

**FORT MONMOUTH REUSE AND REDEVELOPMENT PLAN**

**TECHNICAL MEMORANDUM: TRAFFIC AND TRANSIT**

**Fort Monmouth Reuse and Redevelopment Plan**  
**Technical Memorandum: Traffic and Transit**

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The criticality of addressing and integrating traffic and transit concerns is of paramount interest to the eventual success of Fort Monmouth's reuse because trips to and from the site and area cannot rely on just one mode of transportation. The first step in these analyses is to identify the baseline conditions for each of these broad areas. That is, how does vehicle traffic currently function and where are the problem spots, if any; how is the area served by transit and what services are present; etc. The first section of this technical memorandum addresses traffic, followed by a transit discussion.

**TRAFFIC CONDITIONS**

The purpose of this report is to provide an assessment of traffic conditions in the areas surrounding Fort Monmouth. The assessment will then be used to provide a baseline understanding of existing conditions in the area and ultimately as guidance for potential reuse options as they relate to traffic and the transportation infrastructure.

The technical approach to identifying and analyzing potential traffic issues of future development/urban design scenarios includes identification of the most critical intersections within the Fort Monmouth study area and determination of how traffic can be processed at these locations for potential base reuse alternatives. Seven intersections will serve as analysis locations to indicate the level of improvements needed to solve traffic flow problems associated with a certain level of development. For example, basic Transportation System Management (TSM) measures would allow a certain amount of increased traffic (and on-site development) to move through each test intersection. If more capital-intensive improvements are applied such as street widenings, then it may be possible that additional growth could be accommodated in traffic and land use. Then such improvements could be applied elsewhere along the corridor.

**Definition of Study Area**

The roadway network and street system surrounding Fort Monmouth is both extensive and complex. Regional access to the area is provided from points north and south via the Garden State Parkway (GSP) and Route 18 and along a number of adjacent major arterials (see Figure 1). The major east-west spine in this area of Monmouth County is Route 36, which carries traffic from the GSP and Route 18 to inland work destinations. In addition, access to these facilities requires vehicles to negotiate through numerous local intersections that would likely require some improvements to accommodate projected increases in site-generated traffic.

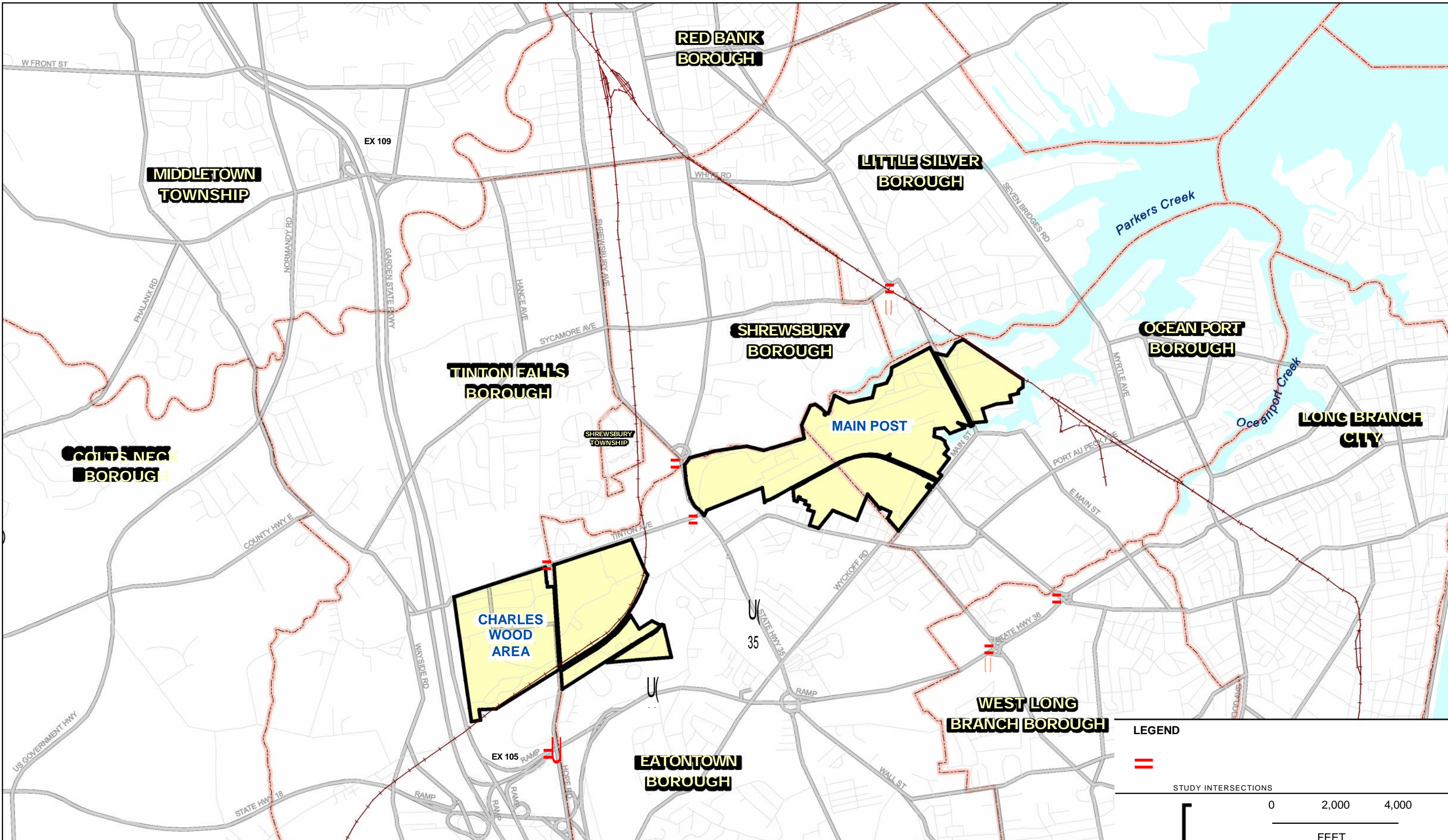


FIGURE 1: TRAFFIC STUDY AREA

## **Analysis Approach**

The project team initiated a wide ranging data collection and inventory program in order to develop an overview of how key “entry intersections” presently function. This overview will ultimately be compared to projected future impacts that future base reuse alternatives would have on the area roadways by the full build-out year. The following provides a general overview of data collected for this purpose.

Before undertaking any field data collection plan, a full review of previous research, available documents, and other resources that contain relevant information for the municipalities surrounding the fort was conducted. In addition, interviews were held with various stakeholders. A full list of these resources is provided in the References Section of this document.

The second step in the process included the collection of traffic counts at key entry intersections within the study area. Two methods were used to obtain these data. The first involved the use of manual counts to determine turning movements at five selected key corridor intersections during peak periods of operation. Traffic data at two intersections (Hope Road at Route 36 and at Tinton Avenue) relied on information from the 2004 Naik Presad traffic impact study, available under separate cover. Traffic counts were collected during two three-hour periods by ATR data during weekday morning and evening peak periods (7-10 AM and 4-7 PM) in early June 2007. Vehicle classification counts were also performed at each study intersection for this process. Data collection included the recording of specific vehicle movements of through all intersection approaches in quarter hour increments.

Intersections reviewed are identified on Figure 1 and include:

- Route 35 at Tinton Avenue (County Road [CR] 537) and at Shrewsbury Avenue (CR 13)
- Branch Avenue (CR 520) at Sycamore Avenue (CR 13A)
- Hope Road (CR 51) at Tinton Avenue (CR 537)
- Route 36 at Monmouth Road (NJ 71), at Hope Road (CR 51), and at Broadway

The second method made use of mechanical counting apparatus known as Automatic Traffic Recorder (ATR) at six locations. ATRs offer analysts the opportunity to evaluate the full daily, seasonal, and temporal fluctuations in overall traffic volumes because these “machine counts” can provide continuous counting and classification of vehicles on a sustained 24-hour basis for extended periods of time.

ATR locations included:

- Route 35 between Tinton Avenue (CR 537) and Shrewsbury Avenue (CR 13) (northbound and southbound)
- Sycamore Avenue (CR 13A), between Broad Street (CR 35) and Branch Avenue (CR 520) (eastbound and westbound)
- Route 36 at Monmouth Road (NJ 71) and Broadway (eastbound and westbound)

## Study Area Roadways

New Jersey Route 36 is classified as an urban principal arterial. This roadway traverses Tinton Falls in an east/west direction and begins in the vicinity of Tinton Falls as four lanes at its interchange with the GSP. A half mile east of Hope Road (CR 51), Route 36 increases to six lanes, with exclusive left-turn lanes at most of its signalized intersections. The roadway provides shoulders and is separated by a grassy median. It is under the jurisdiction of NJDOT, and has posted speed limits of 50 to 55 miles per hour (mph).

*Shrewsbury Avenue (CR 13)* is a major north-south roadway that runs along the western edge of Shrewsbury, serving as the border between Shrewsbury and Tinton Falls from Broad Street (NJ 35) to Newman Springs Road. The southern terminus of the road is a complex T-intersection with Route 35 at the Eatontown border, including a jughandle for left turns from north/eastbound Route 35 to north/westbound Shrewsbury Avenue. Shrewsbury Avenue is a four-lane undivided roadway from this point northward to Newman Springs Road, with a wide median area that accommodates occasional common left-turn slots into commercial driveways. Left-turn bays are also provided at key intersections. The area north of Fort Monmouth is primarily commercial in nature, and the roadway carries a 40 mph speed limit through this segment.

*Main / Broad Street (Route 35)* is one of the key north-south roadways in eastern Monmouth County, serving as part of the Neptune Boulevard – Broad Street – Main Street – Maple Avenue corridor from Route 36 in Eatontown to the Navesink River along the northern edge of Red Bank. South of Newman Springs Road, the roadway is similar to Shrewsbury Avenue in its configuration (four-lane undivided cross section, with left-turn lanes at intersections), though some residential properties front the roadway for a short segment north of Fort Monmouth. Broad Street does not carry the NJ 35 designation north of Maple Avenue, and the street narrows to a two-lane roadway that serves as the “main street” in downtown Red Bank with marked pedestrian crosswalks and on-street parking permitted along most of its length. The speed limit along Route 35 varies between 35 and 45 mph.

*Tinton Avenue (CR 537)* is classified as an urban minor arterial. This roadway traverses Tinton Falls and Eatontown in an east/west direction. In the vicinity of Tinton Falls, Tinton Avenue is a two lane roadway, except for a half-mile section beginning at Wayside Avenue, crossing over the GSP, where it changes to four lanes before dropping back down to two lanes at the Municipal Drive. Tinton Avenue is undivided, has no shoulders, and a speed limit of 40 mph.

The intersection of *Sycamore Road (CR 13A)* and *Branch Avenue (CR 520)* is the confluence of a number of approaches, and provides access to NJ Transit’s Northeast Coast Line’s Little Silver station. Driveways are located on the west side



of the tracks, and provide access to commercial storefronts. *Sycamore Road* is classified as an urban minor arterial (40 mph speed limit). The roadway meanders through Tinton Falls in north/south and east/west directions with two lanes without shoulders or medians. The street ends at its intersection with Branch Avenue at the NJ Transit's Northeast Coast Line's Little Silver station. *Branch Avenue* is another minor urban arterial in eastern Monmouth County that runs about two miles with two travel lanes from Red Bank south to Sycamore Road (see photo right). At the avenue's terminus at the Little Silver station, Branch Avenue widens to three lanes to accommodate separate turn and through movements. The street is primarily lined with residential uses, and its posted speed limit in this area near the train station is 35 mph.

*Hope Road (CR 51)* is classified as an urban minor arterial. The roadway traverses Tinton Falls in a north/south direction has four lanes without shoulders or medians and in the vicinity of Tinton Falls and Eatontown. The speed limits vary between 40 and 50 mph along its length.

The Garden State Parkway (GSP) is a major urban freeway traversing Tinton Falls in a north/south direction. Within the study area (at Exit 105), the GSP has five lanes with shoulders, and is separated by a planted median. It is under the jurisdiction of the New Jersey Turnpike Authority-Garden State Parkway Division, and has a posted speed limit of 65 mph.

Additional roadways within the study are that provide indirect access to the site, but not specifically studied herein include:

- *Route 18*: Route 18 traverses Tinton Falls in an east/west direction with four travel lanes
- *Wayside Road (CR 38)*: Wayside Road is a two-lane north/south roadway bordering the GSP's west side
- *Pine Brook Road*: Pine Brook Road is a local east/west roadway with one lane per direction
- *Wyckoff Road (CR 547)*: Wyckoff Road is a minor arterial that traverses Tinton Falls in an north/south direction with four lanes
- *Pearl Harbor Avenue*: Pearl Harbor Avenue is a private access roadway one lane per direction in a north/south direction within the Charles Wood area of Fort Monmouth (the Naik report cited that this street would be widened to four travel lanes; however, this has not yet happened).

## Roadway Conditions and Deficiencies

Separate from this effort, various traffic reports that have been prepared over the years discuss traffic conditions in the vicinity of this traffic study area. The following summary provides an overview of these reports, organized by the intersections they focus on.

### Route 36 and Hope Road

Two previous traffic reports, Preliminary Engineering Study Improvements to Route 36 and Hope Road Intersection dated back to 1987 and *Technical Memorandum for Interchange 105* (1990) both discuss traffic operations at this intersection. These reports point out to oversaturated traffic flows due to a substantial growth with new residential developments and an increase in commercial activity in Monmouth County. The deficiencies identified for Route 36/Hope Road intersection include the physical limitations of the approach roadways and a complex weaving section, which inhibit optimum operations. Specific contributing factors identified include the merge of the GSP north and southbound exit ramps to eastbound Route 36 west of the intersection itself, while is also combined with a weave movement resulting in disruptions to normal operations; and delays on the west approach that get extended when the left-turn slot from westbound Route 36 to southbound Hope Road is actuated, thus reducing the green cycle time for eastbound Route 36.

A number of improvement recommendations were made in the 1987 report, which involved roadway widening, lengthening of weave merge areas, and elimination of turning movements through the intersection. However, poor intersection levels of service continued to prevail through 1990 as none of these recommendations were implemented. The 1990 report included further “interim” improvements including: replacement of the intersection signal controller with a more advanced system to provide the capability of implementing multiple timing plans for peak and off-peak periods; installation of vehicle detectors on both the eastbound approach from the GSP exit and the jughandle; and restriping of the jughandle to accommodate two lanes and restriping of the westbound approach to provide three lanes.

### Route 35 and Tinton Avenue

The Traffic Safety Improvement Study conducted in 1998 evaluated traffic and safety conditions within Fort Monmouth. The intersection of Route 35 and Tinton Avenue, where the west gate into the Main Post is located, was analyzed as part of this study. The findings of this study indicated that the eastbound Tinton Avenue left turn lane onto northbound NJ 35 experienced heavy delays due to the lack of a protected left-turn signal phase for eastbound Tinton Avenue and lack of signal coordination with adjacent intersections. The recommended improvements included widening the eastbound Tinton Avenue approach to provide three travel lanes, installing a permitted/protected signal phase for eastbound Tinton Avenue left turns, upgrading traffic signal phasing to include yellow arrow clearance for westbound left turns, and improving the traffic signal coordination along NJ 35.

### Garden State Parkway Interchange 109

A 1982 traffic study for the Feasibility of Interchange Improvements on Parkway Section between Interchanges 117 and 109 was performed to review the traffic impacts of major developments proposed in the area and the need for interchange improvements to accommodate traffic growth occurring at that time. This traffic study included Interchange 109 of the GSP, where the north and southbound GSP exit and entry ramps provide access to and from Fort Monmouth. The study projected a significant growth in traffic volumes as a result of four new developments planned at that time that would be added to this interchange. Improvements identified to accommodate the increased traffic volumes resulting from the new development include provision of additional turn/storage lanes, redesigning of the northbound exit and entry as existing traffic signal, and installation of an additional traffic signal at Newman Springs Road and the southbound exit ramp.

These improvements were implemented; however, according to the Study of Interchange 109 (1990), the overall traffic circulation continued to experience delays and congestion at this interchange during peak periods of travel. The delays were attributed to inadequate vehicle progression along Newman Springs Road, complex weave conditions, acute approach angles at the merge of the GSP northbound exit ramp and Newman Springs Road eastbound jughandle, the vehicle queuing at the Newman Springs Road/Half Mile Road intersection, and the parking deficiencies at the Red Bank North commuter parking lot. The following recommendations were made to improve traffic operations at this location:

- Modify and add to the existing signal timing plans at the intersections of the GSP south and northbound exit ramps and the AT&T access drive (about ¼ mile east of the GSP)
- Provide signal progression along Newman Springs Road
- Expand the Red Bank North commuter parking area
- Widen Newman Springs Road from the AT&T access drive intersection to the GSP northbound entrance ramp
- Eliminate the complex weave at the jughandle
- Widen the County Road jughandle at Schultz Drive



## Current Conditions

In order to provide a single common time point in which a snapshot of peak travel volumes in the areas surrounding Fort Monmouth could be identified, average weekday AM and PM corridor-wide peak hour periods were identified. In this regard, an area-wide weekday AM peak hour between 8 and 9 AM, and an average corridor-wide weekday evening peak hour between 5 and 6 PM were selected.

Analysis of the manual count data and the 24-hour ATR data identified the following findings:

- Route 36 is clearly the most important east/west roadway in Monmouth County east of the GSP, as evidenced by carrying traffic volumes close to the roadway's travel capacity during weekdays. Yet, volumes do fluctuate when examining the corridor. The peak travel point is just east of the GSP Exit 105 and west of Hope Road, with about 3,000-3,700 vehicles per hour (vph) per direction. Proceeding eastward, past Hope Road, volumes are in the 2,000-3,000 vph range, decreasing further east of Route 35 to 2,000 vph and as low as 1,300 vph at Broadway. The ebbing level of volumes can be traced to the many sources of employment lining the corridor that serve as "sinks" for motorists.
- Hope Road is a major traffic valve to Route 36 as indicated by 850 vph or more exiting off of Route 36. Hope Road itself is heavily used (i.e., 1,600-2,000 vph northbound; 1,000-1,200 vph southbound) south of Route 36, while north of Route 36, use of Hope Road eases (1,000 vph were recorded in each direction).
- Route 35 ranks second in terms of the most heavily trafficked arterial in the area. Traffic volumes reach a peak near main gate of Fort Monmouth on Tinton Avenue, with 1,300-1,500 vph in each direction during both the AM and PM peak hours. North of the Fort, 550-750 vph peel off northward onto Shrewsbury Avenue, with 800-1,100 vph accessing Route 35 north. This pattern strongly suggests and reinforces the Township of Shrewsbury's consideration of creating a one-way pair for these two streets in points north of the Fort.
- Broadway and Monmouth Road both carry 1,000 vph or less south of Route 36 where connections to some major Long Branch employers, such as Monmouth University, and many local businesses are located.
- While weekend traffic volumes are not specifically examined as part of this effort, the examination of ATR data indicates some interesting findings. Route 36 carries nearly the same volumes of traffic (about 21,000 vehicles per day per direction [vpdpd]) when comparing Saturday (the peak weekend travel day) to an average midweek day. On Route 35 and Sycamore Avenue, daily Saturday traffic volumes are lower by 10 to 20 percent (e.g., in both directions on Route 35, Saturday: 17,000-18,000 vpdpd; weekday, 19,000-20,000 vphpd).
- Further examination of the ATR database reveals that there are some individual hours when Saturday peak-hours traffic volumes exceed those highest weekday hourly

volumes, which is indicative of some more concentrated hourly travel on weekends. For example, ATRs on westbound Route 36, during the 5-6 PM peak hour on Saturday recorded about 1,770 vph as compared to 1,480 on weekdays. Again, this pattern points to the criticality of Route 36 to serve this area of the county, and perhaps for the need for additional east-west roadway capacity.

- In general, weekend traffic flows tend to peak in the midday into the late afternoon periods, which is typical of how motorists travel patterns manifest when people are on their own time schedules.

The 2007 existing peak hour traffic volumes are illustrated in Figures 2 and 3.

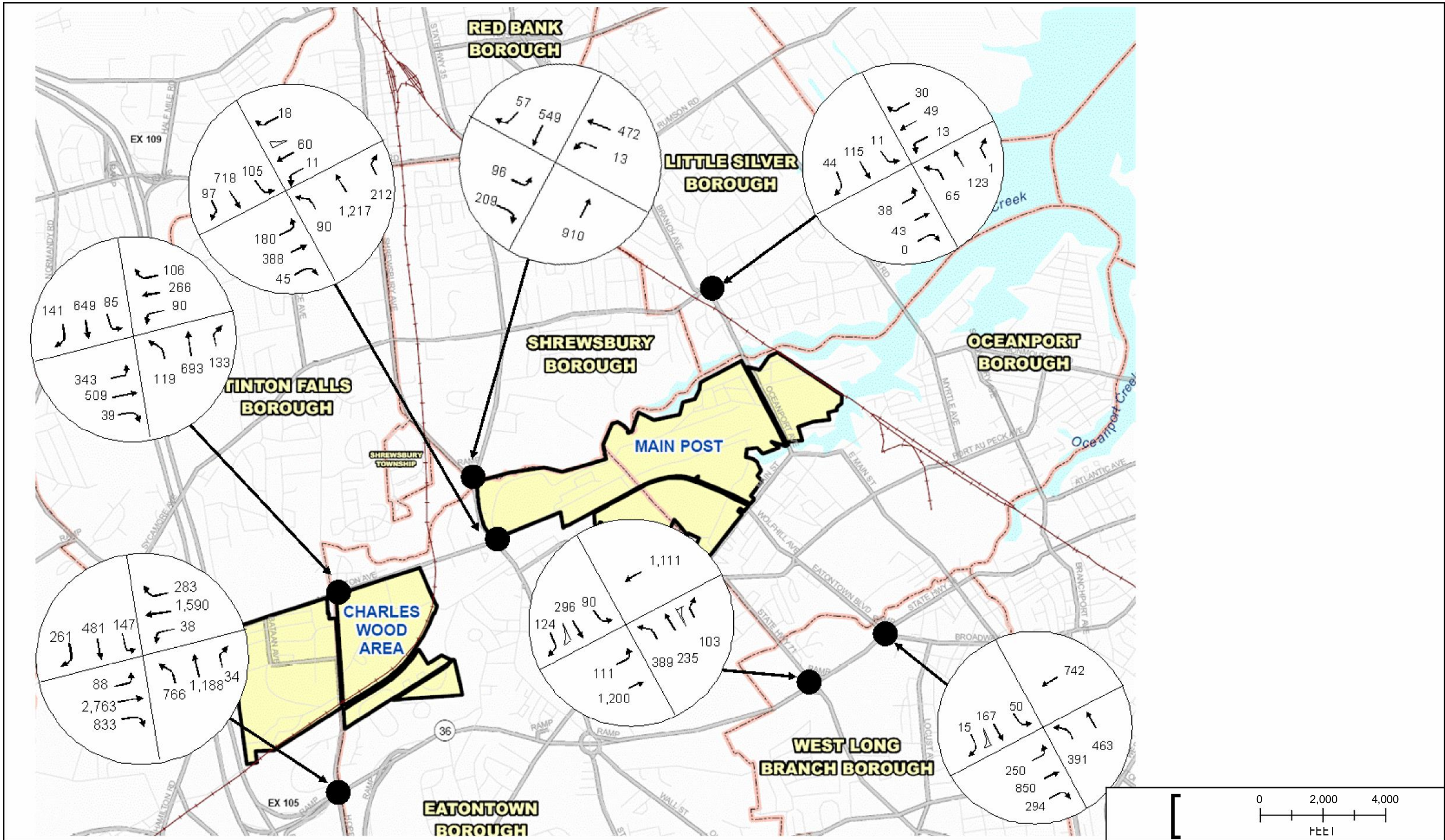
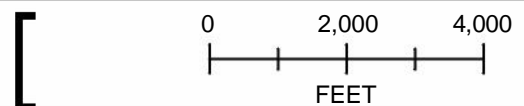
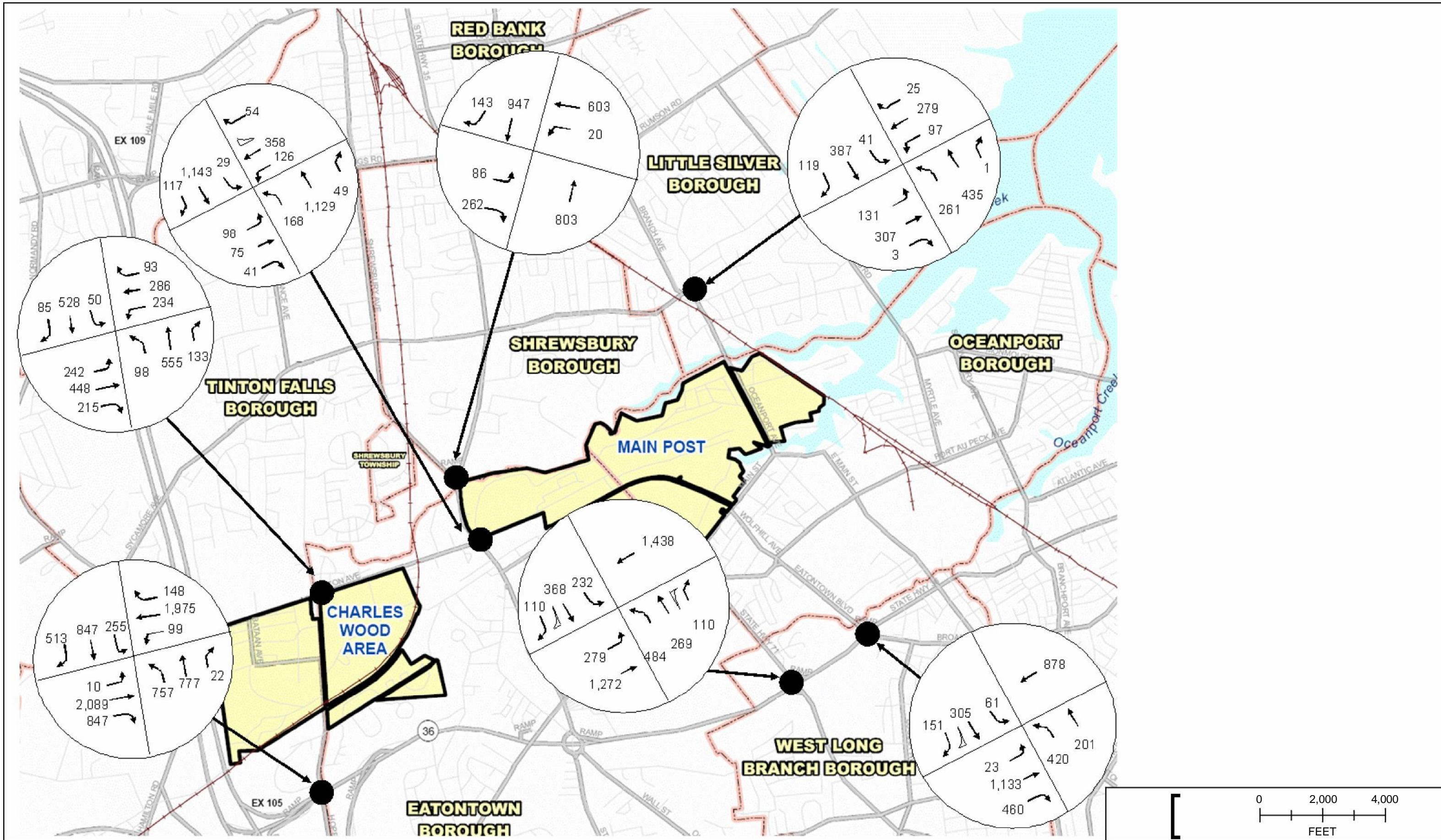


FIGURE 2: EXISTING WEEKDAY 8-9 AM PEAK HOUR TRAFFIC FLOWS



## Analysis Methodology and Results

The *2000 Highway Capacity Manual (HCM)* procedures were used to determine the capacities and levels of service for each of the intersections comprising the traffic study area. For signalized intersections, levels of service (LOS) are defined in terms of the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the lane group is saturated. For unsignalized intersections, delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. Delay levels for signalized intersections are detailed below.

*LOS A* describes operations with very low delay, i.e., less than 10 seconds per vehicle. This occurs when signal progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.

*LOS B* describes operations with delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.

*LOS C* describes operations with delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

*LOS D* describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

*LOS E* describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios.

*LOS F* describes operations with delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios with cycle failures. Poor progression and long cycle lengths may also be contributing to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

Levels-of-service A, B, C, and D are considered acceptable per the NJ Department of Environmental Protection Coastal Zone Management rules, while LOS E and F are considered unacceptable for both signalized and unsignalized intersections. For the purpose of this report,

mid-LOS D will be considered an acceptable LOS.

Each of the signalized intersections studied in the traffic study area was analyzed in terms of its capacity to accommodate existing traffic volumes and their resulting LOS. A summary of the findings is presented in Table 1.

Route 36 is subject to significant congestion during both the AM and PM peak hours. At its intersection with Hope Road, all approaches operate at a failure LOS F condition, indicating that multiple green signal phases are needed to pass Route 36. The eastbound approach of Route 36 to Hope Road also operates at its theoretical capacity limit LOS E and F. Both the Broadway and Monmouth Road approaches to Route 36 operate at LOS F.

The Tinton Avenue/Route 35 intersection operates at an overall LOS F, with the one-lane eastbound Tinton Avenue approach operating well over capacity (LOS F). The northbound approach of Route 35 also operates over capacity during the AM and PM peak hours, traced to the highest traffic volumes along the entire corridor.

The northbound approach of Branch Avenue (Oceanport Avenue) at its Sycamore Avenue intersection operates with some congestion in the PM peak hour (LOS E), attributed to the peak exiting volume from the Little Silver rail station and limited amount of green signal time. While all other approaches operate acceptably, the overall intersection itself is rather narrow and has little “spare” capacity to absorb a significant volume of additional traffic in the future.

The eastbound approach of Shrewsbury Avenue to Route 35 operates near capacity at LOS E during the AM peak hour.

Overall, the roadways surrounding Fort Monmouth routinely experiences some significant congestion, particularly on Route 36. There a number of individual intersection approaches operating at a congested LOS E and F, and three of the seven examined intersections operate at an overall LOS F. Both the data analysis and views expressed by the public support this finding. Moreover, the existing “mature” roadway network west of the GSP appears to have limited opportunities for widenings or other geometric expansion, other than grade-separation connections.

**Table 1: AM and PM Peak Hour Levels of Service**

Signalized Intersection & Approach	Mvt.	AM Peak Hour			PM Peak Hour			
		V/C	Control Delay	LOS	V/C	Control Delay	LOS	
<b>Route 35 at Schrewsbury Avenue</b>								
Schrewsbury Avenue	EB	L	0.80	74.3	E	0.57	41.9	D
		R	0.40	35.0	C	0.49	30.9	C
	WB	L	0.11	43.5	D	0.12	36.2	D
		T	0.75	41.9	D	0.83	40.6	D
Broad Street	NB	T	0.54	15.7	B	0.49	15.9	B
		SB	0.38	13.9	B	0.69	19.1	B
<b>Overall Intersection</b>	-		<b>24.6</b>	<b>C</b>		<b>24.6</b>	<b>C</b>	
<b>Route 35 at Tinton Avenue</b>								
Tinton Avenue	EB	L	0.61	47.5	D	0.35	42.5	D
		TR	1.37	234.7	F	0.38	42.8	D
	WB	L	0.04	32.5	C	0.34	35.6	D
		T	0.21	34.2	C	0.91	63.5	E
Route 35	NB	L	0.52	26.0	C	1.15	148.3	F
		TR	1.37	210.6	F	1.09	93.1	F
	SB	L	0.73	44.0	D	0.20	26.6	C
		TR	0.81	40.5	D	1.17	126.0	F
<b>Overall Intersection</b>	-		<b>143.8</b>	<b>F</b>		<b>98.2</b>	<b>F</b>	
<b>Route 36 at Monmouth Road</b>								
Route 36	EB	L	0.07	13.8	B	0.16	15.6	B
		T	0.58	15.1	B	0.60	16.0	B
	WB	T	0.93	73.9	E	1.19	158.6	F
		L	1.03	147.0	F	1.27	225.5	F
Monmouth Road	NB	LT	1.05	134.2	F	1.20	183.2	F
		L	0.53	75.3	E	1.09	167.5	F
	SB	LT	0.86	93.5	F	1.04	131.8	F
		L						
<b>Overall Intersection</b>	-		<b>63.5</b>	<b>E</b>		<b>109.4</b>	<b>F</b>	
<b>Route 36 at Broadway</b>								
Route 36	EB	TR	0.45	17.9	B	0.67	26.1	C
		WB	0.41	17.5	B	0.57	24.8	C
Broadway	NB	L	1.11	113.7	F	1.06	108.5	F
		T	1.25	165.0	F	1.15	135.8	F
	SB	L	0.17	27.9	C	0.12	22.1	C
		T	0.55	31.8	C	0.59	27.4	C
<b>Overall Intersection</b>	-		<b>54.4</b>	<b>D</b>		<b>42.8</b>	<b>D</b>	
<b>Branch Avenue at Sycamore Avenue</b>								
Sycamore Avenue	EB	L	0.15	19.0	B	0.40	29.9	C
		TR	0.11	18.4	B	0.45	21.6	C
	WB	L	0.09	28.8	C	0.73	50.0	D
		T	0.24	30.2	C	0.72	29.5	C
	R		0.07	28.6	C	0.02	28.0	C
		L	0.31	17.0	B	0.96	73.1	E
Branch Avenue	NB	TR	0.27	16.9	B	0.47	18.8	B
		L	0.06	23.7	C	0.15	23.7	C
	SB	T	0.38	26.8	C	0.67	31.4	C
		R	0.14	24.4	C	0.22	24.1	C
<b>Overall Intersection</b>	-		<b>22.1</b>	<b>C</b>		<b>33.7</b>	<b>C</b>	
<b>Route 36 at Hope Road (see Note 6)</b>								
NJ 36	EB	-	N/A	103.0	F	N/A	65.5	E
		WB	-	N/A	18.5	B	N/A	32.5
Hope Road	NB	-	N/A	264.0	F	N/A	>100.0	F
		SB	-	N/A	210.9	F	N/A	>100.0
<b>Overall Intersection</b>	-		<b>128.8</b>	<b>F</b>		<b>&gt;100.0</b>	<b>F</b>	
<b>Tinton Avenue at Hope Road (see Note 6)</b>								
Tinton Avenue	EB	-	N/A	48.9	D	N/A	47.1	D
		WB	-	N/A	71.5	E	N/A	42.1
Hope Road	NB	-	N/A	26.2	C	N/A	27.4	C
		SB	-	N/A	44.8	D	N/A	45.9
<b>Overall Intersection</b>	-		<b>43.0</b>	<b>D</b>		<b>39.9</b>	<b>D</b>	

**Notes:**

- "Mvt." refers to the specific intersection approach lane(s) and how the lane(s) operate and/or specific pavement striping. TR is a combined through-right turn lane(s); R-L refers to exclusive right- or left-turn movement lane(s); LTR is a mixed lane(s) that allows for all movement types. It is possible that lane uses change in different time periods. For example, a very heavy right-turn volume may exceed a single lane capacity, thus forcing drivers to use (or "share") an adjacent lane for additional travel capacity in the AM, but as flows decrease later in the day, a shared lane may not be needed. DefL is a default left-turn lane automatically input by the HCS software when the volume of left turns is high enough to create a "natural" turn lane to accommodate the demand; through movements would then use the adjacent travel lane.
- V/C is the volume-to-capacity ratio for the Mvt. listed in the first column. Values above 1.0 indicate an excess of demand over capacity.
- LOS for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group listed in the Mvt. Column as noted in the 2000 HCM - TRB.
- Delay calcs for signalized intersections represent the ave. control delay experienced by all veh. that arrive in the analysis period, including delays incurred beyond the analysis period when lane group is saturated.
- LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.
- The Hope Road intersection analysis are transcribed from the 7/04 Traffic Impact Analysis for Charles Wood Subpost of Fort Monmouth Enhanced Use Leasing Area, by Naik Presad, Inc.

## **LOCAL / REGIONAL TRANSIT SERVICES**

This section of the technical memorandum describes the existing local and regional transit options within the study area. A variety of transit options are available including bus, rail, plane, and ferry services as well as paratransit and park-and-ride. The general study area for this resource includes the area within a five-mile radius of Fort Monmouth, although it also extends further outward to capture the passenger air and ferry modes of travel.

Local fixed-route bus service is available to/from Fort Monmouth at the main gate, whereby connections can be made to other bus and rail transit options, as well as nearby hubs of activity such as Red Bank, Long Branch, Asbury Park, and Freehold Township/Borough (see Figure 4). Regionally, there are various fixed-route bus and rail transit options that travelers can utilize to reach Fort Monmouth which increases the vitality of this site, which is positioned near New York City and northern/central New Jersey, and is centrally located between Boston and Washington D.C. This ideal location puts Fort Monmouth within close proximity to an extensive network of road, rail, air, and water transportation options that connect to major United States and foreign markets. Newark and Newark Liberty International Airport are within a 30- to 45-minute transit trip to Fort Monmouth. Transit service to Jersey City and Midtown/Lower Manhattan takes less than 90 minutes, while transit service south and west of Fort Monmouth can be accomplished in under two hours to Trenton, Camden, and Philadelphia.

### **Transit Service Providers**

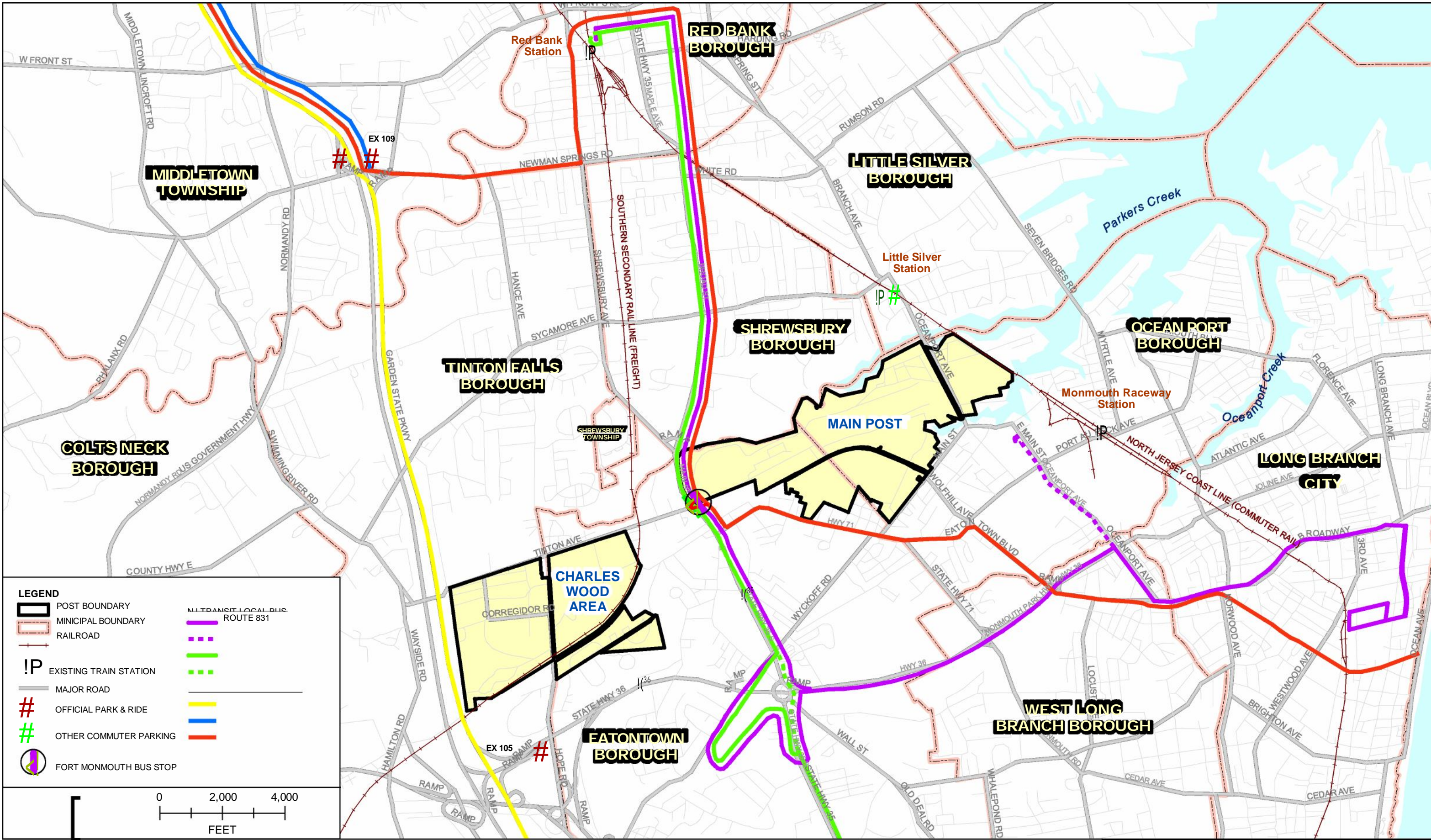
Regional fixed-route bus transit service from Fort Monmouth to Jersey City and New York City is provided by private-for-profit carrier Academy, while local fixed-route bus service connecting Fort Monmouth to Red Bank, Long Branch, and Asbury Park is provided by NJ Transit (NJT), either operated directly or via contract by Veolia Transportation Services operating NJT equipment. In addition to local and regional bus service, NJT operates commuter rail on the North Jersey Coast Line (NJCL) to Newark, Newark Liberty International Airport, Secaucus Junction, Hoboken, New York Penn Station, Camden, Trenton, and Philadelphia, while the Monmouth County Division of Transportation (MCDOT) and NJT provide paratransit for the elderly, handicapped, and other customers who have transit needs that cannot be adequately serviced by traditional fixed-route transit.

### **Fixed-Route Bus Service**

#### Local Service

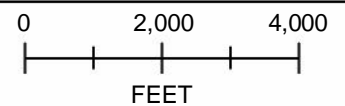
Local bus routes are usually designed to reach high density concentrations of residential, commercial, institutional, and other places of interest. Stops along local bus routes are typically spaced at half-mile or greater intervals, depending on the market and travel pattern being serviced along such routes. Transfer points are crucial in such a system, since they enable transit customers the opportunity to connect to bus, rail, paratransit, taxi, and park-and-ride facilities, essentially expanding the transportation network.





**LEGEND**

POST BOUNDARY	NJ TRANSIT LOCAL BUS ROUTE 831
MUNICIPAL BOUNDARY	NJ TRANSIT LOCAL BUS ROUTE 831
RAILROAD	NJ TRANSIT LOCAL BUS ROUTE 831
EXISTING TRAIN STATION	NJ TRANSIT LOCAL BUS ROUTE 831
MAJOR ROAD	NJ TRANSIT LOCAL BUS ROUTE 831
OFFICIAL PARK & RIDE	NJ TRANSIT LOCAL BUS ROUTE 831
OTHER COMMUTER PARKING	NJ TRANSIT LOCAL BUS ROUTE 831
FORT MONMOUTH BUS STOP	



**FIGURE 4: FORT MONMOUTH EXISTING TRANSIT SERVICE**

NJT provides local bus service along two routes, Routes 831 and 832, both of which stop at Route 35 and Avenue of Memories at the main gate of Fort Monmouth. These two local bus routes are primarily oriented in a north-south direction and provide service from Red Bank to the north and Long Branch and Asbury Park to the south. The end points along these routes also provide additional connections to other local bus routes that offer east-west service and regional commuter rail service on the NJCL. Route 831 provides service from the main gate of Fort Monmouth to Long Branch and Red Bank commuter rail stations on the NJCL, making intermediate stops in West Long Branch, Oceanport, Eatontown, and Shrewsbury. Route 832 connects the main gate of Fort Monmouth northward to Shrewsbury and the Red Bank NJCL rail station and south to Oakhurst, Ocean, and Asbury Park.

While NJT rail service is available in both Red Bank and Little Silver (with limited seasonal service at Monmouth Raceway), it is currently only possible to make a ten-minute bus connection to the Red Bank rail station via the Route 831 and 832 buses. The study area lacks connecting transit services (i.e., shuttle buses) that would otherwise enhance the frequency and variety of available multi-modes of transit. While the combined local bus service between Fort Monmouth and Red Bank operates approximately every 20 minutes, the frequency of service running south is far less, with no direct service westbound to Freehold Borough/Township (see Table 2). Westbound connecting buses service is available in nearby Tinton Falls and Red Bank, as well as points south in Long Branch and Asbury Park.

In general, the existing routing, frequency, and stop pattern of local fixed-route bus service is sufficient to meet the current demands of the area. Although the hours of operation to Fort Monmouth are somewhat limited, the current low level of ridership does not support increased hours of operation or service frequency.

**Table 2: Local Fixed-Route Bus Service Characteristics**

Route	Start Time	End Time	Peak-Period Frequency (min.)	Off-Peak Frequency (min.)	Weekend Frequency (min.)	Notes
831 NB	6:48 AM	6:30 PM	30 *	60	Saturday 60; Sunday none	10-min trip to Red Bank with connections to NJT bus routes 833, 834, and 835 and NJCL rail station. Limited route hourly Sunday service only between Long Branch (NJT Rail Station) and Eatontown (Monmouth Mall). Average of 626 weekday riders in May 2007.
831 SB	6:40 AM	7:40 PM	30	60	Saturday 60; Sunday none	30-min trip to Long Branch with connections to NJT bus routes 832, 834, and 835 and NJCL rail station. Limited route hourly Sunday service from Eatontown to Long Branch.
832 NB	7:12 AM	10:10 PM	31 *	60	Hourly	10-min trip to Red Bank with connections to NJT bus routes 833, 834, and 835 and NJCL rail station. Average of 1,318 weekday riders in May 2007.
832 SB	6:40 AM	10:45 PM	60	60	Hourly	40-min trip to Asbury Park with connections to NJT bus routes 830, 836, and 837 and NJCL rail station.

Source: NJT

\* Note: Combined peak weekday Route 831/832 service results in 20-min service frequencies at Ft. Mon.

## Regional Service

Regional bus service is provided within the study area by Academy (see Table 3). The service is oriented northward towards major destinations such as Newark, Jersey City, and Midtown and Lower Manhattan. Two of the three Academy operated bus routes exclusively serve the Fort itself. These routes are express routes that originate from the Garden State Parkway (GSP) park-and-ride lots within the study area. Most of the regional bus routes also stop at key locations on the GSP such as the Cheesequake and Monmouth rest areas and at the PNC Bank Arts Center. Regional bus service also provides convenient connections to New York City Transit and Port Authority Tran-Hudson (PATH) rail rapid transit (subway) service in Lower and Midtown Manhattan and NJT light rail service in Jersey City (Grove Street, Exchange Place, Newport). Local bus service connections can also be made from rail rapid transit and light rail station locations.

The following is a description of the existing regional bus service provided by Academy within a five miles radius of Fort Monmouth:

- *Route 18:* Route 18 provides regional bus service along the GSP from forked river to the Port Authority Bus Terminal (PABT) in Midtown Manhattan, with intermediate stops at the Monmouth Service Area (milepost 100), Exit 109 (Lincroft), and Cheesequake Service Area (Milepost 123).
- *Route 35:* The route 35 line consists of GSP and new jersey turnpike express service from Exit 109 to Wall Street in Lower Manhattan, with intermediate GSP stops at the PNC Bank Arts Center and Cheesequake Service Area, three stops in Jersey City (Grove Street Station, Exchange Place, and Newport), and three stops in Lower Manhattan (Varick Street at Franklin Street, Broadway just before Chambers Street, and Park Place at Broadway).
- *Route 63:* Route 63 provides service to the shore points, from Point Pleasant / Ocean Grove, with a stop at the main gate of Fort Monmouth enroute to the PABT in Midtown Manhattan. Additional local stops are provided at Manasquan, Sea Girt, Spring Lake, Belmar, Avon, Bradley Beach, Asbury Park, Deal, and Long Branch to the south, and Oceanport, Little Silver, Eatontown, Shrewsbury, Red Bank, Lincroft to north, before traveling express along the GSP to the Cheesequake Service Area. Limited service is provided south of the Ocean Grove/Asbury Park area.

**Table 3: Regional Fixed-Route Bus Service Characteristics**

Route	Start Time	End Time	Peak Period Frequency (min.)	Off-Peak Frequency (min.)	Weekend Frequency (min.)	Notes
18 NB	5:35 AM	7:35 AM	15 to 20	None	None	Schedule trip time from GSP Exit 109 (Lincroft) varies from 65 to 80 minutes, with most about 70 minutes.
18 SB	2:30 PM	8:00 PM	20 to 30	30 to 60	None	Passengers boarding to GSP Exit 109 can only board SB on many of the trips if seats are available.
35 NB	5:35 AM	8:20 AM	30	None	None	Scheduled trip time from GSP Exit 109 to PA Bus Terminal is 70 minutes.
35 SB	3:00 PM	2:30 AM	22 (5 to 40)	None	None	--
63 NB via Ft. Monmouth	5:39 AM	9:04 PM	15 to 40	60 to 120	120	Scheduled trip time from Fort Monmouth main gate to PABT takes anywhere from 66 to 80 minutes depending on the time of day.
63 SB	8:00 AM	10:30 PM	10 to 20	60 to 120	120	--

Source: Academy

The availability of weekday regional bus service is limited by the lack of available parking spaces at the GSP park-and-ride lots, which quickly fill to capacity during the early morning peak travel period (6-8 AM). Hours of operation are also limited outside of peak travel periods, with little or no off-peak and weekend regional bus service. Additionally, traffic conditions typically add anywhere from ten to twenty minutes to schedule travel times. Regional bus service from the Little Silver rail station to Lower Manhattan was recently eliminated by Academy; however, such service is still available from several GSP park-and-ride lots within the study area.

## **Passenger Rail Service**

Electrically powered passenger rail service is available locally with stops in Red Bank and Little Silver via NJT's North Jersey Coast Line (NJCL). Frequent daily service is provided to the major urban areas and transfer connections throughout the region (i.e., Newark Penn Station, Newark Liberty International Station, Secaucus Junction, Hoboken Terminal, and Midtown Manhattan's Penn Station). Transfers from the NJCL to the PATH service are available from Newark Penn Station and Hoboken Terminal with connections to other rail lines available at New York's Penn Station. New York City Transit subway and bus service is also available from New York's Penn Station. NJT also provides Newark City Subway and Hudson-Bergen Light Rail service, respectively, from Newark Penn Station and Hoboken Terminal. Intercity passenger rail service is provided by Amtrak from New York Penn Station, Newark Penn Station, and New Brunswick and Metro Park commuter rail stations (with the latter two stations located in nearby Middlesex County).

Locally, NJCL rail service is provided from Little Silver and Red Bank. While there is a station at Monmouth Park, service times are typically limited to that of horse racing events from about 11 AM to 6 PM. The Little Silver station is within a five-minute drive from the main gate, and the Red Bank station is located approximately ten to fifteen minutes away. Additional NJCL stations are available to the north in Hazlet and Middletown, and to the south in Long Branch, Elberton, Allenhurst, Asbury Park, Bradley Beach, and Belmar. One of the challenges faced at many of the commuter rail stations is the lack of parking spaces to accommodate current and future vehicles. Connecting access from Fort Monmouth to the local NJCL train stations is best accomplished via existing public and private bus service providers.

Two parking lots containing a total of 517 standard parking spaces and four ADA compliant parking spaces are located at the Little Silver commuter rail train station. Annual parking permits cost \$240, and daily parking is available at \$2 for every twelve hours of parking. Use of the smaller of the two lots, containing 30 standard parking spaces and two ADA compliant parking spaces, is limited to Little Silver residents, while the larger lot, located on Ayers Lane, is owned by NJT and open to non-residents. At the Red Bank commuter rail station, there are 455 standard and 24 ADA compliant parking spaces available on NJT-owned lots with the same daily and annual permit parking rates as the Little Silver station. In addition, 59 parking spaces are available on two privately owned lots. At both of these lots, the majority of the parking spaces are set aside for annual permit holders and there is typically a waiting list to obtain the necessary parking permit.

NJCL provides the most reliable transit service in proximity to Fort Monmouth, with long operating hours and frequent service, although trains can be crowded. Thirty-five weekday commuter rail trips operate northbound from 4 AM to 12:30 AM at the Little Silver station. Seven of the 35 trips end in Hoboken, with the remainder terminating at New York Penn Station, and nearly all the trips stopping at Secaucus Junction. Weekday northbound peak service from Little Silver operates between 5:47 AM and 7:57 AM with service frequency ranging from 14 to 48 minutes and averaging about 13 minutes (see Table 4). Scheduled travel time in both directions from Little Silver to Hoboken or New York Penn Station is approximately one hour twenty minutes. Service operating in the reverse direction (New York

to Little Silver) runs from 4:44 AM to 1:41 AM making 40 trips. Peak evening service operates from New York to Little Silver between 4:07 and 6:26 PM, with an average service frequency of 16 minutes (ranging from four to 34 minutes). Off-peak service frequency varies from thirty minutes to an hour, with most being closer to an hour. Weekend service frequency is typically an hour.

**Table 4: Passenger Rail Service Characteristics**

Name	Type of Route	Day	Average Headways (min.)		
			AM	Midday	PM
NJCL – Little Silver Station	Rail	M-F	13	60	16
		Sat. / Sun.	60	60	60

Source: NJT

The existing NJCL hours of operations and service frequency is considered fairly robust to meet the current needs of most Fort Monmouth area commuters. While the NJT Access to the Regions Core project will allow additional trains to be operated from the NJCL through the provision of a new passenger rail tunnel under the Hudson River (as well as other improvements), this project is not anticipated to be complete until at least 2016. As a short-term measure, additional consideration should be given by NJT to providing double-deck railcars along the NJCL (as are being put into service along the Northeast Corridor Line), which would help to provide even greater seating capacity during the congested peak travel periods of service.

## **Paratransit Service**

Paratransit is a passenger transportation service primarily intended for mentally and/or mobility impaired, and senior citizens. Many paratransit services do not follow a fixed schedule or route. Transit vehicles used for paratransit service are typically equipped with special wheelchair lifts or ramps to allow an ease of access. Paratransit enables many young people with disabilities to enter and remain in the workforce since the service allows them to travel to and from their places of employment. Vans and mini-buses are typically provided for paratransit service, although sometimes shared taxis and jitneys are used as well. Paratransit service can be provided by public transit agencies, non-for-profits and/or private companies; however, most paratransit service in New Jersey is provided either directly by NJT or through a County contract via a private operator.

### Monmouth County Division of Transportation

The Monmouth County Division of Transportation (MC DOT) provides complementary ADA accessible paratransit service between Aberdeen and the Bayshore communities, and between Red Bank and the Bayshore communities and for the routes operated under contract to Jamison and Son Bus Co. between Freehold Raceway Mall and Marlboro, and between Freehold Raceway Mall and Howell Township. Service is provided through a combination of contractors and MCDOT staff drivers and vehicles. In addition, a variety of demand responsive transportation services including the Shared Ride, SCAT, Section 5311, Brokered Employment Transportation Services (BETS), and Work First New Jersey (WFNJ).

*Shared Ride* – The Shared Ride service requires that clients make a 24-hour advance reservation for shared ride multiple-destination service. Senior citizens (60 and over) and disabled residents of Monmouth County are able to request service to a destination within the services area, with priority given to medical trips and food shopping. Service is available Monday, Wednesday, Friday, and Saturday between 8 AM and 4 PM and Thursday evenings, between 4 and 9 PM.

*MCDOT SCAT* – The Special Citizen’s Area Transportation (SCAT) service is available to seniors or persons with disabilities for a variety of medical, educational, nutritional, and shopping trips throughout Monmouth County. Use of the service requires a reservation to be made not more than 14 days in advance or less than 24 hours in advance. The service is operated through the MCDOT and charges a nominal fee for taking passengers to medical appointments or to other destinations.

*FTA Section 5311* – This service is provided through a federal grant and is open to seniors and persons with disabilities as well as the general public. The areas covered by the service include Roosevelt, Upper Freehold Township, Millstone, and the Manalapan portion from Gordon’s Corner Road south. The service is available Monday through Friday from 9 AM to 4 PM. Reservations are open not more than 14 days in advance and no less than 24 hours in advance.



*Brokered Employment Transportation Services (BETS)* – The BETS service provides transportation feeder service to existing public transportation systems, or in cases where these systems are non-existent, a ride within a reasonable distance from home to an employment site. Service is available 6-12 AM, Monday through Saturday.

*Work First New Jersey (WFNJ)* – WFNJ is NJ's welfare reform program. The WFNJ transportation program is based on the BETS program. The program is available to current WFNJ participants who are working or are in eligible work activities. Service is available 24 hours a day, Monday through Sunday.

### New Jersey Transit

New Jersey Transit provides paratransit services through its *Access Link* Program. *Access Link* provides paratransit service required by the Americans with Disabilities Act of 1990 and is comparable to the local bus service. This service is specifically set up to service persons whose disability prevents them from using the local fixed-route bus service. *Access Link* operates as a shared-ride system, providing curb-to-curb services during the same days and hours as the local fixed route bus system.

## **Park-and-Ride**

Park-and-ride lots are locations where the traveling public can park their vehicle and transfer to some other form of transportation (i.e. another automobile, commuter bus, commuter rail, etc.). In close proximity to Fort Monmouth there are several park-and-ride lots that are managed by the New Jersey Department of Transportation and allow convenient access to regional bus service to northern New Jersey and Lower / Midtown Manhattan. Park-and-ride lots are important to area residents since they provide access to an alternative means of travel to major destinations and because most of the regional fixed-route bus service bus providers stop at such lots. Three park-and-ride lots are located along the GSP, within a 20-minute ride to Fort Monmouth, and are located at Exit 106 in Tinton Falls, Exit 109 in Lincroft, and Exit 116 at the PNC Bank Arts Center.

Many park-and-ride lots are quickly filled to capacity during the weekday morning peak travel period; therefore, parking availability greatly limits the potential user base. Although NJT does not own or operate any non-commuter rail connected park-and-ride lots within five miles of Fort Monmouth, they do offer vehicular parking opportunities at both the Red Bank and Little Silver commuter rail stations. Parking at these facilities is also constrained, as these lots are often filled to capacity with a long waiting list to obtain a parking permit.

## **Air Transportation**

Three major regional passenger airports are located within relatively close proximity to Fort Monmouth. Newark Liberty International Airport is located in nearby Essex and Union Counties between the New Jersey Turnpike (accessible from Exits 13A and 14), U.S. Routes 1 and 9, and I-78. From Fort Monmouth, Newark Liberty can be reached in a vehicle in under 30 minutes or from NJCL passenger rail service in less than an hour. The NJCL Newark Airport rail station connects airport passengers to an airport monorail that serves the airport terminals and long term parking lots. The short travel distance and time required to reach Newark Liberty make this airport the preferred choice of airport passengers traveling to and from the Fort Monmouth area.

LaGuardia Airport is located to the north of the Corona section of the Borough of Queens, New York City and to the south of the Flushing Bay and Bowery Bay. LaGuardia Airport serves as a domestic airport and can be reached in a passenger vehicle in 45 minutes to one hour fifteen minutes from Fort Monmouth. Although New York City Transit provides buses to LaGuardia airport, the service is too inconvenient to be used by airline customers traveling to and from Fort Monmouth.

The third major airport in the region is Kennedy International Airport which is located in southeastern section of the Borough of Queens in New York City. Kennedy International Airport is the largest airport in the region and offers both domestic and international passenger flights. Similar to LaGuardia Airport, travel time to Kennedy Airport can range from 45 minutes to one hour fifteen minutes (depending on traffic conditions and time of day travel), and transit access is difficult to complete from Fort Monmouth since numerous transfers must be made to complete the journey.

In addition to the three regional passenger airports near Fort Monmouth, there is also a corporate airport located nearby. The Monmouth Executive Airport is less than ten miles away from Fort Monmouth in Farmingdale and Belmar and can be reached via Route 34 or Route I-195 in about 15 minutes. In addition, several smaller airports such as Allaire Airport offer the opportunity for small, single-engine plane travel.

While the three regional passenger airports in proximity to Fort Monmouth have historically experienced some of the greatest frequency of delays in the United States, their improved level of amenities as a result of a massive redevelopment program, frequency of service, and available routings are second to none. Numerous passenger surveys conducted by the Port Authority of New York and New Jersey (PANYNJ), which owns and operates the airports shows that the passengers using the three airports are satisfied with the services offered.

A fourth regional airport, Stewart Airport in Orange County, New York is going to be further enhanced since it was recently taken over by the PANYNJ. In addition, the Federal Aviation Administration (FAA) just completed a study to improve the routing of planes. The outcome of the FAA study is projected to result in a 20 percent decrease in travel delay from the three major area airports in the coming years. Thus, while the three major area airport are nearing their carrying capacity (as is the case in LaGuardia which cannot add anymore flights), the PANYNJ and FAA are continuing to embark on additional efforts to help relieve airport congestion, both on the ground and in the air.

### **Ferry Services**

SeaStreak and NY Waterway provide weekday ferry service to Lower and Midtown Manhattan from Sandy Hook Bay and Atlantic Ocean in the northeastern corner of Monmouth County. From Fort Monmouth ferry service can be accessed via automobile travel, bus connections in Red Bank or from the NJT Middletown train station, whereby a free shuttle bus is provided to the NY Waterways Belford passenger ferry slip. In addition, NY Waterways provides a free local shuttle bus from its passenger ferry terminals in Lower and Midtown Manhattan.

NY Waterway service is available during the morning and evening commuting periods to and from Lower Manhattan, with single-trip service to and from Midtown Manhattan. SeaStreak provides ferry service from Highlands and Atlantic Highlands to Pier 11 (Wall Street) and East 34<sup>th</sup> Street in Manhattan. SeaStreak ferry service to Manhattan departs from various locations between Atlantic Highlands and Highlands starting as early as 5:50 AM and running throughout the day until 10:30 PM. Travel time on the ferries to Lower Manhattan takes anywhere from 40 to 50 minutes to Lower Manhattan and 40 to 75 minutes to Midtown Manhattan with most trips lasting about an hour.

Ferry service is sufficient to meet the needs of commuting passengers to Manhattan; however, the cost of riding the ferry is not inexpensive with 40-trip tickets costing \$606 from Belford to Lower/Midtown Manhattan (via NY Waterway) and \$651 from Atlantic Highlands to Manhattan (via SeaStreak). However, the fact that there are two ferry service providers in the area points to a certain level of ridership demand that exists in the area.

## **REFERENCES**

### Reports

Monmouth-Ocean-Middlesex Rail Project Environmental Impact Statement, Technical Memorandum: *Traffic Circulation Issues in Red Bank and Shrewsbury Western Monmouth County Route 537 Corridor Study*, SYSTRA Consulting (4-05)

*Route 35 Red Bank Deficiency Assessment Concept Development & Environmental Screening*, Vollmer Associates (1-02)

*Traffic Impact Analysis for Charles Wood Subpost of Fort Monmouth Enhanced Use Leasing Area*, Naik Presad, Inc. (7-04)

### Guidelines and Resources

New Jersey Department of Transportation Straight Line Diagrams

New Jersey Department of Transportation Truck Percentages

New Jersey Transit Port Authority Transportation Improvement Program (TIP)