TRAFFIC STUDY

TRAFFIC ELEMENT OF THE MASTER PLAN

TOWNSHIP OF HARRISON, GLOUCESTER COUNTY, NEW JERSEY

Township of Harrison

Submitted to:

HARRISON TOWNSHIP

114 Bridgeton Pike

Mullica Hill, New Jersey

Attention: Susanne Rhudy
Planning Board Secretary

January 11, 2007

HARS 0501

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INTRODUCTION

This report is being prepared as an element of the Harrison Township's Traffic Circulation Plan, which is an element of the Township Master Plan. This document is intended as a basis for implementing traffic improvements through developer contributions for new development.

This report summarizes the collection, analysis and findings of the existing traffic, projected pass-through traffic and projected future traffic volumes and conditions at 30 intersections throughout the Township. **FIGURE 1** illustrates the locations of the study intersections within the Township and **TABLE 1** provides a list of the 30 study intersections.

BACKGROUND

Harrison Township is a 20 square mile community located in Gloucester County, NJ. The Township has experienced rapid growth within the last three decades, and most of the Township's existing roadways and intersections were designed and constructed over thirty years ago. As such, revisions to the Township Master Plan are in the process of completion. The Township has a Traffic Circulation Plan, which is an element of the Master Plan. This project would be part of the Township's Traffic Circulation Plan. Harrison Township is a growing suburban community in Gloucester County that enjoys easy access to the regional highway system. The Township is served by US Route 322, State Route 55, the New Jersey Turnpike (at Exit 2), State Route 45, and State Route 77. US Route 322 traverses Harrison Township in an east-west manner, while State Route 55 (at Exit 50) is located at the eastern border of the Township. The New Jersey Turnpike skirts the western border with Woolwich Township and State Routes 45 and 77 bisect the Township north-south through the middle. The Township has identified that a comprehensive traffic study is required to address existing problems, provide recommendations for long term solutions and consider maintaining the quality of life that the residents of Harrison Township have enjoyed for many years.

The Township has experienced rapid growth, due to easy access from Route 55 and a first rate school system. Numerous residential subdivisions have been completed and additional developments are under construction. Commercial growth has not been especially vigorous in the Township however there are a couple of new commercial projects on Route 77.

Given the Township's location in the regional highway network and significant growth over the past decade, traffic congestion and the adequacy of the existing road network is a growing concern in Harrison. Easy accessibility to the regional highway system has been one of the Township's major attractions for growth. The Township seeks to avoid increased congestion to maintain its quality of life and attractiveness as a suburban community. This is not new for Harrison Township as they have been trying to address these congestion issues through the years. The Township desires to formulate an up-to-

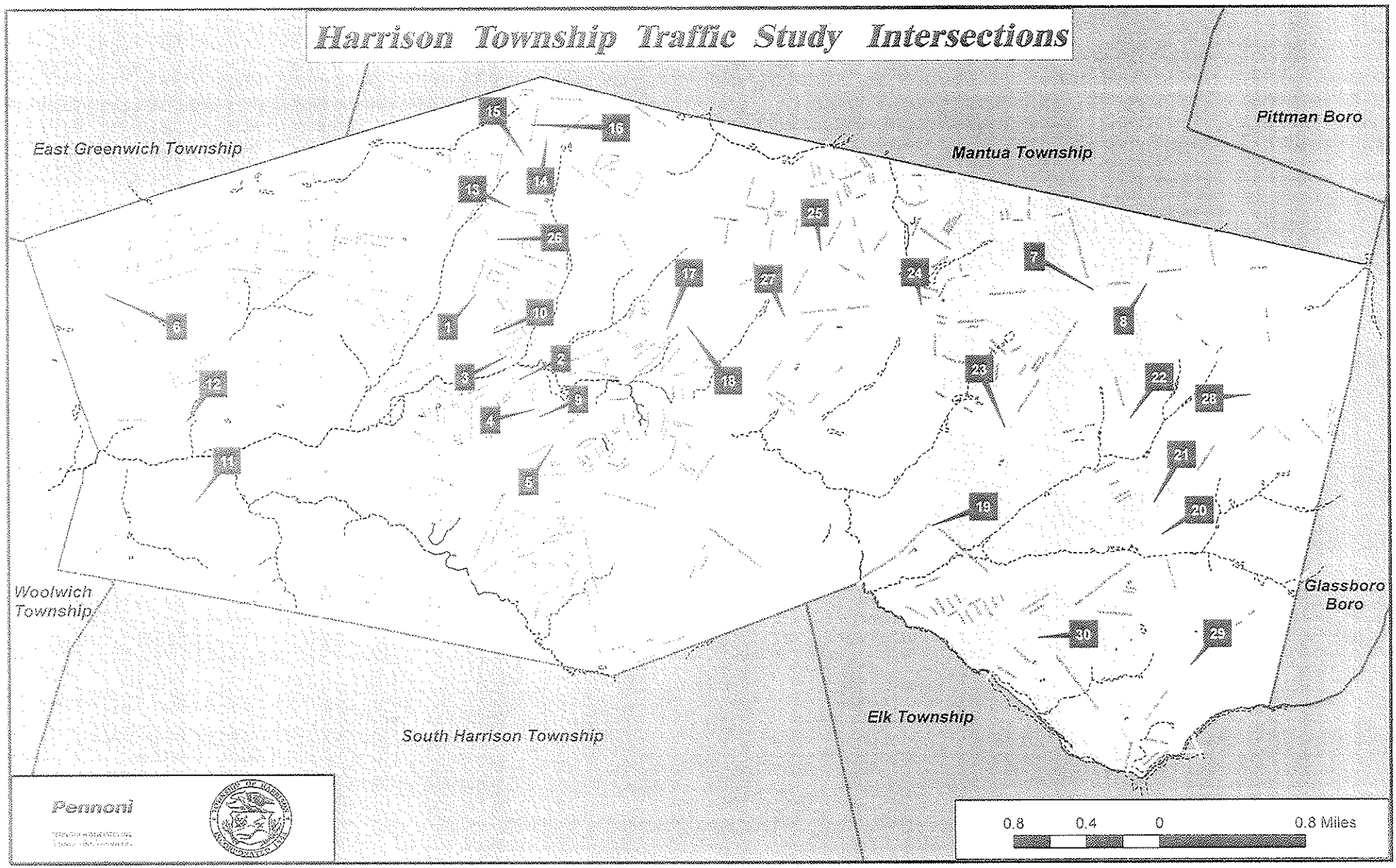
Harrison Township Traffic Study Intersections
East Greenwich Township
Mantua Township
Pittman Boro
Woolwich Township
South Harrison Township
Elk Township
Glassboro Boro
Pennoni
0.8 0.4 0 0.8 Miles

TABLE I

Study Intersections

1. Swedesboro Road (US 322) and Main Street (NJ 45)
2. Mullica Hill Road and South Main Street (NJ 45)
3. Mill Road (US 322) and South Main Street (NJ 45)
4. South Main Street (NJ 45) and High Street
5. Commissioners Road and Bridgeton Pike (NJ 77)
6. Swedesboro Road (US 322) and Tomlin Station Road
7. Mullica Hill Road (US 322) and Richwood/Barnsboro/Harrisonville Roads
8. Mullica Hill Road (US 322) and Aura/Lambs Roads
9. Woodstown Road (NJ 45) and South Main Street
10. South Main Street (NJ 45) and Woodland Avenue
11. Tomlin Station Road and High Street
12. Tomlin Station Road and Woodland Avenue
13. North Main Street (NJ 45) and Wolfert Station Road
14. Breakneck Road and Cedar Road
15. Bridgeton Pike (NJ 45) and Breakneck Road
16. Bridgeton Pike (NJ 45) and Cedar Road
17. Mullica Hill Road (US 322) and Walters Road
18. Mullica Hill Road (US 322) and Clems Run
19. Clems Run and Harrisonville Road
20. Ewan Road and Richwood Road
21. Richwood Road and Williamson Lane
22. Richwood Road and Bishop Road
23. Harrisonville Road and Bishop Road
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25. Cedar Road and Sherwin Road
26. North Main Street and Colson Lane
27. Mullica Hill Road (US 322) and Sherwin Road
28. Aura Road and Williamson Lane
29. Ellis Mill Road and Richwood Road
30. Clems Run and Ewan Road

date plan for implementing transportation related improvements, which includes identification of recommended improvements.

While the Township's Master Plan and the companion Traffic Circulation Plan identify general proposed transportation improvements, the study is outdated. This project is to provide an overall traffic intersection impact analysis that is based on current conditions and projected growth in Harrison Township over at least the next 20 years.

The proposed transportation plan would become part of the Township's Traffic Circulation Plan, which is an element in the Township Master Plan. This report will not be merely a planning document, but will be an action plan for use in beginning to make recommended improvements after plan completion. The document will be used as a basis for implementing traffic improvements through developer contributions for new developments.

EXISTING TRANSPORTATION FACILITIES

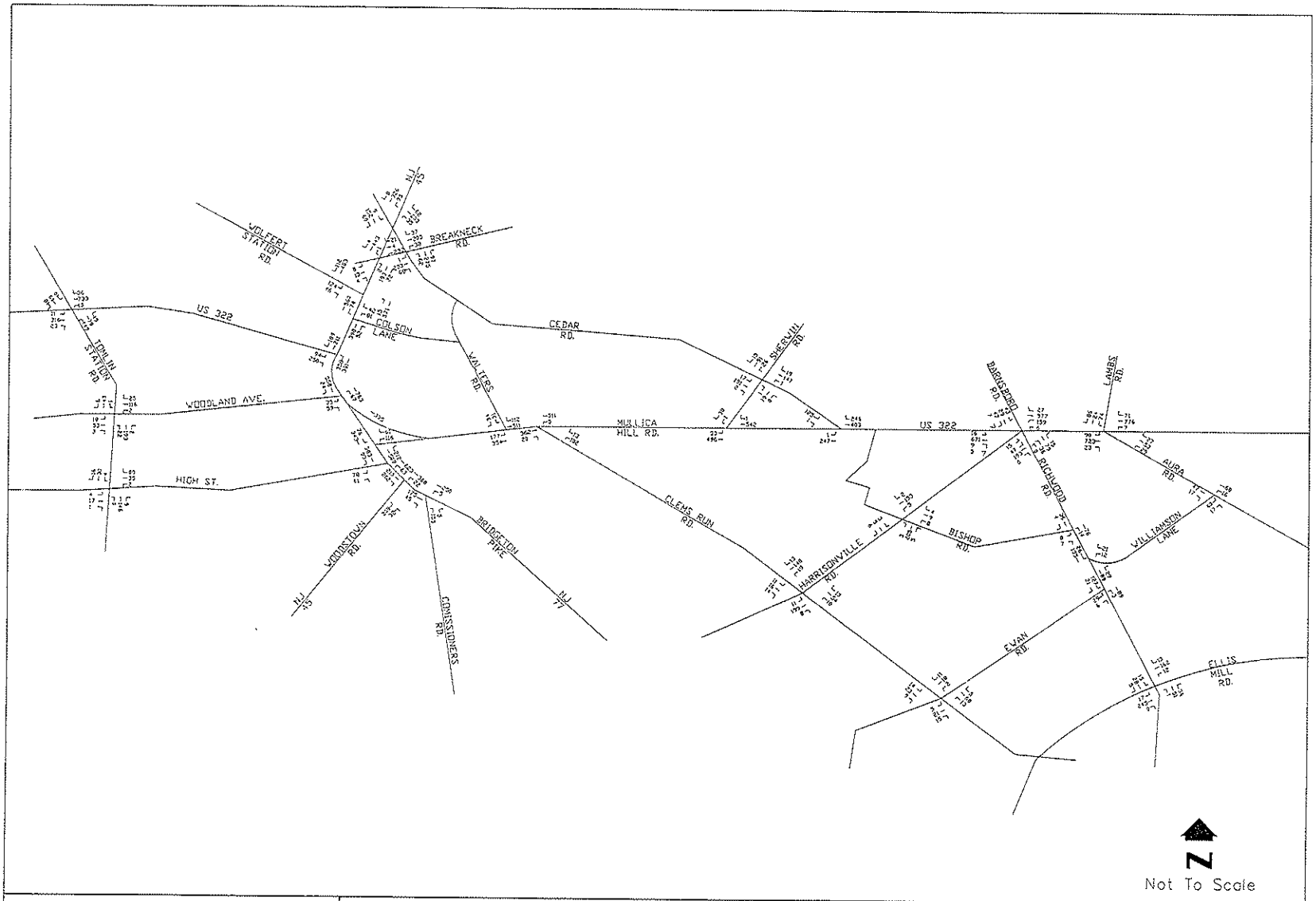
The roadways supporting the vehicular circulation needs of Harrison Township are typically two-lane facilities, with low controls on land access. The exception is US Route 322 at the eastern edge of the Township through the interchange area with NJ Route 55 where four travel lanes are provided in addition to the on and off ramps for NJ Route 55.

Route 55 is the only limited access road through Harrison Township and provides access to points north including Philadelphia, Deptford and Cherry Hill and it also provides access to points south including Vineland, Wildwood and other southern shore towns.

In addition to the US Route 322 corridor which dissects Harrison in an east-west direction, there are other significant corridors/roadways which support the vehicular demand in Harrison. Some of these roadways include Main Street, NJ Route 45, Woodland Avenue, High Street, Richwood Road, Harrisonville Road, Cedar Road, Walters Road, and Clems Run Road to name a few. With the exception of Main Street and the eastern section of US Route 322, the remaining roadways are primarily rural two lane roadways with limited shoulders which allow Harrison to maintain its rural appearance.

EXISTING TRAFFIC VOLUMES

Traffic counts were obtained for the study area intersections during the weekday morning and weekday late afternoon peak hours. Data was obtained from previously completed traffic studies and counts conducted for the purpose of this study. Traffic counts were collected from 2004 through the present. **FIGURES 2 and 3** illustrate the weekday morning and weekday late afternoon peak hour traffic volumes, respectively. Review of the peak hour volumes suggests that the highest volumes are encountered along or at intersections with US 322. The second highest traffic levels are found along the arterials NJ 45 and NJ 77 as they traverse and penetrate Main Street (the Downtown area)



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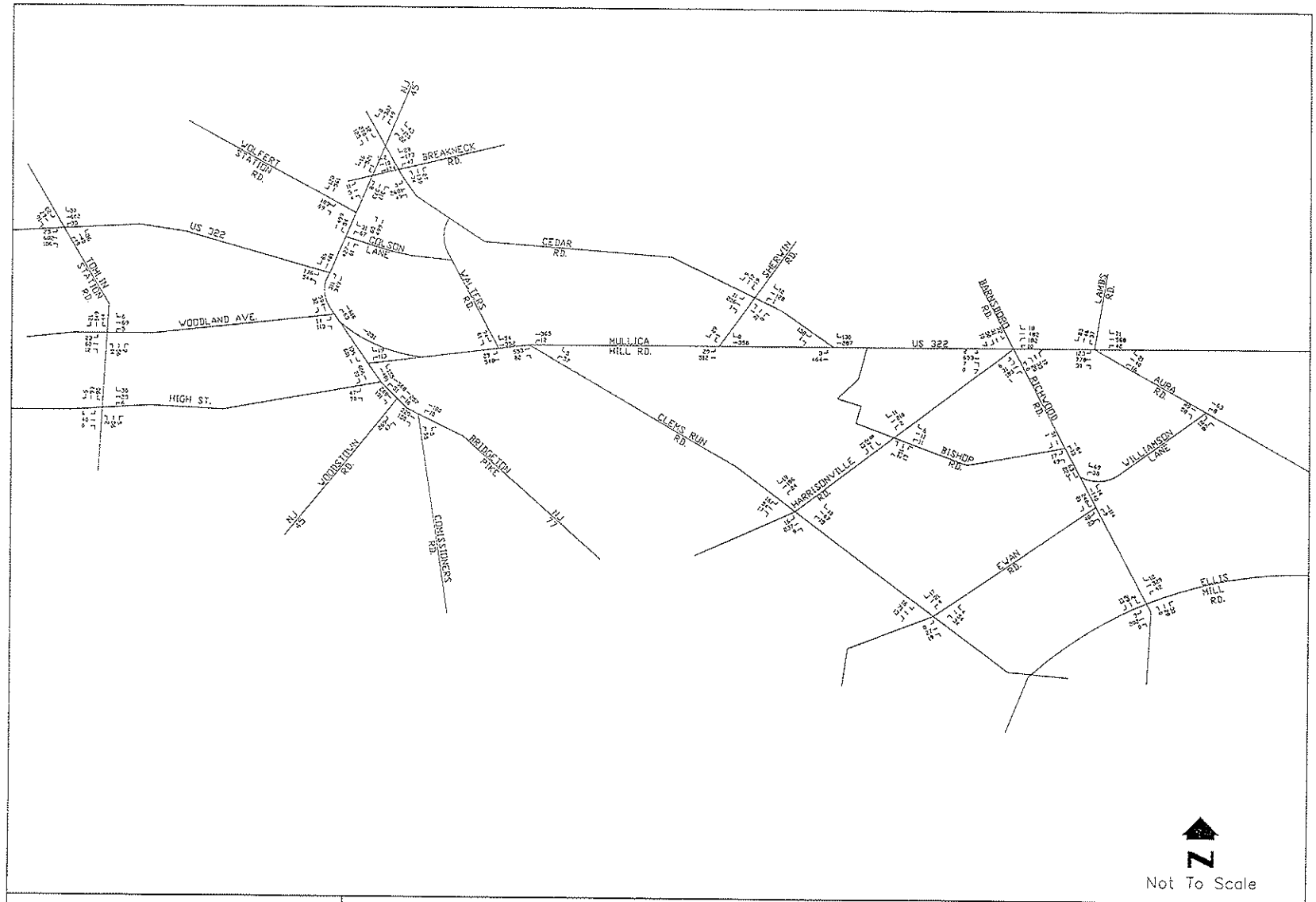
HARRISON TOWNSHIP
TRAFFIC STUDY
HARRISON TOWNSHIP
GLOUCESTER COUNTY, NJ

FIGURE 2
EXISTING PEAK HOUR
MORNING TRAFFIC
VOLUMES



Pennoni PENNONI ASSOCIATES INC. CONSULTING ENGINEERS 3071 E. Chestnut Avenue SUITE F-16 VINELAND, NJ 08361 HARS 0501	HARRISON TOWNSHIP TRAFFIC STUDY HARRISON TOWNSHIP GLOUCESTER COUNTY, NJ	FIGURE 3 EXISTING PEAK HOUR LATE AFTERNOON TRAFFIC VOLUMES

which is the center of Harrison Township. In general, the state roads had the heaviest demand followed by the County Roads while the local roads had the lesser traffic demands.

ASSESSMENT OF EXISTING TRAFFIC OPERATIONS

Volume/capacity analyses were performed for the peak hours according to procedures outlined in the 2000 Highway Capacity Manual (Special Report #209, Transportation Research Board, Washington, D.C.). The latest version of the Highway Capacity Software (HCS+) was used in the completion of these analyses. The results of these analyses provide Levels of Service designations for each lane group at the study area intersections. Definitions of Levels of Service are as follows.

The criteria for determining the Level of Service at an unsignalized intersection measures the average total delay of traffic movements being made from the STOP-sign or YIELD-sign controlled approaches of the minor road and the left turn movements from the major road. For each of these movements, the relative freedom of executing a desired maneuver is limited by many factors including the presence and type of traffic control signing, the volume and speed of conflicting traffic movements, and the geometry of the intersecting roadways.

Each limiting factor or combination thereof, affects the availability of critical gaps or openings in the traffic flow on the major road. It is these gaps through which turning, crossing, or merging maneuvers must be made. The average delay of each critical traffic movement is associated with the frequency with which vehicles accept the available gaps. Total delay is the total elapsed time from when a vehicle stops at the end of the movement queue until the vehicle departs from the stop line.

Poor operating conditions occur when the available gaps in the major traffic flow do not allow side street traffic to cross the major street or enter the major traffic flow. Total delay accumulates as vehicles become stacked at the STOP-sign or YIELD-sign controlled approaches. As side street capacity is approached, long queues will generally result. When total delay becomes too long, drivers may begin to accept smaller gaps in the traffic flow. As drivers adjust their gap acceptance behavior, the queues will be shortened; however, maneuvering through shorter critical gaps can create an unsafe situation or introduce disruptions into the major traffic stream. The evaluation of the intersections in this study was based on the Levels of Service resulting from the average total delay. **Table 2** illustrates the Level of Service criteria for unsignalized intersections.

TABLE 2

Level of Service Criteria - Unsignalized Intersections

Level of Service	Average Total Delay (Seconds per Vehicle)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	> 50.0

Criteria for measuring Levels of Service at signalized intersections are based upon estimates of total delay experienced by vehicles traversing the intersection within each lane group. **TABLE 3** illustrates these Level of Service designations.

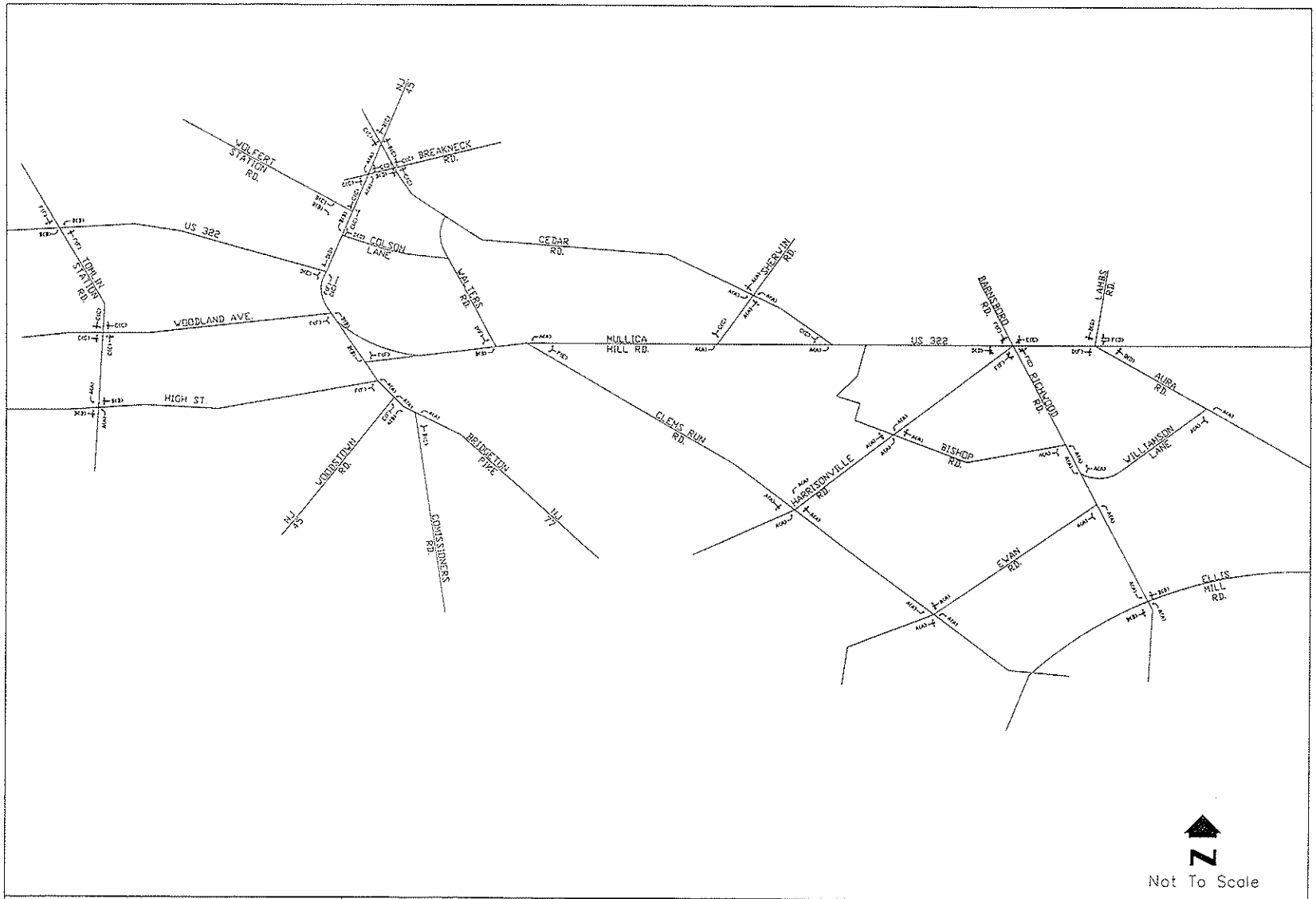
TABLE 3

Level of Service Criteria

Signalized Intersections

Level of Service	Stopped Delay Seconds per Vehicle
A	≤ 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

FIGURE 4 illustrates the results of the Levels of Service analyses for the 30 study area intersections during the existing weekday morning and late afternoon peak hours. As can be seen in the figure, Levels of Service at Harrison intersections range from 'A' through 'F'. The better service levels are experienced at County and Local intersections. Delays, or poor operating conditions, are more prevalent at State intersections in Harrison Township.



PENNONI ASSOCIATES INC. CONSULTING ENGINEERS 3071 E. Chestnut Avenue SUITE F-16 VINELAND, NJ 08361 HARS 0501	HARRISON TOWNSHIP TRAFFIC STUDY HARRISON TOWNSHIP GLOUCESTER COUNTY, NJ	FIGURE 4 EXISTING PEAK HOUR LEVELS OF SERVICE

SUMMARY OF EXISTING TRAFFIC CONDITIONS

The following list summarizes the key findings of the existing traffic analysis as it pertains to traffic operations and possible revisions to methods of traffic control.

- Ten intersections operate with deficiencies at Level of Service 'F' including the following:
  Swedesboro Road (US 322) and Main Street (NJ 45)
  Mullica Hill Road and South Main Street (NJ 45)
  South Main Street (NJ 45) and High Street
  Swedesboro Road (US 322) and Tomlin Station Road
  Mullica Hill Road (US 322) and Richwood/Barnsboro/Harrisonville Roads
  Mullica Hill Road (US 322) and Aura/Lambs Roads
  Woodstown Road (NJ 45) and South Main Street
  South Main Street (NJ 45) and Woodland Avenue
  Mullica Hill Road (US 322) and Walters Road
  Mullica Hill Road (US 322) and Clems Run Road

- Two of these deficient intersections along Mullica Hill Road currently warrant traffic signals based on existing traffic volumes. These intersections are at Walters Road and at Clems Run Road.

- The majority of intersections operate at satisfactory conditions with Levels of Service "C' conditions or better.

PREFERRED LEVELS OF SERVICE

Through the study process with an understanding of how the Township Traffic Subcommittee wants to handle existing and future traffic operations, Preferred Peak Hour Levels of Service were identified. These Preferred Levels of Service were identified for each intersection. Vehicular movement is the identified purpose on the eastern end of Harrison while pedestrian movement is the primary purpose along Main Street. The decisions are policy determinations based upon fostering/maintaining a particular quality of life (in so far as that may be reflected in traffic conditions) rather than supporting traffic engineering theories or practices per se.

TABLE 4 lists the Preferred Levels of Service adopted by the Township Traffic Subcommittee and employed in the remainder of these analyses (which provides traffic related recommendations necessary to attain these preferred thresholds given existing traffic volumes, projected pass-through traffic volumes and projected total future traffic volumes).

TABLE 4
PREFERRED LEVELS OF SERVICE
at
STUDY INTERSECTIONS

	Preferred Level of Service
1. Swedesboro Road (US 322) and Main Street (NJ 45)	E
2. Mullica Hill Road and South Main Street (NJ 45)	E
3. Mill Road (US 322) and South Main Street (NJ 45)	D
4. South Main Street (NJ 45) and High Street	C
5. Commissioners Road and Bridgeton Pike (NJ 77)	C
6. Swedesboro Road (US 322) and Tomlin Station Road	C
7. Mullica Hill Road (US 322) and Richwood/Barnsboro/Harrisonville Roads	E
8. Mullica Hill Road (US 322) and Aura/Lambs Roads	E
9. Woodstown Road (NJ 45) and South Main Street	D
10. South Main Street (NJ 45) and Woodland Avenue	D
11. Tomlin Station Road and High Street	C
12. Tomlin Station Road and Woodland Avenue	C
13. North Main Street (NJ 45) and Wolfert Station Road	C
14. Breakneck Road and Cedar Road	D
15. Bridgeton Pike (NJ 45) and Breakneck Road	D
16. Bridgeton Pike (NJ 45) and Cedar Road	C
17. Mullica Hill Road (US 322) and Walters Road	C
18. Mullica Hill Road (US 322) and Clems Run	C
19. Clems Run and Harrisonville Road	B
20. Ewan Road and Richwood Road	B
21. Richwood Road and Williamson Lane	B
22. Richwood Road and Bishop Road	B
23. Harrisonville Road and Bishop Road	B
24. Mullica Hill Road (US 322) and Cedar Road	D
25. Cedar Road and Sherwin Road	C
26. North Main Street and Colson Lane	C
27. Mullica Hill Road (US 322) and Sherwin Road	D
28. Aura Road and Williamson Lane	C
29. Ellis Mill Road and Richwood Road	B
30. Clems Run and Ewan Road	B

PROJECTED PASS-THROUGH TRAFFIC CONDITIONS

The updated Master Plan for Harrison Township projects includes projections for a twenty year timeframe. For the purpose of the traffic element, we have used a five year time frame for the purposes of development and recommendations. Pass-Through traffic conditions have been evaluated for a 2012 study horizon. Evaluation of the Pass-Through traffic scenario is important, in that it is the transportation baseline for future demand. Pass-Through traffic volumes represent the incremental increase in traffic demand on roadways within Harrison Township which is attributable to ongoing development beyond the Township's boundaries for the duration of the planning threshold.

PASS-THROUGH TRAFFIC VOLUMES

Projections of traffic growth expected by 2012, due to ongoing development outside Harrison Township, were formulated by the following:

Review of the potential development areas outside Harrison Township including South Harrison Township and Woolwich Township. Review of NJDOT estimates for background traffic growth customarily used for the completion of traffic studies. Review of historical peak hour traffic count data along roadways throughout Harrison Township.

Looking at these components individually would include some overlap. For that reason, we have chosen to use NJDOT estimates in their entirety and a portion of the local information. This amounts roughly to a 15% increase in traffic volumes. For consistency throughout the majority of the study area, traffic volumes were increased by 15% to account for pass-through and background traffic growth on Harrison Township for the design year 2012.

The resultant projected Pass-Through peak hour traffic volumes are illustrated in the appendix of this report for the weekday morning and weekday late afternoon peak hours.

HARRISON TOWNSHIP DEVELOPMENT TRAFFIC

Land use assumptions reflect projected changes in land use, densities, intensities and/or population within Harrison Township. It approximates Township development through the planning horizon established. In this situation, we were provided data by Township representations which reflects the anticipated amount of residential development that could be constructed within Harrison Township. These estimates were based on dwelling units per acre of 1.0 in the R-1 District, 2.0 in the R-2 District, and 0.5 in the RR District. Data from the Delaware Valley Regional Planning Commission was used for all other development within Harrison Township. This analysis considered all parcels within the Township, not necessarily those that are projected for development over the next five

years. We have estimated that 40% of the total future residential development and 10% of the non-residential development within Harrison Township will be in some form of development planning within the next five years. The Township Traffic Subcommittee stated that the DVRPC non-residential data was overstated which is why this study only included 10% of those overstated estimates.

The total amount of new residential development was estimated at 3,512. The total amount of non-residential development was estimated at 11,000,000 square feet.

TRIP GENERATION

For the completion of this report, we have used Light Industrial estimates for non residential development. For residential development, we used single family detached housing. Traffic generation analysis was performed applying trip generation equations to the density of the zoning as stated.

TABLE 5 details the trip generation expected as a consequence of the foreseen development (subtotaled as residential and non-residential activity). Slightly more than half of the trips will be produced/attracted by non-residential generators. On a typical weekday, the projected new development within Harrison Township will generate the following peak hour traffic activity.

TABLE 5
TRIP GENERATION*

	New Residential			New Non-Residential		
	IN	**OUT**	**TOTAL**	**IN**	**OUT**	**TOTAL**
Morning Peak Hour	247	740	987	890	122	1012
Late Afternoon Peak Hour	679	381	1060	130	948	1078
TOTALS	**926**	**1121**	**2047**	**1020**	**1070**	**2090**

* Based on Trip Generation, 7th Edition, Institute of Transportation Engineers, Washington, D.C., 2003.

TRIP DISTRIBUTION

The expected distribution of new development traffic upon the Harrison Township highways was estimated by reviewing: the location of the proposed/potential development sites; the pattern of existing peak hour traffic volume along study area roadways; peak traffic patterns exhibited at existing residential, commercial and

industrial access points, and; the network of roadways surrounding the development sites. Other traffic reports were also consulted in this phase of the study.

TABLE 6 summarizes the distribution of the new trips impacting the Harrison Township roadway network.

TABLE 6
Trip Distribution of
Projected Development within Harrison Township

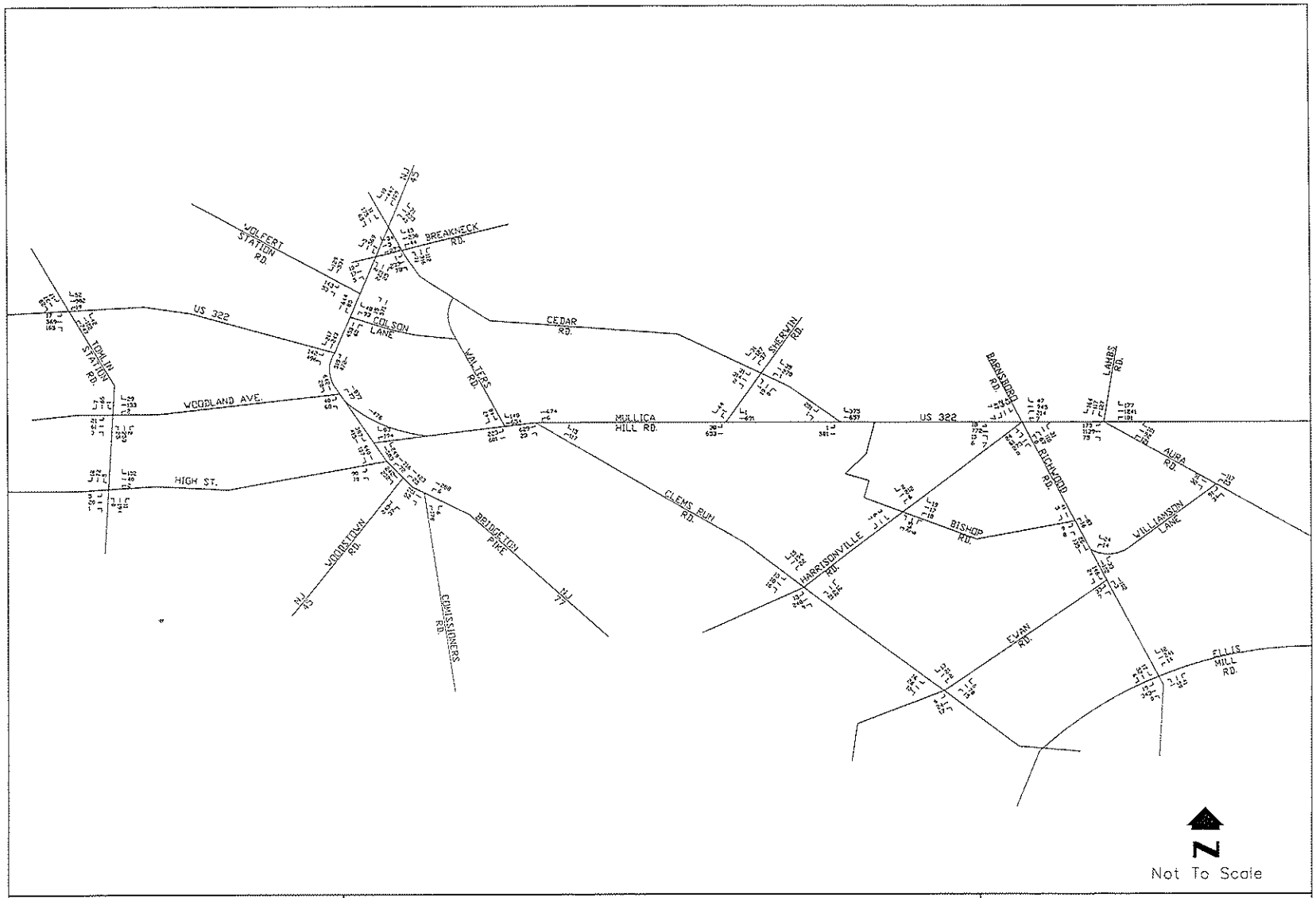
To/From	Residential	Non-Residential
North (NJ 45, Barnsboro, Lambs, Sherwin)	15%	15%
South (NJ 77, NJ 45, Commissioners, Richwood, Ellis Mill)	20%	15%
East (US 322, NJ 55)	35%	35%
West (US 322, Woodland, High)	30%	35%

The traffic assignment process (trip generation multiplied by trip distribution) represents the volume attributable to new development and quantifies the traffic impact of the Land Use Assumptions on the Township's roadway infrastructure.

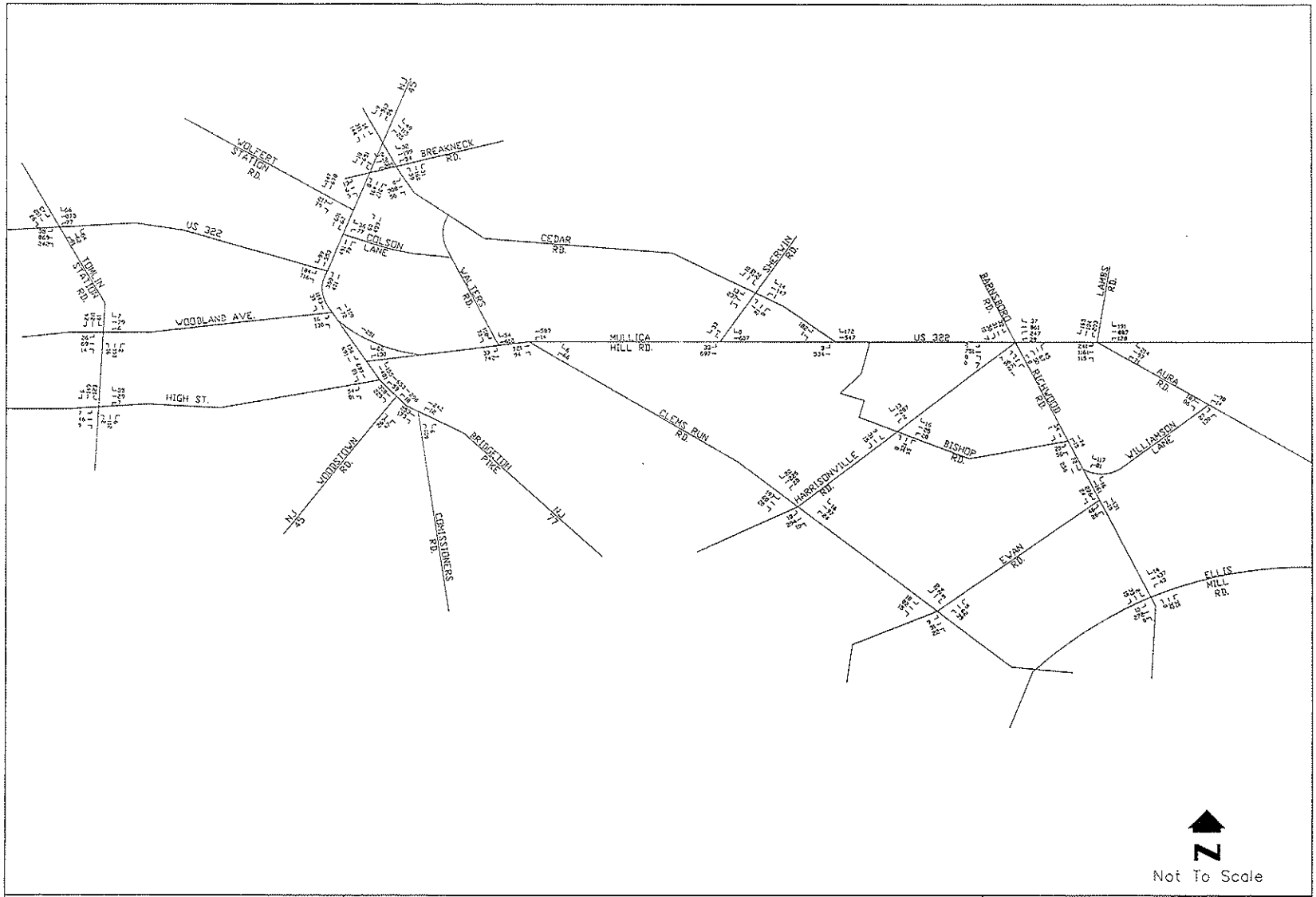
PROJECTED FUTURE TRAFFIC VOLUMES

Projected 2012 Total Future Traffic conditions represents the cumulative effect of existing traffic loading plus traffic resulting from on-going regional development (as quantified by Pass-Through traffic) plus the traffic of development expected to occur within the boundaries of Harrison Township.

The projected traffic volumes on the 30 study area intersections are illustrated in **FIGURES 5 and 6** for the morning and late afternoon, respectively.



Pennoni PENNONI ASSOCIATES INC. CONSULTING ENGINEERS 3071 E. Chestnut Avenue SUITE F-16 VINELAND, NJ 08361 HARS 0501	HARRISON TOWNSHIP TRAFFIC STUDY HARRISON TOWNSHIP GLOUCESTER COUNTY, NJ	FIGURE 5 FUTURE PEAK HOUR MORNING TRAFFIC VOLUMES

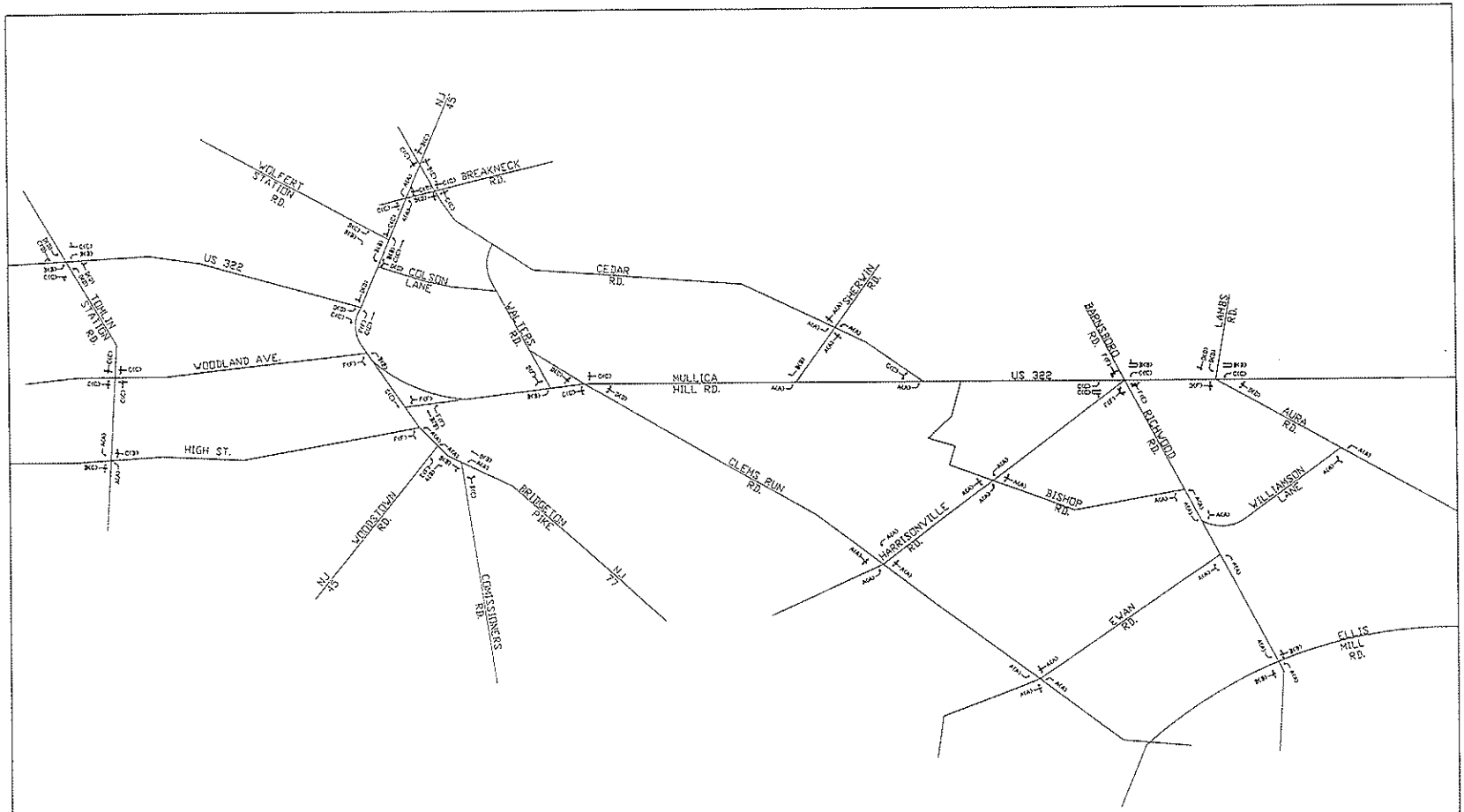


Pennoni PENNONI ASSOCIATES INC. CONSULTING ENGINEERS 3071 E. Chestnut Avenue SUITE F-16 VINELAND, NJ 08361 HARS 0501	HARRISON TOWNSHIP TRAFFIC STUDY HARRISON TOWNSHIP GLOUCESTER COUNTY, NJ	FIGURE 6 FUTURE PEAK HOUR LATE AFTERNOON TRAFFIC VOLUMES

ASSESSMENT OF FUTURE TRAFFIC OPERATIONS

Volume/capacity analyses were again performed for the peak hours according to procedures outlined in the 2000 Highway Capacity Manual, previously referenced. Review of the Preferred Levels of Service documented in this report indicated that improvements were necessary at some study intersections to achieve the preferred Levels of Service. The following lists each study intersection along with improvements necessary at each individual intersection to achieve the preferred Level of Service. Several study intersections do not require any improvements to achieve the preferred Levels of Service. Additionally, an estimated cost is also included for each listed improvement. **FIGURE 7** illustrates the projected future levels of service at the study area intersections with the recommended improvements.

Int. #		Est. Cost
1.	Swedesboro Road (US 322) and Main Street (NJ 45) *The northbound left-turn lane on US 322/NJ 45 should be lengthened.* *An eastbound right turn lane on US 322 should be constructed.*	**$170K**
2.	Mullica Hill Road and South Main Street (NJ 45) *A northbound right-turn lane and a southbound left-turn lane should be installed* *A traffic signal should be installed when volumes justify. This signal would also provide a safer location for pedestrians to cross South Main Street (NJ 45).*	**$385K**
3.	Mill Road (US 322) and South Main Street (NJ 45) *Restrict southbound left-turns.*	**$28K**
4.	South Main Street (NJ 45) and High Street *Bump outs and improved crossings for pedestrian flow.*	**$70K**
5.	Commissioners Road and Bridgeton Pike (NJ 77) *A traffic signal should be installed.*	**$220K**
6.	Swedesboro Road (US 322) and Tomlin Station Road *A traffic signal should be installed with left-turning lanes on all four approaches.*	**$750K**
7.	Mullica Hill Road (US 322) and Richwood/Barnsboro/Harrisonville Roads *US 322 should be widened for two through lanes in each direction and a left turn lane.*	**$600K**
8.	Mullica Hill Road (US 322) and Aura/Lambs Roads *US 322 should be widened for two eastbound through lanes and a separate left turn lane*	



PENNONI ASSOCIATES INC. CONSULTING ENGINEERS 3071 E. Chestnut Avenue SUITE F-16 VINELAND, NJ 08361 HARS 0501	HARRISON TOWNSHIP TRAFFIC STUDY HARRISON TOWNSHIP GLOUCESTER COUNTY, NJ	FIGURE 7 FUTURE PEAK HOUR LEVELS OF SERVICE

for both eastbound and westbound US 322. A southbound left-turn lane on Lambs Road should be provided along with a northbound right-turn lane on Aura Road. **$600K**

9. Woodstown Road (NJ 45) and South Main Street

No improvements suggested.

10. South Main Street (NJ 45) and Woodland Avenue

Bump outs and improved crossings for pedestrian flow. **$70K**

11. Tomlin Station Road and High Street

A multi-way stop sign and flasher should be installed. In lieu of the stop sign/flasher, sight distance should be improved. **$11K**

12. Tomlin Station Road and Woodland Avenue

A traffic signal should be installed. **$220K**

13. North Main Street (NJ 45) and Wolfert Station Road

A northbound left turn lane should be installed. **$55K**

14. Breakneck Road and Cedar Road

A traffic signal should be installed. **$220K**

15. Bridgeton Pike (NJ 45) and Breakneck Road

A traffic signal should be installed. **$220K**

16. Bridgeton Pike (NJ 45) and Cedar Road

A northbound left turn lane should be constructed on Bridgeton Pike. **$135K**

17. Mullica Hill Road (US 322) and Walters Road

A traffic signal should be installed along with realignment with Clems Run Road. **$280K**

18. Mullica Hill Road (US 322) and Clems Run

A traffic signal should be installed along with realignment with Walters Road. **$280K**

19. Clems Run and Harrisonville Road

No improvements suggested.

20.	Ewan Road and Richwood Road *No improvements suggested.*	
21.	Richwood Road and Williamson Lane *No improvements suggested.*	
22.	Richwood Road and Bishop Road *No improvements suggested.*	
23.	Harrisonville Road and Bishop Road *No improvements suggested.*	
24.	Mullica Hill Road (US 322) and Cedar Road *A new traffic signal should be installed.*	**$220K**
25.	Cedar Road and Sherwin Road *No improvements suggested.*	
26.	North Main Street and Colson Lane *No improvements suggested.*	
27.	Mullica Hill Road (US 322) and Sherwin Road *Left turn restrictions may be necessary on Sherwin Road.*	**NC**
28.	Aura Road and Williamson Lane *No improvements suggested.*	
29.	Ellis Mill Road and Richwood Road *Improve intersection to maximize sight distance.*	**$42K**
30.	Clems Run and Ewan Road *Multi way stop control should be installed.*	**$2K**
		TOTAL
		$4,578,000*

*** based on 2007 dollars for design and construction.**