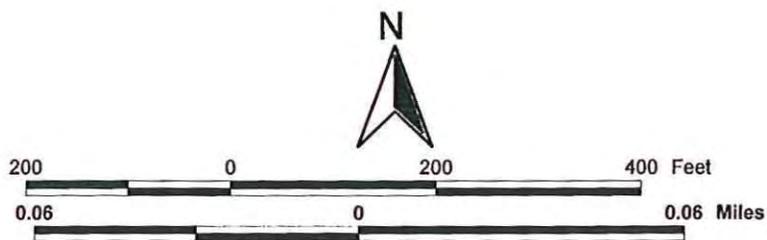


Figure 31



Route 18 Southbound at the Edgeboro Road reverse jug handle. There is a pedestrian activated traffic signal, but there is no sidewalk or pedestrian crosswalk.

Figure 32



Bus stop on NJ 18 northbound at Old Bridge Turnpike and Edgeboro Road. There are no sidewalks and the large, round landscaping stones make pedestrian access difficult.

Tices Lane

Figure 33, page 20-A, shows the intersection of NJ 18 and Tices Lane in East Brunswick. Tices Lane is currently one-way westbound. Figure also shows the Mid-State Mall on NJ 18 northbound. There is a crosswalk on the north side of the NJ 18 and Tices Lane intersection. There is no crosswalk on Tices Lane. There are pedestrian-activated buttons on three corners of the intersection. Pedestrians have 30 seconds to cross the highway. There are bus stops on NJ 18 on the nearside southbound and nearside northbound. The New Jersey Department of Transportation (NJDOT) has redesigned this intersection to improve traffic flow.

Recommended improvements for the Tices Lane/NJ 18 intersection are shown on Figures 34-40, entitled, "Traffic Striping & Signage Plan Roadway Improvements to U.S. Route 18 & Tices Lane" on pages 20-B through 20-H. These improvements will be done by NJDOT and the Township of East Brunswick.

East Brunswick plans to transform the 31.6 acre "Golden Triangle" area where the East Brunswick Transportation Center Park and Ride, Sam's Club and the Route 18 Flea Market are located, into a Transit Village. A specific site plan is not available at this time. East Brunswick has approved the proposed use.

Figure 33
Tices Lane
East Brunswick Twp.

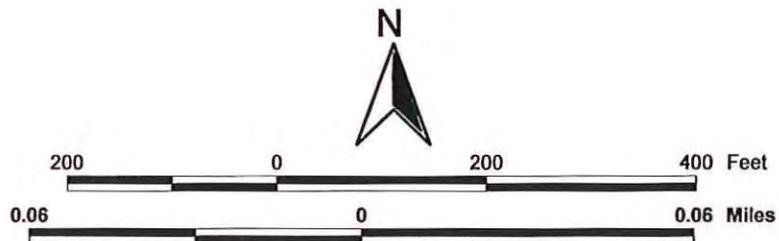
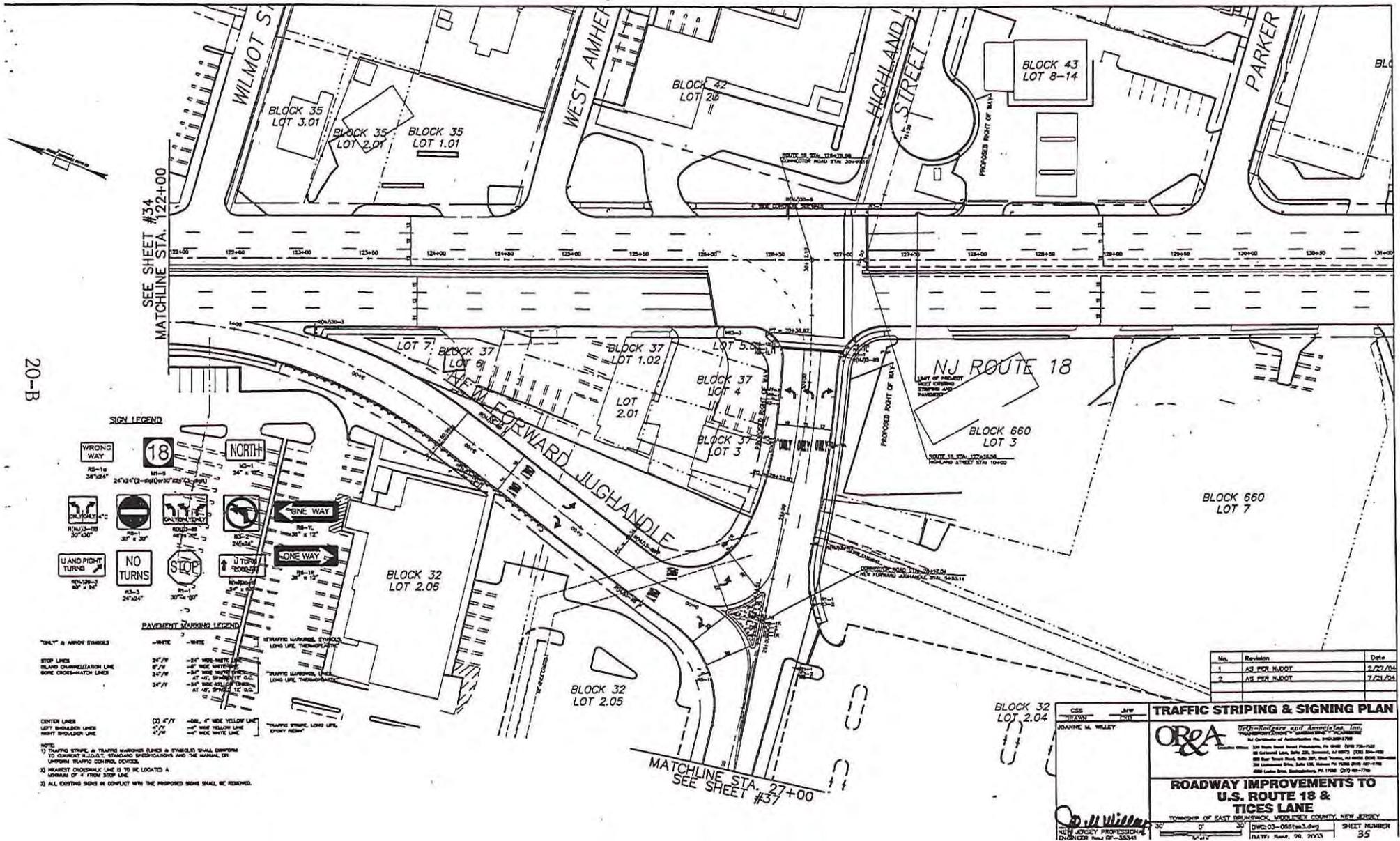


Figure 34



20-B

SEE SHEET #34
MATCHLINE STA. 122+00

MATCHLINE STA. 27+00
SEE SHEET #37

TRAFFIC STRIPING & SIGNING PLAN

ORA
 Traffic Striping and Signing, Inc.
 2000 North Street, Suite 200, East Brunswick, NJ 08816
 2000 North Street, Suite 200, East Brunswick, NJ 08816
 2000 North Street, Suite 200, East Brunswick, NJ 08816
 2000 North Street, Suite 200, East Brunswick, NJ 08816

ROADWAY IMPROVEMENTS TO U.S. ROUTE 18 & TICES LANE

JOANNE M. WILLEY
 PROFESSIONAL ENGINEER
 LICENSE NO. 35334

DATE: 07/23/04
 SHEET NUMBER: 35

Figure 39

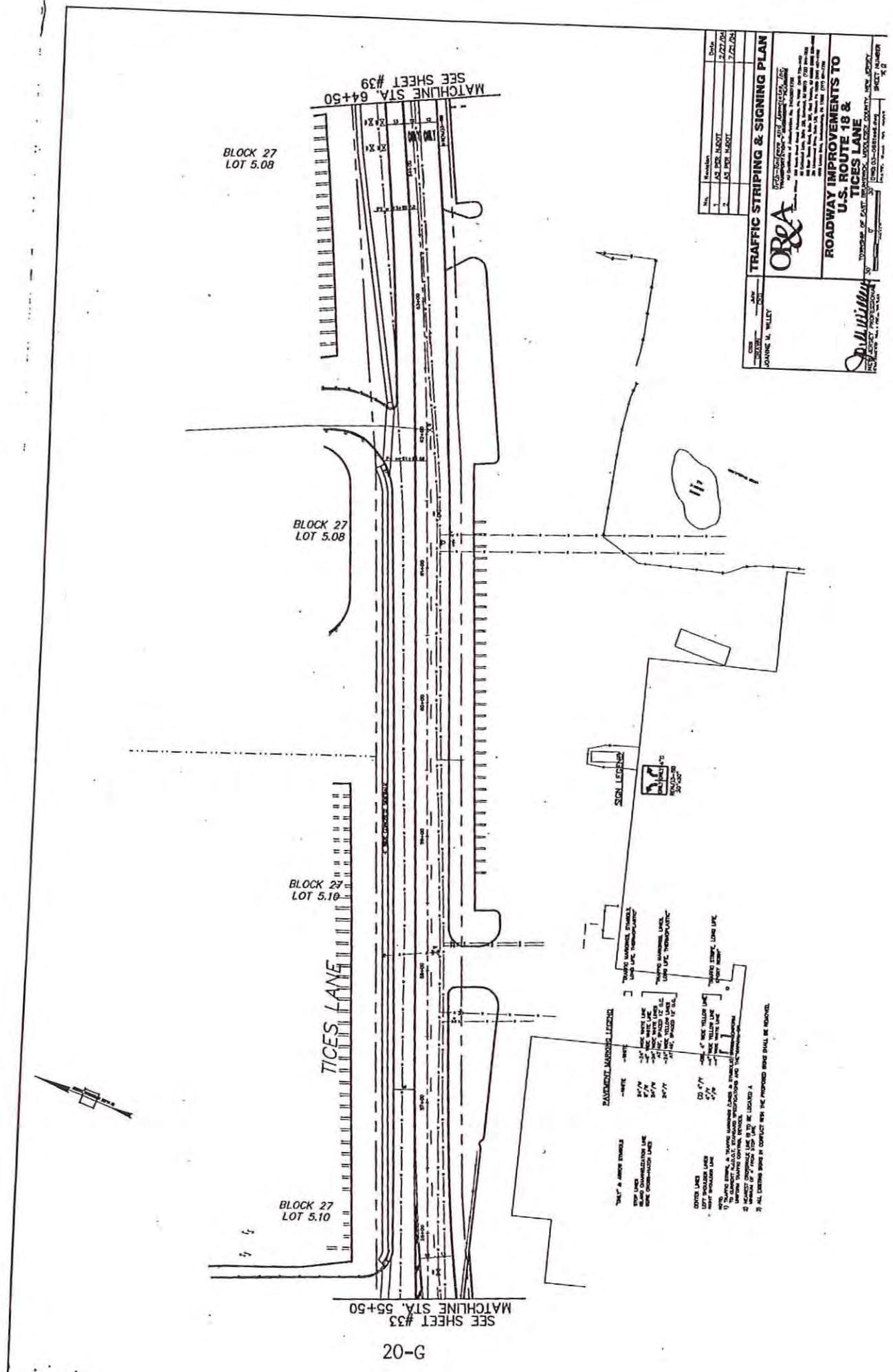
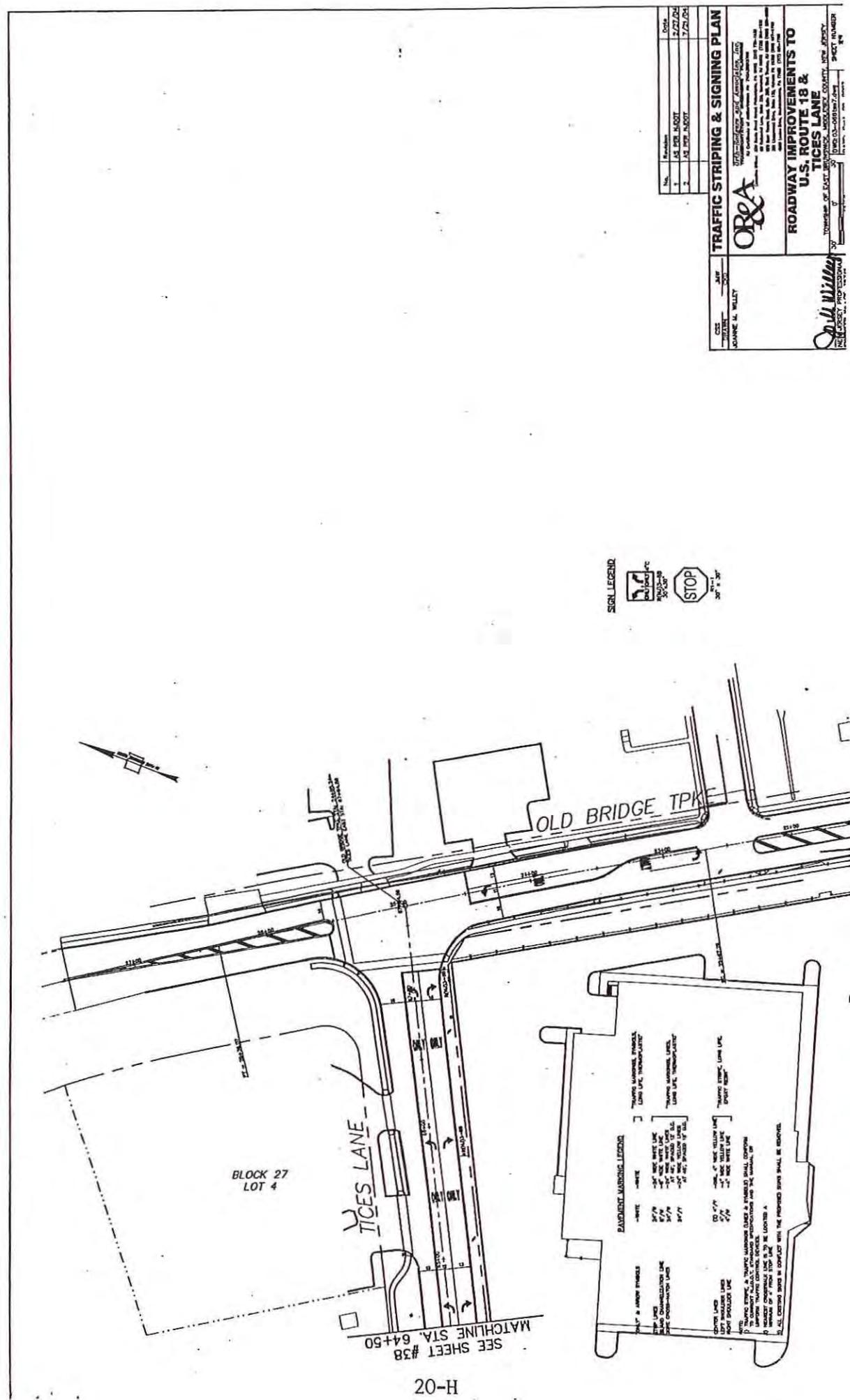


Figure 40



H-20

No.	Description	Code
1	1/4" X 1/4" SIGN	727/2A
2	1/4" X 1/4" SIGN	727/2B

TRAFFIC STRIPING & SIGNING PLAN

OR&A
ORANGE COUNTY ROAD & AVIATION ASSOCIATES, INC.
 1000 S. GARDNER ST., SUITE 100, ORANGE, CA 92668
 TEL: (714) 952-1000 FAX: (714) 952-1001
 WWW: WWW.ORA-CA.COM

**ROADWAY IMPROVEMENTS TO
 U.S. ROUTE 18 &
 TICES LANE**

ENGINEER: **JOHN WILLEY**
REGISTERED PROFESSIONAL ENGINEER
 CIVIL ENGINEERING
 STATE OF CALIFORNIA LICENSE NO. 44107

TOWNSHIP OF EAST ORANGE, ORANGE COUNTY, CALIF. PROJECT SHEET NUMBER 41

SIGN LEGEND

30" X 36"

PAVEMENT MARKING LEGEND

- WHITE
- YELLOW
- RED
- GREEN
- BLUE
- PINK
- BLACK
- GRAY
- BROWN
- PURPLE
- PINK
- GREEN
- YELLOW
- RED
- WHITE
- BLACK
- GRAY
- BROWN
- PURPLE

ALL DIMENSIONS SHOWN IN CONFLICT WITH THE PROPOSED SIGN SHALL BE RESOLVED.

West Prospect Street

Figure 41, page 21-A, shows the intersection of NJ 18 and West Prospect Street in East Brunswick. West Prospect Street is one-way eastbound. Figure 26 also shows the Mid-State Mall on NJ 18 northbound and the mall on the southbound side where the Kohl's Department Store is situated. There is a crosswalk across NJ 18 on the south side of West Prospect Street to the jug handle. There is also a crosswalk across West Prospect Street in the area of the First Union Bank. There is a nearside bus stop on northbound NJ 18. The New Jersey Department of Transportation (NJDOT) has redesigned this intersection to improve traffic flow. Recommended improvements are shown on Figures 34-40, entitled, "Traffic Striping & Signage Plan Roadway Improvements to U.S. Route 18 & Tices Lane" on pages 20-B through 20-H.

Improvements recommended for the NJ 18/West Prospect Street intersection are:

- Move the bus stop on NJ 18 northbound
- Remove the traffic signal
- Remove the jug handle
- Right-in, right-out on NJ 18 northbound
- Sidewalks on both sides of NJ 18
- Enhanced crosswalks on West Prospect Street
- Sidewalks on West Prospect Street

Figure 41 W. Prospect St. East Brunswick Twp.



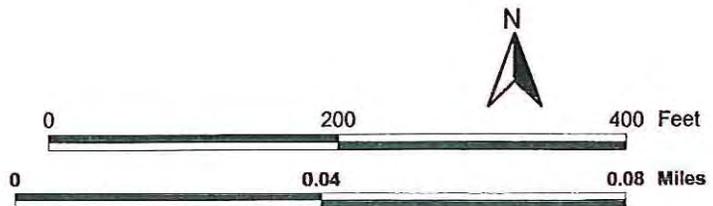
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March 2005

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Highland Street

Figure 42, page 22-A, shows the intersection of NJ 18 and Highland Street in East Brunswick. Chi Chi's Restaurant on southbound NJ 18 is also shown in Figure 27. This area is included in the NJDOT West Prospect Street and Tices Lane project. Recommended improvements are shown on Figures 34-40 , entitled, "Traffic Striping & Signage Plan Roadway Improvements to U.S. Route 18 & Tices Lane" on pages 20-B through 20-H.

Figure 42 Highland Street East Brunswick Twp.



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Division of Environment, Parks & Comprehensive Planning
March 2005

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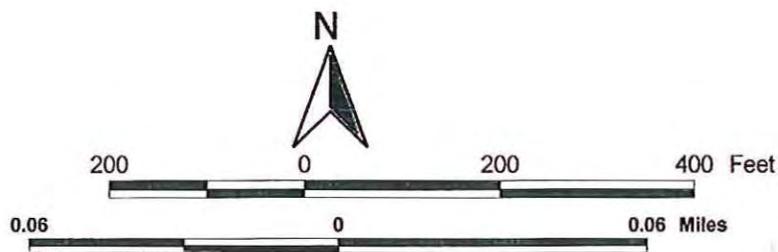
West Ferris Street

Figure 43, page 23-A, shows the intersection of NJ 18 and West Ferris Street in East Brunswick. There is a crosswalk and a traffic signal with pedestrian-activated buttons on NJ 18 at the north side of West Ferris Street. There are no crosswalks on West Ferris Street. There are bus stops nearside on north and southbound NJ 18. Bus pull-offs may be feasible. Figure 44, page 23-B, shows a “cow path” on NJ 18 at West Ferris Street, indicating heavy pedestrian use at this location.

Improvements recommended for the West Ferris Street intersection are:

- Enhance crosswalks on NJ 18
- Install crosswalks on West Ferris Street
- Install crossing countdown (30-0 seconds) at the traffic signals on NJ 18 to clearly show pedestrians how much time they have to cross the highway
- Provide ramp treatments on the ramp at NJ 18 southbound and West Ferris Street
- Install sidewalks on NJ 18 southbound from the off ramp to the West Ferris Street intersection and on NJ 18 northbound from the off ramp to the West Ferris Street intersection.

Figure 43 W. Ferris St. East Brunswick Twp.



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Division of Environment, Parks & Comprehensive Planning
March 2005

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Figure 44



Route 18 and West Ferris Street.

Milltown Road

The intersection of Milltown Road and NJ 18 in East Brunswick is shown in Figure 45, page 24-B. An office complex and self storage facility near NJ 18 are also shown. There is an overpass across NJ 18 and a clover leaf ramp configuration. There is a south side sidewalk and a steel guard rail on the NJ 18 overpass. There are no bus stops at this location.

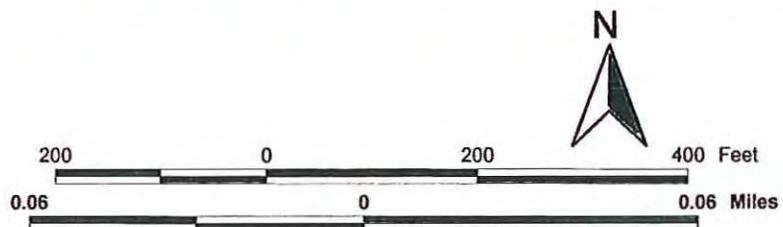
Figure 46, page 24-B, shows the approach to the overpass from Route 18 Northbound.

Figure 47, page 24-C, shows the sidewalk and stairway from the ramp to Route 18 Southbound.

Recommended improvements for the Milltown Road intersection are:

- Install sidewalks on the north side of the overpass across NJ 18.
- Provide ramp treatments, including curb ramps, at the ramps where pedestrians access the overpass.
- Install signage to alert motorists that pedestrians may be crossing the ramps.
- Enhance the crosswalks on Milltown Road.

Figure 45 Milltown Rd. East Brunswick Twp.



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Division of Environment, Parks & Comprehensive Planning
March 2005

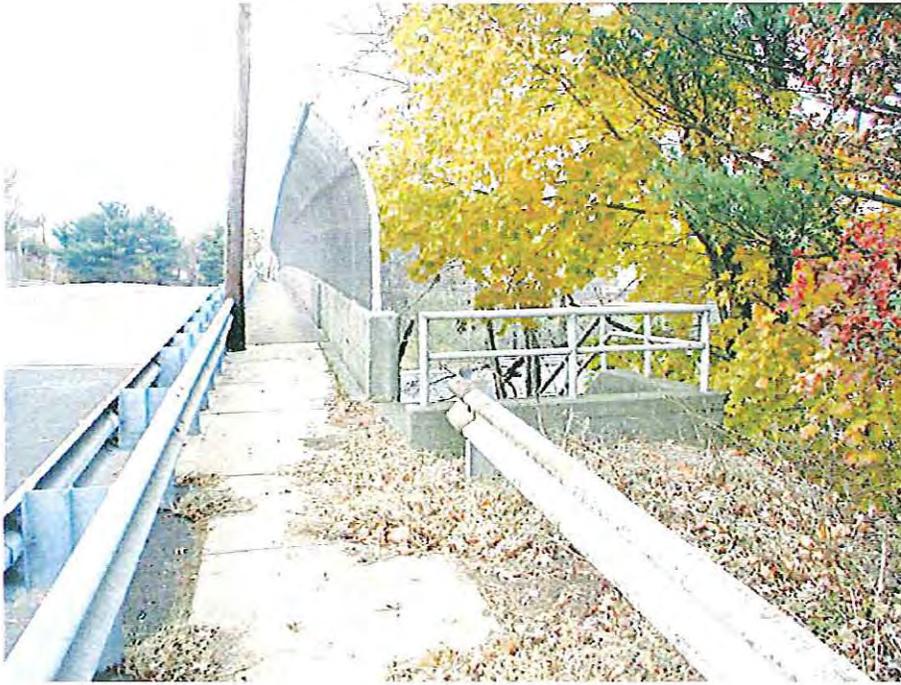
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Figure 46



Milltown Road – approach to the bridge
from Route 18 Northbound.

Figure 47



Milltown Road – sidewalk and stairway from the ramp to Route 18 Southbound.

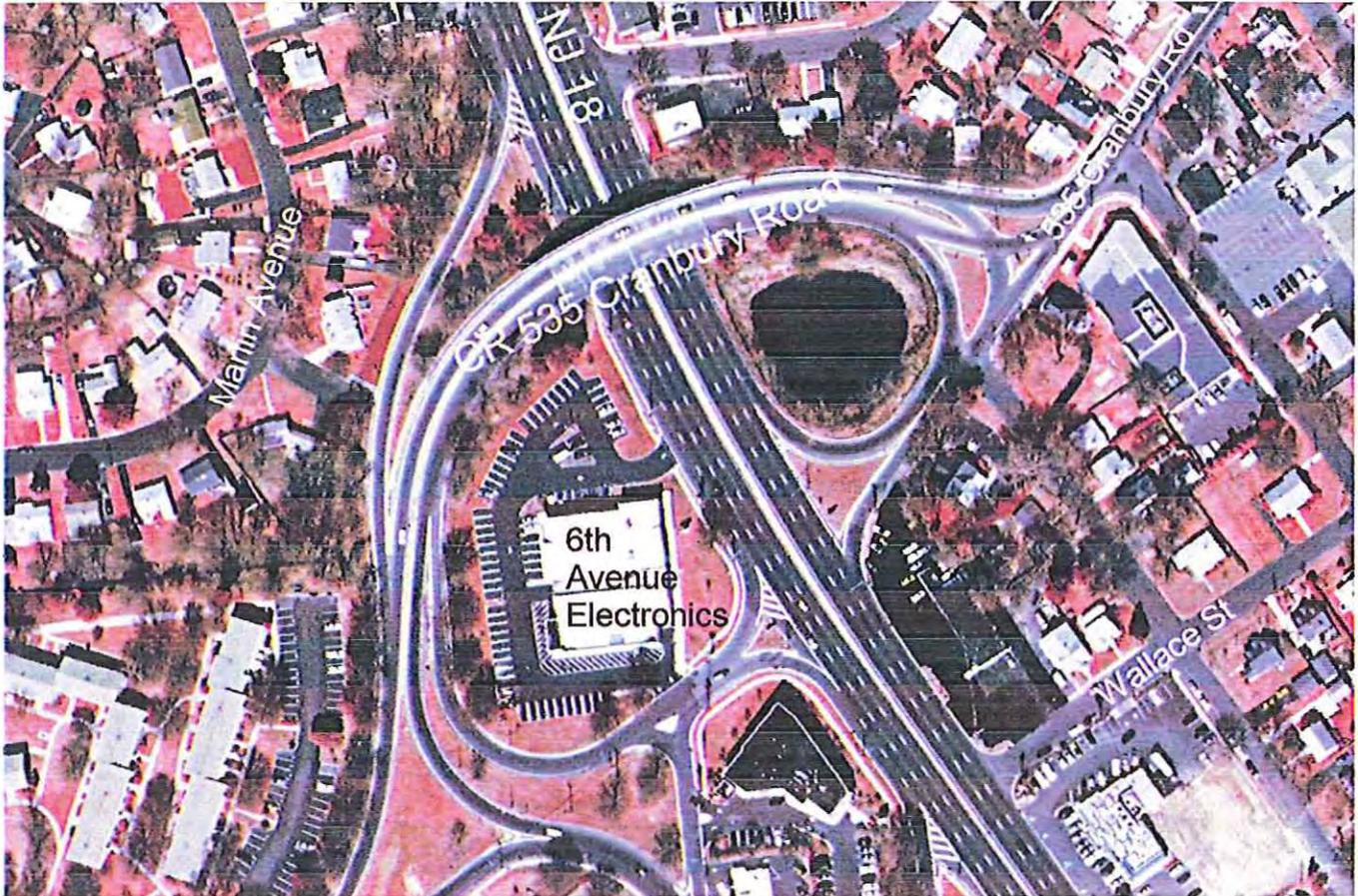
Cranbury Road

The intersection of Cranbury Road and NJ 18, including the ramp configuration on both sides of the highway in East Brunswick is shown in Figure 48, page 25-A. Sixth Avenue Electronics on southbound NJ 18 is also shown. Figure 49, page 25-B, shows the Cranbury Road ramp at Route 18 Southbound. Figure 50, page 25-C, shows the sidewalk and stairway from the ramp to Route 18 Southbound.

Improvements recommended for the Cranbury Road intersection are:

- Provide ramp treatments, including curb ramps, at all ramps where pedestrians access the overpass.
- Install signage to alert motorists that pedestrians may be crossing the ramps.
- Install crosswalks at all ramps.

Figure 48 Cranbury Rd. East Brunswick Twp.



200 0 200 400 Feet

0.06 0 0.06 Miles



Figure 49



Cranbury Road Ramp at Route 18 Southbound.

Figure 50



Cranbury Road – sidewalk and stairway
from the ramp to Route 18 Southbound.

Arthur Street

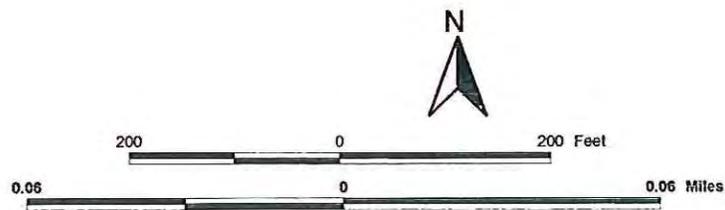
Figure 51, page 26-A, shows the intersection of Arthur Street and NJ 18. Also shown are the Bank of America on southbound NJ 18 and the lumber yard and office building on the northbound side. There is a crosswalk across NJ 18 and a traffic signal with pedestrian-activated buttons on the north and south sides of Arthur Street. East Brunswick High School students and bus passengers cross at this intersection. There are nearside bus stops on north and southbound NJ 18. There is a bus shelter nearside on the northbound side of the highway.

Figure 52, page 26-B, shows high school students crossing NJ 18 at Arthur Street.

Recommended improvements for the Arthur Street intersection are:

- Provide ramp treatments, including curb ramps and pedestrian crosswalks, at the ramps from north and southbound NJ 18 to Arthur Street and signage to alert motorists that pedestrians may be crossing the ramps.
- Enhance the crosswalks on NJ 18 north and southbound at Arthur Street.
- Provide pedestrian-activated crossing countdown (30-0 seconds) traffic signals on NJ 18 north and southbound at Arthur Street to clearly show pedestrians how much time they have to cross the highway.
- Extend the sidewalk to the bus shelter on northbound NJ 18. Extend the sidewalk on southbound NJ 18 at Summerhill Square.
- Provide a bus pull-off at the bus shelter on northbound NJ 18.

Figure 51 Arthur St. East Brunswick Twp.



Middlesex County Planning Department
Division of Environment, Parks & Comprehensive Planning
March 2005

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Figure 52



High School students crossing Route 18 at Arthur Street.

Race Track Road

Figure 53, page 27-A, shows the intersection of Race Track Road and NJ 18 in East Brunswick. Also shown is the Park and Ride lot on NJ 18 southbound at the nearside of Race Track Road, in the strip mall where the Home Depot is located. There is a crosswalk to the bus agent in the Windsor Pharmacy north of Race Track Road. There is a traffic signal with pedestrian-activated buttons at this location.

Off loading buses leave commuters to cross the jug handle ramp into the Park and Ride lot. Commuters cross the ramp and NJ 18 at the crosswalks to board New York City bound buses. There are no crosswalks on Race Track Road.

Figures 54-56 , pages 27-B, 27-C and 27-D, show a passenger getting off the bus, walking halfway across NJ 18, waiting for the next traffic signal cycle, and crossing to the Windsor Pharmacy.

Improvements recommended for the Race Track Road intersection are:

- Provide ramp treatments, including curb ramps and pedestrian crosswalks, at the ramps from north and southbound NJ 18 to Race Track Road, and install signage to alert motorists that pedestrians may be crossing the ramps.
Enhance the crosswalks on NJ 18 north and southbound at Race Track Road.
- Provide pedestrian-activated crossing countdown (30-0 seconds) traffic signals on NJ 18 north and southbound at Race Track Road to clearly show pedestrians how much time they have to cross the highway.

Figure 53
Race Track Rd.
East Brunswick Twp.



200 0 200 Feet

0.06 0 0.06 Miles



Middlesex County Planning Department
Division of Environment, Parks & Comprehensive Planning
March 2005

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Figure 54



Bus stopping near side southbound NJ 18 at Race Track Road. The passenger getting off the bus is preparing to cross at the crosswalk.

Figure 55



NJ 18 and Race Track Road. The bus has departed. The passenger has traveled halfway across NJ 18 and is in the crosswalk, next to the Jersey Barrier, waiting for the next cycle of the traffic signal.

Figure 56



NJ 18 and Race Track Road. The bus passenger/pedestrian has crossed NJ 18 at Race Track Road, and is shown in front of the Windsor Pharmacy.

Cindy Way and the Brunswick Square Mall

Figure 57, page 28-A, shows the intersection of NJ 18, Cindy Way and the Brunswick Square Mall in East Brunswick. There is a crosswalk at the Cindy Way jug handle to the Brunswick Square Mall parking lot. Figure 58, page 28-B, shows pedestrians crossing NJ 18 at this location. The traffic signal has pedestrian-activated buttons. The local bus stops for the NJ Transit 811 and 818 are outside the mall building, shown in Figure 59, page 28-C. There are no sidewalks on NJ 18 at this location.

Recommended improvements for the Cindy Way/Brunswick Square Mall intersection are:

- Enhance the crosswalks on NJ 18 and Cindy Way.
- Install sidewalks on north and southbound NJ 18.
- Provide park and ride facilities at the Brunswick Square Mall.
- Provide a bus stop on north and southbound NJ 18 to service the park and ride facility.
- Install a crossing countdown (30-0 seconds) at the traffic signal on NJ 18 to clearly show pedestrians how much time they have to cross the highway.

Figure 57
Cindy Way/ Brunswick Square Mall
East Brunswick Twp.

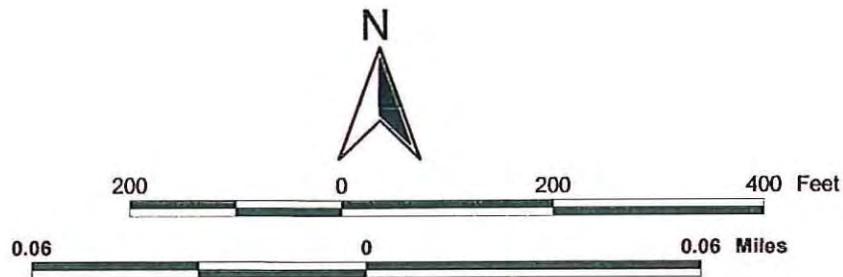


Figure 58



Pedestrians crossing Route 18 at Cindy Way.

Figure 59



Bus stop in the Brunswick Square Mall
On Route 18.

Bike Path Extension to the Brunswick Square Mall

Figure 60, page 29-A, shows the Brunswick Square Mall. Figure 61, page 29-B, shows the East Brunswick Bikeways/Pedways project, which begins at the Municipal Complex and ends at Summerhill Road. Figure 62, page 29-C, shows the existing bicycle storage rack across from the Ruby Tuesday restaurant in the mall.

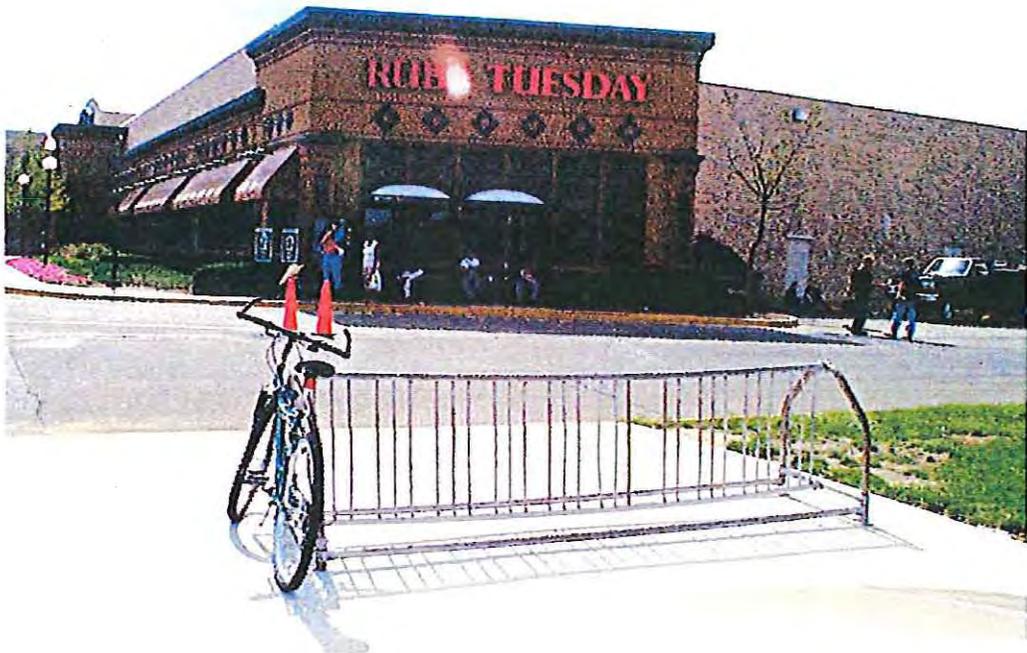
Recommendations for improved bicycle and pedestrian access to the mall are:

- Extend the Ryders/Rues Lane bike path along Summerhill Road to the rear entrance of the mall and to the area adjacent to Ruby Tuesday's, where the existing bicycle racks are situated.
- Install additional bicycle racks and/or lockers.

Figure 60 BRUNSWICK SQUARE MALL

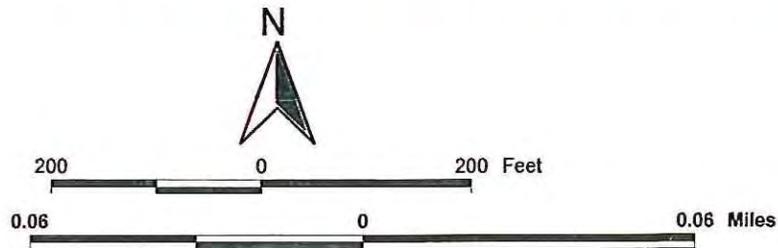


Figure 62



Bicycle storage rack opposite the bus stop at Ruby Tuesday in the Brunswick Square Mall

Figure 63 Rues Lane East Brunswick Twp.



Rues Lane

Figure 63, page 30-A, shows the Rues Lane intersection in East Brunswick. The Brunswick Square Mall, Olive Garden Restaurant and Exxon station on southbound NJ 18 and the Shell station on northbound NJ 18 are also shown. The intersection is signalized. There is a crosswalk on the highway on the south side of Rues Lane. There is a bus stop on the nearside of northbound NJ 18. There are no signs for a southbound bus stop. There is a crosswalk at the Shell station on the east side of Rues Lane. Figure 64, page 30-B, shows NJ 18 northbound at Rues Lane.

Recommended improvements for the Rues Lane intersection are:

- Enhance the crosswalks on the south side of NJ 18 and on Rues Lane
- Provide a southbound near side bus stop on NJ 18.
- Provide pedestrian-activated crossing countdown (30-0 seconds) traffic signals on north and southbound NJ 18 to clearly show pedestrians how much time they have to cross the highway.

Figure 64



Rues Lane and Route 18 Northbound.

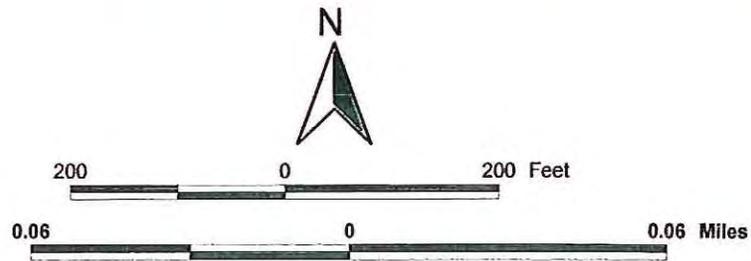
Hillsdale Road

Figure 65, page 31-A, shows the Hillsdale Road intersection in East Brunswick, the Brunswick Hills shopping center and Mobil station on northbound NJ 18 and the Seville Diner on the southbound side of the highway. It should be noted that NJDOT redesigned and reconstructed this intersection after this aerial photograph was taken. Figure 66, entitled, "New Jersey Department of Transportation Route 18 Section 4E & 6E Bridge Replacement" on page 31-B, shows the NJDOT improvements. The traffic signal realigns the crosswalk to the north of the Brunswick Hills mall driveway. The northbound bus stop sign is located at the Mobil Station. There is no southbound bus stop sign. Figure 67, on page 31-C, shows NJ 18 and Hillsdale Road.

Improvements recommended for the Hillsdale Road intersection are:

- Enhance the crosswalk on northbound NJ 18 at the Brunswick Hills jug handle and enhance the crosswalk on southbound NJ 18 at the Hillsdale Road jug handle.
- Install a crosswalk on Hillsdale Road to connect the existing sidewalks.
- Install near side bus stop signs on NJ 18 southbound and the Hillsdale Road jug handle.
- Provide pedestrian-activated crossing countdown (30-0 seconds) traffic signals on NJ 18 north and southbound at Hillsdale Road to clearly show pedestrians how much time they have to cross the highway.
- Install signage at Hillsdale Road jug handle to alert motorists that pedestrians are crossing.

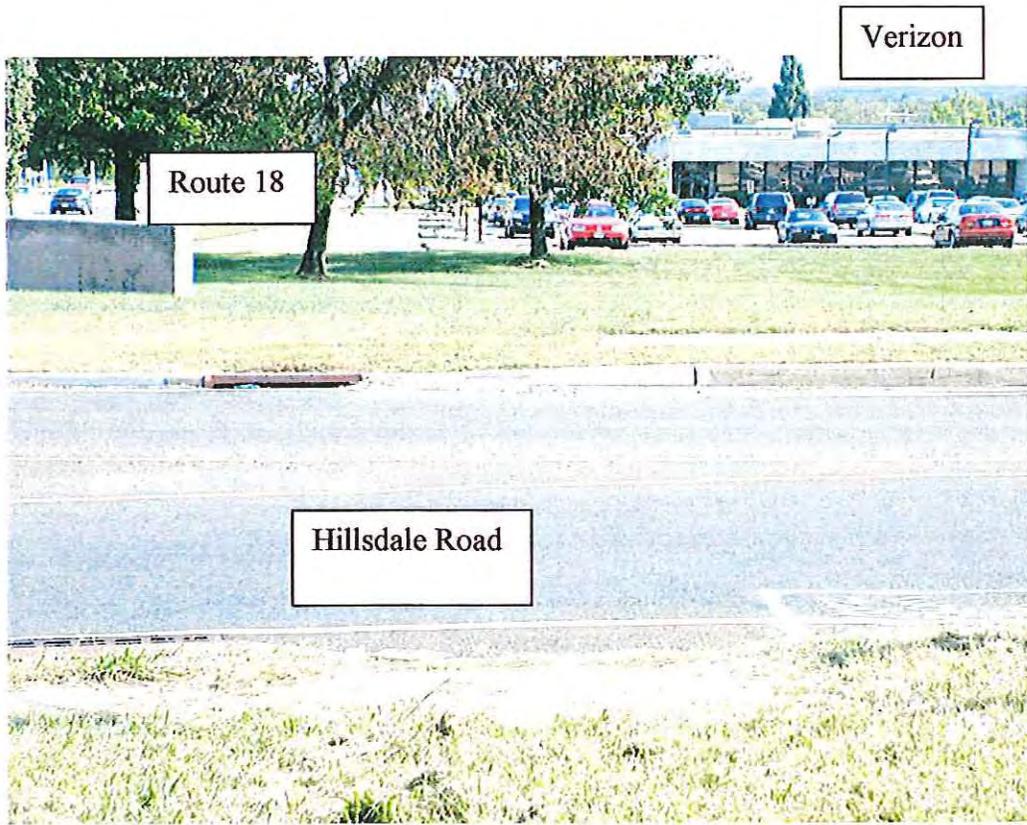
Figure 65 Hillsdale Rd. East Brunswick Twp.



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Division of Environment, Parks & Comprehensive Planning
March 2005

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Figure 67



Route 18 and Hillsdale Road.

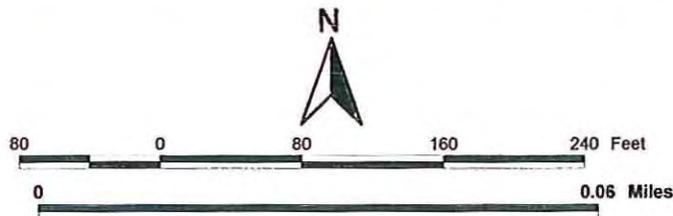
New Route 18 Bridge Over the South River, Conrail (CSX) and Main Street

Figure 68, page 32-A, shows the new overpass on NJ 18 in East Brunswick and Old Bridge Townships, over Main Street (County Route 527) in Historic Old Bridge Village in East Brunswick, the South Amboy Secondary CRX line and the South River. Bicycle and pedestrian access is inhibited at this location. There is sidewalk on the south side of the overpass, but it ends at the off ramp. There are no bicycle facilities on Main Street. Figure 69, page 32-B, is a photograph of the overpass.

Improvements recommended for the immediate area of the new overpass:

- Install new sidewalk from the end of the ramp to the existing sidewalk on Main Street.
- Install bicycle striping on Main Street, to connect to Old Bridge Turnpike.

Figure 68 New Overpass East Brunswick Twp. Old Bridge Twp.



Middlesex County Planning Department
Division of Environment, Parks & Comprehensive Planning
March 2005

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Figure 69



New Route 18 Bridge over the South River,
Conrail (CSX) and Main Street. East
Brunswick and Old Bridge Townships.

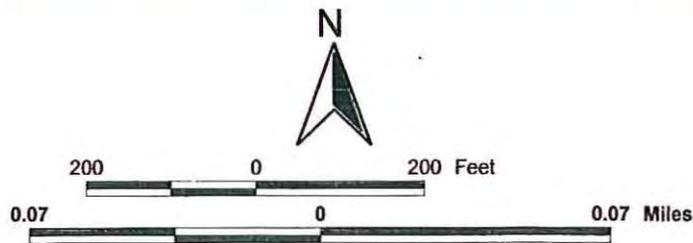
Matawan Road

Figure 70, page 33-A, shows the NJ 18 and the Matawan Road (County Route 516) and Old Bridge Englishtown Road (County Route 527) interchange in Old Bridge Township. NJDOT proposes to reconstruct the interchange by realigning NJ 18 and County Routes 516 and 527, replacing the existing bridge over NJ 18 and widening NJ 18 to provide an inside shoulder. Other proposed improvements include a new ramp from NJ 18 northbound to CR 516/527 eastbound and westbound via a new signalized intersection. The signalized intersection of CR 516 and Old Matawan Road will be relocated and coordinated with a new signal at the ramp from NJ 18. The County and the Township of Old Bridge are working with NJDOT and NJTPA on this project, which is to be pedestrian and bicycle compatible. The FY 2005-2007 Transportation Improvement Program shows construction of this project starting in 2007. Figure 71, page 33-B, shows the proposed reconfiguration.

Improvements for the NJ 18 and County Routes 516 and 527 interchange are:

- Ramp treatment at Ramp D.
- Install new sidewalk on the eastbound side of Route 516 from Marlboro Road to the cutoff into Marsad Drive.
- Install crosswalk across Route 516, connecting to the proposed sidewalk on the westbound side of the overpass and to Ramp E and the Marlboro Road roadway.
- Install sidewalks on both sides of Route 18, south of the interchange to the southern project limits.

Figure 70 Matawan Rd. (Rt.516) Old Bridge Twp.



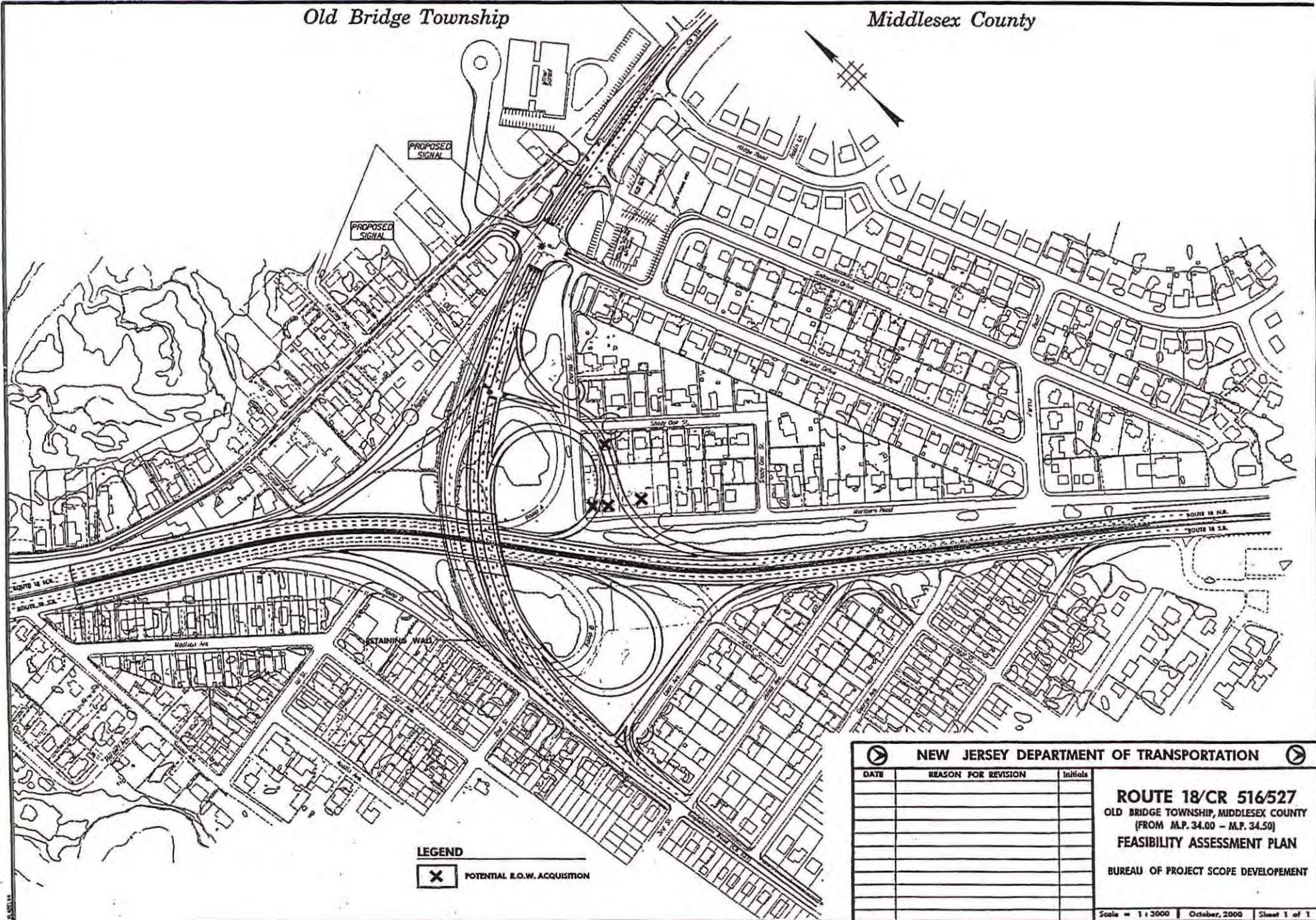
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March 2005

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Figure 71

Old Bridge Township

Middlesex County



33-B

LEGEND
 POTENTIAL E.O.W. ACQUISITION

NEW JERSEY DEPARTMENT OF TRANSPORTATION		
DATE	REASON FOR REVISION	Initials

ROUTE 18/CR 516527
 OLD BRIDGE TOWNSHIP, MIDDLESEX COUNTY
 (FROM M.P. 34.00 - M.P. 34.50)
FEASIBILITY ASSESSMENT PLAN
 BUREAU OF PROJECT SCOPE DEVELOPMENT

Scale = 1" = 3000' | October, 2000 | Sheet 1 of 1

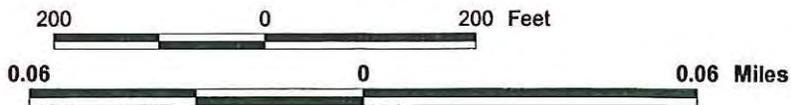
Pedestrian Overpass

Figure 72, page 34-A, shows the pedestrian crossing over NJ 18 in the vicinity of St. Thomas the Apostle Church and School in Old Bridge. The overpass is not covered, which inhibits bicycle and pedestrian access during inclement weather. The overpass, which has stairs, does not conform to ADA requirements. Figure 73, page 34-B, is a photograph of the pedestrian bridge.

Improvements recommended for the Pedestrian Crossing:

- Install a canopy.
- Provide enhanced lighting.
- Long term: Bring the overpass into compliance with ADA requirements.

Figure 72 Pedestrian Crossing Old Bridge Twp.



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Division of Environment, Parks & Comprehensive Planning
March 2005

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Figure 73



Pedestrian Bridge over Route 18 at St. Thomas the Apostle Church and School, Old Bridge.

V. PEDESTRIAN AND TRANSIT IMPROVEMENTS ALONG THE CORRIDOR

The entire NJ 18 corridor between Naricon Place in East Brunswick and County Routes 516/527 in Old Bridge needs to be more pedestrian and bicycle friendly, a goal that can be reached by providing better transit service, land use changes, and short and long term infrastructure improvements.

Short Range Improvements

Many short range solutions to improve pedestrian safety along the corridor are included in Section IV. Most of these recommendations are limited to the 17 intersections in the study area. Other short term recommendations for the entire corridor are:

- Provide pedestrian and bicycle linkages between nearby commercial, transportation, educational, employment and recreational facilities along the corridor.
- Improve bicycle access on secondary roads along NJ 18, including striping and signage, such as “Share the Road.”
- Install safe and secure bicycle storage facilities at park and ride locations, employment centers and malls.
- Provide pedestrian amenities at park and ride facilities and at major pedestrian generators, such as regional, neighborhood and strip shopping malls. Such amenities would include all weather shelters; street furniture, such as benches; adequate lighting and other safety measures.
- Require the installation of sidewalks and, where appropriate, bikeways, on the NJ 18 corridor when land use and roadway improvements are made and when development takes place.
- Require installation of safe, adequate and continuous sidewalks on site for new development or redevelopment of properties along NJ 18. Sidewalks should interconnect

with those along the highway and should allow persons to walk safely to and from the parking lot to the buildings.

- Develop a maintenance plan for sidewalks. Repair existing sidewalks. Remove pedestrian barriers, such as overgrown vegetation.
- Install lighting and signage at all major intersections along the corridor, alerting motorists that these are pedestrian crossings.
- Designate the NJ 18 in East Brunswick and Old Bridge as a "Safe Corridor." Fines for traffic violations in areas designated as safe corridors are double if the driver is convicted. There are 18 safe corridor sections in New Jersey. A similar safe corridor program in California resulted in 11- 37 percent crash rate reductions, according to NJDOT.

Long Range Improvements

- Provide a new grade-separated interchange at the intersection of NJ 18, Edgeboro Road and Old Bridge Turnpike. This project is in the NJTPA Regional Transportation Plan and should be advanced into the Transportation Improvement Program (TIP).
- Install covered pedestrian overpasses at high volume intersections. The overpasses should be handicap accessible, well lighted, and well maintained.
- Provide a light rail, dedicated bus lane, or Bus Rapid Transit (BRT) system, that would connect the NJ 18 corridor in East Brunswick and Old Bridge with educational and employment centers in New Brunswick, Edison and Piscataway.
- Provide regularly scheduled, convenient jitney service from residential areas to park and ride facilities, malls, employment centers and places of interest.
- Create/designate a bypass to divert through traffic away from the built up portion of NJ 18, paving the way for the East Brunswick corridor to become a "downtown" that is safe and viable for local motorists, pedestrians and cyclists.
- Install continuous sidewalks along both sides of NJ 18 from Naricon Place in East Brunswick to the County Route 516/527 interchange in Old Bridge.
- Install sidewalks along major cross streets where they do not now exist.
- Phase out the land uses on undersized lots and small strip malls. Most prominent are the single family dwellings that have been converted to commercial use. Eliminating these uses would dramatically decrease the number of curb cuts in close proximity to each other along both sides of NJ 18. Eliminating the curb cuts would enhance pedestrian safety by providing the opportunity to install uninterrupted sidewalks along the corridor.

Eliminating these driveways would also enhance driver safety along the highway. Phasing out these uses would result in more compatible and aesthetically pleasing development.

- Develop a Transit Village. East Brunswick has discussed a proposal to designate the 31.6 acre “Golden Triangle” area on NJ 18 and the Old Bridge Turnpike, where the East Brunswick Transportation Center Park and Ride, Sam’s Club and the Route 18 Flea Market are located, into a Transit Village.
- Eliminate the traffic signal at NJ 18 and Naricon Place and provide a grade separated interchange at this location with access to the New Jersey Turnpike Park and Ride facility at Tower Center to ease congestion, accommodate pedestrian and bicycle access, and improve the overall level of service and safety. The grade separation would provide safer and easier access to various nearby facilities and address the long term traffic needs of this area, including access to the New Jersey Turnpike.

Transit Improvements

- Provide more frequent, on time service, and on time transfers on local bus routes, such as the NJ Transit 811, 815, and 818 routes.
- Extend lines to cover gaps in service.
- Reduce travel time.
- Coordinate transit services among the different carriers, facilitating transfers among transit providers and creating intercepts.
- Provide additional official park and ride facilities.
- Relocate bus stops away from the NJ 18 travel lanes, where possible.
- Invest in newer and better equipment.
- Invest in infrastructure improvements, such as bus shelters, bus stop signage and markings, priority traffic signals, bus pull-offs, and bicycle lockers or other secure bicycle storage facilities.
- Provide information and schedules at bus stops and transfer points.
- Increase the linkage between regional and local bus routes.

New Jersey Department of Transportation Problem Statements for 14 of the 17 proposed pedestrian and bicycle improvements for the key intersections in the NJ 18 study area are included in Appendix G. There are no Problem Statements for intersections at Tices Lane, West Prospect Street and the Middlesex County Routes 516 and 517 Interchange because these are current NJDOT projects.

VI. PUBLIC OUTREACH AND COMMUNITY INVOLVEMENT

Community involvement is the cornerstone of any transportation project. It is important to obtain public input on the Route 18 Corridor Study from all stakeholders, including East Brunswick, and Old Bridge, Middlesex County, the New Jersey Department of Transportation and New Jersey Transit.

The study was introduced to the Bicycle-Pedestrian Task Force of the Middlesex County Transportation Coordinating Committee on May 5, 2004 and later presented to the Middlesex County Transit Subcommittee and the full Middlesex County Transportation Coordinating Committee. Staff also presented the study to the East Brunswick Traffic Advisory Board on June 17, 2004. Their recommendations are in Appendix D, page D-1.

Staff reviewed the study with representatives from Old Bridge Township on September 15, 2004, with a focus on the portion of the Route 18 study area in Old Bridge. This meeting is summarized in Appendix D, pages D-1 and D-2.

It is important to reach out to the traveling public, in this case, persons who ride the local and New York City/Jersey City bound buses. NJ Transit, Academy and Suburban bus companies provide four local and four commuter bus lines in the study area. As part of this study, a survey was conducted, with the assistance of KMM, among people boarding buses along NJ 18 in East Brunswick in May, 2004. The purpose of the survey was to identify the problems passengers encounter crossing the highway to board buses.

Questionnaires, in English and Spanish, were distributed at eight bus stops for three week days and one Saturday.

The survey showed that more than half of the bus riders live in East Brunswick. Nearly two thirds of them have a ten minute or less walk. Nearly all bus trips were for work, and the major destination was New York. Just 17 percent had other destinations. More than three quarters of the respondents drove alone, parked their cars and boarded the buses. The Neilson Parking Plaza and East Brunswick Transportation Center were the most popular boarding points.

More than a third of the commuters crossed NJ 18 to board buses. The intersection of NJ 18 and Race Track Road was the crossing used most. The lack of sidewalks, poorly maintained sidewalks, and inadequate crossing time were the most common pedestrian-related complaints.

The complete survey is in Appendix E.

VII. FUNDING

Federal and state funding sources for pedestrian and bicycle projects are described in Appendix C, pages C-1 through C-4.