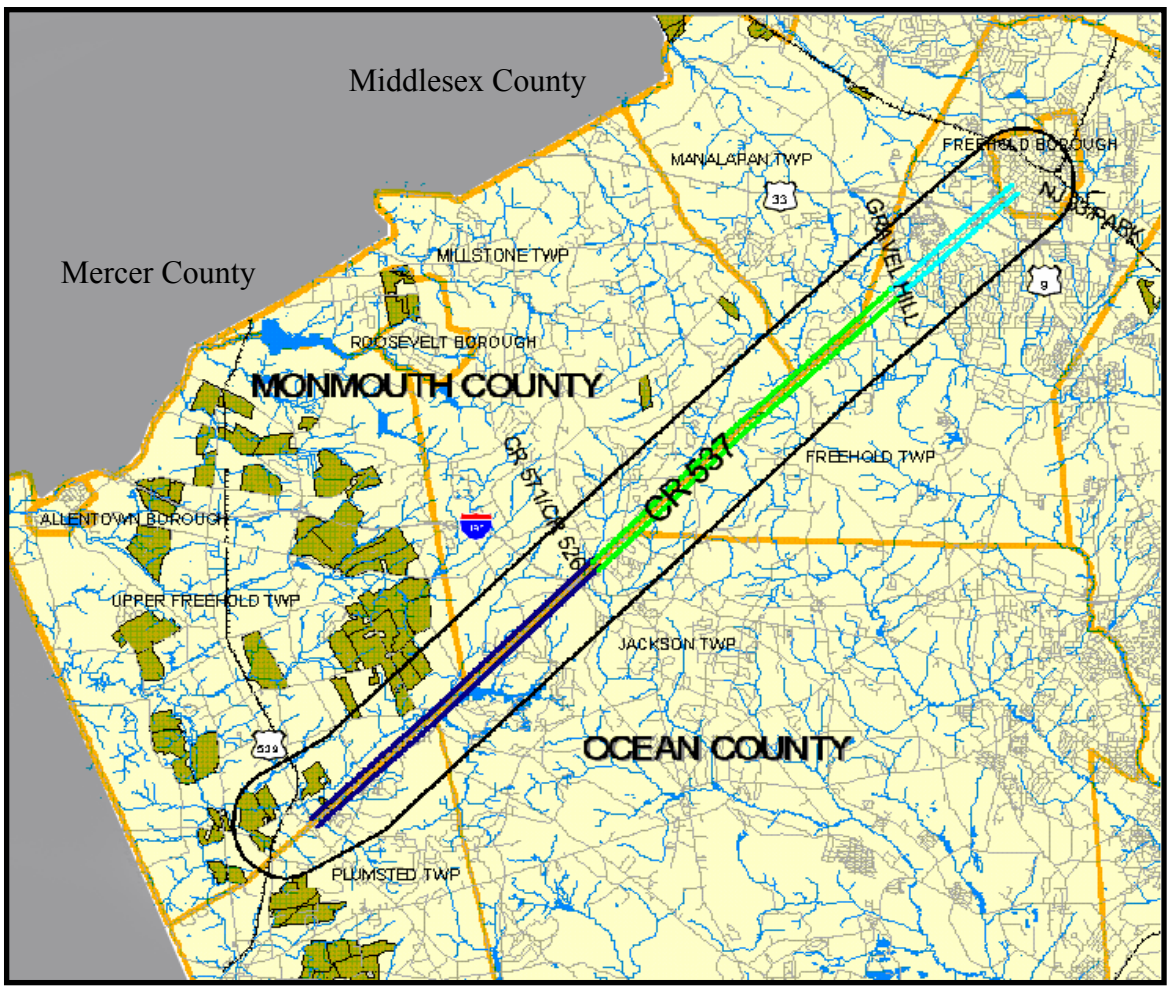
Western Monmouth County Route 537 Corridor Study



Final Report

January 2004

Prepared by the
Monmouth County Planning Board
in association with
Monmouth County Division of Engineering
Monmouth County Division of Traffic Safety Engineering *and*
Orth-Rodgers & Associates

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EXECUTIVE SUMMARY

This report represents the culmination of a one-year, two-phase study of the Monmouth County Route 537 (CR 537) corridor. The first phase, which is presented in Sections 1 through 5 of this report, included:

- Formulating the study's purpose, goals, and objectives;
- Developing the study methodology, including study area geography and time horizon, data collection and analysis, and public outreach strategy;
- Assessing the baseline conditions, from land use and roadways to environmental and watershed management; and
- Conducting a comprehensive assessment of current and future conditions along the corridor, including a detailed intersection-level traffic analysis.

The information gathered and findings resulting from these activities served as the basis for carrying out the following efforts in phase 2, the results of which are presented in Sections 7 through 10 of this report:

- Identifying corridor-wide and location-specific issues;
- Developing potential improvement strategies;
- Recommending corridor-wide and location-specific improvements;
- Developing preliminary improvement priorities; and
- Identifying potential implementation strategies.

The purpose of this report is to present the **Western Monmouth County Route 537 Corridor Study** comprehensively, integrating the findings from phases I and II; and to define the baseline conditions in the corridor, corridor-wide and location specific issues, and recommended improvements. This report will ultimately serve as a guide for preserving and/or enhancing the mobility and accessibility provided by CR 537 while accommodating and shaping future growth along the corridor.

The project background, findings from the baseline conditions assessment, corridor and location specific issues, recommended improvements, preliminary improvement priorities, and implementation strategies are summarized below.

Project Background

Monmouth County Route 537 (CR 537) is a major transportation corridor serving regional travel needs between Burlington, Ocean and Monmouth Counties. The facility traverses one of the fastest growing regions in New Jersey, the panhandle region of western Monmouth County. It also provides access between rapidly-developing areas, such as eastern Mercer County and Jackson Township in Ocean County, to recreation and commercial sites in Monmouth County.

Congestion along CR 537 has and continues to increase due to several factors:

- CR 537 offers a southwest – northeast alignment approximately midway between the NJ Turnpike and the Garden State Parkway, and is the most direct route for travelers and commercial vehicles originating or destined to areas west of Monmouth via Interstate 195 (I-195) to reach US Route 9 and NJ Route 33.
- CR 537 is the primary access roadway for several large traffic generators including Six Flags Great Adventure and the Jackson Outlet Village in Jackson Township (Ocean County) and the Freehold Raceway Mall in Freehold Township.
- CR 537 connects several regionally significant roads including I-195, NJ Routes 18 and 33, and US Route 9, as well as various county and local roads.

Although the county continues to progressively expand and/or improve sections of the roadway using funds from the county capital improvement program (CIP) and development-related agreements, travel volumes have continued to outpace the improvements. Several critical concerns now face the county in managing and phasing improvements along the corridor. These include:

- Vehicle travel resulting from commercial and residential development in the Freehold Township area within the next few years is expected to exceed present traffic movement capabilities along certain sections of the roadway.
- Several major development applications for projects along CR 537 are imminent, and already, several major housing developments and shopping centers have been constructed that have increased travel demand levels in the corridor.
- Although a county-sponsored widening project on CR 537 south of the I-195 Interchange was recently completed, further commercial, recreational and residential development near the southern portion of the proposed study area is expected to increase already present congestion along the two lane stretch of CR 537 at and to the east of the I-195 Interchange.
- Imminent completion of improvements on several proximate state and regional roadways is expected to improve regional access to the CR 537 corridor.

The goal of the **Western Monmouth County Route 537 Corridor Study** is to establish an action plan that will help address the changing balance between land use development and transportation needs within the CR 537 corridor in both 7 and 12 year time horizons. This will be accomplished through several objectives which are defined as follows:

- Coordinate with officials and community stakeholders from local municipalities located within the CR 537 corridor to identify transportation concerns and issues and to establish a clear vision of anticipated land use development needs and treatments envisioned by these communities.
- Develop an inventory of County and municipal transportation facilities and resources within the CR 537 corridor, and assess the current performance of these facilities using transportation industry standards.
- Project future travel demands based upon projected land use build-out conditions and/or growth factor projections in the corridor using industry-standard analytical processes.

- Apply the projected travel demands to the existing transportation facilities within the CR 537 corridor and determine the demands that future land use development will place upon access and mobility.
- Identify a range of possible growth management strategies and/or appropriate scale transportation solutions to address the projected level of travel demand during the time horizons considered, and select those most appropriate for further consideration.
- Review recommended strategies with community officials, stakeholders and Technical Advisory Committee (TAC) representatives, and select appropriate alternatives.
- Develop concept drawings and mapping defining recommended strategies and/or roadway improvements for the CR 537 corridor.
- Identify funding sources and mechanisms that can be used to implement the recommended improvements.

The **Western Monmouth County Route 537 Corridor Study** assembled a Project Team composed of several Monmouth County Engineering and Planning divisions with a range of expertise in land use, transportation, environmental, development review and long range planning capabilities. The team was further supported by the consulting firm Orth-Rogers & Associates for traffic analysis and data collection aspects of the project.

The project study area includes the portion of the CR 537 between NJ State Route 33 Business (Park Avenue), at the southern end of Freehold Borough, to CR 539 Hornerstown – Whitings Road for a distance of approximately 16 miles. The study area also includes land areas, roadways and intersections situated within one mile of the centerline of CR 537. Because of the varying nature of land use and roadway attributes, the corridor was divided into 3 analysis Study Section Areas as follows:

Section	From Roadway Location	To Roadway Location	Land Uses / Predominant Roadway Features
A	NJ Route 33 Business (Freehold Borough)	Gravel Hill Road (Freehold Township)	Urban / suburban commercial and residential development / 4 lanes with signalized intersections and regional roadway interchanges
B	Gravel Hill Road (Freehold Township)	CR 571 Trenton – Lakewood Rd. (Millstone Twp. / Jackson Twp.)	Rural, Agricultural and Environmentally Sensitive Watershed Areas / 2 lanes with un-signalized access
C	CR 571 Trenton – Lakewood Rd. (Millstone Twp. / Jackson Twp.)	CR 539 Hornerstown – Whitings Rd. (Upper Freehold Twp. / Plumsted)	Rural with pocket commercial and recreational development / 2 - 6 Lanes with signalized access Near I-195; 2 lanes with un-signalized access further south

Baseline Conditions

Land Use

Proximate land uses range from densely populated urban/suburban communities and commercial strip developments to rural, scenic and even environmentally sensitive watershed areas. This diversity is reflected through the New Jersey State Development and Redevelopment Plan (SDRP), where portions of the study area include all 6 Planning Area designations. Further, the SDRP has established Freehold Borough as a Designated Town Center and proposed the creation of a Greater Freehold Regional Center in Freehold Township.

Study Section A covers a variety of zoning designations mainly in Freehold Township, including corporate-multi use, multi-family residential, professional office, single family residential and

regional mall designations. Single family residential designation dominates zoning in this area, and approximately 1.2 million square feet of new major and minor development is now proposed for this area. Study Section B is split between two predominant zone designations: Rural residential in the southern section and restrictive Rural Environmental in the northern section. Presently, sewers do not extend further west than Thompson Grove Road, nor are they proposed to at this time. A limited amount of highway commercial and business uses are permitted immediately adjacent to CR 537. Residential designations dominate Study Section C.

A review of current residential and commercial development application data for the municipalities that comprise the corridor identified over 1.4 million square feet proposed for major and minor developments, totaling 74 major and minor lots along the CR 537 corridor. Although the actual project study area extends only 1-mile on each side of the CR 537 corridor, development and growth throughout the Western Monmouth County and neighboring Ocean County regions extends well beyond this area, and will play an important role in additional travel demand.

Roadway Corridor

Between Business Route 33 and Gravel Hill Road in Study Section A, CR 537 facilitates the movement of more than 3,000 vehicles during the highest peak hour period in some sections. Highest volumes were measured between the Route 33 Freeway Interchange and Stillwell's Corner / Wemrock Road Intersection during the evening peak hour period. Volumes in Section A progressively increase from morning to midday and finally evening peak periods due to the overlap of work and non-work trips.

Between Gravel Hill Road and CR 526/571 in Study Section B, CR 537 facilitates the movement of over 2,000 vehicles during the highest peak hour period in some sections. Highest volumes were measured between Gravel Hill Road and Thompson Grove Road in the PM peak period. Travel movements within this roadway section are longer and more regional in nature, and are therefore heaviest in the AM and PM peak periods, suggesting a strong work trip market between the growing residential areas of Jackson Township in Ocean County and panhandle towns of Western Monmouth County to major employment centers in central and northern New Jersey via US Route 9.

Between CR 571 and CR 539 in Study Section C, over 1,000 vehicles were counted between Burnt Tavern Road and the I-195 Interchange during AM and PM peak periods. Volumes in the midday, likely due to the influence of shopping and recreational locations nearby, were similar to those of AM and PM peak periods between the I-195 Interchange and Pine Street.

Travel movements within this roadway section were primarily destined to and from I-195 and Six Flags Great Adventure. Notably, an imbalance in travel volumes along CR 537 in Study Section C is skewed to WB movements in the AM and midday peak periods, with evening volumes achieving a close directional balance. This suggests a strong work travel market between the growing residential areas of Western Monmouth County to work destinations west of CR 537 in Mercer County, Pennsylvania and perhaps Philadelphia.

Intersections

Many roadways intersect CR 537 within the project study limits resulting in a total of 52 intersections, of which 13 are signalized and 39 are stop-controlled. Additionally, there are 4 grade-separated interchanges. A majority of signalized intersections are located in Sections C and A at the west and east ends of the corridor. Five intersecting roadways are state owned and/or operated, 7 are county (Monmouth or Ocean), 33 are municipal, and 7 are believed to be privately-owned drives or entrances.

Although CR 537 facilitates travel between interior Monmouth County and Ocean / Burlington and Mercer Counties, a number of major county roads intersect with CR 537 in Study Sections B and C. In addition to feeding CR 537, these roadways also carry heavy volumes destined for employment centers in Middlesex and northern Mercer Counties. These patterns are expected to continue into the future, and are likely to result in deterioration of operational performance for CR 537 corridor intersections.

Failing conditions (overall Level of Service (LOS) F) under current baseline conditions were identified on at least one approach at the following signalized intersections:

- CR 537 at NJ Route 33 Business (PM peak period)
- CR 537 at Stillwells Corner Road (Midday, PM peak periods)
- CR 537 at Village Center Drive / Redwood Lane (Midday, PM peak periods)
- CR 537 at CR 527 / CR 537 Smithburg / Siloam Roads (AM, PM peak periods)
- CR 537 at CR 526 / CR 571 Trenton – Lakewood Roads (AM, PM peak periods)

Failing (overall LOS F) conditions / excessive seconds of delay for unsignalized intersections under current baseline conditions were identified on at least one approach at the following locations:

- CR 537 at Gibson Place (AM, PM peak periods)
- CR 537 at Gravel Hill Road (AM, PM peak periods)
- CR 537 at Thompson Grove Road (AM, PM peak periods)
- CR 537 at CR 524 Elton – Adelphia Road (AM, PM peak periods)
- CR 537 at CR 524 Stagecoach Road (AM, PM peak periods)
- CR 537 at Burnt Tavern Road (AM, PM peak periods)

In addition to deterioration of midday LOS levels to F on some approaches to these signalized intersections, projected increases in volume in 2007 and 2012 will degrade at least one approach at the following intersections to a LOS F category:

<u>2007</u>

- Signalized
  - CR 537 at US Route 9 SB Ramps (PM peak period)
  - CR 537 at Trotters Way (Midday, PM peak periods)

- Unsignalized
  - Barkalow Avenue at US Route 9 NB Ramp at (PM peak period)

2012

- Signalized
  - CR 537 at CR 539 (PM peak period)
- Unsignalized
  - CR 537 at Hawkins Road (PM peak period)

The LOS for each intersection by year and peak travel period is presented in Table ES-1.

Table ES-1
Level of Service Comparison of CR 537 Corridor Study Intersections

	Year and Travel Period								
		2002			2007			2012	
Intersection	**AM**	**MID**	**PM**	**AM**	**MID**	**PM**	**AM**	**MID**	**PM**
Business Rt. 33	**C (33)**	**C (35)**	**D (41)**	**D (45)**	**E (64)**	**F (260)**	**F (148)**	**F (288)**	**F (338)**
Rt. 9 NB Ramps	**B (14)**	**C (23)**	**B (18)**	**B (19)**	**C (34)**	**C (29)**	**C (21)**	**D (38)**	**C (33)**
Rt. 9 SB Ramps	**C (21)**	**C (21)**	**C (22)**	**D (39)**	**C (35)**	**F (85)**	**D (48)**	**D (45)**	**F (115)**
Trotter's Way	**C (28)**	**D (47)**	**C (30)**	**D (40)**	**D (52)**	**E (69)**	**D (52)**	**E (60)**	**F (95)**
Rt. 33 (Freeway)									
Gibson Place	e (35)	c (17)	f (673)	c (18)	c (17)	d (33)	c (21)	c (19)	e (38)
Freehold Marketplace Access	N/A	N/A	N/A	**C (21)**	**C (24)**	**E (78)**	**C (29)**	**C (27)**	**F (103)**
Stillwell's Corner Road	**C (32)**	**D (54)**	**F (108)**	**E (68)**	**F (116)**	**F (241)**	**F (106)**	**F (150)**	**F (299)**
Village Center	**C (32)**	**D (40)**	**E (57)**	**E (66)**	**E (74)**	**F (159)**	**F (119)**	**F (107)**	**F (223)**
Iron Bridge Road	**B (20)**	**C (25)**	**C (23)**	**C (22)**	**C (32)**	**C (31)**	**C (24)**	**D (36)**	**D (40)**
Gravel Hill Road	f (50)	d (33)	f (353)	f (*)	f (138)	f (*)	f (*)	f (336)	f (*)
Thompson Grove	f (64)	d (32)	e (47)	f (393)	f (92)	f (497)	f (*)	f (207)	f (*)
Rt. 524	f (71)	d (27)	f (102)	f (333)	f (67)	f (761)	f (800)	f (142)	f (*)
Rt. 527	**F (241)**	**B (18)**	**F (154)**	**F (274)**	**C (22)**	**F (200)**	**F (316)**	**C (25)**	**F (258)**
Rt. 524	d (34)	c (24)	e (47)	f (67)	e (37)	f (177)	f (105)	e (45)	f (301)
Rt. 571	**D (50)**	**C (28)**	**F (91)**	**E (66)**	**C (34)**	**F (152)**	**F (83)**	**D (43)**	**F (198)**
Mall Access	**B (16)**	**B (12)**	**B (16)**	**B (19)**	**B (14)**	**C (23)**	**C (22)**	**B (15)**	**C (29)**
Burnt Tavern Road	f (*)	d (28)	f (380)	f (*)	e (41)	f (*)	f (*)	f (53)	f (*)
I-195	**C (23)**	**C (22)**	**F (96)**	**C (31)**	**C (28)**	**F (134)**	**D (44)**	**C (34)**	**F (158)**
Pine Road	**C (23)**	**B (16)**	**B (15)**	**C (24)**	**B (16)**	**B (15)**	**C (25)**	**B (17)**	**B (15)**
Hawkins Road	c (18)	b (15)	c (18)	c (23)	c (18)	c (23)	d (30)	c (20)	d (27)
CR 539	**C (21)**	**B (18)**	**C (30)**	**C (31)**	**B (18)**	**D (54)**	**D (39)**	**B (19)**	**E (78)**

Legend:

A - Signalized Level of Service

a - Unsignalized Level of Service

(20) - Overall Intersection Delay in Seconds

(*) - Incalculable Delay

Unsignalized intersection LOS represents the critical side street movement for each intersection.

Crash Data

Although the project team was not able to obtain all crash data for the CR 537 corridor, several locations within the CR 537 corridor have crash rates that exceed statewide averages with clearly identifiable patterns. These findings suggest that improvements or changes to roadway geometrics, striping, channelization, advance warning signage, signal operation, turn prohibitions, speed limit reductions or other enhancements should be considered. These include:

- CR 537 overpass over I-195 and approaches
- CR 537 & Burnt Tavern Road
- Sunoco Driveway at CR 526 / CR571
- CR 537 at Gibson Place
- CR 537 & Village Center Drive
- CR 537 & Wemrock / Stillwell's Corner Roads
- CR 537 & Trotters Way
- CR 537 overpass over NJ Route 33 Freeway and approaches

Bridges and Culverts

A total of 14 bridge or culvert structures were identified in the CR 537 corridor study area. These range in size and complexity from multi-span steel and concrete overpass structures over NJ Route 33 Freeway and I-195 in Study Sections A and C respectively, to small culvert and pipe structures throughout the corridor to accommodate small tributaries and streams. None of these structures are presently identified as serious problems, although surrounding environmental land uses may affect the range of future improvement options.

Public Transportation

Although public transportation service is available in the CR 537 corridor, the level and types of service vary greatly between the three Study Sections in this report. The majority of transit service is currently provided in Section A between NJ Route 33 Business, US Route 9, Freehold Raceway Mall and Centra-State Hospital at the northern end of the corridor. These services include commuter bus routes oriented to New York and Northern New Jersey as well as "city" bus services providing local access within Monmouth County. While multiple routes operate within or across this area, Sections B and C did not have any public transportation service available until recently. In 2001, Six Flags Great Adventure, who previously had contracted for its own employee transportation services, began sponsoring operation of seasonal NJ TRANSIT scheduled bus service between its Six Flags Great Adventure amusement parks, Jackson Outlet Village, and the Freehold Transportation Center. These services operate between May and November of each year, are open to the public, and provide connections to regional and local bus routes in Freehold Borough.

Bicycle and Pedestrian

Bicycle and Pedestrian activity within the CR 537 corridor varies extensively by Study Section and the availability of suitable facilities. Although the majority of bicycle and pedestrian activity

occurs in the higher employment and population density areas comprising Study Section A, pedestrian use is likely constrained by the lack of a comprehensive and fully connected series of sidewalks that would safely permit increased pedestrian travel while bicycle use is constrained by a lack of adequate shoulders, close horizontal clearances and heavy traffic movements on area roadways. Pedestrian activity is more limited in Study Sections B and C, as the travel distances between destinations increase and population densities decrease.

Railroads and Major Utility Crossings

One active and one abandoned railroad cross CR 537 to the north and south, respectively, of the roadway sections under review. The active rail route is presently operated for freight by Conrail Shared Assets Operating Company, and is also the preferred route for the proposed Monmouth-Ocean-Middlesex Passenger Rail Line by both Monmouth and Ocean Counties. As a passenger rail line, this route is anticipated to play an important part in reducing commuter travel in the Western Monmouth Region, and as such, its continued operation and preservation are important for the region.

Although utilities, such as electric, telephone, cable, water, and sewer, parallel CR 537, the review by the project team did not identify any significant constraints presented by these utilities to both present and future needs and conditions. Major electric transmission lines cross the corridor at two locations, and may have potential applications for linear recreational trails. Water and sewers in the corridor extend only as far west as Thompson Grove Road, and no plans for future extension are presently envisioned.

Environmental and Watershed Management

The CR 537 project area is surrounded by five major watersheds. Study Section A, from north of Business Route 33 to Gravel Hill Road, is encompassed by the Delaware River Watershed, which includes Upper Freehold Township, Plumstead Township, Millstone Township, and Jackson Township. Section B, from Gravel Hill Road to CR 571/CR526, is surrounded by the Toms River Watershed, Metedeconk River Watershed, and the Raritan River Watershed, and comprises portions of Millstone Township, Freehold Township, and Jackson Township. Section C, from CR 571/CR 526 to CR 539, includes the Raritan River, Metedeconk River, and the Manasquan River Watersheds, and comprises portions of Freehold Township, Freehold Borough, and Manalapan Township. These areas have a number of restrictions and requirements related to development and may require permits to facilitate future roadway improvements in certain areas.

Wetlands, grasslands and forests where endangered species have been identified or where there is a possibility of habitat for threatened and endangered species near CR 537 are found in Sections B and C. Turkey Swamp is an area of significant concern for habitats and wetlands, and encompasses major sections of Study Section B in both Monmouth and Ocean Counties. Regulations involving these issues may prove more difficult to address when future roadway improvements are considered.

Scenic Roadways and Historic Sites

In the CR 537 corridor, several locations were identified as conforming to the scenic roadway plan. On CR 537, the entire roadway in Study Sections B and C is designated as a scenic roadway. This designation recommends that design standards typically used for roadway improvements be made more flexible to avoid impacting the aesthetic qualities of proximate land uses.

Several historic sites were identified in the CR 537 Study Area. These sites are important cultural interpretive elements to the surrounding area. Where transportation improvements are sought, strategies must avoid negative impacts to these locations and where possible, should seek to complement the surrounding historic sites and areas.

Stakeholder Concerns

The Stakeholder group meetings were successful in identifying specific areas of concern along the CR 537 corridor, enabling the Project Team to dedicate one-on-one attention to each stakeholder and issue at the meetings. A majority of concerns identified specific intersections within the municipality, land areas slated for new or expanded development, and impacts from land use development on congestion. Communities also expressed interest in pedestrian and bicycle improvements in selected areas of the corridor.

Commercial Vehicles

Commercial vehicles make extensive use of the CR 537 corridor. While some commercial vehicle travel appears to serve local deliveries, a review of through volumes on CR 537 suggest that regional commercial vehicle movements are also making use of the corridor. This is partially due to CR 537 providing a more direct and toll-free means of accessing interior and coastal Monmouth County from areas west and south of the County.

Corridor Issues and General Recommendations

A comprehensive evaluation of the existing and future conditions in the study area, which is discussed in detail in Sections 3 through 5, revealed that there are several issues that persist throughout the corridor. These issues, along with corresponding recommendations, are listed in Table ES-2 and discussed in detail in Section 7.

TABLE ES-2
Summary of Corridor Issues and General Improvement Strategies

Corridor Issue	General Recommendation
Variable shoulder widths and cross-sections	• In study section A, implement a four-lane cross-section with five foot sidewalks on one or both sides of the roadway, where feasible (center turn lane may be desirable in certain locations); and • In study sections B and C, implement a two- or four-lane cross-section with six to eight foot shoulders depending on location.
Signal phasing/signal coordination	• Implement a signal progression program to optimize operations of signalized intersections along CR 537; and • Integrate future signalized intersections into the system.
Unsignalized intersections	• Upgrade selected unsignalized intersections to signalized as warranted; and • Adopt a master signal plan for signal locations throughout the corridor.
Sight distances	• Where feasible, re-align skewed approaches along CR 537; • Alter topography to create a more level cross-section along CR 537 where feasible; and/or • Install appropriate signage to inform drivers of upcoming changes in roadway characteristics.
Transit stop locations and amenities	• Installation of appropriate signage indicating the bus stop location; Installation of benches and shelters; • Posting the operating schedules of all buses serving the particular stop; • Creating an appropriate space outside of roadway travel lanes for buses to stop at the designated bus stop; and • Conducting outreach to raise public awareness of the transit services serving the corridor.
Bicycling conditions	• Provide shoulders along CR 537, where feasible; • Develop multi-use trails paralleling CR 537; • Install appropriate signage; and • Implement access management strategies to reduce potential conflict points.
Access management	• Construct service roads and provide shared access amongst adjacent developments; • Encourage cluster zoning along CR 537, which can greatly reduce the future need for access points on CR 537 while providing enhanced access to developments and increasing land development opportunities; and • Utilize municipal official maps to identify needs based on future development, reserve necessary ROW for future service roads, and inform the public and developers where future access points will be so they can plan accordingly.
Unified corridor vision	• Monmouth and Ocean Counties in cooperation with the seven municipalities should develop a unified corridor vision for the CR 537 corridor to help guide future zoning and land use decisions by municipalities and assist the counties with future infrastructure improvement decisions.
Utilities	• Where appropriate and feasible, bury or relocate aboveground utilities to minimize potential safety concerns and/or aesthetic impacts.

Location Specific Issues and Recommended Improvements

The baseline and future conditions assessment, which are presented in Sections 3 through 5, revealed that there are several location specific issues in the study area. These issues include but are not limited to:

- Heavy traffic volumes and high travel speeds;
- Multiple intersections operating at or near capacity;
- Inefficient and undesirable operating conditions;
- Relatively high number of crashes;
- Limited public transportation service to key activity centers, such as Freehold Raceway Mall and Centra State Medical Center, and undesirable transit facility conditions; and
- Pedestrian facility issues, including gaps in the sidewalk system, unidentifiable pedestrian crossings, and missing pedestrian signage/signals.

These issues are discussed in detail by location in Section 8, along with the recommended improvements to address them. The recommended improvements vary by location and include:

- Travel lane, roadway signage, and signal improvements;
- Roadway/bridge widening and restriping;
- Roadway realignment and interchange/intersection modifications;
- Transit enhancements; and
- Pedestrian improvements.

A summary of the recommended improvements by study section and location are presented in Tables ES-3, ES-4, and ES-5.

Table ES-3
Recommended Improvements by Roadway Segment/Intersection Area
Study Section A - NJ Route 33 Business to Gravel Hill Road

Roadway Segment/Intersection Area	Recommended Improvement								
	Pedestrian Facility Improvements	Transit Enhancements	Roadway Signage	Travel Lane Improvements	Signal Improvements	Restriping	Roadway/ Bridge Widening	Interchange/ Intersection Modifications	Roadway Realignment
Throckmorton from CR 537 to US 9	●	●							
CR 537 from NJ Route 33 Business (Park Avenue) to Trotters Way	●	●		●	●				
CR 537/US 9 Interchange	●		●	●	●		●	●	
CR 537/Barkalow Avenue	○		○		○				
CR 537/US 9				○	○		○	○	
US 9 at Brookdale Community College	○								
CR 537 from Trotters Way to Wemrock Road/Stillwell's Corner Road	●	●	●	●	●		●	●	
CR 537/Trotters Way	○			○	○			○	
CR 537/NJ Route 33 Freeway	○		○	○			○	○	
CR 537/Castronova Way (realigned Gibson Place)	○			○				○	
CR 537 from Wemrock Road/Stillwell's Corner Road to Gravel Hill Road	●	●		●	●	●		●	
CR 537/Wemrock Road/Stillwell's Corner Road				○	○	○		○	
Wemrock Road between CR 537 & Gully Road	○	○							
CR 537/Village Center Drive/Redwood Lane	○	○			○				
CR 537/Iron Bridge Road	*No recommended improvements at this time*								
CR 537/Gravel Hill Road	○			○	○			○	

Legend

● Improvement recommended for roadway segment

○ Improvement recommended for intersection within roadway segment

Table ES-4
Recommended Improvements by Roadway Segment/Intersection Area
Study Section B - Gravel Hill Road to CR 571 Trenton/Lakewood Road

Roadway Segment/ Intersection Area	Recommended Improvement								
	Pedestrian Facility Improvements	Transit Enhancements	Roadway Signage	Travel Lane Improvements	Signal Improvements	Restriping	Roadway/ Bridge Widening	Interchange/ Intersection Modifications	Roadway Realignment
CR 537 from Gravel Hill Road to CR 571/CR 526				●	●			●	●
CR 537/Thompson Grove Road				○				○	
CR 537/CR 524 East (Elton-Adelphia Road)				○				○	○
CR 537/CR 527 (Smithburg Road)				○	○			○	
CR 537/CR 524 West (Stagecoach Road)									○
CR 537/Eli Harmony Road Springs Road/Francis Mill Road									○
CR 537/Squan Road/Brookside Road/Wright-DeBow Road				○				○	○
CR 537/CR 571/CR 526				○	○			○	

Legend

● Improvement recommended for roadway segment

○ Improvement recommended for intersection within roadway segment

Table ES-5
Recommended Improvements by Roadway Segment/Intersection Area
Study Section C - CR 571 Trenton/Lakewood Road to CR 539 Hornerstown/Whitings Road

Roadway Segment/ Intersection Area	Recommended Improvement								
	Pedestrian Facility Improvements	Transit Enhancements	Roadway Signage	Travel Lane Improvements	Signal Improvements	Restriping	Roadway/ Bridge Widening	Interchange/ Intersection Modifications	Roadway Realignment
CR 537 from CR 571 to the CR 537/Six Flags Great Adventure Interchange	●	●	●	●	●	●	●	●	
CR 537/I-195 Interchange	○		○	○	○		○	○	
CR 537/Pine Drive		○	○	○		○		○	
CR 537/Six Flags Interchange			○						
CR 537 from Six Flags Great Adventure to CR 539				●				●	
CR 537/Millers Mill Road	*No recommended improvements at this time*								
CR 537/Hawkins Road/Prosper Town Road				○				○	
CR 537/South Mill Road	*No recommended improvements at this time*								
CR 537/CR 539				○				○	

Legend

● Improvement recommended for roadway segment

○ Improvement recommended for intersection within roadway segment

Location Needs and Preliminary Improvement Priorities

An assessment was conducted to determine the preliminary improvement priorities for the various roadway segments/intersection areas analyzed in this study. It is important to note that the determinations are in the context of the study area only and do not take into account County-wide needs and priorities. The County capital improvement program (CIP) should be referred to for County-wide transportation improvement priorities.

Several factors were considered in this assessment including:

- Issues found at each location under existing and future conditions;
- Public feedback on issues identified;
- Potential feasibility of addressing the identified issues;
- Currently planned County or privately sponsored improvements;
- Scope of suggested improvements;
- Significance of location/issue(s) in the local and regional transportation system; and
- Transportation planning and engineering expertise.

Based on this assessment, the following locations were found to be most immediate in terms of importance:

- CR 537/US Route 9 Interchange;
- CR 537/NJ Route 33 Freeway; and
- CR 537/I-195 Interchange.

The details of this assessment, including the overall findings, are presented in Section 9.

Implementation Strategies

There are multiple funding sources and mechanisms that can be used to implement the improvements recommended in this study. These include but are not limited to:

- Local actions, such as updating zoning ordinances and maps and future land use plans;
- State and federal funding sources; and
- Metropolitan Planning Organization (MPO) and Transportation Improvement Program (TIP).

These strategies are discussed in detail in Section 10, including how they work, how to pursue and/or apply for them, their applicability to the recommendations presented in this report, and timing (if applicable).

1. INTRODUCTION

1.1 PURPOSE OF THE STUDY

Monmouth County Route 537 (CR 537) is a major transportation corridor serving regional travel between Burlington, Ocean and Monmouth Counties. The roadway traverses one of the fastest growing regions in New Jersey, the Panhandle Planning Region of western Monmouth County, and via connections to nearby regional highways, links other rapidly-developing areas such as eastern Mercer County and Jackson Township in Ocean County to recreational and commercial sites in Monmouth County. For this project, the study section ends to the north in Freehold Borough, which is a NJ State Planning Commission designated Town Center.

In recent years, congestion along CR 537 has increased due to several factors:

- CR 537 offers a parallel southwest – northeast alignment approximately midway between the NJ Turnpike and the Garden State Parkway, and is the most direct route for travelers originating or destined to areas west of Monmouth via Interstate 195 to reach U.S. Route 9 and NJ Route 33;

- CR 537 is the primary access roadway for several large traffic generators including Six Flags Great Adventure and the Jackson Outlet Village in Jackson Township (Ocean County) and the Freehold Raceway Mall and Centra State Medical Center in Freehold Township; and

- CR 537 connects several regionally significant roads including Interstate 195, NJ Routes 18, 33 and 34, and U.S. Route 9, as well as various county and local roads.

Although the county continues to progressively expand and/or improve sections of the roadway using funds from the county capital improvement program and development-related agreements, travel volumes have continued to increase. Several critical concerns now face the county in managing and phasing improvements along the corridor. These include:

- Vehicle travel resulting from commercial and residential development in the Freehold Township area within the next few years is expected to exceed present traffic movement capabilities along certain sections of the roadway, despite county expansion of this roadway section from two to four lanes and intersection upgrades as recently as 1991. Projected development in the seven municipalities in Monmouth County along the corridor is expected to lead to an increase from 1997 levels in population of 27,645 and an increase in employment of 11,376 by 2020.[1] In addition, several major commercial and retail development applications for projects along CR 537 are imminent, and already, several major housing developments and shopping centers have been constructed that have increased travel demand levels in the corridor.

[1] Monmouth County Cross Acceptance 1998 - Final Comparison Phase Report. July 1998.

- Despite recent completion of a county-sponsored widening project on CR 537 at and west of the I-195 Interchange, further commercial, recreational and residential development near the western portion of the proposed study area is expected. With this growth, it is anticipated that already present congestion will increase substantially along the two lane stretch of CR 537 at and to the east of the I-195 Interchange.

- Imminent completion of improvements on several proximate state and regional roadways is expected to improve regional access to the CR 537 corridor.

Without a comprehensive transportation improvement plan for the CR 537 Corridor, Monmouth County will lack an effective planning tool to ensure a coordinated, comprehensive and continuing approach to mobility management.

1.2 STUDY GOALS AND OBJECTIVES

The goal of the *Monmouth County Route 537 Corridor Study* is to establish an action plan that will address the changing balance between land use development and transportation needs within the CR 537 corridor in both the 2007 and 2012 time horizon years. This will be accomplished through several objectives which are defined as follows:

- Coordinate with officials and community stakeholders from local municipalities located within the CR 537 corridor to identify transportation concerns and issues and to establish a clear vision of anticipated land use development needs and treatments envisioned by these communities.

- Develop an inventory of county and municipal transportation facilities and resources within the CR 537 corridor, and assess the current performance of these facilities using transportation industry standards.

- Project future travel demands based upon projected land use build-out conditions and/or growth factor projections in the corridor using a proven analytical process.

- Apply the projected travel demands to the existing transportation facilities within the CR 537 corridor and determine the demands that future land use development will place upon access and mobility.

- Identify a range of possible growth management strategies and/or appropriate scale transportation solutions to address the projected level of travel demand during the time horizons considered, and select those most appropriate for further consideration.

- Review recommended strategies with community officials, stakeholders and TAC representatives, and select appropriate alternatives.

- Identify funding sources and mechanisms that can be used to implement the recommended improvements.

1.3 PROJECT TEAM

The *Western Monmouth County Route 537 Corridor Study* assembled a Project Team with a wide range of specialties and expertise. This team was composed of:

- Monmouth County Planning Board
  - Transportation Planning Section
  - Long Range Planning Section
  - Development Review Section
- Monmouth County Division of Traffic Safety Engineering
- Monmouth County Division of Engineering
- Orth-Rodgers & Associates, Inc (data collection and field support)

All work for the project has been coordinated through a series of steering committee meetings that guide the project analysis and development process, resolve technical, logistical and internal coordination problems, and otherwise maintain the focus of the study effort. The project team met regularly to coordinate the identification, development and assembly of data for the project. The project team selected an approach appropriately scaled to the level of analysis required for the corridor.

2. STUDY METHODOLOGY

Until recently, most transportation corridor planning studies have identified safety and congestion-related roadway problems through defining vehicle movement solutions needed to overcome operational performance problems at intersections and other traffic merge locations. Although land use, access management and environmental reviews have been included in these studies, their role has largely been confined to a secondary analysis of possible constraints to corridor improvement strategies. Hence, their importance in projecting future transportation demand has often been minimized or overlooked in favor of statistical growth rates based on historical trends.

The Western Monmouth County Route 537 Project methodology places land use development, environmental and access management issues at the core of problem definition. Through defining the landscape and development of Western Monmouth and northern Ocean Counties, a better understanding of mobility needs and the potential array of acceptable strategies to address these needs can be defined in a corridor context.

2.1 STUDY AREA DEFINITION

Monmouth County is located in Central New Jersey, nearly dividing the state in half near its narrowest mid-point. Monmouth County borders Middlesex (north), Burlington and Mercer (west) and Ocean (south) Counties with the Atlantic Ocean forming its eastern shore. Approximately 630,000 people, or 7 ½ percent of the state's total population, reside in 53 municipalities on a land area composed of just under 472 square miles. The project study area extends from central sections of Monmouth County southwestward through several municipalities forming the western extreme of Monmouth County often referred to as the "Panhandle" Region.

A number of major roadways serve the county. These include the Garden State Parkway, I-195, US Route 9, as well as several state highways including Routes 18, 33, 34, 35, 36 and 79 and an extensive county roadway system. One of the most important and heavily used Monmouth County administered roadways is CR 537. Part of a larger inter-county level road system, CR 537 begins at the intersection of Delaware Avenue and Federal Street in the City of Camden, Camden County and continues approximately 68 miles to the intersection of Myrtle Avenue and Broadway in the City of Long Branch, Monmouth County. Approximately 36 miles of CR 537 are located within Monmouth County borders.

For the purposes of the Western Monmouth County Route 537 Study, the project study area includes the portion of the corridor between NJ State Route 33 Business / Park Avenue, at the southern end of the Borough of Freehold, to CR 539 Hornerstown – Whitings Road for a distance of approximately 16 miles. The study influence area also includes land areas, roadways and intersections situated within one mile of the centerline of CR 537, and extends as far north as Freehold Borough, a NJ State Planning Commission designated Town Center.

Because land uses in the study area vary widely, and because very different roadway design features and characteristics are present in each of these areas, the project team elected to stratify

the CR 537 corridor into three analysis "sections" to best differentiate transportation needs and potential solution strategies. Table 2-1 defines these sections:

Table 2-1
Study Area Sections

Section	From Roadway Location	To Roadway Location	Land Uses / Predominant Roadway Features
A	NJ Route 33 Business (Freehold Borough)	Gravel Hill Road (Freehold Township)	Urban / suburban commercial and residential development / 4 lanes with signalized intersections and regional roadway interchanges
B	Gravel Hill Road (Freehold Township)	CR 571 Trenton – Lakewood Rd. (Millstone Twp. / Jackson Twp.)	Rural, Agricultural and Environmentally Sensitive Watershed Areas / 2 lanes with signalized and un-signalized access
C	CR 571 Trenton – Lakewood Rd. (Millstone Twp. / Jackson Twp.)	CR 539 Hornerstown – Whitings Rd. (Upper Freehold Twp. / Plumsted)	Rural with pocket commercial and recreational development / 2 - 6 Lanes with signalized access Near I-195; 2 lanes with un-signalized access further west

A map illustrating the study area and study sections is provided in Figure 2-1.

2.2 FUTURE YEAR ANALYSES

Because CR 537 is the primary corridor serving this area and its collector roadways, and is anticipated to experience significant resulting growth in travel demand, the project team selected two future year analysis periods, 2007 and 2012, in which to analyze projected demand within the corridor. The 2007 year was selected in conjunction with recommendations from the Monmouth County Development Review Section and includes the time period in which the most tangible development proposals and land development information are projected to occur within the CR 537 corridor. Since the project team considers the 2012 time horizon to incorporate more speculative, longer-term development activity anticipated in the corridor, anticipated development within this time period is based primarily upon the knowledge of county and municipal government land use officials who contributed their input to this project.

2.3 DATA COLLECTION METHODOLOGY

In order to define the baseline environmental, scenic, land use and roadway design and operational conditions present in the CR 537 corridor, the project team initiated a wide ranging data collection and inventory program. The goal of this effort was to develop an overview of how the corridor presently functions, and the projected impacts that future growth is expected to have on the roadway over the project time horizon periods.

The CR 537 data collection program incorporated information from existing sources including:

<u>Roadway Planning, Design and Operations</u>

Corridor Studies and Reports:

- Western Monmouth Route 9 Collaborative Baseline Conditions and Collaborative Plan Report
- Monmouth County Planning Board (MCPB) Western Monmouth Region Development Plan

Guidelines and Resources:

- Monmouth County New Jersey County Roads Straight Line Diagrams

- New Jersey Department of Transportation Straight Line Diagrams
- NJDOT 102" Truck Network Map
- Monmouth County Annual Transportation Plan (ATP) and Capital Improvement Plan (CIP)
- NJTPA Transportation Improvement Program (TIP)
- Municipal and NJDOT Crash Data
- NJDOT Traffic Counts
- NJDOT Truck Percents

Public and Alternative Transportation

- Monmouth County Transit Map
- NJ TRANSIT bus schedule and route information
- MCPB 836 Local Bus Route Survey
- MCPB Local Bus Enhancement Study
- MCPB The Bus Stops Here Handbook
- NJ TRANSIT Transit Planning Handbook
- NJDOT Bicycle and Pedestrian Design Guidelines
- Federal Americans with Disabilities Act (ADA) Guidelines

Scenic Roadways

- Monmouth County Scenic Roadway Plan (an element of the County's Growth Management Plan)

Environmental and Watershed Management

- New Jersey Environmental Protection Agency Draft Stormwater Management Plan
- New Jersey Department of Environmental Protection Division of Parks and Forestry, Office of Natural Lands Management Natural Heritage Program

State and Regional Planning

- State of New Jersey State Development and Redevelopment Plan
- NJDEP BIG Map
- North Jersey Transportation Planning Authority (NJTPA) 2025 Regional Transportation Plan

Land Use and Development Review

- MCPB Development Review Tracking System
- Site Access Studies
- Subdivision and Site Development Plans

Monmouth County's Geographic Information System Management Office (GISMO) provided an extensive array of GIS and aerial photo imaging that provided a foundation for corridor mapping and imaging used to illustrate baseline and projected future conditions, needs and solution strategies.

Although an extensive array of information was already available for the CR 537 corridor and nearby areas, a comprehensive set of traffic count, turning movement and operational analysis data was not available. In order to obtain this data, Orth-Rodgers & Associates was retained by the Monmouth County Division of Traffic Safety Engineering at the expense of Monmouth County to perform volume and turning movement counts on CR 537 during major travel time periods. As part of this effort, truck volume and percentage data was also obtained.

2.4 DATA ANALYSIS

The project team set out to establish a series of criteria to evaluate the functionality of transportation facilities and resources, assess land use development impacts, and identify areas with critical environmental or scenic roadway characteristics. Where practical, the team selected analysis approaches consistent with industry standards and regulations, with preference given to those already adopted or in use by the county's engineering divisions and planning sections.

These criteria were then used to assess the suitability of these resources under the existing (baseline) condition and both future time horizon periods. For transportation facilities analysis, a series of federal and industry accepted engineering analysis standards were used to assess the physical and operational conditions of bridges, roadways, signalized and un-signalized intersections, and other critical infrastructure. For pedestrian and bicycle facilities, as well as public transportation services, a combination of engineering and planning evaluation techniques were used to assess adequacy and availability of these facilities and services. For review of land use development, roadway access management guidelines, zoning and other development review evaluation parameters were incorporated into the assessment to determine their effects on the CR 537 corridor. Finally, environmental and scenic roadway guidelines were incorporated in the analysis to identify sensitive locations within the CR 537 corridor that may require special consideration.

Further discussion of the specific analysis approaches used is presented under each analysis section of the report.

2.5 PUBLIC OUTREACH AND COMMUNITY INVOLVEMENT

Coordination with local community officials, residents, organizations, businesses and agencies was a major element of the Western Monmouth CR 537 Corridor Study. In order to facilitate this public outreach and community involvement process, small workgroups were formed to identify local mobility problems, concerns and issues related to CR 537 and to help select locally acceptable or preferred solution strategies for further analysis by the project team. The project team requested that each stakeholder committee be available to offer feedback and provide review upon completion of project milestones. Through a series of meetings and workshops with all or selected subgroups of these committees, the project team was able to obtain a detailed understanding of the priorities of corridor communities in addressing CR 537 issues. These activities are documented in Appendix A.

2.6 TECHNICAL ADVISORY COMMITTEE

Technical Advisory Committee

A Technical Advisory Committee (TAC) was established to provide review of technical issues and offer guidance to the project team. This group is composed of a mix of project partners and regional agency engineers, planners and program administrators experienced in the design, review and implementation of transportation management, roadway improvement and grant administration processes. Agency officials invited to sit on the TAC include staff from:

- North Jersey Transportation Planning Authority
- New Jersey Department of Transportation
- NJ TRANSIT
- Monmouth County Division of Traffic Safety Engineering
- Monmouth County Division of County Engineering
- Ocean County Planning Department
- Ocean County Engineering Department
- Monmouth County Planning Board Transportation Planning Section

3. BASELINE CONDITIONS REPORT

This section provides an overview of current roadway facilities, related infrastructure, neighboring land uses, environmental conditions and scenic and historic designations within the project study area. The Section is organized by each of these elements and stratified by the three Study Area Sections A through C defined within Section I of this report.

3.1 LAND USE

Although the study area extends only 1 mile to each side of the CR 537 corridor in order to focus on CR 537 infrastructure needs and strategies, development and growth throughout the Western Monmouth County and neighboring Ocean County regions has been fueling rapid growth in travel volumes and congestion extending well beyond this area. Review of current residential and commercial development application data for the municipalities encompassed within the corridor has identified approximately 1.45 million square feet proposed for major and minor developments, totaling 74 major and minor lots along the CR 537 corridor.

Although much of Monmouth County's Bayshore and Coastal communities were well established before World War II with rail transportation and land uses based on urban development models, the completion of the Garden State Parkway in 1954 brought increasing auto-oriented suburban development to coastal and central regions of the county. Growth in Western Monmouth County remained limited as the region lacked effective roadway access and remained predominantly agricultural. It was not until the dualization of US Route 9 in 1962 that suburban development began to enter areas along the US Route 9 Corridor. Nevertheless, CR 537 remained on the periphery of developing areas. Although the NJ Turnpike, constructed in 1950 – 1951 just west of the county line, offered a faster route linking central to southern New Jersey, CR 537 in Western Monmouth County remained an important connecting roadway linking Monmouth County to southern New Jersey counties and Camden.

Plans for a limited access highway to extend from Trenton to Asbury Park began in the late 1950s, but it was not until federal funding was obtained that construction began on I-195 on a slightly modified alignment. Constructed in segments between 1968 and 1990, the major sections of I-195 that would link CR 537 to the NJ Turnpike were in place as early as 1974. At CR 537, a two-lane overpass with single ramps serving both directions of CR 537, considered sufficient for the limited traffic demand of the time, was constructed. Undoubtedly, this new high-speed roadway from the NJ Turnpike, coupled with inexpensive and readily available land half-way between the New York and Philadelphia population markets led to the development of Six Flags Great Adventure in Jackson Township, Ocean County in the mid-1970s. Since opening, the park has attracted tens of thousands of daily summer season recreational travelers largely from areas outside of Monmouth and Ocean Counties. As the park significantly expanded in size and popularity in the 1980s and 1990s, most vehicle demand was handled on I-195. However, the I-195 ramps, built just a few years earlier, became a major contributor to significant congestion in the last mile between the original I-195 ramps via 2 lane CR 537, often creating significant queuing extending for several miles to the west along the shoulder of EB I-195. Although incremental improvements such as the addition of a queuing reserve / travel lane in advance of the CR 537 exit were provided on EB I-195 by the late 1980s, it was not until 1997

that separate directional ramps (as well as a two-lane exit from EB I-195 to SB CR 537) were integrated with the existing single lane overpass in 1997. For its part, Monmouth County completed a widening of CR 537 to 6 lanes between the existing I-195 overpass and Great Adventure entrance / exit in 2002.

Picture 3-1: Typical new home on large lot in the Western CR 537 Corridor Study Area. This house is on a 2.5 acre parcel.

Picture 3-2: New residential construction rapidly overtaking farmland in Western Monmouth County will add additional travel volume to neighboring CR 537

Although seasonal traffic, coupled with an emerging retirement / leisure market in Ocean County, proliferated by the late 1980s, the 1990s brought significant residential growth to areas near and along CR 537; a result of a combination of growing employment in the local economy (Six Flags Great Adventure alone employing several thousand in the peak summer season) and the range of suburban development and traffic congestion from the New York Metropolitan area having widened beyond the US Route 9 Corridor. Despite growth limits defined by zoning and environmental restrictions on CR 537 in most of Study Sections B and C, new residents commuting by automobile to employment areas in Mercer, Middlesex, and Monmouth Counties and those accessing regional roadways for even longer commutes have increased AM and PM peak period travel volumes significantly. This has resulted in burgeoning congestion at several major CR 537 intersections. In addition, midday trips seeking shopping, retail and services in the distant clusters near Freehold Township and Jackson Township have also generated significant volume on roads that until just a decade ago had handled primarily agricultural, recreational and local travel. Finally, commercial truck traffic has also found I-195 and CR 537 to offer a direct and no-toll route between Philadelphia and Eastern Pennsylvania markets and the burgeoning consumer growth of the Monmouth and Ocean County region.

An example of just how rapidly growth is now occurring within in the CR 537 Corridor is exemplified by a review of development applications submitted by Six Flags Outlets (now Jackson Outlet Village) near the interchange of CR 537 and I-195. When the original site development report was submitted in the early 1990's, a 3%-4% annual growth projection over a 10-year horizon forecast that the intersection of CR 537 and CR 571/CR 526, as now configured, would operate at acceptable levels of service 10 years later. However, in 2000 when Jackson Outlet Village submitted an application for a proposed addition to the mall in which they provided updated traffic counts, actual counts showed that these original projections were not only met, but exceeded within 6 years.

Proximate Land Uses

Proximate land uses range from densely populated urban/suburban communities and commercial strip developments to rural, scenic and even environmentally sensitive watershed areas. This

diversity is reflected through the New Jersey State Development and Redevelopment Plan (SDRP), where portions of the study area include all 6 Planning Area designations. Further, the SDRP has established Freehold Borough as a Designated Town Center and proposed the creation of a Greater Freehold Regional Center in Freehold Township.

The diversity of corridor land uses is further reflected in much of the State of New Jersey's Smart Growth Planning initiatives which first originated with the so-called BIG Map (Blueprint for Intelligent Growth) in late 2002. This map and its successors are designed to apply consistent smart growth principles to channel development and growth into locations with suitable environmental and infrastructure features capable of supporting that type of development, and discourage development where it is less appropriate. At present, the Smart Growth process does not coordinate with the SDRP and other existing planning guidelines, and Monmouth County is leading efforts to refine the preliminary smart growth planning vision with state officials in order to develop practical and sound approaches related to development.

Study Section A

Study Section A covers a variety of zoning designations mainly in Freehold Township, including corporate-multi use, apartment-residential, professional office, single family lots and regional mall designations (see Figures 3-1 and 3-2). Single family lot designation dominates zoning in this area, and approximately 1.26 million square feet of new major and minor development is now proposed for this area.

Near Trotters Way, the Bellmead Property has the potential for significant retail or commercial development, and could facilitate a connection from US Route 9 to CR 537 at Trotters Way. There is also potential for a road connection and overpass across the NJ Route 33 Freeway between the proposed Market Place Development and the Bellmead Property. Although these improvements would provide some relief for the CR 537 Corridor, an overall increase of traffic directly on CR 537 is anticipated as further development in Study Section A continues.

Development is occurring between Gravel Hill Road and CR 524/Elton-Adelphia Road, specifically the Clayton Farms Development and Danzer Farms Development. These single family and over 55 adult homes are set on large lots of up to several acres.

Study Section B

Study Section B is split between two predominant zone designations in Manalapan Township, Millstone Township, Freehold Township and a small part of Jackson Township (see Figure 3-3). Land is predominantly zoned Rural Residential in the southern section and restrictive Rural Environmental in the northern section. Presently, sewers do not currently extend further west of Thompson Grove Road, nor are they proposed to at this time. A limited amount of highway commercial and business uses are permitted, often immediately adjacent to CR 537 in pockets. Growth in the area is significant, with Millstone Township alone proposing over 55,000 square feet (SF) of new development.

A major development is proposed in the area of Shira Drive and CR 524. In the section between Thompson Grove Road and Gravel Hill Road, there is 100,000 SF of office space proposed.

Study Section C
Study Section C includes Upper Freehold Township, Millstone Township, Plumsted Township, and Jackson Township (see Figure 3-4). Residential designations dominate in Upper Freehold Township, where approximately 13,800 SF of major and minor development is proposed throughout the township. Rural Residential uses predominate in Millstone Township.

3.2 ROADWAY SECTIONS

The state has classified CR 537 as a Minor Arterial between CR 539 and NJ Route 33 Freeway and as a Principal Arterial between NJ Route 33 Freeway and NJ Route 33 Business. CR 537 in the study area varies between a two and six lane roadway and is generally aligned in a northeast-southwest direction. Monmouth County maintains jurisdiction of the corridor between NJ State Route 33 Business / Park Avenue at the southern end of the Borough of Freehold to a point just south of the Loveman Road intersection bordering Plumsted Township (Ocean County) and Upper Freehold Township (Monmouth County), comprising a distance of approximately 19 miles. From this point south approximately 5 miles to Province Line Road at the Burlington County border, Ocean County maintains jurisdiction.

In order to more comprehensively understand existing (baseline) conditions in the CR 537 corridor, an overview of each roadway section has been developed that includes a discussion of roadway geometrics and adjacent land uses, as well as at least one photograph illustrating typical, or in some cases, issue-specific conditions. An overview of pedestrian and transit facilities is also provided.

Roadway sections are organized sequentially from east to west and are divided into the three Study Sections (A, B and C) established for project analysis. The westbound (WB) travel direction refers to CR 537 lanes beginning at NJ Route 33 Business in Freehold Borough and ending at CR 539, with CR 537 eastbound (EB) direction extending from CR 539 to NJ Route 33 Business.

STUDY SECTION A

Overview

Between Business Route 33 and Gravel Hill Road, CR 537 is major roadway corridor facilitating the movement of up to 3,000 vehicles during the peak hour period. Highest volumes in Section A, as well as in the entire CR 537 Corridor, have been measured between the Route 33 Freeway Interchange and Stillwells Corner / Wemrock Road Intersection. Although this is not surprising since this four lane roadway section accommodates several overlapping travel movements to and from US Route 9, Freehold Borough / Route 79, Freehold Raceway Mall and most residential areas to the south and west of these regional facilities, what is notable is that significant congestion occurs within this section of roadway primarily during the midday and PM peak periods but not during the morning peak period.

To better understand this situation, it is important to note that significant retail, commercial, recreational and residential development is located in Section A of the CR 537 Corridor. At the east end, Freehold Raceway provides harness racing and simulcast activities on a seasonal schedule between August and May approximately during the hours of 11:00 AM and 12:00 AM Mondays through Saturdays. While the raceway employs 200 people and has available parking capacity for up to 1,250 vehicles, average attendance is approximately 500-600 per day.

Freehold Raceway Mall, one of the largest malls in the state based on square footage, attracts significant regional travel. The mall contains 5 major anchor stores and more than 150 smaller retail, office, and fast food establishments as well as an additional dozen or so “big box” stores located on the ring or peripheral access roadways. Access from CR 537 is facilitated via the Trotters Way intersection just south of US Route 9 which provides the most direct route for motorists originating in areas south and west of Freehold Township as well areas east of Freehold Township via NJ Route 33 Freeway.

Raintree Shopping Center is one of the largest in Western Monmouth County that is not located directly on the US Route 9 Corridor. The complex offers a 24 hour supermarket and major pharmacy chain store, as well as over two dozen smaller retail, restaurant and service-oriented businesses. Village Center Drive, the main access roadway, also facilitates access to the Freehold Township Regional Post Office and Raintree Village, a gated residential community of over one thousand condominium units. Finally, Centra-State Medical Center is a large regional hospital employing 2,029 and containing 263 beds. Primary access to the hospital is via the Iron Bridge Road intersection and a private driveway just south of Village Center Drive. Several medical arts office clusters, as well affiliated nursing and assisted living complexes, are located between Village Center Drive and just to the south of the Iron Bridge Road intersection.

Because of the large array of retail and commercial activity concentrated in this area of the corridor, and the corridor’s role in facilitating regional travel, several “overlapping” trip purposes and travel markets are present in this area. This overlap is most apparent during the midday and evening periods, when returning work trip travel must share roadway with returning shopping, recreational and other local travel purposes.

NJ Route 33 Business to Barkalow Avenue

(Freehold Borough; Freehold Township)

Picture 3-3: CR 537 at NJ Route 33 Business

Roadway Facilities

CR 537 west of the signalized intersection at NJ Route 33 Business features 2 travel lanes in each direction. Single family residential homes and driveways are proximate to and access the roadway. An entrance to parking areas for the Freehold Raceway is located just west of the NJ Route 33 Business intersection on the northern curbline. No shoulders are available in this section of roadway. The posted speed limit is 35 MPH.

Pedestrian and Transit Facilities

Between NJ Route 33 Business and the Barkalow Avenue intersection, continuous sidewalk is available on both sides of CR 537. Although no shoulders are available and residential driveways and a self-parking area entrance to the Freehold Raceway are present, there is limited disruption for pedestrian and bicycle activity in this section. Pedestrians were observed to use the sidewalks during recent field survey activities. Most pedestrian travel originated within the community areas just south of CR 537. An official NJ TRANSIT bus stop sign is located on CR 537 EB just east of the intersection with NJ Route 33 Business.

Barkalow Avenue to Trotters Way

(Freehold Township)

Picture 3-4: CR 537 looking east in Freehold Twp

Roadway Facilities

An Interchange between US Route 9 and CR 537 is formed with 2 signalized intersections: Barkalow Avenue / US Route 9 NB and the SB US Route 9 ramps to CR 537 on the east and west sides of US Route 9. Between the two intersections, CR 537 crosses US Route 9 on an overpass before transitioning to accommodate a third lane for deceleration and an exclusive right turn onto Trotters Way, a four-lane private access roadway serving the Freehold Raceway Mall. In the northern portion of this section, Maplewood Cemetery borders both sides of CR 537, while in the southern section, a commercial building for Verizon occupies the northern curbline while farmland and a far side jughandle serving CR 537 EB traffic destined for Trotters Way borders the southern curbline. This roadway section of CR 537 has limited or no shoulder areas. Posted speed limit is 40 MPH.

Picture 3-5: Dogpath along CR 537 east of Trotters Way intersection

Pedestrian and Transit Facilities

Although pedestrian pushbuttons are available at the intersection of Barkalow and CR 537 on the east side of Barkalow, no marked crosswalk or pedestrian signals are provided. Because of the coordinated phasing plan for traffic signals on both ends of the overpass over US Route 9, long platoons of vehicles make access difficult for bicyclists and pedestrians. Although sidewalk is available along the north side of the CR 537 overpass over US Route 9, no sidewalk is available west of the US Route 9 southbound ramps.

A heavily worn foot path was identified along CR 537 from the US Route 9 overpass to Trotters Way, where sidewalk leading to the Raceway Mall begins. Notably, this section was analyzed as part of the *Monmouth County Planning Board Sidewalk Completion Study* which led to the development of full sidewalk engineering design plans through an NJTPA Local Lead Study. A sidewalk linking the present end of sidewalk at the US Route 9 SB ramps and Trotters Way is scheduled to begin construction shortly. From the Trotters Way intersection, existing sidewalk follows the length of Trotters Way to Winners Circle mall ring roadway, although no dedicated pedestrian crossing of the ring roadway and expansive parking lots to the Freehold Raceway Mall entrance is provided. A majority of pedestrian travel in this area is oriented to mall and peripheral stores. For transit, "courtesy stops" (driver discretion) can be made, although no official bus stops are presently located on CR 537 or Trotters Way in this roadway section. Freehold Raceway Mall has one bus stop, which is located in front of the Sears Entrance facing Trotters Way.

Trotters Way to Stillwells Corner Road / Wemrock Road
(Freehold Township)

Picture 3-6: West of Trotters Way on CR 537 approaching NJ Route 33 Freeway

Picture 3-7: WB on NJ Route 33 Freeway overpass with added ramp lane.

Roadway Facilities

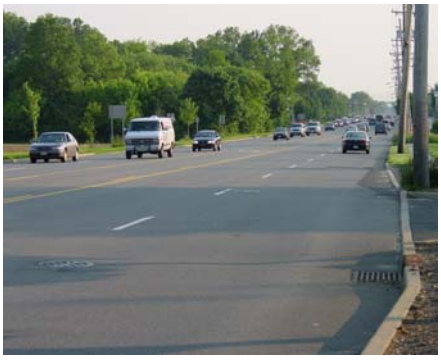
West of the Trotters Way intersection, CR 537 maintains 3 lanes WB between an exclusive right turn ramp exiting from Trotters Way until a ramp leading to NJ Route 33 Freeway WB. Likewise, 3 lanes are maintained EB from a ramp leading from WB NJ Route 33 Freeway to CR 537 EB approaching the Trotters Way Intersection. Notably, only 2 ramps (EB NJ Route 33 Freeway to WB CR 537 and EB CR 537 to WB NJ 33 Freeway) are missing from the present CR 537 / NJ 33 Freeway interchange complex, with these movements facilitated via interchange ramps with Wemrock Road.

Approaching the CR 537 overpass across NJ Route 33 Freeway, 2 lanes of the WB CR 537 roadway merge to form a single lane, however, a second lane is added across the structure with the addition of an acceleration / deceleration lane from the NJ 33 Freeway WB ramp to CR 537 WB. This

2nd lane continues to the Stillwells Corner / Wemrock Road intersection. EB CR 537 maintains 2 lanes approaching the Route 33 Freeway Bridge. Although the right lane is a dedicated exit lane to Route 33 Freeway EB, and the two remaining lanes merge to form a single lane, CR 537 EB gains a second lane across the structure with the addition of an acceleration lane from the Route 33 EB Freeway ramp, which continues as a second CR 537 EB travel lane. A third lane is added to CR 537 EB when the Route 33 Freeway WB ramp joins CR 537 EB and is maintained as the approach lane for the reverse jughandle to Trotters Way.

Picture 3-8: Left turn movement from EB CR 537 to Gibson Place from center turn lane

West of the NJ 33 Freeway overpass, a center turn lane is added beginning near Gibson Place, and continues until an exclusive WB left turn lane for the signalized intersection at Stillwells Corner Road / Wemrock Road. Neighboring land uses on the WB side include a mix of office, commercial, strip shopping center and small-lot single family residential uses, while the EB side contains a mix of undeveloped land, offices and small-lot single family residential uses. This roadway section of CR 537 has no shoulder areas. Posted speed limit is 40 MPH.



Picture 3-9: View of CR 537 west of NJ Route 33 Freeway overpass

Pedestrian and Transit Facilities

West of Trotters Way to the NJ Route 33 Freeway overpass, no sidewalks are available. Acceleration and deceleration lanes coupled with varying roadway geometrics make this a difficult section for pedestrians and bicyclists to traverse. Where CR 537 crosses over NJ Route 33 Freeway, the south side of the overpass has a narrow sidewalk, but ramps connecting NJ Route 33 Freeway with CR 537 create difficult access and potential safety concerns for pedestrians seeking to cross the overpass. On CR 537 west of the overpass to the Stillwells Corner Road/Wemrock Road intersection, the 1991 widening of CR 537 to four lanes usurped all roadway shoulder area. Although trees, landscaping, and limited frontage for buildings on the WB side appear to preclude construction of sidewalks on the WB side, an undeveloped property parcel on the EB side, identified as the potential site for a 500,000 SF Freehold Marketplace commercial development, may be capable of accommodating sidewalk. Despite the current lack of pedestrian facilities, many pedestrians were observed to cross the overpass. During one observation period, several pedestrians were observed to cross within 10 minutes. Although the NJ TRANSIT 836 local bus was recently extended to serve CR 537 as far west as Centra-State Hospital to accommodate some of this pedestrian traffic, the limited service frequency and lack of transit stops on CR 537 appear to have limited the attractiveness of the service for this pedestrian market.

Stillwells Corner / Wemrock Roads to Redwood Lane / Village Center Drive
(Freehold Township)

Picture 3-10: View of left turn lane west of Stillwells Corner / Wemrock Road

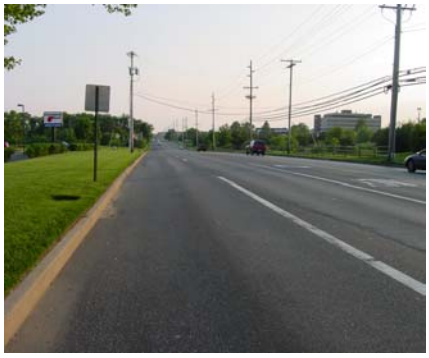
Roadway Facilities

West of the Stillwells Corner / Wemrock Road intersection, CR 537 continues as a 2 lane roadway in each direction. The exclusive left turn lane for CR 537 EB transitions to a center turn lane south of this intersection. A driveway for the recently constructed Mount's Corner shopping center is located just west of the intersection for WB CR 537 traffic to enter and leave the site. No left turns are permitted to CR 537 from this access drive; instead facilitated from Wemrock Road or via a recently constructed inter-connecting driveway to Raintree Shopping Center and the signal at Village Center Drive. Commercial and retail uses adjoin both sides of CR 537 until the signalized intersection at Redwood Lane / Village Center Drive serving Raintree Shopping Center. This roadway section of CR 537 has no shoulder areas. The posted speed limit is 45 MPH.

Pedestrian and Transit Facilities

Although continuous sidewalk is available along the WB side of CR 537, only limited sections are present on the EB side between Stillwells Corner Road / Wemrock Road and Village Center Drive / Redwood Lane. Several high-use driveways are present along both sides of the CR 537 Corridor, creating potential interference for pedestrians and bicyclists. Although riders have been observed to board buses in this section, no official bus stops are currently available and buses must stop in the travel lane as the roadway presently lacks shoulders or pullouts.

Redwood Lane / Village Center Drive to Iron Bridge Road
(Freehold Township)



Picture 3-11: CR 537 west of Village Center Drive. Centra-State Hospital in distance.

Roadway Facilities

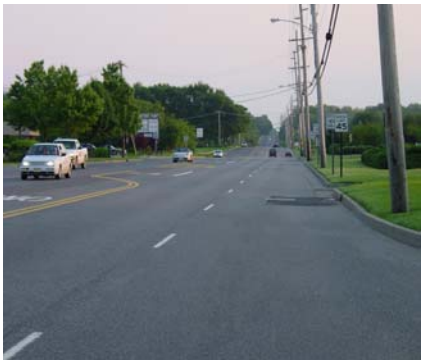
CR 537 remains 2 lanes in each direction with a center turn lane transitioning to an exclusive left turn lane for WB CR 537 at the Iron Bridge Road signalized intersection. A slip ramp exits Village Center Drive to WB CR 537. An entrance-only driveway for Centra-State Medical Center facilitates both WB and EB turning movements just north of the bi-directional main entrance to the hospital located at the Iron Bridge Road intersection. A mix of commercial, residential, and senior housing uses, as well as several parcels of vacant land, adjoin the roadway. This roadway section of CR 537 has no shoulder areas with concrete curbs defining the edge of the outer travel lanes. Posted speed limit remains 45 MPH.

Pedestrian and Transit Facilities

Continuous sidewalk extends between both intersections on the WB side of CR 537. Sidewalk is also present along the NB side of Redwood Lane, and NB and SB sides of Village Center Drive. Coordination with pedestrian intersection facilities at Redwood Lane / Village Center Drive is poor due to positioning of crosswalks and curb ramps and placement of pedestrian pushbuttons. Although transit demand has been observed near Village Center Drive, no official bus stops are available and buses must stop in the travel lane to board passengers.

Iron Bridge Road to Gravel Hill Road

(Freehold Township)



Picture 3-12: View of CR 537 west of slip ramp at Iron Bridge Road / Centra-State Medical Center.

A slip ramp exits from the main Centra-State Medical Center access roadway to WB CR 537 at the Iron Bridge Road intersection. Immediately west of the intersection and the CR 537 EB exclusive left turn lane at Iron Bridge Road, several medical office complexes and commercial properties have exclusive turn lanes from WB CR 537. CR 537 continues until transitioning to one travel lane in each direction all the way to the presently unsignalized intersection at Gravel Hill Road.

Sight distance for most approaches to the Gravel Hill Road Intersection is undesirable, although a significant vertical slope on Gravel Hill Road on the north side of CR 537 was reduced during 2003 as the result of nearby residential development mitigations. The transition from suburban to rural begins in this area as commercial and residential land uses dissipate along the roadway. Shoulder areas are available as the roadway transitions from 5 to 2 lanes, with a large shoulder and isolated sidewalk segment on EB CR 537 continuing until Gravel Hill Road. Posted speed limit for this roadway section increases to 50 MPH.

Pedestrian and Transit Facilities

Although a ¼ mile segment of sidewalk and a widened shoulder along CR 537 EB just east of Gravel Hill Road were constructed by a developer as part of an adjacent single family home community, these facilities remain isolated from end of sidewalk near Iron Bridge Road and CR 537 guide rail obstructs the easternmost end of the sidewalk. Major residential development in the area of the Gravel Hill Road and CR 537 intersection is presently underway, and is approximately a 1 mile walking distance from the Raintree Shopping Center, Freehold Post Office, several restaurants, and other retail establishments between Village Center Drive and Stillwells Corner Road / Wemrock Road intersections, while schools on Wemrock/Stillwells near CR 537 are just over 1.5 miles away. No bus stops are available in this roadway section, although some transit riders have been observed to walk from the Centra-State Hospital stop at the end of the NJ TRANSIT 836 route to the medical offices just south and west of Iron Bridge Road.

STUDY SECTION B

Overview

Between Gravel Hill Road and CR 526/571, CR 537 facilitates the movement of more than a 2,000 vehicles during the peak hour periods. Highest volumes in Section B occurred between Route 527 and Thompson Grove Road. Travel movements within this roadway section are longer and more regional in nature, and are heaviest in the AM and PM peak periods. This suggests a strong work trip market between the growing residential areas of Jackson Township in Ocean County and panhandle towns of Western Monmouth County to major employment centers in central and northern New Jersey via US Route 9. Notably, travel volumes throughout Section B on CR 537 were observed to remain relatively consistent, with modest variance occurring primarily at junctions with major county roadways (e.g., CR 524, CR 527 and CR 571).

Gravel Hill Road to Thompson Grove Road
(Freehold Township)

Picture 3-12: View of CR 537 looking west at Gravel Hill Road.

Roadway Facilities

Between Gravel Hill Road and Thompson Grove Road, CR 537 remains a single travel lane in each direction. Single family residential homes and driveways are adjacent to the roadway. No paved shoulders are available. Although meeting county standards, undesirable sight distances are present at Gravel Hill Road and Thompson Grove Road. The posted speed limit transitions to 50 MPH just west of Gravel Hill Road.

Pedestrian and Transit Facilities

There are presently no pedestrian or transit facilities along this section of roadway. No pedestrian activity was observed nor did land use and demographic analysis identify significant demand patterns.

Thompson Grove Road to CR 524 Elton – Adelphia Road
(Manalapan Township, Freehold Township)

Picture 3-13:Scenic farmland dominates CR 537 west of Thompson Grove Road.

West of Gravel Hill Road, CR 537 is a single travel lane in each direction. Single family residential homes and driveways transition to predominantly agricultural land uses adjacent to the roadway. Limited paved shoulders are available. Although CR 524 / Elton – Adelphia Road serves regional travel and has higher traffic volumes than other local roads, it has a heavily-skewed stop-controlled intersection approach to CR 537. Queuing for vehicles turning WB onto CR 537 is frequent from the CR 524 approach, and despite meeting county standards, potential improvement strategies should be considered. Posted speed limit is 50 MPH.

Pedestrian and Transit Facilities

There are presently no pedestrian or transit facilities along this section of roadway. No pedestrian activity was observed nor did land use and demographic analysis identify significant demand patterns.

CR 524 Elton – Adelphia Road to CR 527 Smithburg Road / Siloam Road
(Manalapan Township, Freehold Township)

Picture 3-14: Skewed approach at CR 537 and CR 524 / Elton-Adelphia Road

CR 537 west of CR 524 / Elton – Adelphia Road is a single travel lane in each direction. Notably, CR 524 ends at CR 537, however, re-emerges as a separate roadway west of the CR 527 intersection. Agricultural land uses are adjacent to the roadway, except for the small hamlet of Smithburg at the signalized intersection with CR 527. Limited paved shoulders are available. Because CR 527 (Siloam Road) north of CR 537 is a primary county roadway linking the rapidly developing interior areas of Jackson Township in Ocean County to the Freehold area, and because CR 527 north of the intersection serves traffic destined for Mercer and Middlesex Counties, this is a critical and frequently congested intersection in the CR 537 corridor. Posted speed limit is 50 MPH, transitioning to 40 MPH approaching Smithburg.

Pedestrian and Transit Facilities

There are presently no pedestrian or transit facilities along this section of roadway. No pedestrian activity was observed nor did land use and demographic analysis identify significant demand patterns.

CR 527 Smithburg Road / Siloam Road to CR 524 Stagecoach Road
(Millstone Township, Freehold Township)

Picture 3-15: CR 537 looking WB from CR 527 Siloam Road / Smithburg Road

CR 524 Stagecoach Road diverges from CR 537 approximately ½ mile west of the CR 527 Smithburg Road / Siloam Road stop-controlled intersection. In this section, the roadway is a single travel lane in each direction. Agricultural uses and undeveloped forest are adjacent to the roadway, except for the small hamlet of commercial establishments forming Smithburg at the intersection with CR 527. No paved shoulders are available and the posted speed limit is 40 MPH. Because CR 524 Stagecoach Road has a heavily-skewed stop-controlled approach to the CR 537 intersection, potential improvement strategies should be considered.

Pedestrian and Transit Facilities

There are presently no pedestrian or transit facilities along this section of roadway. No pedestrian activity was observed nor did land use and demographic analysis identify significant demand patterns.

CR 524 Stagecoach Road to CR 526 / CR 571 Trenton – Lakewood Road

(Freehold Township, Jackson Township)

Picture 3-16: Typical section of CR 537 west of CR 524. View looking EB

West of CR 524, CR 537 is a single travel lane in each direction. A mix of undeveloped land and new housing developments are punctuated by occasional commercial and recreational uses. A limited paved shoulder is provided for much of this section of roadway. The posted speed limit transitions from 40 MPH to 50 MPH leaving Smithburg. Passing is permitted in limited areas. Several paved, and in some cases unpaved, local roads intersect CR 537 at skewed-angle stop-controlled approaches, while several new cul-de-sacs from CR 537 serve minor "pocket" subdivisions within large unbroken stretches of New Jersey pinelands.

Picture 3-17: "Pocket Subdivision" of several houses just off of CR 537

Approaching the CR 526 / CR 571 signalized intersection, the roadway adds an exclusive left turn lane on most approaches. Because CR 526 / 571 serves heavy regional travel movements between Jackson Township / Ocean County and Hightstown, the New Jersey Turnpike, US 130 in Mercer and Middlesex Counties, and because CR 571 connects major recreational and retail uses in the immediate vicinity (Jackson Outlet Village, Six Flags Great Adventure) to I-195, Freehold Township and the US Route 9 corridor in central Monmouth County, this intersection frequently experiences significant congestion and delay on most approaches.

Pedestrian and Transit Facilities

There are presently no pedestrian or transit facilities along this section of roadway. No pedestrian activity was observed nor did land use and demographic analysis identify significant demand patterns.

CR 537 SECTION C

Overview

Between CR 527 / CR 571 and CR 539, CR 537 facilitates the movement of over 1,000 vehicles during the peak hour period. While the highest volumes in Section C occurred between Burnt Tavern Road and the I-195 Interchange during AM and PM peak periods, volumes in the midday approximated those of AM and PM peak periods between the I-195 Interchange and Pine Street.

Travel movements within this roadway section are longer and more regional in nature, and during the periods measured, were primarily destined to and from I-195 and Six Flags Great Adventure. Notably, an imbalance in travel volumes along CR 537 in Section C are skewed to WB movements in the AM and midday peak periods, with evening volumes achieving a close directional balance. This suggests a strong work travel market between the growing residential areas of Western Monmouth County to work destinations west of CR 537 in Mercer County, eastern Pennsylvania and even suburban / CBD Philadelphia.

CR 526 / CR 571 Trenton – Lakewood Road to I-195 WB Ramps
(Millstone Township, Jackson Township)

Picture 3-18: View EB on CR 537 at Jackson Outlet Village access roadway.

Picture 3-19: CR 537 EB from eastern approach of I-195 overpass.

West of CR 526 / 571, CR 537 is a single travel lane WB and two through/through right lanes EB with an exclusive left turn lane approaching the CR 526 / 571 intersection. CR 537 resumes a single travel lane in each direction. A signalized intersection serves the private access roadway for Jackson Outlet Village and accommodates all moves except left turns from WB CR 537 into the outlet center (handled via an access drive from CR 526 / 571). CR 537 continues west, intersecting with Burnt Tavern Road, a local roadway frequently used by commuters to bypass the congested CR 526 / 571 intersection to the east during peak periods. Heavy traffic volumes are present in this section, and create only limited breaks in the vehicle stream on CR 571, compounding the skewed intersection approach and undesirable sight distances present at this intersection. Although meeting county standards, improvement strategies for this intersection should be considered. Wetland areas are present approaching I-195 as a ramp to WB I-195 diverges from the WB lanes. CR 537 ascends to cross I-195, but before the overpass, a signalized intersection facilitates turns for traffic from I-195 WB to access WB CR 537. No paved shoulder is provided for much of this section of roadway. Posted speed limit is 50 MPH.

Pedestrian and Transit Facilities

Although there are concentrations of destinations within effective walking distance, and land use and demographic analysis suggests demand, no pedestrians were observed along this section of CR 537. Seasonal NJ TRANSIT 307 (Freehold – Great Adventure) and 309 (Toms River – Great Adventure) buses directly serve the Jackson Outlet Village complex at an official on-site signed bus stop provided by the outlet center.

I-195 WB Ramps to Pine Drive

(Millstone Township, Jackson Township)

Picture 3-20: Two-lane ramp from EB I-195 joins single lane CR 537 WB just west of I-195 overpass to form 3-lane CR 537 to Great Adventure.

CR 537 WB is a single travel lane on the I-195 overpass, while EB CR 537 has a continuous acceleration / deceleration lane plus travel lane between the EB I-195 ramp to CR 537 EB and the CR 537 EB ramp to I-195 WB. CR 537 WB then quickly widens to accommodate two ramp lanes entering from I-195 EB before approaching the signalized intersection at Pine Drive. West of the I-195 overpass, CR 537 EB transitions from 3 lanes to 1 lane as the right lane becomes a dedicated exit ramp to I-195 EB and the two remaining lanes merge to form one. A jughandle facilitates left turns from CR 537 EB to Pine Drive NB.

Although Monmouth County widened CR 537 between I-195 and Six Flags Great Adventure during 2002 to a divided roadway with three travel lanes in each direction, the short merging distances and single lane I-195 overpass create vehicle weaving activity and congestion near I-195. A paved shoulder is provided for this section of roadway. Posted speed limit is 50 MPH.

Pedestrian and Transit Facilities

Although pedestrian activity east and across the I-195 overpass was not observed, access to shops and Jackson Outlet Village from seasonal employees living on-site at Great Adventure may be present, and analysis of potential future developments in this area suggest additional future pedestrian demand. Presently, pedestrian activity is routinely observed west of the overpass from seasonal workers at Six Flags Great Adventure. Although seasonal bus service now operates in this area, no transit facilities are provided along this section of roadway.

Pine Drive to Six Flags Great Adventure Main Entrance
(Millstone Township, Jackson Township)

Picture 3-21: View of recently expanded CR 537 just west of jughandle intersection.

As mentioned previously, Monmouth County recently expanded CR 537 to a divided roadway with three travel lanes in each direction. A signalized intersection was created at CR 537 using dual reverse jughandles for two U-Turns. Retail, restaurant and commercial uses are adjacent to both travel directions of CR 537 in this roadway section. Upon approach to the main entrance to Six Flags Great Adventure (Great Adventure), the two CR 537 WB right lanes transition to 3. While the right lane ascends a grade-separated overpass, the left and center lanes merge to become a single through travel lane just west of the Six Flags Great Adventure entrance overpass. Two lanes are maintained on CR 537 EB just east of the main exit from Great Adventure. A significant paved shoulder is provided for much of this section of roadway. Posted speed limit is 50 MPH.

Picture 3-22: View of exit lane transition approaching Six Flags Great Adventure Theme Park.

Pedestrian and Transit Facilities

Although significant seasonal pedestrian activity was observed along this section of roadway, no sidewalks are available for pedestrians. Recent improvements to the intersections at Pine Drive and the signalized U-Turn just to the west did provide crosswalks, pedestrian signals and pedestrian pushbuttons, the latter of which are located on standards very far off the roadway. Although seasonal bus service operates in this area, no transit facilities are available in this section.

Six Flags Great Adventure Main Entrance to CR 539 Pinehurst Road / Forked River Road

(Millstone Township, Upper Freehold Township, Jackson Township)

Picture 3-23: Typical section of CR 537 west of Six Flags Great Adventure.

South of Great Adventure, CR 537 is a single travel lane in each direction. A mix of undeveloped land and older residential homes with driveways are punctuated by occasional commercial and recreational uses, however, woodlands and wetlands predominate. A significant paved shoulder is provided for much of this section of roadway. Posted speed limit is 50 MPH. Passing is permitted in limited areas. Several paved, and in some cases unpaved, local roads intersect CR 537 at skewed stop-controlled approaches.

Approaching the CR 539 signalized intersection, the roadway adds an exclusive left turn lane on most approaches.

Pedestrian and Transit Facilities

Although no pedestrian activity was observed in this area, Plumsted Township officials have identified the need for a multi-use path that would extend east toward Six Flags Great Adventure. No regularly scheduled transit service is presently provided to this area.

3.3 SIGNALIZED INTERSECTIONS

Many local streets and commercial and residential driveways intersect CR 537 within the project study limits, as do several state and interstate highways and several unpaved, and in some cases unnamed, dirt roadways. A total of 52 intersections are found along CR 537 in the study area, of which 13 are signalized and 39 are stop- or yield-controlled. A majority of signalized intersections are located in Sections A and C at the east and west ends of the corridor. Five intersecting roadways are state owned and/or operated, 7 are county (Monmouth or Ocean), 33 are municipal, and 7 are believed to be privately-owned drives or entrances. For further detail on geometric and regulatory information for CR 537 in the study area see the *Monmouth County Roads Straight Line Diagrams*.

Details regarding each signalized intersection, including traffic volumes, phasing, transit and pedestrian facilities, and land use, are provided in Appendix B.

3.4 UNSIGNALIZED INTERSECTIONS

Picture 3-69: View NB on Burnt Tavern Road skewed approach at CR 537

Picture 3-70: Skewed approach - Paint Island Spring Road at CR 537

A number of intersections along CR 537 within the project study limits are at un-signalized stop-controlled intersections. Although most of these intersections serve low volume local travel, intersections at CR 524 Elton – Adelphia Road, CR 524 Stagecoach Road and Burnt Tavern Road serve regional travel activity.

Although most operate acceptably under baseline conditions, several face challenges ranging from undesirable turning geometrics to high volume movements in close proximity to other intersections or ramps. Perhaps the intersection of greatest concern in this regard is located at Burnt Tavern Road, a local road near I-195 which is used by travelers to avoid certain movements though the CR 526 / CR 571 / CR 537 intersection just to the east. The combination of frequent turns to and from Burnt Tavern Road at CR 537 coupled with its very close proximity to the I-195 ramps appears to be a major factor in the high rate of rear-end crashes which occur in this area. Future increases in CR 537 volumes are likely to reduce available gaps in the traffic stream needed for these intersections to function effectively.

Pictures 3-69 and 3-70 show two examples of un-signalized intersections in the study corridor.

3.5 BRIDGES AND CULVERTS

To evaluate the functional condition of CR 537 corridor roadway bridges, the project team used the Federal Highway Administration's National Bridge Inspection Standards (NBIS) system required for use in state highway department inspections and inventories. The NBIS system ensures that bridge inspections are conducted on a regular basis and in a timely manner so as to ensure identification of critical bridge maintenance and strengthening issues.

The term "bridge" is defined in accordance with the American Association of State Highway and Transportation Officials (AASHTO) Transportation Glossary, as a structure including supports erected over a depression or an obstruction, such as water, highway or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes. It may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening. Under the NBIS system, bridges carrying a public road are to be inspected and evaluated for safety at regular intervals not to exceed 2 years, although periods of up to 4 years can be authorized by request to FHWA for bridges with more favorable conditions. Each bridge is to be rated as to its safe load capacity, and posted if the maximum legal load under

State law exceeds the operating rating for the bridge. Evaluation is conducted per the provisions of Section 4 of the *AASHTO Manual for the Maintenance and Inspection of Bridges – 1983* (AASHTO Manual) together with subsequent changes or the most recent version of the AASHTO Manual. The primary assessment tool for the NBIS process is the Sufficiency Rating, a numerical score which incorporates a range of inspection criteria. Deficiencies identified through this process are to be corrected either through timely action or submission of an aggressive short term remediation plan to be approved by FHWA. Where compliance with these regulations is not maintained, potential loss of Federal-aid may occur.[1]

A total of 14 bridge or culvert structures were identified in the CR 537 Corridor study area that qualify under the above definitions. These range in size and complexity from multi-span steel and concrete overpass structures over NJ Route 33 Freeway and I-195 in Study Area Sections A and C respectively, to small culvert and pipe structures throughout the corridor to accommodate small tributaries and streams. Figure 3-5 illustrates the location of these bridges and culverts, while details on the physical characteristics of each structure and jurisdiction are contained in Table 3-1.

None of these structures are presently identified as having significant structural or operational problems, although surrounding environmental land uses may affect the future improvement strategy choices for improvements or replacements.

[1] Federal Highway Administration, United States Department of Transportation 23 CFR, Subchapter I (4-1-02 Edition) Part 650 – Bridges, Structures and Hydraulics, Subpart C, National Bridge Inspection Standards [44FR 25435, May 1, 1979 as amended at 51 FR 16834, May 7, 1986]

Table 3-1
Characteristics of Bridges Along CR 537 Corridor

STRUCTURE NO.	LOCATION	DESCRIPTION	WIDTH (between curbs)	JURISDICTION
NJDOT 1	CR 537 over SR 33	Multispan Concrete & steel	Approx. 45 feet	NJDOT
F-38	CR 537 over Manasquan River	3.4' Masonry Arch	30 feet	Monmouth County
F-12 A	CR 537 over Manasquan River	36" CMP, 20" CIP	30 feet	Monmouth County
F-12	CR 537 over Metedoconk River	60" RCP Pipe	30 feet	Monmouth County
MS-90	CR 537 over Toms River	Concrete Culvert 17.5" span	30 feet	Monmouth County
NJDOT 2	CR 537 over I-195	Multispan Concrete & steel	30 feet	NJDOT
U-5	CR 537 over Lahaway Creek	Concrete culvert 16.5' span	30 feet	Monmouth County
U-6	CR 537 over Lahaway Creek	Concrete culvert 16.5' span	30 feet	Monmouth County
U-27 (P-05)	CR 537 over Lahaway Creek	Concrete & Timber 16.5' span	30 feet	Ocean County
U-28 (P-04)	CR 537 over Lahaway Creek	Concrete & Timber 15' span	30.3 feet	Ocean County
U-29 (P-03)	CR 537 over Lahaway Creek	60" x 65" RCP	30 feet	Ocean County
U-30	CR 537 over Lahaway Creek	48" RCP	30 feet	Ocean County
U-42 (P-01)	CR 537 over Cross Wicks Creek	Timber 15' span	30.3 feet	Ocean County

3.6 PUBLIC TRANSPORTATION

Analysis Approach

To evaluate the availability of and demand for public transportation services in the Western CR 537 Corridor, planning staff considered an array of information sources. Using the recently developed Monmouth County Transit Map as well as NJ TRANSIT public schedule information, transit routes presently serving the Western CR 537 Corridor were identified (see Figure 3-6). Staff next obtained and reviewed NJ TRANSIT ridership data indicating present usage, and evaluated potential unmet demand through a recently completed local bus rider survey conducted jointly by Monmouth County Planning Board, NJ TRANSIT and Keep Middlesex Moving staff. Where necessary, analysis of potential costs for expanded or new service were developed from data obtained through Monmouth County's grant subsidized operation of the NJ TRANSIT 836 local bus route which serves the corridor.

Although public transportation service is available in the CR 537 Corridor, the level and types of service vary greatly between the three Study Area sections in this report. The majority of transit service is currently provided in Section A between NJ Route 33 Business, US Route 9, Freehold Raceway Mall and Centra-State Hospital at the northern end of the corridor. These services include commuter bus routes oriented to New York and Northern New Jersey as well as "city" bus services providing local access within Monmouth County. While a half dozen routes operate within or across this area, Sections B and C between Gravel Hill Road, CR 526 / CR 571 and CR 539 until recently did not have any public transportation service available. This changed in 2001, when Six Flags Great Adventure, who previously had contracted for its own employee transportation services, began sponsoring operation of seasonal NJ TRANSIT scheduled bus service between Six Flags Great Adventure, Jackson Outlet Village and the Freehold Transportation Center. Operated between May and November of each year, these services are open to the public and provide connections to regional and local bus routes in Freehold Borough. The following are the specific routes and services which presently operate within the CR 537 Corridor:

NJ TRANSIT 836 LOCAL BUS ROUTE

Picture 3-71: View of NJ TRANSIT 836 local bus

Service and Market Overview

The NJ TRANSIT 836 is a local "city" route operating east – west across interior Monmouth County between Asbury Park, Freehold Borough and Freehold Raceway Mall. Although the route formerly provided service only between 5:30 AM and 6 PM Monday to Friday, the Monmouth County Planning Board developed service improvement plans and secured federal and state funding to extend the route west along CR 537 to Centra-State Hospital in Freehold Township and expand the hours of operation to 5:30 AM to midnight seven days a week in March 2001. Major reasons for the expansion were new and proposed major employment centers and retail / service

clusters including Freehold Raceway Mall expansion plans, a proposed Wal-Mart / Sam's Club development at NJ Route 33 Freeway and CR 537, Freehold Regional Post Office, Raintree and neighboring communities and shopping centers, and Centra State Hospital and proximate medical offices and facilities

Based upon 836 and other local county bus market profile information, a majority of current bus customers are low to moderate income with transit dependency. Most riders are county residents that often experience significant difficulty in accessing new and emerging suburban areas of Monmouth County, including the CR 537 area. Many are seeking employment and shopping opportunities. Ridership also includes seniors and youth that experience restrictions to the use of, or lack of access to, personal vehicles.

Given the nature of the development anticipated for the northern CR 537 Corridor, public transportation service is also critical to economic viability of employers and firms for several reasons:

- Significant clerical, retail, and skilled and manual labor needs projected for new development in this corridor are unlikely to be met through individuals with auto ownership
- Unmet demand for nursing and medical technician staffing is already high, particularly for night workers. Many job candidates for these markets lack personal vehicles and depend upon public transportation services
- Access to retail and service clusters for transit dependent markets is likely to expand the customer base for shopping and retail in the corridor
- Aging populations in both the Raintree and the senior residential areas may use the 836 service to access local areas between Centra-State, Raceway Mall and Downtown Freehold as access to the service improves.

Route Description

Freehold-bound, the 836 operates westbound on NJ Route 33 Business/Park Avenue to the intersection with CR 537, where the bus turns east along CR 537 (temporarily away from the Study Area) to reach downtown Freehold and the Transportation Centre. After winding through the northern sections of Freehold Borough, the route enters and travels along US Route 9 SB turning west on Raceway Mall Drive. After serving the Freehold Raceway Mall, the 836 exits the Raceway Mall property from Trotters Way via the exclusive right lane ramp and follows County Route 537 WB over the NJ Route 33 Freeway bridge, through the intersections of Stillwells Corner/Wemrock Roads and Redwood Lane / Village Center Drive before turning into the Centra State Hospital loop driveway at the end of its route. Stop and layover is made at the front entrance of the hospital lobby. Asbury Park-bound trips exit Centra State Hospital via the loop driveway / Iron Bridge Road intersection, where a left turn is made. The route travels EB along CR 537 until using the jughandle to access Trotters Way. The official stop at Freehold Raceway Mall is made at the mall entrance to Sears, over ½ mile away from County Route 537 and almost 2 miles from Centra State Hospital. Only 1 bus stop presently exists on County Route 537 (near MP 16.8 southbound in front of Centra State Hospital) and does not serve 836 users since the Centra State Hospital Stop is made on the hospital driveway at the entrance.

Ridership Demand
Although limited, ridership along the CR 537 corridor portion of the route continues to grow since inception of the service in March 2001. Presently, approximately 40 riders per day use the 836 route beyond Freehold Raceway Mall to Centra State Hospital. Although some riders already use the service to intermediate points along County Route 537, improved delineation of stops is expected to significantly improve overall ridership levels and access in this corridor area.

Demand for intermediate bus stops in this area of the corridor has been confirmed through several means, including:

- ridership counts for the 836 route
- field observations of passenger boarding and alighting behavior
- participation by employers in this corridor in the 836 Job Match program, designed to encourage potential new employees to get to their work locations by using the 836 bus.

Notably, a major 836 Job Match partner includes Norkus Enterprises / Foodtown, who currently operate a Foodtown Super Store at Raintree Shopping Center and who are presently expanding their store at this location.

NJ TRANSIT 833 LOCAL BUS ROUTE

Service and Market Overview
The NJ TRANSIT 833 is a local "city" route operating southeast – northwest across interior Monmouth County between Red Bank, Freehold Borough and Freehold Raceway Mall. The route currently provides service between 7:30 AM and 7 PM Monday to Friday. No weekend or late evening service is currently provided.

The Monmouth County Planning Board completed a study of service improvement needs in 2001. Based upon survey data from the study used to develop market profile information, a majority of current bus customers are low to moderate income with transit dependency. Most riders are county residents that often experience significant difficulty in accessing new and emerging suburban areas of Monmouth County, including the CR 537 area. Many are seeking employment and shopping opportunities. Ridership also includes seniors and youth that experience restrictions to the use of, or lack of access to, personal vehicles.

Although following a different route than the NJ TRANSIT 836, the 833 also provides service between downtown Freehold and Freehold Raceway Mall. Many of the issues relating to the importance of local bus service for the 833 are similar to those defined in the 836 section above.

Route Description
Freehold-bound, the 833 operates westbound on CR 537 from Freehold Centre (downtown transportation terminal) via CR 537 through intersections with NJ Route 33 Business, Barkalow Avenue / US Route 9 NB and US Route 9 SB before entering Freehold Raceway Mall property via Trotter's Way. After serving the Freehold Raceway Mall, the 836 exits the Raceway Mall property from Trotters Way and follows County Route 537 EB along the same route to return to Freehold Centre.

Ridership Demand
833 Ridership in the study area is approximately 70 riders per day beyond Freehold to the Freehold Raceway Mall. Although some local riders destined to the mall use the 836 and the 833 interchangeably, most travelers originate or are destined to points beyond Freehold Borough.

MONMOUTH COUNTY SHUTTLE SERVICES

Service and Market Overview
Monmouth County Division of Transportation contracts for the operation of two fixed-route local shuttle bus services which serve the CR 537 corridor study area. These services, while open to the public, are primarily designed to provide basic local accessibility for transit dependent and senior individuals. The Marlboro – Freehold Raceway Shuttle provides 5 weekday only trips in each direction, while the Howell Freehold Raceway Mall service provides 4 trips in each direction.

Route Description
The Marlboro – Freehold Raceway Mall service operates via Freehold Centre and CR 537 to NJ Route 33 Business / Park Avenue WB to US Route 9. The route continues WB along NJ Route 33 Business until turning SB on Wemrock Road. Deviations occur via Gully Road to serve Applewood Estates and Wyndham, and via Raintree before continuing on Wemrock Road to the CR 537 intersection. The route then travels EB on CR 537 to Trotters way via the jughandle, before ending at Freehold Raceway Mall. Return service follows the same basic route.

The Howell – Freehold Raceway Mall service operates via US Route 9 and Stonehurst Apartments before turning WB on Schank Road. The route turns SB on Stillwells Corner Road before turning WB on Double Creek Parkway and turning NB on Iron Bridge Road. The route then joins CR 537 at the Iron Bridge Road intersection, serving the Centra State Hospital and nearby clinics before turning EB on CR 537. At Village Center Drive, the shuttle enters Raintree before returning to CR 537 via the same route and turning onto CR 537 at the Village Center Drive intersection. The route follows CR 537 through the Stillwells Corner Road / Wemrock Road intersection to Trotters way via the jughandle and ends at Freehold Raceway Mall. Return service follows the same basic route.

Ridership Demand
Because of the infrequent level of service and slow schedule, ridership is generally modest and limited to individuals without transportation alternatives. These routes therefore serve a limited but specialized market.

NJ TRANSIT 139 / ACADEMY COMMUTER BUS

Service and Market Overview
The NJ TRANSIT 139 Route is operated jointly with Academy Lines LLC, a private carrier, providing a single core New York commuter route operating primarily along US Route 9 to Port Authority Bus Terminal in New York. Notably, the 139 bus is the only NJ TRANSIT New York commuter service and mode currently provided to the study area. Although the route passes

beneath CR 537 near Barkalow Avenue, no transfer facilities or stops are available at this location. Most study area commuters instead use park and ride facilities located just to the south of this location in Freehold Township, or one of two 139 "local" route variations.

Academy also operates peak period weekday-only Route 9 service serving Wall Street and Lower Manhattan. Since all trips operate via US Route 9 and do not deviate from the highway in the CR 537 study area, riders must use park and ride locations along US Route 9 to access the service.

Route Descriptions
The first 139 route variation known as "Freehold Centre" trips operate via downtown Freehold Borough using NJ Route 79, NJ Route 33 Business / Park Avenue to reach the CR 537 intersection before turning EB onto CR 537 (away from the study corridor area). These trips return to US Route 9 via the north end of the borough. A second pair of 139 route variations known as "Stonehurst Service" and "Raintree Service" deviate from US Route 9 at CR 524 Elton – Adelphia Road. These trips weave through suburban residential neighborhoods and apartment clusters until turning WB on Schank Road to Stillwells Corner Road NB. This service then crosses CR 537 at the Stillwells Corner Road / Wemrock Road intersection, continuing on Wemrock Road to NJ Route 33 Business EB before returning to US Route 9.

Ridership Demand
Although extremely heavily patronized and often operating on headways as short as every 3 minutes between buses in peak periods; levels warranting transportation services better suited to modes such as commuter rail, the 139 remains the only NJ TRANSIT New York commuter service in the area. Schedules for some trips to New York City require 90 minutes, largely due to traffic congestion on US Route 9.

Academy service is well patronized but also faces a lengthy schedule owing to US Route 9 congestion and routing via the Holland Tunnel. Schedules for some trips require 80 minutes or more.

NJ TRANSIT 64 AND 67 COMMUTER BUS ROUTES

Service and Market Overview
The NJ TRANSIT 67 is a commuter and local service operating primarily along US Route 9 to Newark Penn Station. As with the 139, most trips operate via US Route 9, passing beneath CR 537 near Barkalow Avenue. Most riders use park and ride facilities located just to the south of this location in Freehold Township or one of two 67 "local" route variations.

The NJ TRANSIT 64 is a peak period commuter service operating primarily along US Route 9 to the Hudson Waterfront. As with the 139, most trips operate via US Route 9, passing beneath CR 537 near Barkalow Avenue. Most riders use park and ride facilities located just to the south of this location in Freehold Township, or use the route deviation via Freehold Centre.

Route Descriptions
With the first 67 variation, selected trips serve Freehold Raceway Mall from US Route 9 via the NB ramps to CR 537 at the Barkalow Avenue intersection and Trotters Way. The service returns to US Route 9 via this same route. The second 67 variation is also used by the one and only 64 route variation. Selected trips operate via downtown Freehold Borough using NJ Route 79, NJ Route 33 Business / Park Avenue to reach the CR 537 intersection before turning EB onto CR 537 (away from the study corridor area). These trips return to US Route 9 via the north end of the borough.

Ridership Demand
Although the 64 is principally a commuter service, the 67 serves both commuter and local travelers in the US Route 9 corridor. As a result, the service sees strong ridership in both markets, with extensive short distance trips between local points in the US Route 9 corridor.

NJ TRANSIT 307 BUS ROUTE

Service and Market Overview
The NJ TRANSIT 307 is a seasonal local bus service operating along CR 537 between Six Flags Great Adventure theme parks, Jackson Outlet Village and Freehold Centre. Subsidized entirely by Six Flags to provide access and commuting options for their seasonal work force of up to 5,000 employees, the route is also open to the public. First operated in 2001, the route now offers timed connections to selected NJ TRANSIT 139, 67, 836 and 833 trips in Freehold Centre. Several additional seasonal routes from Trenton, Point Pleasant and Toms River / Lakewood offer more limited seasonal services as well. Service operates only between April and November, with the most trips being offered seven days per week between May and September.

Route Descriptions
The 307 operates via CR 537 from Freehold Center and enters the study corridor at the NJ Route 33 Business intersection. The route follows CR 537 to the CR 526 / CR 571 intersection before turning EB on CR 526 / CR 571 and entering Jackson Outlet Village. The 307 returns to CR 537 via the same route, and turns WB on CR 537 at the CR 526 / CR 571 intersection before terminating at the employee entrance to Six Flags Great Adventure. The return follows the same basic route.

Ridership Demand
Many employees reside on-site at Six Flags and use the bus as their primary means of access to shopping, off-site recreation and regional travel. Many of these trips are destined for Freehold Raceway Mall, Raintree and downtown Freehold where services and goods are available, and frequently stop along CR 537. Other employees residing off-site without automobiles use the service to commute, often through connecting bus routes at Freehold Centre. Still others, particularly children and teenagers without personal vehicles, use the bus as a means to access the theme parks. The service also supplements a more expensive albeit direct service (NJ TRANSIT 308) from New York City by providing a low cost, one transfer alternative routing. Ridership levels vary extensively by trip and time period.

PROBLEM IDENTIFICATION

Based upon our review, the following problems were identified:

- 836 bus drivers have expressed concern that bus stops be formalized to ensure safe loading and unloading of passengers

- Monmouth County Traffic Safety Engineering staff expressed concern over the creation of bus stops on CR 537 following a field investigation performed on April 11, 2001. Traffic Safety staff identified a lack of available shoulder area and high current traffic volumes, and therefore recommended that dedicated pullout lanes be created for proposed bus stops

- The Freehold Township Police Traffic Safety Officer noted his concerns about the lack of available shoulder stopping areas and current traffic volumes, and did not support bus stops on CR 537 unless pullouts were developed.

- Barkalow Avenue connects CR 537 to a residential neighborhood and NJ Route 79 just east of the US Route 9. Although no sidewalks are available, a dogpath was identified on the east side of Barkalow Avenue. Barkalow is also heavily used by traffic exiting northbound US Route 9 onto CR 537.

3.7 BICYCLE AND PEDESTRIAN

Bicycle and Pedestrian Market Overview

Bicycle and pedestrian activity within the CR 537 corridor varies extensively by Study Section and the availability of suitable facilities. Although the majority of bicycle and pedestrian activity occurs in the higher employment and population density areas comprising Section A, their use is affected by the availability of connected sidewalks or paths, availability of adequate roadway shoulders and horizontal clearances, and the intensity of traffic on area roadways. Pedestrian and bicycle activity is more limited in Study Sections B and C, as the travel distances between destinations increase and population densities decrease.

Bicycles

As Western Monmouth County continued to grow in the 1980s, traffic volumes increased substantially on CR 537. Although sections of CR 537 west of NJ Route 33 Business to just south of Iron Bridge Road were widened to 4 lanes during a major county-sponsored roadway improvement initiative in 1991, this widening usurped most previously existing shoulder areas of the road, and, in some cases, frontage from adjacent land uses. As a result, on-street bicycle use in Section A is today largely impractical. Although much of CR 537 south of Gravel Hill Road (Study Sections B and C) is highly scenic, roadway shoulders remain very narrow, traffic is fast, and the rolling topography limits visibility. For these reasons, CR 537 has been categorized as “poor" for bicycle travel on the *Monmouth County Bicycle Map* for almost the entire distance of the study area.

Pedestrians

Although gaps exist in pedestrian network within Study Section A, significant demand was observed during field investigations in this section. Demographic analysis of the markets most likely to use this mode, particularly school children, seniors, and non-vehicle owning households, further suggests significant un-served latent demand for pedestrian facilities in this study section.

While pedestrian activity and opportunities in Study Sections B and C are considered far more limited, seasonal pedestrian activity was identified at locations between Great Adventure and Jackson Outlet Village. In addition, the Township of Plumsted has expressed interest in developing a multi-use trail that would extend from High Point to Cape May through CR 537 and Crosswicks Creek.

The following describe existing pedestrian facilities, connectivity and concerns identified for general areas within each of the 3 Study Sections.

Study Section A

Along CR 537 Corridor

Freehold Raceway Mall
Along Winners Circle, the ring roadway encircling the main parking areas, only limited sections of sidewalk are available. Although Raceway Mall Drive, extending from Winners Circle to US Route 9 has no sidewalk, a footpath to the Sam's Club/Home Depot parking lot was noted. While the intersection at US Route 9 does have pedestrian pushbuttons, marked crosswalk and signals on the south side of Raceway Mall Drive, the eastern end of the crosswalk is within the US Route 9 jughandle. There are no sidewalks or any other path provided for pedestrians on the east side of US 9.

The Cardigan Bay Lane entrance to the mall from NJ Route 33 Business lacks sidewalk. Due to steep slopes on both sides of the roadway, pedestrian traffic would have to walk in the roadway. Where Cardigan Bay Lane intersects NJ Route 33 Business, there are pedestrian pushbuttons on all four corners, but no sidewalks. NJ Route 33 Business has wide shoulders that could accommodate some pedestrian activity.

CR 537Freehold Raceway Mall to Wemrock / Stillwells Corner Road
The intersection of Wemrock Road and Route 537 provides full pedestrian facilities and signals. Although sidewalks are available both north and south of CR 537 along Wemrock Road and Stillwells Corner Roads, sidewalks along CR 537 are only available west of the intersection. Although the lack of sidewalk or shoulder area along CR 537 east of this intersection makes bicycle and pedestrian travel difficult, pedestrian activity was observed along this segment of CR 537, particularly near the Route 33 Freeway overpass.

Within CR 537 Study Area

West Freehold / Raintree / Wyndham / Monmouth Battlefield Area
Continuous sidewalk extends along the west side of Wemrock Road from the CR 537 intersection to the Raintree Village entrance. Pedestrians must then cross (without signal or crosswalk) to the east side of Wemrock Road for continuous sidewalk to the signalized intersection of Wemrock and Gully Roads. No sidewalk is presently available along Gully Road, despite the presence of Applewood Estates, a major senior assisted living community, and Wyndham, a condominium community of several hundred units and nearby single family home residential areas located only ¼ to ½ mile away from Wemrock. Notably, these developments were constructed with internal sidewalks throughout that extend to Gully Road, and significant pedestrian activity was observed along Gully Road.

Sidewalks end at Gully Road, although NJ Route 33 Business and Monmouth Battlefield State Park are only about a mile further north. The signalized intersection of Wemrock Road and Route 33 Business is equipped with a pedestrian pushbutton, however, no other pedestrian accommodations are available.

Schank Road / US Route 9 / Brookdale Community College Freehold Campus Area
Although the intersection of US Route 9, Route 33, and Route 79 lacks crosswalks, pedestrian signal heads, or even sidewalk approaching the intersection to suggest where a pedestrian might cross safely, a single pedestrian pushbutton is available on the southernmost approach (on the island between Stonehurst Blvd. and US Route 9). The only crosswalk spanning US Route 9 is located north of this intersection between the Fleet Bank headquarters and the Park and Ride segment of the shopping center parking lot. Once a pedestrian reaches the bank on the west side of US Route 9, driveways accessing the bank or the Brookdale College Campus behind are very narrow, curved, and poorly lit at night, and therefore poorly suited to pedestrian access.

The neighboring Freehold and Shop Rite Shopping Centers on the east side of US Route 9 are fairly accessible from downtown Freehold by foot; the streets behind it (Helen Ave. and Barkalow Ave.) have good sidewalks and narrow paved paths that extend into the shopping center's parking lot from E. and W. Barbara Dr. (short "no outlet" spurs off of Helen). There is presently no signage to indicate access to the shopping centers. While the shopping center can also be entered from South Street via sidewalk (near the intersection for ramps to Route 33 Freeway), this route is significantly longer.

Freehold Borough / Transportation Center / Throckmorton Street / US Route 9 Area
The Throckmorton corridor from CR 537 west is heavily used by pedestrian traffic. Despite continuous sidewalk along Throckmorton Street, heavy pedestrian volume was observed between the transportation center (old railroad station) along the railroad tracks past Rhea Street on Throckmorton. The gravel on the rail line is heavily worn by foot traffic, as are footpaths on the east side north of Avenue C. Where CR 522 passes beneath US Route 9, there is a footpath worn into the north side of Throckmorton Street and east of and along the access ramp to NB US Route 9.

Study Section C

As mentioned, little or no pedestrian activity was observed in the majority of Study Sections B and C. However, CR 537 between I-195 and the entrance to Great Adventure is used by pedestrians during summer season by many employees residing on-site at Six Flags Great Adventure to reach fast food and convenience stores near I-195. Although both intersections at Pine Avenue and the signalized jughandle U-Turn just to the east have crosswalks, pedestrian signals and pushbuttons on most approaches, no sidewalks are currently available. Unfortunately, the present design of the I-195 overpass with its access ramps and lack of sidewalk inhibits pedestrian access across I-195. These conditions make access between Great Adventure, and Jackson Outlet Village and shops to the east of I-195 difficult for pedestrian traffic.

3.8 RAILROADS AND MAJOR UTILITY CROSSINGS

Railroads

Freehold Secondary

Although two railroads cross the CR 537 Corridor at the very northern and southern ends of the study area within a 1-mile radius, neither crosses CR 537 proper within the defined roadway sections included in this study.

Picture 3-72: View of active rail crossing at Throckmorton Street in Freehold Borough.

One active rail crossing is maintained on CR 537 at Throckmorton Street in Freehold Borough in the northern extreme of Study Section A. The railroad is currently operated for freight by the Conrail Shared Assets Operating Company, and bisects the CR 537 / Throckmorton Street intersection at grade on an unusual angled approach.

Background

Formerly operated by the giant Pennsylvania Railroad (PRR) and its successor Penn Central Transportation Company, rail passenger and freight service were provided on this route that extended from connections with the Amboy Secondary (the original Camden & Amboy Railroad) and the Dayton Secondary at Jamesburg in Middlesex County through Freehold Borough, Farmingdale and ultimately to Manasquan where a connection was maintained to the New York and Long Branch Railroad, today's heavily used NJ TRANSIT North Jersey Coast Line. Chief commodities handled were agricultural products, coal and building materials. A connection was also maintained in Freehold Borough with the Freehold Branch of the Central Railroad of New Jersey (CRRNJ) from Matawan.

After rail passenger service operating between Red Bank and Trenton ended in 1962, trackage between Farmingdale and Manasquan was progressively abandoned between 1964 and 1972 due to a limited freight need. The rest of the line continued to operate in freight service and maintained connections with CRRNJ. On April 13, 1973, a truck struck and damaged the railroad overpass on Center Street, severing the Freehold Secondary's freight connections at Freehold with CRRNJ Freehold Branch. This event precipitated abandonment of that route in February 1974. In 1976, the United States Railroad Administration, citing formulas showing inadequate revenue, excluded trackage between Farmingdale and a point west of Howell Road from its master system plan for Conrail. Although a federal subsidy was obtained to operate this "light density" line for a one-year trial period, service was discontinued on March 31, 1977. The line was subsequently acquired by NJDOT and NJ TRANSIT and "banked" for potential future use.

Years of deferred maintenance by previous owners led to deteriorating track conditions on the active sections of the line. After Conrail rehabilitated the active portions of the line in the late 1980s, rail freight service has continued to several major on-line customers. Several studies to restore passenger rail service to this corridor began in the late 1970s and continue to this day.

Presently, lumber, plastics and chemicals are the primary commodities handled on the line, which continues to see trains 2 to 3 times per week.

Assessment

The Freehold Secondary is of primary importance for the restoration of a proposed Monmouth-Ocean-Middlesex Passenger Rail service endorsed by Monmouth and Ocean Counties, and is a critical transportation component of improving regional transportation alternatives in and near the CR 537 Corridor. Restoration of the out-of-service portion of the route from Howell Road in Freehold Township to Farmingdale for freight is also recommended as this action would benefit the operational needs of Conrail Shared Assets Operating Company as well as efforts to restore passenger rail service to the route. In this regard, CR 537 would provide a direct access route for rail commuters from Western Monmouth and Ocean Counties to a potential station in the Freehold area. Although reductions in volumes on CR 537 are not likely to result from the project, MOM would likely divert significant existing vehicular travel along major roadways in the region.

Union Transportation Company

Picture 3-73: View of abandoned railroad crossing now filled.

Picture 3-74: View looking into embankment of abandoned railroad.

One abandoned railroad crossing is located within the CR 537 Corridor study area just south of the West Hill Stream/High Bridge Road intersection in Study Area C. When the railroad was operational, CR 537 appears to have crossed this railroad right-of-way (ROW) on a bridge.

This structure has since been removed and replaced with fill and an embankment over the depression comprising the former right of way; a common practice designed to reduce maintenance costs and increase roadway safety.

Background

Formerly operated by the Union Transportation Company (UT) as a subsidiary to the giant Pennsylvania Railroad (PRR) and its successor Penn Central Transportation Company, the company operated rail freight service from a connection at Mount Holly to Pemberton, Fort Dix, Wrightstown and New Egypt in Burlington and Ocean Counties and into Monmouth County through the Upper Freehold Township communities of Cream Ridge and Davis to Imlaystown just north of present day I-195. Prior to the construction of the New Jersey Turnpike in 1950 that required its removal, the route operated further north to a PRR connection in Hightstown. Chief commodities handled were agricultural products, coal and building materials. Although the railroad moved steel bridge girders and construction materials for construction for portions of I-195 in the early 1970s, this temporary gain in traffic later resulted in faster access for competing truck transportation and sealed the railroad's demise. With agricultural traffic waning and the

loss of coal traffic to Fort Dix and Maguire Air Force Base after their conversion to oil heating systems by the mid-1970s, parent Penn Central Transportation Company (itself in bankruptcy and awaiting takeover by a new government rail corporation) excluded the UT from takeover by Conrail on April 1, 1976. Although the UT operated independently and was included in a one-year United States Railroad Administration subsidy program to maintain interim service on "endangered" light density branch rail lines, shippers were asked to pay per carload surcharges to cover the actual full operating costs of service after the program ended. After no shippers elected this option, service was discontinued on March 31, 1977, and the tracks were removed between April and July of 1979. Portions of the right-of-way in Monmouth County are today used for access to local agricultural land uses, utility lines and for equestrian purposes. Although the rail bed is densely overgrown and difficult to locate in the study area, a 34.5 Kv JCP&L electric transmission line parallels much of the ROW.[2]

Assessment

With largely residential and agricultural land uses proximate to the railroad corridor, an almost total lack of on-line commercial businesses, and an alignment that has been severed in several locations both north and south of the study area by road improvements and highways, there does not appear to be a viable future need for the ROW as a revitalized railroad route.

Major Utilities

Transmission Network:

In addition to the GPU power line parallel to the former Union Transportation Company railroad right-of-way in Upper Freehold Township, high voltage electric utility lines cross the CR 537 corridor study area in Millstone Township just south of CR 524 Stagecoach Road. General Public Utilities (GPU Energy), who recently re-adopted the Jersey Central Power & Light operator name, uses these 69 Kv and higher trunk lines for power distribution between Ocean, Middlesex and Mercer Counties. A substation is maintained just east of and accessed from CR 537. A large cleared right-of-way extends along the alignment of the dual transmission towers which support these lines.

Distribution Network:

Utility poles for electric, telephone and cable distribution network are located along the entire ROW of CR 537 in the Study Area. Little, if any, of this network has been relocated to underground conduit.

[2] Brinckman, John. Pemberton and Hightstown Railroad, A Chronicle of Railroading Throughout the Farm Belt of New Jersey, John Brinckman, Edison, NJ 1987

Assessment

Transmission ROWs are often extensively cleared to enable access for employees to access all areas of the transmission system. While these continuous alignments could offer significant potential as bicycle or pedestrian ROWs, issues related to security, safety and alignment desirability would have to be addressed with utility companies and local communities.

After extensive review by the Monmouth County Division of Engineering, no major utility distribution facilities were found that would directly impact the CR 537 Corridor. However, utility poles may require relocation pending any road expansions. Where future improvements are considered, relocation of utilities from surface to underground conduit would be desirable to improve utility system reliability and reduce potential off-road contact points for errant vehicles.

3.9 ENVIRONMENTAL AND WATERSHED MANAGEMENT

Watershed Management Areas

The CR 537 project area is surrounded by five major watersheds. Study Section A, from north of Business Route 33 to Gravel Hill Road, is encompassed by the Delaware River Watershed, which includes Upper Freehold Township, Plumsted Township, Millstone Township, and Jackson Township. Section B, from Gravel Hill Road to CR 571/CR526, is surrounded by Toms River Watershed, Metedeconk River Watershed, and the Raritan River Watershed, and is comprises portions of Millstone Township, Freehold Township, and Jackson Township. Section C, from CR 571/CR 526 to CR 539, includes the Raritan River, Metedeconk River, and the Manasquan River Watersheds, and comprises portions of Freehold Township, Freehold Borough, and Manalapan Township. Figure 3-7 illustrates these watersheds and their boundaries.

Habitats and Wetlands

Wetlands, grasslands and forests where endangered species have been identified or where there is a possibility of habitat for threatened and endangered species near CR 537 are found in Sections 2 and 3. Turkey Swamp is an area of significant concern for habitats and wetlands, and encompasses major sections of Study Section B in both Monmouth and Ocean Counties.

The New Jersey Division of Fish and Wildlife uses a 5-step ranking for wetlands, forest, and grasslands, which have been used for this study. The rankings and definitions are as follows:

- Suitable Habitat: Designates a patch as suitable habitat, no species documented
- Special Concern: Designates a patch where species of special concern have been documented
- State Threatened: Designates a patch where state threatened species have been documented
- State Endangered: Designates a patch where state threatened species have been documented
- Federal Threatened & Endangered: Designates a patch where federal threatened & endangered species have been documented

Study Section A
Study Section A harbors state threatened forest and wetlands within the 1-mile buffer of CR 537, specifically along NJ Route 33 and largely near the Freehold Raceway Mall perimeter. Along the actual corridor, there is suitable habitat for grasslands and wetlands, as seen in Figure 3-8.

Study Section B
Study Section B has a large area of special concern and state threatened wetlands, and state endangered forest, as seen in Figure 3-9. As stated above, section B encompasses the Turkey Swamp areas. According to the National Heritage Database[3], this area has a number of endangered plant species that are possibly resident to the project area. They include:

Name of Species: Helonias Bullata (swamp pink plant)
Federal Status: Taxa formally listed as threatened
State Status: Endangered species
Regional Status: Taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction
Global Element Ranks: Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range
State Element Ranks: Rare in state with 21 to 100 occurrences

Study Section B also contains the JCPL Swamp, which the National Heritage Database has classified as priority[4]. This site lies on CR 537 between Ely-Harmony Road and CR 527, in Freehold and Millstone Townships. This site contains hardwood swamp forest that surrounds the stream channel, spreading wetland and small tributaries. There is a strong presence of dense shrubs, greenbriar and some multi-flora rose. The primary boundary of this site includes the known extent of the wetland habitat containing Federally-listed threatened plants along with the surrounding lowland habitat and the upland-lowland boundary.

Study Section C
Study Section C has a large area of federal threatened and endangered forest, state endangered and state threatened wetlands as seen in Figure 3-10. The National Heritage Database has reported the following plant species that are ***possibly along*** the project area:

[3] National Heritage Database: Division of Parks and Forestry. Data analysis of CR 537 Corridor
[4] Map: National Heritage Database Priority Site: JCPL Swamp, Monmouth County

Name of Species: Platanthera Peramoena (purple fringeless orchid)
Federal Status: no status given
State Status: Endangered species
Regional Status: no status given
Global Element Ranks: Demonstrably secure globally, although it may be quite rare in parts of its range, especially at the periphery
State Element Ranks: Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres)

The National Heritage Database has reported the following plant species that ***are on or in immediate vicinity*** of the project area:

Name of Species: Agastache Nepetoides (Yellow Giant Hyssop), Asclepias Variegata (White Milkeed), Cyperus Lancastriensis (Lancaster Flat Sedge)
Federal Status: no status given
State Status: Endangered species
Regional Status: no status given
Global Element Ranks: Demonstrably secure globally, although it may be quite rare in parts of its range, especially at the periphery
State Element Ranks: Imperiled in New Jersey because of rarity. - Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) Lancaster Flat Sedge only.
Name of Species: Cacalia Atriplicifolia (Pale Indian Plantain)
Federal Status: no status given
State Status: Endangered species
Regional Status: no status given
Global Element Ranks: Apparently secure globally, although it may be quite rare in parts of its range, especially at the periphery / Demonstrably secure globally, although it may be quite rare in parts of its range, especially at the periphery
State Element Ranks: Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) Lancaster Flat Sedge only.

The National Heritage Database has reported the following plant species ***that are in the immediate vicinity*** of the project area:

Name of Species: Helonias Bullata (swamp pink plant)
Federal Status: LT– Taxa formally listed as threatened
State Status: E – Endangered species
Regional Status: LP – Taxa listed by the Pinelands Commission as endangered pr threatened within their legal jurisdiction
Global Element Ranks: G3 – Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range
State Element Ranks: S3 – Rare in state with 21 to 100 occurrences

3.10 SCENIC ROADWAYS AND HISTORIC SITES

Scenic Roadways

The Monmouth County Scenic Roadway Plan was adopted during September 2001 as an element of the Monmouth County Growth Management Guide. The three principle goals of the plan are:

1) To identify [and enhance] those county roadways, or sections of roadways, that possess such a high degree of visual quality that driving, biking, or walking along those roadways is a pleasurable experience
2) To establish alternative design guidelines for scenic county roadways for use by Monmouth County in its development review process and capital improvement program (C.I.P.)
3) To present other methods of preserving and enhancing scenic roadways that can be implemented by other counties, municipalities, developers and agencies.

In the plan, the term "scenic roadway" is defined as "a public thoroughfare for the passage of vehicles, persons, or animals which traverses through an ever-changing, aesthetically pleasing environment that consists of natural and man-made elements which stimulate the senses and leave a lasting impression on the mind." The plan used a rating system based on a series of scenic roadway criteria in order to identify specific segments of Monmouth County roadways meeting this definition. In those areas defined as scenic roadways, flexibility in the application of roadway design standards is sought in order to best match the aesthetic and scenic elements along the roadway. The plan further recommends guidelines for the placement and application of utilities, drainage, frontage requirements, aesthetic treatments applied to bridges and culverts and other similar infrastructure treatments.

In the CR 537 corridor, several locations were identified as conforming to the scenic roadway plan. On CR 537, the entire roadway in Study Section B and C have been designated as a scenic roadway. In addition, 3 additional county roadways were so identified. These included:

- CR 524 Elton-Adelphia Road at and east of CR 537
- CR 524 Stagecoach Road at and west of CR 537
- CR 527 Smithburg Road at and west of CR 537

Map 2-2 (Base Map) illustrates roads within the Western Monmouth CR 537 Corridor Study Area that have been identified as qualifying as a scenic roadway.

Historic Sites

The study identified the presence of a dozens of historic sites in the CR 537 Study Area through the New Jersey State Historic Preservation Office (SHPO) which maintains listings of those locations which have been designated as historic. These sites are important cultural interpretive elements to the surrounding area. Where transportation improvements are sought, strategies must

avoid negative impacts to these locations and where possible, should seek to complement the surrounding historic sites and areas.

A listing of designated specific historic sites located in section A, B, and C within the Corridor is contained in Table 3-2, and illustrated in Figure 3-11.

Table 3-2
Designated Historic Sites[5]

Historic Site # Section A	Address
1316-14	*Bond House* – NW cr. Gully Rock and Wemrock Road
1316-11	*Solomon Farm* – SW cr. County Hwy 527and Wemrock Road
1316-32	*Freehold Corner School District 15* – E. side Wemrock Road, 100' North of County Hwy 537
1316-10	*Mount's Tavern* SE cr. County Hwy 537 and Stillwells Corner Road
1316-34	NE cr. Wemrock Road and Gully Road
1316-15	E. side Iron Bridge Road, 0.4 mi. North of Elton-Adelphia Road
1315-72	*William Covenhoven House* – 150 W. Main Street
1315-71	143 W. Main Street
1315-86	*Croxon House* – 173 South Street
1315-73	*Joseph Brakeley Canning Factory* – NW cr. Manalapan and Bowne Avenues
1315-8	96 Broad Street
1315-50	*Jacob B. Rue House* – 57 W. Main Street
1315-2	Bowne Avenue Streetscape
1315-5	*W.W. Wells House* – 7 Broad Street
1315-1	*Stokes Brothers Manufacturing Company* – 15 Bannard Street
1315-15	*Court Street School* – W. side Court Street opposite Holmes Terrace
1315-77	25 Monument Street
1315-13	36 Broad Street
1316-33	15 Lincoln Place
1316-9	*William M. Smith House* – S. side County Hwy 537, 100' East of Siloam Road
1332-8	*Parker/Smithburg Hotel* – W. corner Monmouth Road and Smithburg Road

[5] Monmouth County Historic Sites Inventory Summary Report, 1990.

Historic Site # Section A	Address
1326-18	NE side Smithburg Road, 0.8 mile NW of County Route 537
1326-4	*Daniel Dubois Farm* – N. side County Route 537, 0.6 mile E. of Smithburg Road
1326-12	N.E. end of LaValley Road
1326-26	*Thompson Grove School* – NE side Thompson Grove Road, 0.1 mile N. of County Road 537
1326-7	S. side Craig Road, 0.55 mile W. of US Route 9
1316-8	*Edmund Parker Farm* – S. side County Hwy 537, 0.4 mile South of Gravel Hill Road
1315-15	E. side Iron Bridge,0.4 mile North of Elton-Adelphia Road
1351-1-3	NE side Hornerstown Road, 6 SE of Unnamed Road
1351-1-5	SW side of Hornerstown Road, 3 SE of Arneytown –Hornerstown Road
1351-1-2	E. cr. Hornerstown Road and Unnamed Road
1351-1-4	SW side of Hornerstown Road, 2 SE of Arneytown-Hornerstown Road
1351-1-1	*Hornerstown District*
1351-1-8	NW side of Unnamed Road , 3 SW of Lahaway Creek
1351-1-9	*Hornerstown Baptist Church* – SE side Unnamed Road , 2 NE of Hornerstown Road
1351-1-10	SE side Unnamed Road , 2 NE OF Lahaway Creek
1351-1-6	Unnamed Road Bridge Over Lahaway Creek
1351-1-7	NW side Unnamed Road, NE OF Lahaway Creek
1326-5	N. side County Road 537, 0.2 mile W. of Thompson's Grove Road
1332-9	*Noah H. Hunt House* – E. side Olde Noah Hunt Road, 0.4 mi. S. of Trenton-Lakewood Road
1351-30	*Joseph Holmes, Jr. Farm* – N. side of Holmes Road, 0.3 mi. W. of Smith Mill Road

3.11 COMMERCIAL VEHICLES

Commercial vehicle travel along CR 537 was reviewed and data collected. Significant volumes were observed all the way through the corridor study area, with volumes tending to remain fairly constant even in the more remote sections of the corridor - locations unlikely to originate or receive truck shipments.

A review of truck volume data obtained through the use of ATR classification counts performed by Orth Rodgers & Associates was used to identify the following findings:

- Most commercial goods movement travel appears to occur during the morning and midday periods
- Highest truck volumes on CR 537 were observed during the morning peak period between Village Center Drive and Stillwells Corner / Wemrock Road intersections
- Highest truck percentages of total traffic were observed during the midday peak period on CR 537 eastbound between Six Flags Great Adventure and Pine Drive, when 21% (43 trucks) traversed this section

Assessment
Although marginally higher volumes were observed in retail and commercial areas, particularly near I-195, Freehold Raceway Mall and the Freehold Township areas likely to originate or receive goods, relatively stable levels of commercial vehicle traffic across the balance of the CR 537 Corridor study area suggest that a majority of truck travel using the roadway is regional in nature.

4. CURRENT CONDITIONS ASSESSMENT

4.1 STAKEHOLDER CONCERNS

The Stakeholder group meetings were successful in identifying specific areas of concern along the CR 537 corridor, enabling the Project Team to dedicate one-on-one attention to each person and issue at the meetings to follow. The following summarize problems in the CR 537 Corridor Study Area as identified by each municipal or business stakeholder group:

In **Freehold Township**, major problem locations and intersections were identified as follows:

- Trotters Way
- Wemrock / Stillwells Corner Road
- CR 537 and Gibson Place – members noted that improvements are scheduled at this intersection in the future
- Village Center Drive and Redwood Lane – members noted that the intersection will undergo sidewalk improvements as the Foodtown Supermarket contributes for its expansion at the Raintree Shopping Center site.
- Iron Bridge Road and Centra-State Hospital
- CR 537 and Gravel Hill Road
- CR 537 and CR 527: Members noted that much of the congestion at this intersection has been generated from growth in Jackson Township and Ocean County
- CR 537 and CR 524 (Elton-Adelphia Road)

In **Jackson Township**, the major problem location identified was from Pine Drive east through to the I-195 overpass and west to the Anderson Road and the Great Adventure area, where approximately 50-60 crashes per year were identified.

In **Plumsted Township** traffic concerns at Hawkins Road were noted due to its intersection with CR 528 and CR 539, as well as Evergreen Road. Other points raised by Plumsted include:

- Traffic may be affected when an NJDOT proposed on-road pedestrian/bike trail is constructed through the Township from Cape May to High Point
- CR 537/ CR 539 – this area experiences major bottlenecks, especially in the summer season
- Jensen's Senior Community is scheduled to expand. This will bring an increase of senior residents, creating more traffic congestion.

Also, because Plumsted Township anticipates significant growth with the addition of 1,600 new single family homes, new high school and elementary schools, and a new Administration building on Evergreen Road in the town center, that traffic may increase in the local area.

Millstone Township identified a major problem in the area of Paint Island Spring Road and CR 537, where two large housing projects are in the process of development. Municipal officials felt

this intersection to be an important concern and indicated that it will likely require a traffic signal. Other concerns mentioned by members included:

- CR 524 (Stagecoach Road) at CR 537 was identified as a problem intersection.
- Brookside Road and Squan Road, part of a five-way intersection with CR 537, is of great concern to the Township.

Millstone would like to maintain the rural integrity of their community, however they realize that development along CR 537 is inevitable.

Manalapan Township has mainly low density residential uses. Manalapan would like to maintain the rural characteristics they currently have. As such, they listed the following areas of concern:

- At the intersection of Thompson Grove and CR 537, 19 homes are in development at the Rifkin Property. This intersection is not signalized.
- Congestion at the CR 527 and CR 537 intersection

Upper Freehold Township listed the intersection of CR 537 and CR 539 as a problem intersection. Another area of concern is the intersection of Sharon Station Road and CR 539 because of how the road curves. Upper Freehold noted their concern that although they have zoned the CR 537 corridor from Province Line Road to Forked River Road Agricultural, Plumsted Township has zoned the same area across CR 537 as Industrial. Officials noted that this could be problematic when planning future development or when trying to maintain a particular land use characteristic along the corridor.

Centra State Medical Center gave a detailed account of their future development plans involving the creation, consolidation, and expansion of facilities. All of these may affect the CR 537 corridor because of the level of employment, visitation and deliveries to this location. Proposed developments include:

- An increase in the number of inpatient of beds at the hospital main campus
- Expansion of the main hospital campus on land just south of the exiting hospital
- Growth of outpatient services
- Possible development of a medical fitness center on the main campus, with dimensions approximately 100,000 square feet, in up to a 2-3 story building.

Freehold Raceway

Although Freehold Raceway presently has no plans for expansion, a possible enactment of alternate gaming at the Raceway could significantly increase traffic. However, Freehold Raceway believes that any alternate gaming scenario is theoretical and very far off in the future. One concern stated by the Raceway is the 2-3 pedestrian incidents per year on NJ Route 33 Business at the crosswalk from the parking area to the main entrance. Raceway management notes that a letter requesting a pedestrian crossing warning signal with blinking lights be installed at Business 33/Park Avenue was sent to Senator Bennett.

Freehold Raceway Mall

Freehold Raceway Mall (FRM) is not aware of any specific traffic problems and has not received complaints from mall patrons regarding any problem areas. However, the Raceway Mall does have a number of development activities in planning, which include:

- Construction of a 100,047 square foot Galyans Sporting Goods store located outside of Winners Circle between Trotters Ways and Raceway Mall Drive
- A major department "anchor" store projected at a maximum 250,000 square foot size, which would be added to the existing mall
- A 100,000 square foot office park located outside of Winners Circle to the west of the Mall
- A 100 room hotel and 2 restaurants totaling 18,000 square feet located adjacent Route 9 and Raceway Mall drive
- A 10,0000 square foot retail/restaurant development in the northeast quadrant of Raceway Mall Drive and Winners Circle

A site impact study traffic report analyzing the traffic generated by the above referenced proposed developments was submitted to the New Jersey Department of Transportation (NJDOT) and an access permit was granted in January 2001. This access permit concluded that no adjacent highway improvements would be warranted, as the existing roadways would experience no noticeable deterioration in operating characteristics as a result of the Mall's total proposed 20-year plan of development. Freehold Township has indicated that it will seek the construction of a proposed connection between Winners Circle and Wemrock Road in conjunction with any further development at FRM after the Galyans component.

In May 2003, management of the Freehold Raceway Mall publicly announced expansion plans for the mall with the Galyans component.

Assessment

With few exceptions, the primary concern or theme that arose from the stakeholder meetings was traffic congestion along the corridor, specifically at major intersections. Most municipalities wanted to maintain the rural character of the CR 537 Corridor Study Area, however, some groups recognized that zoning inconsistencies between adjacent municipalities may threaten the rural aesthetic of the area.

4.2 TRAFFIC ANALYSIS

Analysis Methodology

Although traffic volumes provide an important measure of how heavily a roadway system is used, determining how well the roadway network can process the movement of these traffic volumes is also an important element defining peak period demand and operational capabilities of the roadway system. Capacity is the measure of the maximum number of vehicles that can be accommodated within the constraints of roadway geometry, environment, traffic characteristics and controls.

Typically, intersections control capacity on road networks, as they process vehicles at locations where conflicts between through, crossing and turning traffic may be found. Since these conflicts require vehicles to yield or stop, they have significant impacts on traffic flow. Therefore, it is intersections that are studied most often when determining the quality of traffic flow.

Signalized Intersections

At signalized intersections, conflicts are managed through the allocation of clearance time displayed to each approaching movement by the traffic signal. Traffic signals therefore process vehicles on each approaching roadway through balancing the minimum amount of time required to effectively clear vehicles through the conflict point.

At signalized intersections, a number of factors affect approach capacities. These include width of the approach roadway, number of lanes provided, signal "green time," turning percentages, truck volumes, etc. Delays cannot be related to capacity in a simple one-to-one fashion. As operation at capacity can be less than satisfactory since substantial delays or reduced operating speeds are likely, it is possible to have delays in the LOS "F" range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist:

- Long signal cycling lengths;
- A particular traffic movement experiences a long red time; or,
- Progressive movement for particular lane group is poor.

A more detailed level of service description for signalized intersections is summarized in Table 4-1.

Table 4-1
Level of Service and Expected Delay for Signalized Intersections

Level of Service	Average Stopped Delay per Vehicle (seconds)
A	0 to 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	Over 80.0

Unsignalized Intersections

At unsignalized intersections, delay is a product of through and right turn movements on the primary roadway, which has priority over all side street traffic and left turn movements from the secondary side street/primary roadway. The arrival rate of vehicles passing the un-signalized intersection point between the primary roadway and side street determines the amount of available "gap" time needed for vehicles to clear these conflict points. Typically, the heavier the volumes are through signalized locations, the less gap time available to clear conflicting movements.

Since operations at capacity are usually unsatisfactory to most drivers, a descriptive concept has been developed for unsignalized intersections called level of service. Level of Service (LOS) relates expected traffic delay to critical movement. Unsignalized levels of service range from LOS "A" (indicating average delays of 10 seconds or less) to LOS "F" (indicating average delays of greater than 50 seconds). LOS "E" is generally considered as the acceptable limit of delay for most drivers in a suburban setting. A more detailed level of service description for un-signalized intersections is summarized in Table 4-2.

Table 4-2
Level of Service and Expected Delay for Unsignalized Intersection[6]

Level of Service	Average Total Delay per Vehicle (seconds)
a	0 to 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	Over 50.0

[6] County Route 520 Newman Springs Road Corridor Study, March 2002.

Detailed volume/capacity analyses were performed at each of the study intersections for the peak travel periods. Table 4-3 indicates overall LOS for each intersection.

Table 4-3
Level of Service Comparison of CR 537 Corridor Study Intersections

	Year and Travel Period								
		2002			2007			2012	
Intersection	**AM**	**MID**	**PM**	**AM**	**MID**	**PM**	**AM**	**MID**	**PM**
Business Rt. 33	**C (33)**	**C (35)**	**D (41)**	**D (45)**	**E (64)**	**F (260)**	**F (148)**	**F (288)**	**F (338)**
Rt. 9 NB Ramps	**B (14)**	**C (23)**	**B (18)**	**B (19)**	**C (34)**	**C (29)**	**C (21)**	**D (38)**	**C (33)**
Rt. 9 SB Ramps	**C (21)**	**C (21)**	**C (22)**	**D (39)**	**C (35)**	**F (85)**	**D (48)**	**D (45)**	**F (115)**
Trotter's Way	**C (28)**	**D (47)**	**C (30)**	**D (40)**	**D (52)**	**E (69)**	**D (52)**	**E (60)**	**F (95)**
Rt. 33 (Freeway)									
Gibson Place	e (35)	c (17)	f (673)	c (18)	c (17)	d (33)	c (21)	c (19)	e (38)
Freehold Marketplace Access	N/A	N/A	N/A	**C (21)**	**C (24)**	**E (78)**	**C (29)**	**C (27)**	**F (103)**
Stillwells Corner Road	**C (32)**	**D (54)**	**F (108)**	**E (68)**	**F (116)**	**F (241)**	**F (106)**	**F (150)**	**F (299)**
Village Center	**C (32)**	**D (40)**	**E (57)**	**E (66)**	**E (74)**	**F (159)**	**F (119)**	**F (107)**	**F (223)**
Iron Bridge Road	**B (20)**	**C (25)**	**C (23)**	**C (22)**	**C (32)**	**C (31)**	**C (24)**	**D (36)**	**D (40)**
Gravel Hill Road	f (50)	d (33)	f (353)	f (*)	f (138)	f (*)	f (*)	f (336)	f (*)
Thompson Grove	f (64)	d (32)	e (47)	f (393)	f (92)	f (497)	f (*)	f (207)	f (*)
Rt. 524	f (71)	d (27)	f (102)	f (333)	f (67)	f (761)	f (800)	f (142)	f (*)
Rt. 527	**F (241)**	**B (18)**	**F (154)**	**F (274)**	**C (22)**	**F (200)**	**F (316)**	**C (25)**	**F (258)**
Rt. 524	d (34)	c (24)	e (47)	f (67)	e (37)	f (177)	f (105)	e (45)	f (301)
Rt. 571	**D (50)**	**C (28)**	**F (91)**	**E (66)**	**C (34)**	**F (152)**	**F (83)**	**D (43)**	**F (198)**
Mall Access	**B (16)**	**B (12)**	**B (16)**	**B (19)**	**B (14)**	**C (23)**	**C (22)**	**B (15)**	**C (29)**
Burnt Tavern Road	f (*)	d (28)	f (380)	f (*)	e (41)	f (*)	f (*)	f (53)	f (*)
I-195	**C (23)**	**C (22)**	**F (96)**	**C (31)**	**C (28)**	**F (134)**	**D (44)**	**C (34)**	**F (158)**
Pine Road	**C (23)**	**B (16)**	**B (15)**	**C (24)**	**B (16)**	**B (15)**	**C (25)**	**B (17)**	**B (15)**
Hawkins Road	c (18)	b (15)	c (18)	c (23)	c (18)	c (23)	d (30)	c (20)	d (27)
CR 539	**C (21)**	**B (18)**	**C (30)**	**C (31)**	**B (18)**	**D (54)**	**D (39)**	**B (19)**	**E (78)**

Legend:

A - Signalized Level of Service

a - Unsignalized Level of Service

(20) - Overall Intersection Delay in Seconds

(*) - Incalculable Delay
Unsignalized intersection LOS represents the critical side street movement for each intersection.

Monmouth County retained the services of Orth-Rodgers & Associates to conduct manual turning movement counts at most major signalized and un-signalized intersections along the CR 537 Corridor. Counts were conducted during morning (7:00 AM – 9:00 AM) , midday (11:00 AM – 1:00 PM) and evening (2:00 PM – 6:00 PM) time periods in order to identify the range of peak travel conditions. For certain counts, these hours were adjusted to better reflect the peaking characteristics at those locations. Automatic Traffic Recorder (ATR) counts were also conducted at key intervals along CR 537. ATR counts were typically conducted for seven

continuous days measuring traffic volume as well as classification in most cases. Most manual turning movement counts and ATR counts were conducted between May and July of 2002, although some supplemental counts were conducted as late as March 2003. Table 4-4 provides a complete listing of counts by type, location and date that were conducted or used for this study.

Table 4-4
Manual and ATR Count Periods

Location	Count Type	Start Date	Time Period	AM Peak Start Time	AM Peak End Time	Midday Peak Start Time	Midday Peak End Time	PM Peak Start Time	PM Peak End Time
CR 537 @ CR 539	Manual	03/25/03	1 Day	7:00 AM	9:00 AM	11:00 AM	2:00 PM	4:00 PM	7:00 PM
CR 537 @ Hawkin Road	Manual	05/09/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Pine Drive	Manual	05/21/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Burnt Tavern Road	Manual	05/14/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Jackson Outlet Mall Access	Manual	05/22/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ CR 526 / CR 571	Manual	05/29/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ CR 524 (EB)	Manual	05/15/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ CR 527	Manual	11/16/99	1 Day	7:00 AM	9:00 AM	11:00 AM	2:00 PM	4:00 PM	7:00 PM
CR 537 @ CR 524 (WB)	Manual	05/14/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Thompson Grove Road	Manual	05/22/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Gravel Hill Road	Manual	05/30/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Iron Bridge Road	Manual	06/27/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Village Center Drive	Manual	06/20/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Stillwells Corner Road	Manual	06/19/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Gibson Place	Manual	05/30/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ NJ Route 33 Freeway	Manual	06/25/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Trotters Way	Manual	06/26/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ US Route 9 SB Ramp	Manual	07/02/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ Barkalow Avenue	Manual	07/02/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
Barkalow Ave. @ US Route 9 Ramp	Manual	06/06/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 @ NJ Route 33 Business	Manual	06/25/02	1 Day	7:00 AM	10:00 AM	11:00 AM	1:00 PM	2:00 PM	6:00 PM
CR 537 East of Loveman Road	ATR Class	05/11/02	7 Days	-	-	-	-	-	-
CR 537 East of Millers Mill Road	ATR Class	05/11/02	7 Days	-	-	-	-	-	-
I-195 Interchange Ramps	ATR Volume	06/25/02	7 Days	-	-	-	-	-	-
CR 537 @ I-195 Interchange	ATR Class	06/25/02	7 Days	-	-	-	-	-	-
CR 537 East of Burnt Tavern Road	ATR Class	05/29/02	7 Days	-	-	-	-	-	-
CR 537 East of Wright Debow Road	ATR Class	05/11/02	7 Days	-	-	-	-	-	-
Francis Mill Road South of CR 537	ATR Volume	05/11/02	7 Days	-	-	-	-	-	-
Ely Harmony Road North of CR 537	ATR Class	05/11/02	7 Days	-	-	-	-	-	-
Ely Harmony Road South of CR 537	ATR Class	05/29/02	7 Days	-	-	-	-	-	-
CR 537 East of Ely Harmony Road	ATR Class	05/11/02	7 Days	-	-	-	-	-	-
CR 537 East of Thompson Grove Road	ATR Class	05/29/02	7 Days	-	-	-	-	-	-
NJ Route 33 Freeway Interchange Ramps	ATR Volume	07/11/02	7 Days	-	-	-	-	-	-
CR 537 East of Business Route 33	ATR Class	05/29/02	7 Days	-	-	-	-	-	-

Analysis to identify level of service conditions at major signalized and unsignalized intersections along CR 537 was conducted using McTrans Highway Capacity Software version 4.1c. An overall level of service was developed for these locations to provide an assessment of their performance.

Assessment

Based on the data collected at CR 537 intersections, the weekday peak traffic periods for the corridor were found to occur between 2:00 PM and 6:00 PM. This analysis suggests that while morning peak periods are composed predominantly of commuter travel and midday periods composed non-home based work and shopping travel, the evening peak period is composed of the work and shopping and other trip types overlapping. Given the strategic location of the CR 537 Corridor to US Route 9 access and the concentration of retail and commercial activity in Study Section A, it is reasonable to conclude that returning regional travel volumes are compounded by local travel volumes, and thus are a prime element in the delay and congestion which occur.

The following provide summary highlights from the data:

- Overall observed volumes in Study Section A were found to be the highest, with at least 1 approach at most intersections operating at levels approximating or exceeding their effective operational limits during the heaviest travel periods. This is not surprising, given the proximity of CR 537 to the regional roadways of US Route 9, NJ 33 Business and Freeway, the regional Freehold Raceway Mall and major retail, commercial and service centers clustered in Freehold Township and nearby areas
- Volumes in Study Section C near I-195 were also significant and resulted in congestion during peak periods as well
- The key constraining point in Study Section B was found to occur at the intersection of CR 527 and CR 537 during peak morning and evening hours
- Highest observed total volumes at a signalized intersection were found to occur at Stillwells Corner Road / Wemrock Road & CR 537 during the evening peak period
- Although the highest observed total volumes at an unsignalized intersection were found to occur at Gibson Place and CR 537 during the evening peak period, this is somewhat misleading as Gibson Place itself is a dead-end access roadway that presently has an extremely low volume of travel. The unsignalized CR 537 intersection processing the highest volumes was found at Burnt Tavern Road & CR 537 during the evening peak period.

Table 4-5 below provides an overview of observed existing travel volumes at CR 537 intersections.

Table 4-5
Total Intersection Peak Hour Traffic Volumes (2002)

Location	Intersection Type	Morning Peak Hour	Midday Peak Hour	Evening Peak Hour
NJ Route 33 Business @ CR 537 / West Main Street	Signalized	1776	2261	2518
US Route 9 Northbound Ramps @ Barkalow Avenue	Unsignalized	514	621	715
Barkalow Avenue @ CR 537	Signalized	1670	1975	2101
US Route 9 Southbound Ramps at CR 537	Signalized	1897	2415	2599
Trotters Way @ CR 537	Signalized	2005	3126	3319
CR 537 WB to NJ Route 33 Freeway WB Ramp	Interchange	62	43	74
NJ Route 33 Freeway WB to CR 537 WB Ramp	Interchange	237	135	206
CR 537 WB to NJ Route 33 Freeway EB Ramp	Interchange	13	64	120
NJ Route 33 Freeway WB to CR 537 EB Ramp	Interchange	94	110	95
NJ Route 33 Freeway EB to CR 537 EB Ramp	Interchange	82	72	97
CR 537 EB to NJ Route 33 Freeway EB Ramp	Interchange	219	147	245
CR 537 @ Gibson Place	Unsignalized	2116	2215	2777
Stillwells Corner / Wemrock Roads @ CR 537	Signalized	3013	3111	3835
Village Center Drive / Redwood Lane @ CR 537	Signalized	2426	2787	3109
Iron Bridge Road / Centra-State Hospital Drive @ CR 537	Signalized	1957	2120	2383
Gravel Hill Road @ CR 537	Unsignalized	1367	1262	1748
Thompson Grove Road @ CR 537	Unsignalized	1379	1145	1529
CR 524 Elton – Adelphia Road @ CR 537	Unsignalized	1421	1121	1615
CR 527 Smithburg / Siloam Roads @ CR 537	Signalized	2224	1257	2407
CR 524 Stagecoach Road @ CR 537	Unsignalized	1162	1014	1401
CR 526 / CR 571 Trenton – Lakewood Road @ CR 537	Signalized	1807	1176	2452
Jackson Outlet Village Entrance @ CR 537	Signalized	1416	1125	1663
Burnt Tavern Road @ CR 537	Unsignalized	1866	1158	2106
CR 537 WB to I-195 WB Ramp	Interchange	375	150	226
CR 537 WB to I-195 EB Ramp	Interchange	141	20	247

Location	Intersection Type	Morning Peak Hour	Midday Peak Hour	Evening Peak Hour
I-195 EB to CR 537 WB Ramp	Interchange	158	444	247
I-195 WB to CR 537 EB Ramp	Interchange	323	230	432
I-195 WB to CR 537 WB Ramp	Interchange*	56	102	69
CR 537 EB to I-195 WB Ramp	Interchange	12	18	25
I-195 EB to CR 537 EB Ramp	Interchange	299	282	566
CR 537 EB to I-195 EB Ramp	Interchange	174	161	321
Pine Drive @ CR 537	Signalized	1121	1757	1899
Hawkin Road @ CR 537	Unsignalized	765	608	1032
CR 539 Trenton – Forked River Road @ CR 537	Signalized	1943	960	1759

* Signal Controlled

4.3 CRASH DATA

The following summarizes the findings determined from crash data supplied by the Monmouth County Division of Traffic Safety Engineering.

Although crash data for County Route 537 included approximately 13 miles, beginning at Hawkins Road in Jackson Township Ocean County and ending at the US Route 9 interchange in Freehold Borough Monmouth County, crash data for certain areas was unavailable for this analysis. Where these "gaps" in data occurred is noted in the following sections.

Beginning at the intersection of CR 527 (Smithburg Road), the crash data reviewed includes both directions of travel between January 2000 and December 2002. Therefore, complete crash data was available for Study Sections A and B. However, crash data in the vicinity of The Great Adventure Theme Park was limited to 2002 to represent conditions following the latest roadway improvements. In addition, the NJ State Police maintain crash records for Upper Freehold Township and Plumsted Township (i.e. westbound CR 537), and since no crash information was received from the State Police, crash data for this section of CR 537 is limited to the eastbound side of the roadway only. Finally, sections of CR 537 east of the I-195 interchange included crash data between January 2000 and December 2002. Once again, however, crash data for this section of CR 537 is limited to the eastbound side of the roadway because no crash data was received from the State Police.

Summary

There were a total of 422 crashes reviewed for this corridor that occurred within the time and location limits identified above. Given the variation of time frames and available data, the statewide average for county roads has been placed in brackets [ ] after each percentage provided to identify its relevance.

- 91% of the crashes fall into three categories:
- Same Direction / Rear-end (58%) [28%],
- Left Turns (24%) [6%] and
- Right Angle (9%) [22%].
- 64% [67%] of the crashes reviewed involved no injuries and 36%[31%] involved injuries. An extremely low number [0.25%] of the 422 crashes reviewed resulted in a fatality.
- 74% [77%] of the crashes occurred on a dry pavement and 26% [18%] occurred on a wet pavement.

- 82% [71%] of the crashes occurred while it was light and 18% [27%] occurred at night, dawn or dusk.

Crashes by Location

For consistency purposes, three similar crashes occurring at any given location is considered a pattern in the following text despite the fact that some locations have 12 months of crash data while others include 32 or 36 months.

East of Hawkins Road

The only pattern noted involved eastbound vehicles hitting deer. There were 4 crashes of this type reported within the ½ mile stretch of road during the 12-month period. No WB data was available for review.

Eastbound Approach to Pine Drive

27 (93%) of the 29 crashes that occurred involved same direction – rear-end crashes. These all occurred in the eastbound direction over 12 months. More than half of these involved more then two vehicles. Most (75%) crashes occurred between June and September and most (75%) crashes occurred between 8pm and 9pm on Saturday or Sunday, prime periods for returning recreational travel from area attractions. No WB data was available for review.

I-195 Interchange through to Burnt Tavern Road

40 (95%) of the crashes occurring between Pine Drive and Burnt Tavern Road were Same Direction – Rear-end crashes. This is considerably higher then the statewide average for county roads of [28%]. 36 (44%) of the crashes that occurred in the vicinity of the I-195 interchange occurred while the pavement was wet. This is considerably higher then the statewide average for county roads of [18%]. No WB data was available for review. Even without this data, given the extremely close proximity of I-195 WB ramps and merge to CR 537 EB, the single lane configuration and lack of turning lanes on all approaches, and speed limit of 40 MPH, this location should be investigated for potential safety improvements.

CR 537 at Jackson Outlet Village

There were 9 crashes reported at this signalized intersection for the 3-year period. The only pattern noted involved 3 eastbound same direction – rear-end crashes. No WB data was available for review.

Sunoco Driveway at CR 526 / CR 571

There were 11 crashes reported during the 3-year period at the Sunoco Gas Station driveway onto CR 537. 7 of these crashes involved vehicles exiting the driveway attempting to turn left onto CR 537 with eastbound CR 537 vehicles. No WB data was available for review.

CR 526 / CR 571 at CR 537

There were 21 crashes reported at this signalized intersection during the 36-month period. As with the above locations, the crashes reviewed all occurred on the eastbound side of CR 537 (i.e. investigated by Jackson Township Police). There were no specific patterns noted.

CR 537 and CR 527

There were 30 crashes reported during the 36-month period. The only pattern (19) noted is same-direction crashes on CR 537. A considerable number of these (9) occurred during the afternoon peak travel period. This intersection divides Millstone and Manalapan Townships. The data reviewed seems to indicate that both eastbound and westbound crashes are included.

CR 537 and Shira Lane

There were 7 crashes reported at the intersection of Shira Lane with CR 537. Since the roadway forms a loop, there are two intersections of Shira Lane with CR 537 and the data reviewed did not specify at which intersection the crashes occurred. It is quite possible that the summary sheet and diagram includes crashes from both intersections. There were no patterns noted.

CR 537 and Thompson Grove Road

There were a total of six crashes and no patterns were noted.

CR 537 and Gravel Hill Road

Twelve of the thirteen crashes involved westbound vehicles. All of the crashes occurred before 2002. Toll Brothers, as part of their development of property that accesses Gravel Hill Road, has re-graded the southbound approach to CR 537 and the property on the northeast corner of the intersection. The absence of crashes in 2002 appears to indicate that this work was effective.

CR 537 & Iron Bridge Road

There was only one crash pattern noted at this intersection. There were three crashes involving westbound vehicles turning left into 800 Main Street, which is immediately west of Iron Bridge Road. Each of these crashes involved injuries.

CR 537 and Village Center Drive

Twenty-eight crashes occurred at this intersection during the 32-month period. Ten (31%) occurred on a Sunday. There were twelve crashes involving an eastbound vehicle turning left into the Village Shopping Center, however, only two of these occurred during the second half of the 32-month period. The owner of the shopping center is having his engineer prepare a new traffic signal plan to accommodate dual left turn lanes for traffic exiting the shopping center.

CR 537 and Wemrock Road and Stillwells Corner Road

Fifty-five crashes occurred at this intersection during the 32-month period. Forty-five of these fall into the five patterns noted below:

Pattern	Number of Crashes
WB same direction approaching the intersection	17
EB same direction approaching the intersection	11
EB left turns on CR 537	9
WB left turns on CR 537	4
NB left turns on Stillwells Corner Road	4

CR 537 and Gibson Place and NJ Route 33

Although nineteen crashes occurred during the 32-month period, no specific patterns were noted.

CR 537 and Trotters Way

Forty crashes occurred at the intersection during the 32-month period. Twenty-nine of these fall into the six patterns noted below:

Pattern	Number of Crashes
WB same direction approaching NJ Route 33	8
WB same direction approaching Trotters Way	5
NB Jug handle right angle with EB CR 537	5
NB Jug handle right angle with WB CR 537	5
Left turning vehicle exiting Trotters Way with WB CR 537	3
EB same direction approaching Trotters Way	3

A more detailed inspection of the 10 right angle crashes involving the northbound jughandle reveals that they all involved vehicles on CR 537 failing to stop for the red signal. A field inspection revealed that the visibility for the traffic signals on both CR 537 approaches to the intersection is adequate.

The intersection of Trotters Way is located between the intersection of NJ Route 33 Freeway and US Route 9. All three intersections with CR 537 have unique characteristics:

- NJ Route 33 is a limited access highway and access to CR 537 is provided through a partial cloverleaf interchange. No left turns are permitted at this interchange and there are no traffic signals at the actual intersection of these two highways. The ramp that provides access from WB 33 to EB 537 adds a second lane to CR 537 on the approach to Trotters Way. The right lane on WB CR 537 approaching Route 33 Freeway must exit to Route 33 Freeway. All of the above creates numerous merging movements between Route 33 and Trotters Way.
- Trotters Way is the primary access road to Freehold Raceway Mall. No left turn movements take place from CR 537. Access to the mall from EB CR 537 is provided through a reverse jug handle on the south side of CR 537 and requires vehicles to travel through the traffic signal twice. There are dual left turn lanes at the traffic signal for vehicles exiting the mall onto eastbound CR 537.

- US Route 9 intersects CR 537 via a diamond interchange with traffic signals on either side of the bridge over Route 9. Although no left turns are permitted from CR 537 EB, left turns are permitted from CR 537 WB to US Route 9 SB.

The two signalized intersections (Wemrock Road / Stillwells Corner Road and Park Avenue) on either side of this series of intersections allow left turns to be made from CR 537.

The three crashes involving left turns exiting Trotters Way all occurred on wet pavement. In addition, there were two other crashes involving left turning vehicles exiting Trotters Way that also occurred on wet pavement.

Assessment

Even with the data limitations noted, several locations within the CR 537 Corridor have crash rates that exceed statewide averages with clearly identifiable patterns. These findings suggest that improvements or changes to road or bridge widening, roadway geometrics, striping, channelization, advance warning signage, signal operation, restricted turning movements, advisory speeds, or other enhancements should be considered. These include:

- CR 537 overpass over I-195 and approaches
- CR 537 & Burnt Tavern Road
- Sunoco Driveway at CR 526 / CR571
- CR 537 at Gibson Place
- CR 537 & Village Center Drive
- CR 537 & Wemrock / Stillwells Corner Roads
- CR 537 & Trotters Way
- CR 537 overpass over NJ Route 33 Freeway and approaches

5. PROJECTED FUTURE CONDITIONS ASSESSMENT

5.1 FUTURE CAPACITY AND ANALYSIS

Analysis Approach

In order to determine the need for long-term improvements in the CR 537 Corridor Study Area, traffic volumes were projected to 2 horizon years: 2007 and 2012. These volumes were developed through analysis of land use patterns, projected build-out conditions for those land use patterns and historical traffic growth rates in the study area. Much of this information was obtained from development review data tracked by the Monmouth County Planning Board. Notably, projected volumes under future conditions were developed including only those roadway improvements currently planned for the CR 537 Corridor study area.

Assessment

Many roadways intersect CR 537 within the project study limits. A total of 52 intersections are found along CR 537 in the study area, of which 13 are signalized and 39 stop-controlled. A majority of signalized intersections are located in Sections C and A at the south and north ends of the corridor. Five intersecting roadways are state owned and/or operated, 7 are county (Monmouth or Ocean), 33 are municipal, and 7 are believed to be privately-owned drives or entrances.

Although CR 537 facilitates travel between interior Monmouth County and Ocean / Burlington and Mercer Counties, a number of major county roads intersect with CR 537 in Study Sections B and C. In addition to feeding CR 537, these roadways also carry heavy volumes destined for employment centers in Middlesex and northern Mercer Counties. These patterns are expected to continue into the future, and are likely to result in deterioration of operational performance for CR 537 Corridor intersections.

Failing conditions (overall Level of Service (LOS) F) under current baseline conditions were identified on at least 1 approach at the following signalized intersections:

- CR 537 at NJ Route 33 Business (PM peak period)
- CR 537 at Stillwells Corner Road (Midday, PM peak periods)
- CR 537 at Village Center Drive / Redwood Lane (Midday, PM peak periods)
- CR 537 at CR 527 / CR 537 Smithburg / Siloam Roads (AM, PM peak periods)
- CR 537 at CR 526 / CR 571 Trenton – Lakewood Roads (AM, PM peak periods)
- CR 537 at CR 539 (AM, PM peak periods)

Failing (overall LOS F) conditions / excessive seconds of delay for unsignalized intersections under current baseline conditions were identified on at least 1 approach at the following locations:

- CR 537 at Gibson Place (AM, PM peak periods)

- CR 537 at Gravel Hill Road (AM, PM peak periods)
- CR 537 at Thompson Grove Road (AM, PM peak periods)
- CR 537 at CR 524 Elton – Adelphia Road (AM, PM peak periods)
- CR 537 at CR 524 Stagecoach Road (AM, PM peak periods)
- CR 537 at Burnt Tavern Road (AM, PM peak periods)

In addition to deterioration of midday LOS levels to F on some approaches to these signalized intersections, projected increases in volume in 2007 and 2012 will degrade at least one approach at the following intersections to a LOS F category:

2007:
Signalized

- CR 537 at US Route 9 SB Ramps (PM peak period)
- CR 537 at Trotters Way (Midday, PM peak periods)

Unsignalized

- Barkalow Avenue at US Route 9 NB Ramp (PM peak period)

2012:
Signalized

- CR 537 at CR 539 (PM peak period)

Unsignalized

- CR 537 at Hawkin Road (PM peak period)

Summary

Based on the results of these future growth projections, several findings are clear:

1. Continued development and growth in the CR 537 Corridor at current levels will lead to a continuing degradation in the quality of service for vehicle travel on CR 537 and tributary roadways

2. Many signalized intersections in the CR 537 Corridor will experience increased levels of delay identified as unacceptable in industry standard guidelines

3. Several unsignalized intersections along the CR 537 Corridor will face constraints in the ability for vehicles to access CR 537 due to the lack of adequate gaps in traffic

4. Without development of connecting facilities for bicycle, pedestrian and public transportation in highly suburbanized areas of Study Section A, no transportation alternatives will be available to vehicle travel at the local level. Coupled with continuing growth in regional travel, the addition of increased local travel will be difficult to overcome through improvements within acceptable cost parameters for local and county governments.

5.2 FUTURE ENVIRONMENTAL CONSIDERATIONS

The following provides and overview of pending regulations which may be enacted as early as summer 2003. These may have major impacts on the application, cost, and effectiveness of capital improvement project on the corridor given the complicated nature of environmental and watershed and land use management regulations that predominate in the CR 537 corridor.

Stormwater Regulation Program [7]

During the analysis of CR 537 and creation of this document, the New Jersey Department of Environmental Protection Agency created a Draft Environmental Statement for a Municipal Stormwater Regulation Program, yet to be approved. This program is a result of the United States Environmental Protection Agency's Storm Water Phase II Final Rule[8], which requires additional operators of municipal separate storm sewer systems (MS4s) in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted storm water runoff[9].

This program will require municipalities to address pollutants that are entering from many storm drainage systems. Monmouth County has been categorized under Tier "A". Tier "A" municipalities are generally the more urbanized municipalities and those coastal municipalities regulated by the Sewage Infrastructure Improvement Act.

Each municipality will need to comply with the required statewide basic requirements (SBR). If enacted, these requirements will impact any future and proposed development on the CR 537 corridor. Below is a brief listing of these basic requirements:

- Creation of a Stormwater Pollution Prevention Plan (SPPP)
- Public notice
- Post-Construction Stormwater Management in New Development & Redevelopment
- Local Public Education
- Improper Disposal of Waste
- Solids & Floatables Controls

[7] NJPDES Municipal Stormwater Regulation Program: Summary of Statewide Basic Requirements
[8] USEPA Storm Water Phase II Final Rule – An Overview
[9] USEPA Storm Water Phase II Final Rule – Small MS4 Storm Water Program Overview

Permitting[10]

The New Jersey Pollutant Discharge Elimination System (NJPDES) will issue permits to municipalities throughout the State, public complexes (including large public colleges, prisons, and hospital complexes), and highway systems. Once the operator of a regulated small MS4 submits a permit application and a permit is obtained, the conditions of the permit must be satisfied. This includes development and implementation of a storm water management program and submission of periodic reports stating the status and effectiveness of the program[11].

[10] Part I: Narrative Requirements: Draft Tier A Municipal Stormwater General Permit, NJPDES Permit No. NJ0141852 and Bureau of Nonpoint Pollution Control, Division of Water Quality: New Jersey Pollutant Discharge Elimination System

[11] USEPA Storm Water Phase II Final Rule – Permitting and Reporting: The Process and Requirements

6. POTENTIAL IMPROVEMENT STRATEGIES

There are several improvement strategies in the transportation planning and engineering "toolbox" that can be utilized to help address access and mobility issues. The purpose of this section is to provide a comprehensive overview of these strategies and determine those for further consideration to help address the corridor-wide and location-specific issues identified in the CR 537 Corridor Study project area discussed in Sections 7 and 8.

The toolbox of potential improvement strategies is summarized below followed by a screening analysis of these strategies. Based on the screening analysis, a list of improvement strategies that may be applicable to the CR 537 study area was developed and is presented at the end of this section.

6.1 THE TOOLBOX

Literature on potential improvement strategies was reviewed to develop a comprehensive list of measures that may be helpful in addressing the various access and mobility issues identified along the CR 537 corridor. The resulting toolbox of potential improvement strategies was broken down into four general categories:

- *Transportation Demand Management Strategies (TDMs)* – Strategies utilized to reduce single occupancy vehicle use and stimulate a more efficient use of transportation resources. Examples include carpooling or vanpooling, transit enhancements, regulatory measures, pedestrian and bicycle facility improvements, employer trip reduction programs, and regional ridesharing.

- *Transportation System Management Strategies (TSMs)* – Strategies that use transportation improvements to reduce congestion and make more efficient use of the existing transportation system. TSM measures include strategies for improving safety, increasing capacity, and modifying roadway geometrics. Examples include the addition of shoulders, lane width modifications, signal improvements, and roadway signage.

- *Maintenance Measures* – Methods of improving the condition of bridges and roadway pavement along the corridor. Measures of maintenance fall under three categories: normal maintenance, rehabilitation and replacement.

- *Land Use Strategies* – Regulatory measures that can be used to help maximize the efficacy of existing and future transportation infrastructure through the integration of transportation and land use planning. These measures include comprehensive/master plans, zoning and subdivision regulations, development guidelines, and access management.

The details of each strategy, including definitions and applicability, are provided in Appendix C of this report.

6.2 SCREENING ANALYSIS

A screening analysis of the potential improvement strategies was conducted based upon possible applicability within the study area. The goal of this assessment was to determine which of the strategies should be maintained for further consideration to address the access and mobility issues identified along the corridor. Strategies that were deemed not applicable in the study area and did not address the identified issues and problems in the corridor were eliminated from further consideration. The remaining strategies were carried forward and examined further in developing the recommended improvement strategies discussed in Sections 7 and 8.

The strategies that were eliminated are presented below followed by the strategies that were maintained for further consideration.

6.2.1 STRATEGIES ELIMINATED FROM FURTHER CONSIDERATION

The following TDM and TSM strategies were found to be inapplicable in the study area and, therefore, were eliminated from further consideration.

- **TDM Strategies**
  - HOV Lanes
  - Park-and-Ride Lots
  - Fare Reduction
  - Trip Reduction Ordinance
  - Road User Fees
  - Congestion Pricing
  - Parking Fees
  - Auto Restriction (Pedestrian Malls)
  - Truck Restrictions

- **TSM Strategies**
  - Roadway Restrictions
  - Incident Detection and Management
  - Creation of Express and Collector/Distributor Lanes
  - Reversible Lane Control
  - Ramp Metering

The details regarding why the aforementioned strategies were found to be inapplicable in the study area are provided in Appendix D of this report.

6.2.2 STRATEGIES MAINTAINED FOR FURTHER CONSIDERATION

The following strategies were found to have potential applicability in the study area and, therefore, were maintained for further consideration. These strategies served as the basis for developing the recommended improvement strategies presented in Sections 7 and 8.

- **TDM Strategies**
  - Ridesharing
  - Employer Trip Reduction (ETR) Plans
  - Flextime and Staggered Work Hours (Hour Switching)
  - Improvement in Pedestrian Access/Bicycle Facilities
  - Transit Enhancements
    - Rail Initiatives
    - Bus Initiatives
    - Vehicle Replacement/Upgrade

- **TSM Strategies**
  - Advanced Directional Signage
  - Motorist Advisory/Alternate Routing and Diversion
  - Channelized Turning Bays
  - Travel Lane Improvements
  - Intersection Turn Restrictions/Exit Only Lanes
  - Roadway Signage
  - Signal Improvements
  - Use of Shoulder Lanes
  - Restripe Exit-Only Lane to Shared Travel Lane
  - Traffic Detection and Control Systems
  - Advanced Traveler Information System/Special Generator/Event Management
  - Elimination of Bottlenecks
  - Roadway Widening
  - Redesign of Interchanges
  - Modification/Construction of On- and Off-Ramps
  - Roadway Realignment

- **Maintenance Measures**
  - General Maintenance Measures
  - Rehabilitation Measures
  - Replacement Measures

- **Land Use Strategies**
  - Comprehensive/Master Plans
  - Zoning and Subdivision Regulations
  - Development Guidelines/Negotiated Agreements (with developers)
  - Access Management

The aforementioned TDM, TSM, maintenance, and land use strategies have the potential to provide improvements to safety and capacity on CR 537 and help address the access and mobility issues identified in the study area.

7. CORRIDOR ISSUES AND GENERAL IMPROVEMENT STRATEGIES

An assessment of existing and future conditions in the study area, which were discussed in detail in Sections 3 through 5, revealed that there are several issues that persist throughout the corridor. The purpose of this section is to present these issues and discuss the recommended strategies to address them.

The corridor-wide issue areas consist of:

- Variable shoulder widths and cross-sections;
- Signal phasing/coordination;
- Unsignalized intersections;
- Sight distances;
- Transit stop locations and amenities;
- Bicycling conditions;
- Access management;
- Unified corridor vision; and
- Utilities.

7.1 VARIABLE SHOULDER WIDTHS AND CROSS-SECTIONS

Issue

Several segments of CR 537 within the study area have variable shoulder widths and cross-sections. These conditions create multiple traffic and safety issues.

Picture 3-1: CR 537 EB approaching NJ 33 Business

For example, some segments of CR 537 in study section A have little or no shoulders (see Picture 3-1). This can present challenges when needs arise for vehicles to pull clear of the travel lane, such as during breakdowns or traffic enforcement stops, which can negatively impact traffic operations and bicycling conditions.

The inconsistent cross-sections along CR 537 also create traffic and safety issues. The segment of CR 537 near the Route 33 Freeway interchange is a good example. The cross-section of CR 537 east and west of the interchange consists of four travel lanes (two in each direction). At the interchange, the outside eastbound and westbound lanes on CR 537 transition into on-ramps to access Route 33 Freeway, changing the cross-section of CR 537 to two travel lanes (one in each direction). This cross-section change causes drivers to weave from the outside lane to the inside lane in order to avoid entering Route 33 Freeway. Additionally, the weaving combined with the travel lane reduction creates a bottleneck and traffic congestion.

Improvement Strategy

CR 537 is classified as an arterial (minor or principal depending on the location), which carries a mix of local and regional traffic and serves a growing area of Monmouth and Ocean Counties. Based on these characteristics, three general cross-sections are recommended to address the aforementioned issues. These cross-sections are based on the desired typical cross-sections included in the Monmouth County Road Plan, which was adopted in 1996, but are slightly modified due to 2012 projected demand, ROW constraints, and other factors specific to the study area. The cross-sections include:

- Four-lane cross-section with sidewalks – In study section A, where pedestrian activity is high and acquisition of property for rights-of-way (ROW) expansion is limited, the recommended cross-section includes four travel lanes (two in each direction) and five foot sidewalks. Depending on ROW availability and pedestrian travel patterns, sidewalks may be provided on one or both sides of the roadway. A landscaped buffer separating the sidewalk from the roadway is desirable where feasible. A center turn lane in certain locations is also desirable.

- Two- or four-lane cross-section with shoulders – In study sections B and C, a two- or four-lane cross-section with six to eight foot shoulders on each side of the roadway is recommended.

Implementing these cross-sections along CR 537 would:

- Create a consistent cross-section for drivers throughout each corridor section;
- Provide a shoulder for traffic stops and emergency breakdowns;
- Increase the ability of emergency vehicles to navigate through traffic;
- Improve bicycling and/or walking conditions; and
- Reduce bottlenecks and weaving problems.

7.2 SIGNAL PHASING/COORDINATION

Issue

There are thirteen signalized intersections along CR 537 in the study area. Most of these signals are not linked to one another, which means that the phasing of consecutive signals do not function together to enable vehicles traveling in the prevailing direction (e.g., eastbound on CR 537 during the AM peak travel period) to pass through multiple signalized intersections without stopping. Without proper signal coordination, which in this case specifically refers to signal progression, the ability of CR 537 to process traffic is hampered and the facility's capacity is not optimized. This results in longer travel times along CR 537 and more stop and go traffic, which can lead to higher gasoline consumption, more air pollution, and increased bus headways.

Based on the programmed and planned development anticipated over the next ten years coupled with the increase in traffic volumes, both of which were discussed previously, the issues resulting from lack of signal coordination or progression are likely to worsen. Additionally, as

development occurs and traffic volumes increase, the number of signalized intersections will make signal progression ever more important.

Improvement Strategy

A signal progression program coordinating the phasing of existing signalized intersections along CR 537 should be implemented to maximize the facility's ability to process traffic. Additionally, future signalized intersections should be appropriately integrated into the progression program to ensure both sufficient access to new developments and optimal traffic operations along CR 537.

7.3 UNSIGNALIZED INTERSECTIONS

Picture 3-2: Unsignalized intersection at CR 537/ Gibson Place

Issue

There are thirty-nine unsignalized or stop-controlled intersections along CR 537 in the study area (see Picture 3-2). Due to heavy east and westbound traffic volumes along CR 537, particularly during the weekday and weekend peak travel periods, and the relatively high travel speed of traffic, drivers have a difficult time turning onto or crossing CR 537 at some of these stop-controlled locations.

Improvement Strategy

Signalizing unsignalized intersections along CR 537 should be done in a strategic and comprehensive fashion to ensure proper spacing between signals and to steer development towards desirable access points. Converting unsignalized intersections to signalized intersections using a piecemeal, ad-hoc approach can result in too many and/or poorly planned signal locations that hamper operations along CR 537. Therefore, a preliminary master signal plan was developed for the corridor, which based on existing travel patterns and infrastructure, projected travel demand, anticipated future development, and other pertinent information, strategically lays out potential future signal locations along CR 537. These potential locations include:

- CR 537/Thompson Grove Road;
- Route 524/Shira Lane;
- CR 537/Route 524 West;
- CR 537/Eli Harmony Road;
- CR 537/Paint Island Spring Road; and/or
- CR 537/Emleys Hill Road/Prospertown Road/Hawkins Road.

The locations are identified on Figures 8-1 through 8-3 in Section 8 as potential candidates for traffic signals.

While the aforementioned locations identified in the preliminary master signal plan may or may not ever be signalized, the plan does provide a tool for planners, traffic engineers, and designers to respond to future requests from developers as well as municipal officials when requests come in for the need for signalization at a particular location. For example, developers desiring a traffic signal could be redirected by the Monmouth County Planning Board to revise their site plan so that they can get ingress and egress at a location where a proposed future traffic signal has been predetermined, instead of at some mid-point where a new traffic signal would adversely impact traffic operations.

Strategies that should be considered in addition to the preliminary master signal plan and signalizing unsignalized intersections include:

- Geometric changes;
- Improved warning signage, and;
- Turn restrictions.

7.4 SIGHT DISTANCES

Issue

Portions of CR 537 have rolling topography, overpasses, and/or skewed (non-perpendicular) side road approaches (see Picture 3-3). These conditions create undesirable sight distances resulting in similar operational issues experienced at unsignalized intersections, which were discussed in Section 7.3.

The stop-controlled intersection of CR 537 and Burnt Tavern Road, which is located in study section C, serves as a good example. Burnt Tavern Road approaches CR 537 from the north at a skew instead of a preferred ninety-degree angle (see Picture 3-4). While the sight distance is adequate, the angled approach makes it difficult to turn left out of Burnt Tavern Road.

Picture 3-3: Skewed WB approach on CR 524 at CR 537

Picture 3-4: Skewed SB approach on Burnt Tavern Road

Improvement Strategy

The following improvement strategies are recommended, where feasible, to enhance available sight distances found along the CR 537 corridor:

- Re-align skewed approaches along CR 537 creating perpendicular, ninety-degree angled, approaches;
- Alter topography to create a more level cross-section along CR 537; and/or
- Provide advanced signage to inform drivers of upcoming changes in roadway characteristics.

Due to potential cost and property issues, it may not be feasible to implement the first two improvement strategies extensively throughout the corridor. Nevertheless, based on careful and thorough evaluations, these strategies should be considered for key locations.

7.5 TRANSIT STOP LOCATIONS AND AMENITIES

Issue

Public transportation services currently operate along portions of CR 537 in the study area (see Section 3.6 for details). While these services are limited, they are anticipated to increase as future development occurs along the corridor.

For the most part, transit stops are not marked with appropriate signage and lack basic provisions (i.e., benches and shelters). Additionally, there are not suitable locations for buses to stop along many sections of CR 537. These factors reduce public awareness that the services exist, create undesirable conditions for transit users, and make it difficult for bus drivers to appropriately stop without interfering with roadway operations. Ultimately, these conditions contribute to:

- Reluctance to use public transportation and
- Reduced transit ridership.

Improvement Strategy

The following improvement strategies are recommended for all designated transit stops:

- Creating an appropriate space for buses to stop at the designated bus stop, which could consist of a curb-delineated pull-out or a shoulder wide enough to accommodate a bus;
- Installation of appropriate signage indicating the bus stop location;
- Installation of benches and shelters; and
- Posting the operating schedules of all buses serving the particular stop.

In addition, route and schedule information, including designated bus stop locations, about transit services that serve the study area should be displayed and/or distributed at key locations throughout the corridor, such as Centra State Medical Center and retail establishments. This would help raise public awareness about the transit services serving the corridor.

7.6 BICYCLING CONDITIONS

Issue

The Monmouth County Planning Board recently completed a comprehensive inventory and analysis of bicycling conditions along roadways throughout the county, including CR 537. Based on this assessment, most of CR 537 consists of poor bicycling conditions due to:

- High traffic volumes and speeds;
- Significant number of curb-cuts and driveways; and/or
- Insufficient width to accommodate mixed bicycle/motor vehicle traffic.

These conditions create an uninviting bicycle environment and reduce the likelihood of people using a bicycle as an alternative means of transportation to the automobile, particularly for shorter trips that are well-suited for the bicycle (see Picture 3-5).

Picture 3-5: Bicycling conditions at Barkalow Avenue/CR 537/US 9

Improvement Strategy

The two- or four-lane cross-section with six to eight foot shoulders recommended for study sections B and C could accommodate bicyclists; however, given the high volumes and traffic speeds along CR 537, it is not recommended to promote bicycling in the CR 537 cartway. Nevertheless, there are opportunities to improve bicycling conditions in the corridor by upgrading and/or providing parallel facilities to CR 537. For example, providing a multi-use trail that parallels CR 537 and connects key destinations along the corridor could improve bicycle access while limiting the need to use CR 537.

The area south of CR 537 between Six Flags Great Adventure and the Jackson Outlet Village has been identified by staff and municipal stakeholders as a potential location for a multi-use trail. A multi-use trail would provide a safe and attractive means of bicycling, walking, and rollerblading between the park and outlet village; and would connect future development that occurs between these locations. This trail, if designed properly, could serve as an additional attraction for the park and reduce the need for visitors to drive between the park, outlet village, and future developments (i.e., hotels and restaurants).

Additionally, there are existing alternative routes to CR 537 that are more suitable for bicycling. For details regarding these routes, see the Monmouth County Bicycle Map, which was recently revised and published by the Monmouth County Planning Board.

7.7 PEDESTRIAN MARKETS AND FACILITIES

Issue

A review of US Census data in conjunction with field observations revealed that there are several portions of the study area where pedestrian markets and/or generators are present (see Table 7-1). A roadway segment/intersection area was determined to serve a pedestrian market if a notable concentration of one or more of the following populations were present:

- Children (5-17 years of age);
- Senior Citizens (65 years of age or older);
- Non-Auto Owning Population (including seasonal/day workers); and/or
- Transit Commuters (including local and regional transit users).

A pedestrian generator was determined to be present if one or more of the following uses exist along or within a given roadway segment or intersection area:

- Schools (K-12);
- Services/Retail Uses;
- Office Uses;
- Recreational Uses;
- Transit Boarding/Commuter Parking; and/or
- Day Worker "Pick-Up/Drop-Off" Location.

All roadway segments/intersection areas located in Study Section A contained one or more pedestrian markets and one or more pedestrian generators. Additionally, a notable amount of pedestrian activity was observed throughout the section. Although a pedestrian market was not identified in Study Section B, a small pedestrian market and several local generators were identified in portions of Study Section C, and some pedestrian activity was observed.

In many of the areas where a pedestrian market and/or generator exist and pedestrian activity was observed, the facilities necessary to support pedestrian activity and encourage walking are incomplete or non-existent. These limitations range from small gaps in the existing sidewalk system to a lack of sidewalks along stretches of roadway, as well as lack of pedestrian accommodations at intersections. These gaps in the pedestrian network force pedestrians to use roadway shoulders and/or grass/dirt areas, and create an unattractive and potentially unsafe pedestrian environment, which can discourage people from walking.

Table 7-1
Pedestrian Markets and Generators by Roadway Segment/Intersection Area

	User Market					Proximate Generator					
Roadway Segment/Intersection Area	**Children**	**Senior Citizens**	**Non-Auto Owning Population**	**Tourist/ Recreation Facility Users**	**Transit Riders**	**Schools**	**Service/ Retail Uses**	**Office Uses**	**Recreational Uses**	**Transit Boarding/ Commuter Parking**	**Day Worker "Pick-Up/Drop-Off" Location**
Study Section A											
CR 522 Throckmorton from CR 537 to US 9	●	●	●		●	●	●		●	●	●
CR 537 from NJ Route 33 Business (Park Avenue) to Trotters Way	●	●	●			●	●		●	●	
CR 537/US 9 Interchange	●	●	●				●				
CR 537 from Trotters Way to Wemrock Road/Stillwell's Corner Road*	●	●	●		●	●	●	●		●	
CR 537 from Wemrock Road/Stillwell's Corner Road to Gravel Hill Road	●	●	●		●	●	●	●	●	●	
Study Section B											
CR 537 from Gravel Hill Road to CR 571/CR 526								○			
Study Section C											
CR 537 from CR 571 to the CR 537/Six Flags Great Adventure Interchange			●	○	●		●		●		
CR 537 from Six Flags Great Adventure to CR 539				○					●		

* Includes portion of Stillwells Corner Road/Wemrock Road from CR 537 to and along Gully Road.

** Includes seasonal and day workers.

Legend

● Existing

○ Future

Improvement Strategy

Multiple pedestrian-related improvements are recommended to help improve pedestrian facilities and create more attractive pedestrian environments throughout the corridor, particularly in areas where pedestrian markets/generators are most prevalent and notable pedestrian activity was observed. The primary goal of these improvements is to create a continuous pedestrian network that safely and efficiently accommodates existing and future pedestrian movements, and to create a more attractive pedestrian environment that encourages walking. These improvements are listed in Table 7-2 by roadway segment/intersection area and include:

- Construction of new sidewalks;
- Eliminating gaps in existing sidewalk network;
- Development of multi-use trails;
- Intersection upgrades; and/or
- Shoulder improvements.

Details regarding pedestrian-related issues and improvements for each roadway segment/intersection area are presented in Section 8.

Table 7-2
Pedestrian-Related Improvements by Roadway Segment/Intersection Area

Roadway Segment/Intersection Area	Recommended Improvement				
	Construction of new sidewalks	Eliminating gaps in existing sidewalk network	Development of multi-use trails	Intersection upgrades	Shoulder improvements
Study Section A					
CR 522 Throckmorton from CR 537 to US 9	●	●			
CR 537 from NJ Route 33 Business (Park Avenue) to Trotters Way		●			●
CR 537/US 9 Interchange				●	●
CR 537 from Trotters Way to Wemrock Road/Stillwell's Corner Road*		●		●	●
CR 537 from Wemrock Road/Stillwell's Corner Road to Gravel Hill Road		●		●	●
Study Section B					
CR 537 from Gravel Hill Road to CR 571/CR 526				●	
Study Section C					
CR 537 from CR 571 to the CR 537/Six Flags Great Adventure Interchange	●		●	●	
CR 537 from Six Flags Great Adventure to CR 539			●	●	

* Includes portion of Stillwells Corner Road/Wemrock Road from CR 537 to and along Gully Road.

7.8 ACCESS MANAGEMENT

Issue

There are numerous conflicting access points along CR 537, including driveways and roads, which create traffic operation issues in the study area. These issues include:

- Conflicting left turns and through movements across CR 537 from opposing developments;
- Multiple curb-cuts placed too close together creating weaving movements to enter and exit developments;
- High turning activity, both onto CR 537 and into developments, slowing traffic and creating congestion; and
- Unfriendly bicycle and pedestrian environments, reducing the willingness of people to bike or walk to or among developments.

Improvement Strategy

Improvement strategies consist of:

- Implementing service roads and providing shared access amongst adjacent developments to accommodate access to the respective developments while limiting the number of access points along CR 537;
- Ensuring that building frontages are deep enough to accommodate shared access between developments and that driveway spacing between developments is adequate;
- Implementing cluster zoning along CR 537 (similar to the Rain Tree development located in study section A), which can greatly reduce the future need for access points on CR 537 while providing enhanced access to developments and increasing land development opportunities; and
- Utilizing municipal official maps to identify needs based on future development, reserve necessary ROW for future service roads, and inform the public and developers where future access points will be so they can plan accordingly.

There are several potential benefits to implementing these access management strategies in the CR 537 corridor including:

- Reduction in the number of crashes;
- Travel time reduction along CR 537;
- Economic benefits, including enhanced access to development, increased land area that can be developed and accessed, and equitable treatment of developers; and
- A more pedestrian- and bicycle-friendly environment.

These strategies are typically municipal led actions. The implementation of service roads and shared access can be accomplished through subdivision regulations, the site plan approval process, and/or developer mitigation negotiated between a municipality and developer.

Prime examples of locations in the corridor where access management strategies should be considered include:

- ***Iron Bridge Road/Centra State Medical Center/Verizon Access Driveway*** – Re-route the Verizon driveway to the Iron Bridge Road/Centra State Medical Center intersection by eliminating the Verizon driveway access point on CR 537 and providing access between the Verizon driveway, adjacent properties, and the Centra State Medical Center driveway.
- ***Squan Road/Brookside Road to Six Flags Great Adventure*** – This portion of CR 537 should be considered an access management overlay area, where the aforementioned access management strategies are continuously considered and, where feasible, implemented as new development occurs to enhance traffic operations.
- ***North Side of CR 537 east of CR 539*** – There is undeveloped land zoned highway commercial on the north side of CR 537 east of CR 539 in Upper Freehold Township. The aforementioned access management strategies should be considered and, where feasible, implemented in this area as site plans are developed and new development occurs to help prevent the traffic safety and operation issues described above.

Potential access management improvements for these locations are discussed in Section 8.

7.9 UNIFIED CORRIDOR VISION

Issue

The CR 537 Corridor Study project area includes portions of two counties and seven municipalities. Each of these jurisdictions have a perspective or vision regarding how their communities should grow and function in the future, including the portion of the CR 537 corridor that is within their community.

While each jurisdiction has their own vision for the portion of CR 537 within their community, an agreed upon unified vision for the entire corridor does not exist. A lack of a unified vision unintentionally and inevitably creates several issues including but not limited to:

- Inconsistencies between zoning (see example below);
- Conflicting existing land use and proposed future land use; and
- Incompatible functional uses of CR 537, from a local commercial corridor to a regional highway.

A good example of a zoning inconsistency exists near the CR 537/CR 539 intersection in study section C. The portion of Upper Freehold Township that is adjacent to CR 537 just east of CR 539 is zoned highway commercial. Opposite this area on the south side of CR 537, the portion of Plumsted Township that is adjacent to CR 537 is zoned rural agriculture and light industrial. These zoning designations are inconsistent with one another and if developed accordingly, would result in different land uses, possibly fronting across from one another, that place different demands on CR 537.

Improvement Strategy

Monmouth and Ocean Counties in cooperation with the seven municipalities should develop a unified corridor vision for the CR 537 corridor. The vision should include a vision statement, which will serve as the overarching guide for future development and infrastructure improvements in the corridor, and supporting strategies that provide the parties involved with a means of carrying out the overall vision.

The unified corridor vision, once adopted by the parties involved, should assist the municipalities with future zoning and land use decisions, which could help prevent the zoning inconsistency described above, and assist the counties with future infrastructure improvement decisions. This provides a tangible means of coordinating future land use and development with existing and planned infrastructure.

7.10 UTILITIES

Issue

Much of CR 537 has utility poles located along the north or south side of the roadway. This creates safety concerns, can be aesthetically undesirable (particularly in portions of CR 537 that are designated as scenic), and can hamper the use of bicycle/pedestrian facilities.

Improvement Strategy

In locations where utility poles create safety concerns and/or negatively affect the aesthetic quality of the corridor, aboveground utilities should be buried underground where feasible. If burying the utilities is deemed infeasible, then the aboveground utilities should be strategically located/re-located to minimize safety concerns and/or aesthetic impacts. These recommendations are in accordance with *The Monmouth County Scenic Roadway Plan*, which should be referred to when installing aboveground and underground utilities, particularly in sections of CR 537 that are designated as scenic.

8. LOCATION SPECIFIC ISSUES AND RECOMMENDED IMPROVEMENTS

The baseline conditions analysis revealed that there are several location specific issues in the study area. The purpose of this section is to provide a concise review of these issues and discuss the recommended improvements to address them. The identified issues and recommended improvements are presented below by study section area, starting with study section A and moving west through study section C.

Potential alternative routes and roadway connections have also been identified to help facilitate more efficient and safer traffic movement and support future growth along the corridor. These concepts are discussed following the location specific issues and recommended improvement strategies.

The suggested improvements and alternative routes/roadway connections discussed in this section will require further analysis to determine specific recommended improvements for each intersection, roadway segment, or access management area. Due to the multi-jurisdictional nature of the study corridor, cooperative involvement of various agencies will be necessary to further analyze and advance the implementation of the suggested improvements.

8.1 STUDY SECTION A – NJ ROUTE 33 BUSINESS TO GRAVEL HILL ROAD

Study section A extends from NJ Route 33 Business in Freehold Borough to Gravel Hill Road in Freehold Township and includes a one-mile area to the north and south paralleling CR 537. Location specific issues in this section, by intersection area or roadway segment, along with recommended improvements are outlined below.

The recommended improvements for each intersection area or roadway segment have also been summarized in Table 8-1. If an improvement is recommended for an intersection area or segment, then a black dot will appear in the given improvement category. Details regarding each improvement type, including its definition, application, and examples, are provided in Appendix C. For roadway segments, recommended improvements for each intersection and/or sub-segment analyzed within that segment are also identified. If an improvement is recommended for an individual intersection or sub-segment, then an empty circle will appear in the given improvement category.

Location – Throckmorton from CR 537 and US Route 9

Issues

Traffic congestion in central and western Monmouth County has markedly increased over the past three decades since planning studies were first initiated to review the potential development of the Monmouth Ocean Middlesex (MOM) Passenger Rail Line. In Monmouth County, this growth has been most pronounced on US Route 9, although many county and regional roadways are also experiencing significant increases in vehicle volumes and delay.

Table 8-1
Recommended Improvements by Roadway Segment/Intersection Area
Study Section A - NJ Route 33 Business to Gravel Hill Road

Roadway Segment/Intersection Area	Recommended Improvement								
	Pedestrian Facility Improvements	Transit Enhancements	Roadway Signage	Travel Lane Improvements	Signal Improvements	Restriping	Roadway/ Bridge Widening	Interchange/ Intersection Modifications	Roadway Realignment
Throckmorton from CR 537 to US 9	●	●							
CR 537 from NJ Route 33 Business (Park Avenue) to Trotters Way	●	●		●	●				
CR 537/US 9 Interchange	●		●	●	●		●	●	
CR 537/Barkalow Avenue	○		○		○				
CR 537/US 9				○	○		○	○	
US 9 at Brookdale Community College	○								
CR 537 from Trotters Way to Wemrock Road/Stillwell's Corner Road	●	●	●	●	●		●	●	
CR 537/Trotters Way	○			○	○			○	
CR 537/NJ Route 33 Freeway	○		○	○			○	○	
CR 537/Castronova Way (realigned Gibson Place)	○			○				○	
CR 537 from Wemrock Road/Stillwell's Corner Road to Gravel Hill Road	●	●		●	●	●		●	
CR 537/Wemrock Road/Stillwell's Corner Road				○	○	○		○	
Wemrock Road between CR 537 & Gully Road	○	○							
CR 537/Village Center Drive/Redwood Lane	○	○			○				
CR 537/Iron Bridge Road	*No recommended improvements at this time*								
CR 537/Gravel Hill Road	○			○	○			○	

Legend

● Improvement recommended for roadway segment

○ Improvement recommended for intersection within roadway segment

The proposed MOM commuter rail route would help alleviate existing and future congestion by connecting municipalities in Central Ocean, Central and Western Monmouth and southern Middlesex Counties to Trenton, Princeton, New Brunswick, Newark and New York City. Three proposed alignments are under consideration and currently being assessed in a Draft Environmental Impact Statement (DEIS) developed by NJ TRANSIT:

- Lakehurst – Lakewood – Farmingdale – Freehold – Matawan – Newark – New York
- Lakehurst – Lakewood – Farmingdale – Red Bank – Newark – New York
- Lakehurst – Lakewood – Farmingdale – Freehold – Monmouth Junction – New Brunswick – Newark – New York

In two of the three alternatives under consideration, Freehold Borough, at the eastern boundary of the CR 537 corridor study area, would be located along the proposed MOM route. Monmouth and Ocean Counties have expressed their preference for one of these two alignments. For more details regarding the MOM Rail Line, visit http://www.shore.co.monmouth.nj.us/03230planboard/MOMOutreach/MOMHome.htm.

Recommended Improvements

While the proposed MOM passenger rail line will not notably impact the use of CR 537, it could greatly increase regional transit access for several Monmouth and Ocean County communities, including Freehold Borough and Freehold Township located in the eastern portion of the CR 537 corridor study area. Therefore, the following improvements are recommended:

- Based upon NJ TRANSIT DEIS research and further community refinement, identify, select and construct a station location to serve the Freehold Borough/Freehold Township on the proposed MOM Rail Line;
- Incorporate intermodal facilities for commuter, local, and feeder shuttle bus services as part of the station design to maximize public transportation access and create a transportation center hub facility;
- As per recommendations of the Pedestrian Section of this report, identify funding sources to construct sidewalk gap completions/new sidewalks to provide uninterrupted sidewalk access to this transportation center hub facility; and
- Implement new "Feeder Shuttle Bus" routes to serve the proposed rail station from the Greater Freehold Area. In the CR 537 corridor study area, feeder bus routes should be fixed or semi-fixed routes that service the following routes and market areas:
  - Northeast Freehold Shuttle
  - Southwest Freehold Shuttle

Location – CR 537 and NJ Route 33 Business (Park Avenue)

Issues

The CR 537/NJ Route 33 Business intersection currently experiences heavy traffic volumes during the peak travel periods, especially the eastbound and westbound approaches on Route 33 Business. As result, the intersection operates at capacity during various times throughout the

morning and evening rush hours creating traffic congestion and operation issues. These volumes and associated issues are projected to worsen over the next five to ten years.

Recommended Improvements

Travel lane and signal improvements are recommended to help address the aforementioned issues. These may include the addition of turn lanes and signal actuation, advanced phasing, and signal timing modifications. Together, these types of improvements can increase the capacity of the intersection whereby reducing the traffic congestion and operation issues.

Location – CR 537 from NJ Route 33 Business to Trotters Way

Issues

As identified in 3.5.1 above, Monmouth County Planning Board has conducted several studies to evaluate local bus transportation services and demand, one of which led to the expansion of NJ TRANSIT 836 Asbury Park – Freehold Raceway Mall service to include the section of CR 537 west of Freehold Raceway Mall to Centra State Medical Center. While the NJ TRANSIT 836 has been highly successful, given the strong attractiveness of Freehold Raceway Mall and Freehold Borough for regional travel, the level of local bus service from other areas of the county to these locations remains modest:

- Two county-sponsored shuttle bus routes serving the US Route 9 Corridor that operate approximately 5 trips each way during weekdays; primarily for seniors and disabled
- NJ TRANSIT 836 Asbury Park – Freehold – Freehold Raceway Mall – Centra-State Medical Center service between 5:30 AM and Midnight 7 days per week as described above
- NJ TRANSIT 833 Red Bank – Freehold – Freehold Raceway Mall service weekdays only between 7:30 AM and 6:50 PM
- NJ TRANSIT 67 Lakewood – Freehold – Old Bridge – Newark service via US Route 9 between approximately 9:00 AM and 10:00 PM 7 days per week
- NJ TRANSIT 307 Freehold – Six Flags Great Adventure seasonal service via CR 537 from May through November between approximately 8:30 AM and Midnight 7 days per week

Recommended Improvements

- **NJ TRANSIT 833** – In December 2001, MCPB released the final report for the Market-Based Local Bus Service Enhancement Plan which evaluated service needs on the NJ TRANSIT 833 local bus route. The following were recommended phased enhancements for NJ TRANSIT 833 local bus service within this report:

  Phase 1:
  - Add new bus stop with signs and shelters at intersection near Movie Theater and current Sam's Club if amenable to the owners of Freehold Raceway Mall.

Phase 2:
- Provide earlier morning weekday service
- Provide later evening weekday service
- Provide new Saturday Service

Phase 3:
- Provide new Sunday Service

Although not included in the original report, MCPB staff also recommends that the NJ TRANSIT 833 route end point be extended from Freehold Raceway Mall to the proposed Sam's Club and Wal-Mart big box store locations anticipated to generate significant travel volumes and employment needs.

- **NJ TRANSIT 307** – Although the current NJ TRANSIT 307 route is entirely privately sponsored by Six Flags Great Adventure and provides only seasonal spring and summer service along CR 537 predominantly geared toward park employees, park visitors without access to a personal vehicle and connecting riders from locations along the US Route 9 Corridor or NJ TRANSIT 836 route from Asbury Park, there may also be interest in development of a limited peak period commuter service from a park-and-ride location at or near Six Flags Great Adventure/I-195 to Freehold Centre via CR 537 and US Route 9 to New York City as travel volumes in the CR 537 Corridor continue to increase.

  The following is recommended to improve CR 537 transit service:

  - Develop a branch of the existing NJ TRANSIT 139 Route with several daily trips in each direction to serve rapidly growing regions in Jackson Township and Ocean County
  - Ensure connections with NJ TRANSIT 139 route service via US Route 9 during other periods when the recreational 307 seasonal service is operating

Location –CR 537/US Route 9 Interchange/Barkalow Avenue

Issues

There are multiple issues along this segment of CR 537 that affect roadway users and pedestrians including:

- Heavy traffic and moderate pedestrian volumes;
- Approaches of the CR 537/US Route 9 interchange operating near or at capacity, which results in traffic congestion and operation issues during peak AM and/or PM travel periods;
- Gaps in the sidewalk system and unidentified crosswalks, which results in a fragmented pedestrian network;
- Inefficient lane operations along CR 537; and
- Limited storage for US Route 9 northbound off-ramp and northbound on-ramp.

Recommended Improvements

The following improvements are recommended to help address the issues identified above:

- Widen the CR 537 bridge structure over US Route 9;
- Implement signal improvements, which may include signal timing modifications;
- Implement travel lane improvements and interchange modifications, such as revised lane assignments and the addition of turn lanes; and
- Fill in the sidewalk gaps and add crosswalks where feasible to improve pedestrian connectivity (where appropriate, pedestrian crossing signage and signals should also be installed).

Location – CR 537 from Trotters Way to Wemrock Road/Stillwells Corner Road

Issues

There are several issues along this segment of the CR 537 corridor. These include traffic operation issues, pedestrian facility issues, and transit issues. The identified issues are detailed below.

- Heavy traffic and moderate pedestrian volumes;
- Multiple intersections along this segment of the corridor operate at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays;
- Limited ROW, which makes it difficult to widen roadway and add sidewalks;
- Notable number of crashes;
- Gaps in sidewalk system, particularly to future development sites and between transit stops and key activity centers;
- Unidentified crosswalks and need for pedestrian crossing signage and signals;
- Unsuitable bus stops, which make it difficult for people to access the bus; and
- Unidentifiable bus stops, which hampers the public's awareness of available bus services.

Recommended Improvements

There are two notable programmed improvements, which will likely be implemented in the near future, that will help address the aforementioned issues including:

- Freehold Raceway Mall proposes to widen the eastbound far-side jughandle to two lanes; and
- Modifications to the CR 537/Castronova Way intersection, including a Monmouth County-sponsored improvement and developer-funded improvements to construct a four-way signalized intersection.

Additional improvements are needed to more fully address the segment issues identified above including:

- Travel lane improvements, including the addition of turn lanes;
- Widening of the US Route 9 bridge structure and CR 537 bridge structure over Route 33 Freeway to accommodate pedestrians and increase capacity of existing cartway;
- Pedestrian facility improvements, including the construction of sidewalks to fill in identified gaps, upgrade pedestrian signals, and the addition of crosswalks where appropriate; and
- Constructing municipally recommended bus stops, including bus pull-out lane(s), signage, and shelter(s) where feasible, no more than ½ mile apart at or as near as possible to key activity centers (such as the pending new Wal-Mart/Sam's Club big box development and the Raintree Shopping Center).

Location – CR 537 from Wemrock Road/Stillwells Corner Road to Iron Bridge Road

Issues

There are multiple traffic operation and pedestrian issues along this segment of CR 537. The more notable issues include:

- Multiple intersections along this segment of the corridor operate at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays;
- Notable number of crashes;
- Gaps in sidewalk system, particularly between residential developments, school facilities, senior facilities, and/or various services along or near CR 537; and
- Pedestrian crossings at intersections are hindered due to landscaped islands.

Recommended Improvements

There is one notable programmed improvement, which will likely be implemented in the near future, that will help address the aforementioned issues. The improvement is the result of a public-private partnership and proposes the following modifications to the CR 537/Village Center Drive/Redwood Lane intersection:

- A dedicated left-turn lane, shared left/through lane, and dedicated right-turn lane on the southbound approach; and
- Split phasing.

Additional improvements recommended for this segment include:

- Travel lane improvements, including the addition of turn lanes on CR 537;
- Signal improvements, including altering the signal timing to reallocate "green" time;
- Restriping to provide turn lanes; and

- Pedestrian facility improvements, including the construction of sidewalks to fill in identified gaps, upgrading pedestrian signals, and the addition/upgrade of crosswalks where appropriate.

Location – CR 537 and Gravel Hill Road

Issues

The primary issues at this intersection are related to traffic operations and include:

- Heavy traffic volumes; and
- The intersection operates at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays.

Recommended Improvements

The following improvements are recommended to help address the aforementioned traffic operations issues:

- Travel lane improvements, including the addition of turn lanes on CR 537; and
- Intersection improvements, including the potential installation of a traffic signal in conjunction with proposed developments or as future traffic volumes warrant.

8.2 STUDY SECTION B – GRAVEL HILL ROAD TO CR 571

Study section B extends from Gravel Hill Road in Freehold Township to CR 571/CR 526/Lakewood Road in Millstone and Jackson townships and includes a one-mile area to the north and south paralleling CR 537. Location specific issues in this section, by intersection area, along with recommended improvements are outlined below.

The recommended improvements for each intersection area have also been summarized in Table 8-2. If an improvement is recommended for an intersection area, then a black dot will appear in the given improvement category. Details regarding each improvement type, including its definition, application, and examples, are provided in Appendix C.

Table 8-2
Recommended Improvements by Roadway Segment/Intersection Area
Study Section B - Gravel Hill Road to CR 571 Trenton/Lakewood Road

Roadway Segment/ Intersection Area	Recommended Improvement								
	Pedestrian Facility Improvements	Transit Enhancements	Roadway Signage	Travel Lane Improvements	Signal Improvements	Restriping	Roadway/ Bridge Widening	Interchange/ Intersection Modifications	Roadway Realignment
CR 537 from Gravel Hill Road to CR 571/CR 526				●	●			●	●
CR 537/Thompson Grove Road				○				○	
CR 537/CR 524 East (Elton-Adelphia Road)				○				○	○
CR 537/CR 527 (Smithburg Road)				○	○			○	
CR 537/CR 524 West (Stagecoach Road)									○
CR 537/Eli Harmony Road									○
Springs Road/Francis Mill Road									○
CR 537/Squan Road/Brookside Road/Wright-DeBow Road				○				○	○
CR 537/CR 571/CR 526				○	○			○	

Legend

● Improvement recommended for roadway segment

○ Improvement recommended for intersection within roadway segment

Location – CR 537 and Thompson Grove Road

Issues

The primary issues at this intersection are related to traffic operations and include:

- Heavy traffic volumes; and
- The intersection operates at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays.

Recommended Improvements

- Travel lane improvements, including the addition of turn lanes on CR 537.

Location – CR 537 and CR 524 East (Elton-Adelphia Road)

Issues

The issues identified at this intersection relate to intersection geometry and volumes including:

- CR 524 intersects CR 537 at a skew;
- The intersection operates at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays; and

Recommended Improvements

The following improvements are recommended to address the geometry and volume related issues identified above:

- Roadway realignment to rectify CR 524 skewed approach; and
- Travel lane improvements along CR 537, including the addition of turn lanes.

Location – CR 537 and CR 527 (Smithburg)

Issues

The issues found at this location consist of:

- The intersection operates at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays; and
- Historic structure on the northwest quadrant, which may pose difficulties in implementing travel lane improvements and/or intersection modifications.

Recommended Improvements

The following improvements are recommended to help address the capacity-related issues identified above:

- Travel lane improvements along CR 527, including the addition of turn lanes;
- Signal improvements, including upgrading the semi-actuated traffic signal to fully actuated; and
- Travel lane improvements, including the addition of travel lanes on CR 537.

Location – CR 537 and CR 524 West (Stagecoach Road)

Issues

- CR 524 southbound approach intersects CR 537 at a skew.

Recommended Improvements

- Realign the southbound approach to intersect CR 537 at a right angle.

Location – CR 537 and Eli Harmony Road

Issues

- Eli Harmony Road intersects CR 537 at a skew.

Recommended Improvements

- Realign the southbound approach to intersect CR 537 at a right angle.

Location – CR 537 and Paint Island Spring Road/Francis Mill Road

Issues

- Paint Island Spring Road and Francis Mill Road intersect CR 537 at a skew and are off-set from one another.

Recommended Improvements

- Realign Paint Island Spring Road and Francis Mill Road to intersect CR 537 at a right angle and to create a four-way intersection.

Location – CR 537 and Squan Road/Brookside Road/Wright-DeBow Road

Issues

There are multiple geometry-related issues at this location including:

- Five-legged intersection, which is difficult for drivers to navigate; and
- Squan Road and Wright-DeBow Road intersect CR 537 at a skew.

Recommended Improvements

- Modify intersection to a four-way intersection at CR 537; and
- Realign the side street approaches to intersect at a right angle.

Location – CR 537 and CR 571/526

Issues

Traffic operation issues found at this location include:

- The intersection operates at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays; and
- Notable number of crashes.

Recommended Improvements

Recommended improvements to help address the aforementioned issues consist of:

- Travel lane improvements, including the addition of turn lanes;
- Intersection modifications, including the addition of through lanes; and
- Signal improvements, including a reallocation of "green" time to improve overall intersection operations.

8.3 STUDY SECTION C – CR 571 to CR 539

Study section C extends from CR 571/CR 526/Lakewood Road in Millstone and Jackson townships to CR 539 Hornerstown/Whitings Road in Upper Freehold and Plumsted townships, and includes a one-mile area to the north and south paralleling CR 537. Location specific issues in this section, by intersection area or roadway segment, along with recommended improvements are outlined below.

The recommended improvements for each intersection area or roadway segment have also been summarized in Table 8-3. If an improvement is recommended for an intersection area or segment, then a black dot will appear in the given improvement category. Details regarding each improvement type, including its definition, application, and examples, are provided in Appendix C. For roadway segments, recommended improvements for each intersection and/or sub-segment analyzed within that segment are also identified. If an improvement is recommended for an individual intersection or sub-segment, then an empty circle will appear in the given improvement category.

Location – CR 537 from CR 571 to the CR 537/Six Flags Great Adventure Interchange

Issues

There are multiple traffic operation and pedestrian issues along this segment of CR 537 including:

- Notable number of crashes;
- Multiple intersections/interchange ramps operate at or near capacity during the weekday peak travel periods and/or during weekend peak travel periods, which causes traffic congestion and lengthy delays;
- Undesirable weaving conditions along CR 537;
- Turning prohibitions and storage capacity constraints create operation issues and traffic congestion;
- Heavy traffic volumes and undesirable pedestrian facilities inhibit pedestrian travel; and
- Need for improved directional/information signage, particularly in close proximity to Great Adventure.

Table 8-3
Recommended Improvements by Roadway Segment/Intersection Area
Study Section C - CR 571 Trenton/Lakewood Road to CR 539 Hornerstown/Whitings Road

Roadway Segment/ Intersection Area	Recommended Improvement								
	Pedestrian Facility Improvements	Transit Enhancements	Roadway Signage	Travel Lane Improvements	Signal Improvements	Restriping	Roadway/ Bridge Widening	Interchange/ Intersection Modifications	Roadway Realignment
CR 537 from CR 571 to the CR 537/Six Flags Great Adventure Interchange	●	●	●	●	●	●	●	●	
CR 537/I-195 Interchange	○		○	○	○		○	○	
CR 537/Pine Drive		○	○	○		○		○	
CR 537/Six Flags Interchange			○						
CR 537 from Six Flags Great Adventure to CR 539				●				●	
CR 537/Millers Mill Road	*No recommended improvements at this time*								
CR 537/Hawkins Road/Prosper Town Road				○				○	
CR 537/South Mill Road	*No recommended improvements at this time*								
CR 537/CR 539				○				○	

Legend

● Improvement recommended for roadway segment

○ Improvement recommended for intersection within roadway segment

Recommended Improvements

The following improvements are recommended to help address the aforementioned issues:

- Travel lane modifications, including the addition of travel and turn lanes on CR 537;
- Restriping on side approaches to accommodate turn lanes;
- Signal improvements, including the relocation of traffic signals;
- Interchange modifications, including the reconstruction/realignment of ramps connecting I-195 and CR 537;
- Widen the CR 537 bridge to provide additional through lanes and auxiliary lanes to the I-195 ramps;
- Provide pedestrian/bicycle connections south of CR 537 via sidewalks and/or multiuse trails between Six Flags Great Adventure, Jackson Outlet Village, and future development; and
- Improve roadway signage, including the addition of over-the-road guide signs.

Location – CR 537 and Millers Mill Road

There were no notable issues identified at this location and, consequently, no improvements are recommended.

Location – CR 537 and Hawkins Road/ Prosper Town Road

Issues

The primary issue identified at this location was:

- The intersection operates at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays.

Recommended Improvements

The following improvement is recommended to help address the operations issue identified above:

- Travel lane improvements, including the addition of turn lanes on CR 537.

Location – CR 537 and South Mill Road

There were no notable issues identified at this location and, consequently, no improvements are recommended.

Location – CR 537 and CR 539

Issues

The primary issue identified at this location was:

- Selected approaches to the intersection operate at or near capacity during the peak travel periods, which causes traffic congestion and lengthy delays.

Recommended Improvements

The following improvements are recommended to help address the operations issue identified above:

- Travel lane improvements, including the addition of turn and travel lanes; and
- Intersection modifications to help improve overall operations of the intersection.

8.4 POTENTIAL ALTERNATE ROUTES AND ROADWAY CONNECTIONS

The CR 537 corridor was evaluated for potential alternate routes, access management, and interconnections with other County rural major collectors and minor arterial roadways. The evaluation was based on existing/projected traffic volumes, current/anticipated development trends, and preliminary engineering assessments. The potential alternatives identified are described below and displayed graphically on Figures 8-1 through 8-3.

New Access Roadway from Trotters Way to US Route 9 (Study Section A)

This alignment is illustrated on the Freehold Township master plan and would provide an alternate route for northbound US Route 9 traffic destined for CR 537 westbound or the Freehold Raceway Mall. It would also provide alternate access to potential development on the south side of CR 537 on both sides of NJ Route 33 Freeway.

This alternate route would help alleviate traffic congestion at the US Route 9/CR 537 ramp near Barkalow Avenue, as well as potentially reduce the traffic volumes on the US Route 9 northbound jughandle to the mall.

Thompson Grove Road and Gravel Hill Road Alternate Route (Study Section A)

These roads could serve as interconnected links for regional traffic. The link could serve as possible alternate routes between CR 527 and NJ Route 33 Freeway to the north and between CR 527 and CR 524 to the southeast.

These interconnections may reduce future demand on CR 527 and Wemrock Road/Stillwells Corner Road, since both Thompson Grove Road and Gravel Hill Road would serve as alternate parallel routes.

CR 537/Eli Harmony Road Alternate Route (Study Section B)

Eli Harmony Road is currently a local road but could potentially serve as an alternate route linking CR 524 to the west to CR 527 to the south (Ocean County). This change could make the intersection a potential candidate for a traffic signal and geometric improvements.

The major benefits to this alternate route would be to reduce traffic volumes and turning movements at the CR 537/CR 524 and CR 537/CR 527 intersections. If this alternate route was pursued, significant upgrades may be necessary along the local portions of the road in both Monmouth and Ocean Counties as well as the intersection of CR 527/Eli Harmony Road in Ocean County.

Access Modifications/Alternate Route from CR 539 to CR 27 (Study Section C)

CR 27 currently has multiple access points to CR 537 and is in close proximity to the intersection of CR 537/CR 539. Access could be modified and certain movements could be directed from CR 27 to CR 539.

This would remove several conflicting movements from the CR 537/CR 27 intersection and would divert them to the CR 537/CR 539 intersection, which would provide for the necessary turning movements. Additionally, the number of access points and potential conflicts near the CR 537/CR 539 intersection would be reduced.

INSERT FIGURE 8-1

INSERT FIGURE 8-2

INSERT FIGURE 8-3

9. LOCATION NEEDS AND PRELIMINARY IMPROVEMENT PRIORITIES

The previous section presented an array of suggested improvements to help address a multitude of issues. While all of the improvements are worthy of further investigation, resource constraints coupled with County-wide needs make it infeasible to pursue them all concurrently. Therefore, it is important to determine which areas are in most immediate need of improvement and which improvements would be most beneficial to the CR 537 corridor.

The purpose of this section is to provide a preliminary determination of the improvements that would likely be most beneficial at the various areas analyzed in this study. It is important to note that the determinations are in the context of the study area only and do not take into account County-wide needs and priorities. The County capital improvement program (CIP) should be referred to for County-wide transportation improvement priorities.

9.1 AREAS IN MOST IMMEDIATE NEED OF IMPROVEMENT

Several factors were considered to determine the need for improvements at each roadway segment/area identified in the previous section. These factors included but were not limited to:

- Issues found at each location under existing and future conditions;
- Public feedback on issues identified;
- Potential feasibility of addressing the identified issues;
- Currently planned County or privately sponsored improvements;
- Scope of suggested improvements;
- Significance of location/issue(s) in the local and regional transportation system; and
- Transportation planning and engineering expertise.

The results of this preliminary assessment are presented in Table 9-1. The table lists the analysis areas and indicates the importance of need for each area, which consists of immediate, intermediate, and future; with future referring to areas that, relative to other areas within the study corridor, are not in pressing need of improvement.

The analysis areas that include widening the CR 537 bridge structures over NJ Route 33 Freeway, US Route 9, and I-195 were determined to be immediate in terms of importance. Due to the complexity and multi-jurisdictional nature of the improvements, multi-agency coordination and securing necessary funding are critical activities that should be pursued in order to carry out these improvements in a timely and efficient manner.

Table 9-1
Need and Potential Implementation of Improvements by Intersection Area/Roadway Segment

Intersection Area/Roadway Segment	Importance of Need		
	Immediate	Intermediate	Future
STUDY SECTION A			
Throckmorton from CR 537 to US 9			●
CR 537/NJ Route 33 Business (Park Avenue)		●	
CR 537 from NJ Route 33 Business to Freehold Raceway Mall		●	
CR 537/US 9 Interchange	●		
CR 537 from Trotters Way to Castronova Way (realigned Gibson Place)		●	
CR 537/NJ Route 33 Freeway (bridge reconstruction)	●		
CR 537 from Wemrock Road/Stillwell's Corner Road to Iron Bridge Road		●	
CR 537/Gravel Hill Road			●
STUDY SECTION B			
CR 537/Thompson Grove Road			●
CR 537/CR 524 East (Elton-Adelphia Road)		●	
CR 537/CR 527 (Smithburg Road)		●	
CR 537/CR 524 West (Stagecoach Road)			●
CR 537/ Eli Harmony Road			●
CR 537/Paint Island Spring Road/Francis Mill Road			●
CR 537/Squan Road/Brookside Road/Wright-DeBow Road			●
CR 537/CR 571/CR 526		●	
STUDY SECTION C			
CR 537 from CR 571 to the CR 537/Six Flags Great Adventure Interchange		●	
CR 537/I-195 Interchange (bridge reconstruction)	●		
CR 537/Millers Mill Road	*No recommended improvements at this time*		
CR 537/Hawkins Road/Prosper Town Road			●
CR 537/South Mill Road	*No recommended improvements at this time*		
CR 537/CR 539		●	

10. IMPLEMENTATION STRATEGIES

There are multiple funding sources and mechanisms that can be used to implement the recommended improvements discussed in the previous sections. These include but are not limited to:

- Local actions;
- State and federal funding; and
- Metropolitan Planning Organization (MPO) and Transportation Improvement Program (TIP).

10.1 LOCAL ACTIONS

Some municipalities may receive funding through the Community Development Block Grant (CDBG) program, which may fund pedestrian improvements. These monies are mainly used for less costly "spot-fix" measures rather than larger-scale projects. The municipal traffic engineering or public works budget may also provide funding.

Another funding option at the local level is to assess developers for road improvements as part of improvements required under the development review process, and in New Jersey, municipalities could require developers to construct or improve county or state facilities that will be impacted by their developments. They may also be required to dedicate land and construct secondary roadways. Municipal zoning codes and state or local access management regulations may require developers to provide on-site or off-site improvements.

10.2 POTENTIAL FUNDING SOURCES

STATE

The main potential source of state funding is the NJDOT's State Aid Programs. Three separate state transportation funding programs distribute approximately $130 million from the state Transportation Trust Fund to counties and municipalities for funding transportation projects. The New Jersey Transportation Trust Fund Authority Act, administered by NJDOT's Division of Local Government Services, provides funding to counties and municipalities for public road and bridge improvement projects. These three programs are briefly explained below:

- The Municipal Aid Program provides funding directly to municipalities for transportation projects. The majority of these funds are appropriated for municipalities in each county based on a formula and are allocated to individual projects within various municipalities through a competitive process. The Department will pay 75% of the award amount at the time that NJDOT approves construction, with the remaining amount to be paid upon completion of the project.

- The Discretionary Local Aid Program provides funding to address emergency or regional needs throughout the state and any municipality may apply at any time. The NJDOT approves these projects at the discretion of the Commissioner. The Department will pay 75% of the award amount at the time that NJDOT approves construction, with the remaining amount to be paid upon completion of the project.

- The Local Aid for Center of Place program provides funding for projects designed to assist municipalities who have formally participated in implementing New Jersey's State Development and Redevelopment Plan (SDRP). The program provides the opportunity to apply for funds to support non-traditional transportation improvements that advance municipal growth management objectives as outlined in the action planning agenda of the municipality.

FEDERAL

Several programs under the Federal-Aid Highway Program administered by the Federal Highway Administration provide potential funding sources through the state. Funds can generally be used only along the federal-aid highway system, however, which typically does not include minor collector and local roads. Most federal programs require a 20% state/local match, except for some bike/pedestrian-related programs. The major funding sources include the following:

- Surface Transportation Program (STP) Funds – This program gives states flexibility to invest in a wide variety of transportation activities. Funding is available for both incidental projects (within larger projects) and for independent projects. Each state must allocate 10% of STP funds to 12 specific types of projects known as Transportation Enhancement Activities (TEAs).

- Hazard Elimination Program – States must use 10% of STP funding for safety-oriented improvements and these projects can either directly or indirectly improve conditions for pedestrians. These funds can be utilized along any public highway or trail.

- Congestion Mitigation and Air Quality (CMAQ) – The CMAQ program, jointly administered by the FHWA and the FTA, funds projects that contribute to the reduction of automobile congestion and emissions. Typical projects include but are not limited to transit enhancements, carpooling programs, pedestrian and bicycle improvements, and other traffic congestion alleviation measures.

- National Highway System (NHS) – This source is for projects on or along NHS roads, which comprises the 42,000-mile Interstate system and another 113,000 miles of roads identified by states based on their importance to the national and regional economy and their connectivity.

- Federal Transit Administration Funds – Federal law allows the Urbanized Area Formula Grants, Capital Investment Grants and Loans, and Formula Program for Other than Urbanized Area transit funds to be used for improving bicycle and pedestrian access to transit facilities.

- Highway Safety Programs – The National Highway Traffic Safety Administration (NHTSA) administers Section 402 Safety Funds to spend on non-construction activities to improve the safety of the traveling public.

10.3 ROLE OF MPO AND TIP

The Metropolitan Planning Organization (MPO) for the northern portion of New Jersey is the North Jersey Transportation Planning Authority (NJTPA). This organization oversees federal transportation investment for all modes including rail, road, bridge, and ferry, except Federal Aviation Administration money. NJTPA also creates a regional transportation plan that provides a long range planning vision for the regional transportation system. This plan's scope ranges from 20-25 years and is updated every 3 years.

One of the main capital planning responsibilities of the NJTPA involves development and management of the Transportation Improvement Program (TIP). The TIP is a three-year agenda of transportation improvement projects for the region totaling over $5 billion in state and federal funding. The Project's location, phase of work, construction schedule, cost and funding source are described in the TIP and must be approved for inclusion in the TIP to qualify for federal funding. Examples of projects included in the TIP are:

- Reconstruction of highways;
- Resurfacing of roads;
- Rehabilitation of bridges;
- Acquisition of new transit equipment;
- Pedestrian/bicycle facility improvements; and
- Enhancement of goods movement facilities.

Finalization of the TIP includes a meeting with the NJTPA along with the NJDOT and NJ TRANSIT to discuss project priorities. Additionally, projects selected for the TIP must be matched with available resources to insure that the TIP is a realistic investment plan for the region.

APPENDIX A
PUBLIC OUTREACH AND COMMUNITY INVOLVEMENT ACTIVITIES

In order to facilitate public outreach and community involvement for this study, small workgroups were formed to identify local mobility problems, concerns and issues related to CR 537 and to help select locally acceptable or preferred solution strategies for further analysis by the project team. Through a series of meetings and workshops with all or selected subgroups of these committees, the project team was able to obtain a detailed understanding of the priorities of corridor communities in addressing CR 537 issues. These workgroups and associated activities are discussed below.

Stakeholders

The project team requested that municipal officials in Monmouth County communities along the CR 537 Corridor form public involvement work groups of up to 10 individuals. Known as "stakeholder groups," they are composed of community residents, business leaders, emergency service, public works, planning or other local officials, traffic safety officers and/or elected officials, as well as other interested local stakeholders who could identify specific transportation needs and problems in their communities. Ocean County municipalities and county officials were also invited to participate in the outreach and coordination framework in areas where the CR 537 corridor is under Ocean County jurisdiction[1]. The following is the list of agencies requested to participate in the stakeholder group outreach process:

- Borough of Freehold
- Township of Freehold
- Township of Manalapan
- Township of Upper Freehold
- Township of Millstone
- Township of Jackson
- Township of Plumsted
- Ocean County Planning
- Ocean County Engineering

In addition, the following major employers in the CR 537 corridor were invited to participate by discussing their future growth and development plans, access and mobility needs and related concerns:

- Freehold Raceway
- Freehold Raceway Mall
- Centra State Medical Center

[1] CR 537 centerline forms the boundary of Monmouth and Ocean Counties between Province Line Road and just west of Loveman Road, and is maintained under Ocean County jurisdiction.

Project Kick-Off Meeting

Letters and information packages were distributed to municipal officials on October 4, 2002 explaining the project and extending an invitation to a project "kick-off" meeting held on November 7, 2002 to the following stakeholder groups:

- Borough of Freehold
- Township of Freehold
- Township of Manalapan
- Township of Upper Freehold
- Township of Jackson
- Township of Millstone
- Township of Plumsted
- Ocean County Planning
- Ocean County Engineering
- Freehold Raceway
- Freehold Raceway Mall
- Centra State Medical Center

At this meeting, the Project Team conducted a round-table discussion to determine the locations of serious problems for traffic congestion along CR 537, methods and/or solutions to deal with these traffic problems, and whether municipalities would consider addressing these problems through zoning amendments. The stakeholders were advised that the Project Team would be conducting small group meetings with them, to focus in on specific problem areas, as well discuss present and future developments affecting the corridor. From this meeting, the Project Team was able to gather an overall perspective of CR 537 as viewed by local participants.

The project team also requested that municipal officials and stakeholders provide maps, plans, and/or schematics of the following information:

- Municipal road / transportation improvement projects (current and proposed)
- Current and proposed development activity for: non-residential site plans > 25,000 square feet, residential site plans > 25 units, and major subdivisions > 25 lots
- Greenways and conservation easements
- Location(s) of intersections on municipal roadways controlled by traffic signals (current and proposed)
- Location(s) of municipal and commuter parking lots, identification of number of resident and non-resident parking spaces: number of permits issued per lot, number of people on the waiting list
- Posted speed limit signs on municipal roadways
- Location of school zones/crossings
- Locations of municipal utilities including future infrastructure improvements
- Proposed master plan or zoning changes
- Roadside safety concerns/hazards along CR 537
- All current or proposed bicycle routes

Stakeholder Working Group Meetings

Following the kick-off meeting, the project team reviewed information obtained from discussion as well as reviewed data brought to the meeting. The project team then met with small groups of stakeholders, grouped according to their location along the corridor in the following manner:

- Freehold Borough and Freehold Township
- Upper Freehold, Millstone and Manalapan
- Plumsted Township, Jackson Township, and Ocean County
- Centra State Medical Center, Freehold Raceway, Freehold Raceway Mall

Jackson Outlet Village and Six Flags Great Adventure were invited but could not attend. At these meetings, municipal planners, engineers, town administrators, and committee persons were represented. These professional stakeholders were asked to respond to the following questions and supplementary information requests:

1. Are you amending your 208 plan for sewer expansion?
2. Are there any major improvements in your jurisdictional area for Monmouth County?
3. Are there any major improvements in your jurisdictional area for Ocean County?
4. Please provide a listing of vacant land parcels within 1 mile of the CR 537 corridor.
5. Please provide a listing of proposed and approved developments within the past five years.
6. What area would you consider as traffic "hot spots?" Please define using specific roadway point to point locations (e.g. CR 537 between CR 524 and CR 526 in Freehold Township).
7. How does your municipality envision land use and traffic development on CR 537 in the next five and ten years?
8. Has your municipality implemented solutions to address land use and traffic management problems along CR 537? If so, please list these solutions.
9. What land use or traffic management solutions would your municipality like to see implemented to address problems along CR 537?

Meeting/Workshop Chronology

Following is a listing of meetings/workshops that occurred from the beginning to the completion of the project.

August 20, 2002: Project Team Kick-Off Meeting

September 18, 2002: Project Team Meeting

October 9, 2002: Project Team Meeting

November 7, 2002: Stakeholder Kick-Off Meeting

December 11, 2002: Project Team Meeting

January 6, 2003:	Technical Advisory Committee Kick-Off Meeting
January 8, 2003:	Small Group Stakeholder Meeting: Jackson TWP, Plumsted TWP, Ocean County
January 15, 2003:	Small Group Stakeholder Meeting: Upper Freehold TWP, Millstone TWP, Manalapan TWP
January 16, 2003:	Small Group Stakeholder Meeting: Freehold Borough, Freehold TWP
January 21, 2003:	Project Team Meeting
February 20, 2003:	Small Group Stakeholder Meeting: Centra State Medical Center, Freehold Raceway, Freehold Raceway Mall
June 20, 2003:	TAC Review Technical Memorandum I
June 27, 2003:	Stakeholder Group is presented Baseline Conditions
July 17, 2003:	TAC Reviews Technical Memorandum II
July 21, 2003:	Baseline Conditions presented to the Monmouth County Planning Board
July 24, 2003:	Project Team Meeting
August 6, 2003:	Project Team Meeting
August 18, 2003:	Issues and Recommendations presented to Monmouth County Planning Board
August 21, 2003:	Stakeholder Group is presented Issues and Recommendations

APPENDIX B
CHARACTERISTICS OF SIGNALIZED INTERSECTIONS


Picture 3-24: WB Approach

Picture 3-25: EB Approach


Picture 3-26 SB Approach


Picture 3-27: CR 537 – NB Approach

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ NJ Route 33 Business / Park Avenue	18.75

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	98	229	36	**463**	139	307	107	**553**	190	290	20	**500**
Southbound	49	172	52	**273**	83	336	77	**496**	78	271	60	**409**
Eastbound	31	556	87	**674**	47	535	159	**741**	57	458	147	**662**
Westbound	47	380	39	**466**	127	535	66	**728**	91	516	83	**690**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1	●			●								
2	●	●	●	●	●	●						
3										●	●	●
4							●	●	●	●	●	●

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals	●		
Pedestrian Push Buttons	●		
Curb Cuts / ADA Accessible Ramps	●		
Sidewalks	●		
Marked Crosswalks	●		
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked		●		

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Residential	Residential	Church	Residential

COMMENTS


Picture 3-28: Looking North on CR 537


Picture 3-29: NB US 9 Off /On Ramps @CR 537

Picture 3-30: US 9 NB at CR 537 Ramps

Picture 3-31: Barkalow Avenue @ US 9 ramps

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ Barkalow Avenue / U.S. Route 9 NB On / Off Ramps	18.50

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	150	3	54	**207**	211	1	63	**275**	255	1	22	**248**
Southbound												
Eastbound	0	609	340	**949**	2	670	323	**995**	3	596	311	**913**
Westbound	3	507	4	**514**	13	811	7	**831**	15	749	23	**787**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1	●	●	●									
2								●	●	●	●	●

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals			●
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps		●	
Sidewalks		●	
Marked Crosswalks			●
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Residential	Residential	U.S. Route 9 Overpass	U.S. Route 9 Overpass

COMMENTS


Picture 3-32: CR 537 NB


Picture 3-33: US 9 SB Off Ramp to CR 537


Picture 3-34: Close Proximity of CR 537 Intersections


Picture 3-35: US 9 SB On Ramp

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ U.S. Route 9 SB On / Off Ramps	18.52

INTERSECTION DATA

VOLUME DATA	AM PEAK HOUR				PM PEAK HOUR				WEEKEND MIDDAY PEAK HOUR			
Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound												
Southbound	48	1	309	**358**	41	0	332	**333**	52	1	280	**373**
Eastbound		851	37	**888**		954	188	**1926**		849	228	**1142**
Westbound	69	582		**651**	86	998		**1005**	97	908		**1084**

SIGNALIZED INTERSECTION PHASING

	NB			SB			EB			WB		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1				●	●	●						
2										●	●	
3								●	●			

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals			●
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps		●	
Sidewalks		●	
Marked Crosswalks		●	
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
U.S. Route 9 Overpass	U.S. Route 9 Overpass	Residential	Cemetery

COMMENTS


Picture 3-36: CR 537 Looking WB


Picture 3-37: Trotters Way SB


Picture 3-38: CR 537 WB


Picture 3-39: View From CR 537 Jughandle on Trotters Way NB

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ Trotters Way *(Freehold Raceway Mall)*	18.28

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	6	109		**115**	9	368		**377**	11	522		**533**
Southbound	38		39	**77**	352		462	**814**	291		384	**675**
Eastbound		926		**926**		787		**787**		756		**756**
Westbound		788	99	**887**		952	389	**1341**		761	401	**1162**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1	●	●				*						
2				●		●						*
3						*		●	●		●	*

* Movement facilitated by exclusive slip ramp or jughandle lane(s)

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals			●
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps		●	
Sidewalks		●	
Marked Crosswalks			●
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Commercial	CR 537 to Trotters Way Jughandle	Agricultural	Mall / Stormwater Detention

COMMENTS


Picture 3-40: Heavy Volume on CR 537


Picture 3-41:CR 537 NB View


Picture 3-42: Stillwells Corner Road Approach

Picture 3-43: Close Proximity of Land Uses

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ Stillwells Corner Road / Wemrock Road	17.41

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	177	282	152	**611**	181	150	160	**511**	204	140	182	**526**
Southbound	162	147	127	**436**	109	303	148	**560**	122	191	124	**437**
Eastbound	115	857	122	**1094**	162	918	196	**1276**	149	852	184	**1185**
Westbound	81	723	68	**872**	293	1079	136	**1510**	134	821	108	**1063**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1							●			●		
2							●	●	●	●	●	●
3	●			●								
4	●	●	●	●	●	●						

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals	●		
Pedestrian Push Buttons	●		
Curb Cuts / ADA Accessible Ramps	●		
Sidewalks		●	
Marked Crosswalks	●		
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Business / Commercial	Office	Retail	Restaurants

COMMENTS

Historic structures located proximate to this intersection.


Picture 3-44: Looking EB on CR 537

Picture 3-45: Looking WB on CR 537


Picture 3-46: Looking SB on Redwood Lane


Picture 3-47:Raintree Shopping Center

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ Village Center Drive / Redwood Lane *(Raintree Shopping Center)*	17.15

INTERSECTION DATA

VOLUME DATA AM PEAK HOUR PM PEAK HOUR WEEKEND MIDDAY PEAK HOUR

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	13	25	37	**75**	42	23	36	**103**	37	38	60	**135**
Southbound	185	39	107	**1058**	239	75	176	**490**	230	73	97	**124**
Eastbound	94	872	27	**993**	101	1001	8	**1110**	165	895	38	**1098**
Westbound	31	894	102	**1027**	44	1209	155	**1408**	59	984	111	**1154**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1	●	●	●	●	●	*						*
2A							**			**		*
2B							●	●	●	●	●	*

* Movement facilitated by exclusive slip ramp
** Actuated Signal Provides Protected Left Turns As Needed

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals			●
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps		●	
Sidewalks		●	
Marked Crosswalks		●	
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Retail	Bank	Retail	Bank

COMMENTS

Although this intersection has sidewalk leading to most approaches, access to pedestrian pushbuttons, curb cuts and crosswalks is difficult. The pedestrian crosswalk across the Village Center Drive right turn ramp to CR 537 WB is via a landscaped traffic island. Pedestrian signal pushbutton is located on landscaped island and crosswalk over CR 537 begins at that point. Curb cuts are placed on corners where crosswalks have not been installed, and vice versa.


Picture 3-48: View EB on CR 537


Picture 3-49: Centra-State Hospital


Picture 3-50: View SB Toward Iron Bridge Road


Picture 3-51: View WB on CR 537

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ Iron Bridge Road / Centra-State Medical Center	16.79

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	41	74	128	**243**	45	22	253	**320**	31	29	240	**300**
Southbound	89	19	121	**229**	167	81	44	**292**	23	47	152	**222**
Eastbound	40	732	24	**796**	0	628	40	**668**	27	697	30	**754**
Westbound	122	495	72	**689**	160	916	27	**1103**	220	588	36	**844**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1A						*	**			**		
1B						*	●	●	●	●	●	●
2	●	●	●	●	●	*						

* Movement facilitated by exclusive slip ramp
** Actuated Signal Provides Protected Left Turns As Needed

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals		●	
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps		●	
Sidewalks		●	
Marked Crosswalks		●	
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Hospital	Senior Assisted Living	Commercial / Open Field	Office

COMMENTS


Picture 3-52: View Looking EB on CR 537


Picture 3-53: Traffic at Intersection on CR 537 EB


Picture 3-54: View WB on CR 537


Picture 3-55: View Looking NB on Smithburg Road

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 / West Main Street @ CR 527 / Siloam Road / Smithburg Road	13.82

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	16	576	154	**746**	9	126	78	**213**	7	104	74	**185**
Southbound	34	101	43	**178**	27	576	52	**655**	34	134	52	**220**
Eastbound	88	652	12	**752**	36	569	11	**616**	40	361	12	**413**
Westbound	22	466	62	**550**	273	630	20	**923**	90	323	26	**439**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1	●	●	●	●	●	●						
2A							**			**		
2B							●	●	●	●	●	●

** Actuated Signal Provides Protected Left Turns As Needed

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals			●
Pedestrian Push Buttons	●		
Curb Cuts / ADA Accessible Ramps			●
Sidewalks			●
Marked Crosswalks			●
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Residential	Agricultural / Residence	Historic Residence	Vacant / Vegitation

COMMENTS

Historic Structures located next to this intersection.

Picture 3-56: View of Southeast Intersection Corner

Picture 3-57: View of Northeast Intersection Corner

Picture 3-58: View of Intersection on CR 537 EB

Picture 3-59: View of Intersection on CR 526/ CR 571 EB

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 @ CR 526 / CR 571 Trenton – Lakewood Road	9.38

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	274	323	131	**728**	172	136	120	**428**	134	86	70	**292**
Southbound	40	90	43	**173**	47	560	28	**635**	36	100	17	**153**
Eastbound	91	425	89	**605**	55	400	198	**653**	33	257	93	**383**
Westbound	64	222	15	**301**	209	526	17	**752**	104	281	28	**413**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1							*			*		
2							●	●	●	●	●	●
3				●	●	●						
4	●	●	●									

* Phase occurs for CR 537 directions only if actuated by presence of vehicle(s) in exclusive left turn lanes

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals	●		
Pedestrian Push Buttons	●		
Curb Cuts / ADA Accessible Ramps			●
Sidewalks			●
Marked Crosswalks	●		
Shoulders			●

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Gas Station / Mini-Mall	Church	Gas Station	Gas Station

COMMENTS

Picture 3-60: View on CR 537 EB. Jackson Outlet Village on right

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 @ Jackson Outlet Village	9.18

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Southbound												
Northbound	13		2	**15**	145		64	**209**	114		39	**153**
Eastbound		601	14	**615**		570	144	**714**		342	167	**509**
Westbound		786		**786**		740		**740**		463		**463**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1						*		●	*		●	
2				●		*			*			

* Right turn movement facilitated by slip ramp prior to intersection

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals		●	
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps			●
Sidewalks			●
Marked Crosswalks			●
Shoulders		●	

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Undeveloped	Outlet Stores	Undeveloped / Environmental	Outlet Stores

COMMENTS

Signal's primary function is to facilitate vehicle left turn movements from outlet stores to CR 537 WB.


Picture 3-61: CR 537 EB with traffic congestion


Picture 3-62: I-195 Ramp Left Turn at Signal


Picture 3-63: CR 537 EB View with I-195 Ramp

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 @ I-195 WB Ramps	8.92

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	56		323	**379**	69		432	**501**	102		230	**332**
Southbound												
Eastbound		412		**412**		559		**559**		427		**427**
Westbound		906		**906**		842		**842**		730		**730**

SIGNALIZED INTERSECTION PHASING

	195						**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1								●			●	
2	●											

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals			●
Pedestrian Push Buttons			●
Curb Cuts / ADA Accessible Ramps			●
Sidewalks			●
Marked Crosswalks			●
Shoulders		●	

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
I-195 EB Ramp	I-195 WB Ramp	Overpass	Overpass

COMMENTS

Signal's primary function is to facilitate vehicle left turn movements from I-195 WB to CR 537 WB.

Picture 3-64: View WB on CR 537.

Picture 3-65: CR 537 WB approaching merge with I-195 EB ramps just east of Pine Drive intersection.

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 @ Pine Drive	8.53

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	18	62	1	**81**	13	68	1	**82**	8	49	0	**57**
Southbound	257		24	**281**	235		29	**264**	202		79	**281**
Eastbound		87		**87**		689		**689**		407		**407**
Westbound		479	193	**672**		654	210	**864**		804	208	**1012**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1	●	●		●		●						
2								●	●		●	●

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals	●		
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps			●
Sidewalks			●
Marked Crosswalks		●	
Shoulders	●		

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
McDonald's Restaurant	Undeveloped	Wawa Convenience Store	CR 537 EB Jughandle

COMMENTS

CR 537 WB vehicles destined for Pine Drive must weave across 2-lane ramp entering CR 537 WB from I-195 just east of intersection.

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 @ Jughandle East of Great Adventure	7.9

INTERSECTION DATA

VOLUME DATA

	AM PEAK HOUR				PM PEAK HOUR				WEEKEND MIDDAY PEAK HOUR			
Approach	*L*	*T*	*R*	*Total*	*L*	*T*	*R*	*Total*	*L*	*T*	*R*	*Total*
Northbound												
Southbound												
Eastbound												
Westbound												

SIGNALIZED INTERSECTION PHASING

	NB			SB			EB			WB		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1								●	*		●	*
2	●			●								

* Via Reverse Jughandles

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals	●		
Pedestrian Push Buttons		●	
Curb Cuts / ADA Accessible Ramps			●
Sidewalks			●
Marked Crosswalks		●	
Shoulders	●		

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Undeveloped	Jughandle	Jughandle	Undeveloped

COMMENTS

Signal for jughandle movements is actuated by arrival of cars detected by cameras and/or activation of pedestrian pushbuttons. Pushbuttons for pedestrians are located on signal support standards placed distant from intersection.


Picture 3-66: View on CR 537 EB.


Picture 3-67: View on CR 539 NB.


Picture 3-68: View on CR 539 SB.

COUNTY ROUTE 537 LOCATION

Intersection Location:	*Approximate Milepost:*
CR 537 @ CR 539 Trenton – Forked River Road	2.96

INTERSECTION DATA

VOLUME DATA **AM PEAK HOUR** **PM PEAK HOUR** **WEEKEND MIDDAY PEAK HOUR**

Approach	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***	*L*	*T*	*R*	***Total***
Northbound	42	490	57	**589**	30	157	38	**225**	25	126	54	**205**
Southbound	54	565	36	**685**	54	565	101	**740**	34	155	42	**193**
Eastbound	65	316	22	**403**	44	250	46	**340**	33	192	27	**252**
Westbound	35	217	44	**331**	78	367	29	**474**	42	194	36	**272**

SIGNALIZED INTERSECTION PHASING

	NB			**SB**			**EB**			**WB**		
Phase	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
1							●	●	●	●	●	●
2	●	●	●	●	●	●						

SHOULDERS & PEDESTRIAN AMENITIES

Facility Types	All Corners / Approaches	Some Corners / Approaches	None
Walk / Don't Walk Signals			●
Pedestrian Push Buttons			●
Curb Cuts / ADA Accessible Ramps			●
Sidewalks			●
Marked Crosswalks			●
Shoulders		●	

TRANSIT FACILITIES

Stop Location Type	NW Corner	NE Corner	SW Corner	SE Corner
Shelters				
Marked / Unmarked				

LAND USE SECTION DATA

ADJACENT LAND USES

NW Corner	*NE Corner*	*SW Corner*	*SE Corner*
Undeveloped	Undeveloped	Insurance Office / Home	Vacant Commercial

COMMENTS

APPENDIX C
TOOLBOX OF POTENTIAL IMPROVEMENT STRATEGIES

TRANSPORTATION DEMAND MANAGEMENT (TDM) STRATEGIES

Strategies to reduce single occupancy vehicle use have been encouraged by the 1990 Clean Air Act Amendments (CAAA). The possibility of having federal transportation funds withdrawn, should a state fail to reach compliance with the 1990 CAAA, has been a strong catalyst for the implementation of TDMs in non-attainment areas.

To discourage single occupancy vehicle use, organizations may set up such services as carpool matching, vanpools and bus service. The Transportation Management Association (TMA) Council of New Jersey, comprised of nine non-profit public/private associations, operates area-wide ridesharing programs in New Jersey. TMAs provide a platform for cooperation between private businesses and local governments. The CR 537 study area is serviced by the Keep Middlesex Moving (KMM) TMA, which provides ridesharing and transit alternatives to single occupancy vehicle use in Middlesex and Monmouth Counties. (Note: KMM only provides limited coverage to Monmouth County as per NJDOT funding, since Monmouth County does not have a TMA. These services provide only "bare-bone" services to Monmouth County.)

The following TDMs are commonly discussed in transportation planning and congestion management literature:

- **Trip Reduction Programs**
    - **Ridesharing** – To discourage single occupancy vehicle use, area-wide regional ridesharing programs may be implemented through employers or other local programs. KMM offers customized program designs for carpools, vanpools and other services for ridesharing in the CR 537 study area. Ridesharing may be encouraged through the following methods:
        - *Guaranteed Ride Home Programs* – Guaranteed Ride Home Programs provide emergency service to employees who travel through carpooling or vanpooling. If an employee or a member of their immediate family becomes ill or injured, requiring the employee to leave work, this program would provide a guaranteed ride home at no cost to the employee. Guaranteed Ride Home Programs require administrative support from employers and have the potential to be costly.
        - *Parking Pricing* – Forcing employees to pay the full market price of a parking amenity may be an incentive for employees to join in a ridesharing program. Although parking pricing is a powerful method of discouraging single occupancy vehicle use, in order to be a truly effective TDM, this measure must be combined with ridesharing programs and/or transit subsidies, in addition to the availability of nearby affordable parking.

- *Preferred Parking Incentive Programs* – These programs provide preferred parking (i.e., close to the work building, in a covered area, etc.) to those who travel via carpools at job sites. Reserved parking spaces that are set aside for car/vanpoolers may encourage employees to join a car or vanpool, and provide an alternative to full market parking prices.

- **Employer Trip Reduction (ETR) Plans –** Ridesharing programs may also be encouraged through Employer Trip Reduction (ETR) Plans. Although not mandated by the CAAA, employers with over 100 employees at any single worksite, in areas of severe or extreme non-attainment with the CAAA, file plans for each site with state agencies. ETR plans may demonstrate how employers could reduce their employee contribution to single occupancy vehicle use during peak commuting periods. Programs may include employee ridesharing, transit subsidies of mass transit fares, and telecommuting.

- **Flextime and Staggered Work Hours (Hour Switching)** – Hour switching strategies may be incorporated into an ETR program in efforts to reduce congestion at peak commuting times. Flextime programs allow employees to choose what times they will arrive at work, in order to spread out peak period congestion. Staggered work hour programs aim to reduce or spread out peak period congestion through the shifting of employee start and finish times. Strategies of hour switching are inexpensive to implement, may be used in both public and private sectors, and may have a large and immediate impact on peak period traffic. However, hour switching strategies may impede with ridesharing methods and transit use, while not significantly reducing VMT or the number of vehicle trips. Hour switching strategies require coordination among employers.

- **Regional Ridesharing**

  - **High-Occupancy Vehicle (HOV) Lanes** – High-Occupancy Vehicle (HOV) lanes are reserved for buses, vans and cars that have a certain number of passengers. Vehicles that use the HOV lane often have the benefit of faster traveling than those that use congested lanes. However, HOV lanes may require right-of-way (ROW) acquisition, roadway construction and maintenance, and enforcement to prevent single occupancy vehicles from using the HOV lanes. In order for an HOV lane to be effective, it would have to result in the volume change sufficient to reduce the number of lanes required by single occupancy vehicle traffic.

  - **Park-and-Ride Lots** – Park-and-Ride lots provide parking in areas that are convenient to other modes of transportation. Park-and-Ride lots are commonly located adjacent to train stations, or are serviced by bus lines. Lots are also located alongside HOV lane facilities. Park-and-Ride lots in Monmouth County are owned or maintained by the New Jersey Department of Transportation (NJDOT), municipalities or even private lot operators. A complete listing of official NJDOT park-and-ride lots in Monmouth County is available online at http://www.nj.gov/njcommuter/html/prmonmou.shtm.

Park-and-Ride lots may encourage transit-use and ridesharing, and may decrease vehicle miles traveled (VMT). However, these lots generally do not reduce the number of vehicle trips and may require land acquisition and construction and maintenance activities.

- **Improvement in Pedestrian Access/Bicycle Facilities**

  Walking or bicycling as a form of transportation can be encouraged through community-wide improvements to pedestrian and bicycling facilities. Pedestrian facility enhancements and improvements in pedestrian access generally include the implementation of sidewalks or walking paths, provision of crosswalks, and installation of pedestrian signals. Bicycle facilities generally call for designated bicycle lanes, bicycle lockers or the provision of showers at workplaces or transit stops.

  As a TDM, the use of walking and bicycling has been declining. Although these methods are zero-emission modes of transportation, their consistent use for commuting in the Middle Atlantic region made difficult due to variable weather. In addition, decreasing density in suburban areas makes walking and bicycling difficult, due to the distances involved and conflicts with high-speed motor vehicle traffic.

- **Transit Enhancements**

  NJ Transit currently operates local and commuter buses within the CR 537 study area. The improvement of transit offers a desirable alternative to single occupant driving, and is a common method of reducing the demand for road infrastructure. Service improvements are generally carried out by the transit agency with the assistance of local and federal financial assistance. Ridership enhancements are effective if work locations in the study area are located near transit facilities. Socioeconomic characteristics of the study area must be analyzed in order to determine the elasticity of increased ridership with respect to transit improvements. Transit ridership enhancements can be in the form of increasing the frequency of service, subsidizing transit use, or using employer or municipality operated vans to connect transit nodes with work locations, among others. Transit enhancement programs may include:

  - **Rail Initiatives** – Rail initiatives may include conversion of freight lines into passenger service lines, and service increases on existing facilities.

  - **Bus Initiatives** – The improvement and expansion of mass transit facilities is one of the key elements necessary to attract auto drivers to transit and reduce VMT. This can include new bus service or expansion of existing service, increased service frequencies/operating hours, improved informational and way finding signage, and the installation of benches and shelters at stops.

- **Vehicle Replacement/Upgrade** – Vehicle replacement and upgrade programs may further the benefits of increased transit use. The addition of clean fuel bus fleets may be incorporated as part of regular vehicle replacement programs.

- **Fare Reduction** – Fare reduction may result in the increase in transit use, as opposed to single occupancy vehicles.

- **Regulatory Measures**

Regulatory measures may aid in the effort to reduce single occupancy vehicle use and can include the following strategies:

- **Trip Reduction Ordinance** – A trip reduction ordinance may improve air quality, reduce traffic congestion, and minimize energy consumption by drawing commuters to use other ways to travel to work besides driving alone. The law may require the state's largest employers to promote commute alternatives such as buses, vanpools, carpools, walking, bicycling, telecommuting, compressed work weeks and flexible work schedules. Although trip reduction is not mandated by law in New Jersey, organizations such as KMM encourage such strategies as an alternative to single occupancy driving.

- **Road User Fees** – Road user fees on Interstate highways and other tolled local arterials require revenues for basic operations and maintenance. Highway authorities may consider concepts such as electronic tolling and road user fees (congestion pricing) as means to maintain the revenues necessary for operation and maintenance.

- **Congestion Pricing** – The most recent development in road pricing came in January of 2001 when the Port Authority of New York and New Jersey (PANYNJ) approved a plan for the use of peak period pricing on PANYNJ bridges and tunnels (including the George Washington Bridge, the Lincoln and Holland Tunnels, the Goethals Bridge, the Bayonne Bridge, and the Outerbridge Crossing. This strategy is generally used to control peak period use of transportation facilities by charging more for peak period use than for off peak.

- **Parking Fees** – Full market fees for parking amenities may be a powerful method of discouraging single occupancy vehicle use, in order to be a truly effective TDM, this measure must be combined with ridesharing programs and/or transit subsidies, in addition to the availability of nearby affordable parking.

- **Auto Restriction Zones (Pedestrian Malls)** – Landscapes that are dominated by automobile use tend to experience less pedestrian traffic. The creation of an auto restriction zone would help create a pedestrian friendly environment that would encourage people to walk. The most common form of an auto restriction zone is the pedestrian mall, which has typically been instituted in larger towns or cities. Pedestrian malls generally consist of a storefront lined street that is closed off to most automobile traffic. Emergency vehicles would have access at all times, while

delivery vehicles may be restricted to limited delivery hours or entrances on adjacent back streets.

- **Truck Restrictions** – Restrictions on trucks aim to separate trucks from passenger vehicles and pedestrians. Restrictions may prohibit trucks from traveling on certain roadways, and may call for weight restrictions on certain bridges. Regulations and restrictions on large truck routes in New Jersey prohibit large interstate trucks from using local roadways as through routes or short cuts between National Network highways.

TRANSPORTATION SYSTEM MANAGEMENT (TSM) STRATEGIES

Transportation System Management (TSM) strategies do not focus on decreasing the number of single occupancy vehicles. Rather, TSMs concentrate on reducing congestion through the reduction of the number of vehicles on the road network during peak commuting times, or by increasing the operational efficiency of traffic flow. The following alternatives are typical examples of TSM strategies that are usually implemented by the government or highway authorities.

- **Advanced Directional Signage** – Advanced directional signage is used to clearly convey roadway use to the driver (e.g. notification of exits, signalized traffic lights, and lane changes). Sign placement must follow specific guidelines. This measure may aid in the improvement of poor performing intersections, thereby increasing levels of safety.

- **Roadway Restrictions** – This measure may be effective along mainline segments of a highway, which operate at poor service levels. This method of closing access during rush hours (AM and PM peak hours) aids in the increase of safety levels through the prevention of accidents at problem intersections.

- **Incident Detection and Management** – This strategy aims to detect traffic incidents and respond to them as quickly as possible in order to reduce delays in traffic due to an accident and prevent the result of further accidents. Electronic surveillance, closed-circuit television, emergency motorist call systems, citizen-band radio, aerial surveillance, and police and service patrols are examples of tools to detect traffic incidents.

- **Motorist Advisory/Alternative Routing & Diversion** – Motorist advisory, alternative routing, and diversion are traffic management tools that include the use of lane control signals, changeable message boards, and a highway advisory radio to advise motorists of road conditions ahead or to recommend alternative routes.

- **Channelized Turning Bays** – Channelized turning bays aid in the accommodation of turning movements on a given roadway and separate traffic streams to improve safety.

- **Travel Lane Improvements** – Travel lane improvements may include the addition of travel/turning lanes to an intersection in order to improve safety and/or service levels. Lane striping and lane delineation are safety improvements that may aid in controlling traffic flow.

- **Intersection Turn Restrictions/Exit Only Lanes** – Turning movement restrictions or regulated exit-only lanes may be used to improve the orderly flow of traffic and increase safety at problem areas. Turn restrictions aid in channeling vehicles to main roadways. However, often these restriction measures fail to alleviate problems associated with cut-through traffic, since level of service problems tend to shift to adjacent roadways. These measures are generally left for the determination of the local governing body. Before such restrictions are established, a comprehensive review of the operational problems should be conducted in order to determine whether such restrictions would resolve or merely redirect traffic problems.

- **Roadway Signage** – Main types of signage include regulatory, warning, and guide/way finding signs. Regulatory signs show traffic laws or regulations (i.e., No-U-Turn, or STOP signs). Warning signs indicate an existing or potentially hazardous condition (e.g. icy road signs). Guide or way finding signs inform motorists of routes and destinations. Other roadway signs may typically include recreational/cultural signs and automobile services signs. The use of adequate signage may reduce driver confusion, thereby improving traffic operations and safety. This is a low-cost technique that can be implemented relatively quickly. Improvements may include the uniformity of signage along a roadway and the strategic placement of signs throughout a corridor.

- **Signal Improvements** – Signal improvement measures are used in efforts to improve traffic flow, and may include improved signal timing and phasing, upgrading existing traffic signals and detection equipment, traffic signal system coordination, and pedestrian signals. Signalization may aid in addressing capacity problems at intersections and on/off ramps, which operate at poor service levels. Advantages of this method include improved operations and the control over desired vehicle travel speed.

- **Use of Shoulder Lanes** – As a short-term TSM, shoulders may be used to expand road capacity during congested times of the day (peak commuting hours) or during roadway construction. The conversion of shoulder lanes into travel lanes may also be used as a long-term TSM, providing greater capacity levels and increasing traffic flow along poor service level roadways. This would be necessary at locations under or over highway bridges to support a roadway widening without replacing the bridge.

- **Restripe Exit-Only Lane to Shared Travel Lane** – Using proper procedures of signage and restriping, an exit-only lane may be transformed into a shared travel lane. This method may aid in the improvement of traffic flow at peak travel times.

- **Creation of Express Lanes** – Express lanes on highways are used to connect certain points of a highway, while bypassing others during peak periods. Express lanes may be constructed as permanent travel lanes, or as temporary lanes (express only during peak

travel hours). Express lanes on highways can be created using procedures of restriping, modification of roadway dividers, and signage modification.

- **Creation of Collector/Distributor Lanes (Local Lanes)** – In conjunction with express lanes, the local lanes can effectively carry the lower non-through traffic to and from exits. This would improve traffic flow enabling the ramps and weaving areas to operate at improved levels of service.

- **Reversible Lane Control** – This measure aims to reduce the inefficient use of road space for traffic that exhibits a significant directional imbalance with AM and PM peak periods. In this method, the lane in the direction that is not fully used may be reversed using proper signage, gates, and barriers to prevent wrong-way movement.

- **Traffic Detection and Control Systems** – Volume and flow of traffic may be monitored by a system of sensors. Traffic conditions may then be further analyzed to flag developing problems, and implement adjustments to traffic signal timing sequences, in order to optimize traffic flow estimating traffic parameters in real-time. Currently, the dominant technology of traffic detection is magnetic loop detectors, which are buried underneath roadways and count automobiles passing over them. Video monitoring systems for traffic detection may provide vehicle classifications, travel times, lane changes, rapid accelerations or decelerations, and length queues at urban intersections, in addition to vehicle counts and speeds.

- **Advanced Traveler Information System/Special Generator/Event Management** – This measure calls for advanced planning to re-route traffic away from a special event or construction. Advanced travel information may entail the diversion of traffic along roads and to parking areas, alerting motorists via newspaper reports and highway advisory radio, and variable message and traffic signs to forewarn motorists of traffic changes.

- **Elimination of Bottlenecks** – Bottlenecks are areas where lane drops or constraints significantly reduce traffic capacity. Bottlenecks frequently occur at bridge crossings with narrow lanes and at entrance ramps with high traffic volumes. This roadway geometrics measure may involve the widening of selected highway segments. Intersections can also be considered bottlenecks.

- **Ramp Metering** – This roadway geometrics strategy controls the number of vehicles that can enter the freeway at any given interval. Speed and flow of traffic can be maintained below the point where congestion begins by controlling the number of vehicles allowed to enter the roadway at the on-ramp. This measure may aid in increasing the average speed of traffic on freeways, decreasing the rate of accidents, and reducing freeway congestion.

- **Roadway Widening** – This roadway geometrics measure involves the widening of the mainline roadway and/or the reconstruction of bridges to accommodate more travel lanes along a corridor, and improve pedestrian access.

- **Redesign of Interchanges** – The redesign and rebuilding of highway interchanges are methods to safely and effectively increase the exchange of traffic from one highway to another. Interchange redesign eliminates off-ramp congestion and highway backup.

- **Modification/Construction of On- and Off-Ramps** – On- and off-ramps that operate at poor service levels may require modification, in order to improve operational levels during AM and PM peak hours. Ramp modifications include reconstruction, alignment.

- **Roadway Realignment** – The reconfiguration of approaches that operate at poor service levels would allow for greater traffic flow. In addition, geometric improvements including wider travel lanes, perpendicular alignment of approaches, and the removal of obstructions will help to improve safety.

MAINTENANCE MEASURES

Maintenance measures address issues of deterioration caused by daily wear and tear of highways and pavement structures. Proper maintenance also aids in the prevention of further deterioration of older structures. For the purpose of identification and analysis, measures are divided into three categories: general maintenance, rehabilitation and replacement.

- **General Maintenance Measures** – The 1995 New Jersey Long Range Transportation Plan, *Transportation Choices 2025*, considers general maintenance programs as state-of-good-repair initiatives. General maintenance programs include minor maintenance procedures for pavement and structures, and measures to alleviate flooding along a corridor (e.g., cleaning of drainage pipes).

- **Rehabilitation Measures** – *Transportation Choices 2025* also indicates that the rehabilitation of structurally deficient bridges and poor roadways are state-of-good-repair initiatives. Rehabilitation measures include the repair of pavement segments, medians, ramps, and bridges, among others.

- **Replacement Measures** – Replacement procedures for structurally deficient bridges and overpasses and poor pavement may include demolition and new construction, reconstruction measures, and the relocation of medians, ramps, and bridges, among others.

LAND USE STRATEGIES

Land use strategies consist of regulatory measures that can be used to help maximize the efficacy of existing and future transportation infrastructure through the integration of transportation and land use planning. Measures include comprehensive/master plans, zoning and subdivision regulations, development guidelines, and access management.

- **Comprehensive/Master Plans** – Local comprehensive/master plans provide the long-term vision of how a community, municipality, and/or county will grow and develop in the future. The vision is then actualized by utilizing the appropriate government levers (i.e. zoning and subdivision regulations, development standards, capital improvement programs, and economic development policies).

  In New Jersey, these plans should also take into account state-level land use planning initiatives, such as the State Development and Redevelopment Plan (SDRP) and "Big Map" concept. Coordinating local and state-level land use planning may help move the region toward a more sustainable future. This includes encouraging mixed-use development that puts jobs, housing, shopping and other destinations in closer proximity to one another and maximizing the use of existing infrastructure. The NJTPA helps to fulfill the goals of the SDRP and Big Map through the support of projects and initiatives that facilitate alternatives to driving (i.e., walking, biking, and transit) and maintain and improve existing transportation infrastructure.

- **Zoning and Subdivision Regulations** – These regulations serve as the most powerful and commonly used legal devices to carry out the vision set forth in a community's comprehensive plan. Zoning ordinances divide a community into districts or zones and regulate land use activity in each district. Subdivision regulations govern both the division of land into two or more lots, parcels, or sites for building and the location, design, and installation of supporting infrastructure (e.g., roadways). Together, these regulatory devices provide communities with the ability to ensure the compatibility of existing and future land uses; that new development is adequately served by streets, schools, parks and recreation, and utility systems; and development is directed away from undesirable areas, such as environmentally sensitive areas, and towards desirable areas, such as areas adequately served by existing infrastructure.

- **Development Guidelines/Negotiated Agreements (with developers)** – Local development guidelines and negotiated agreements with developers can also help a community carry out the vision set forth in their comprehensive plan. Through standard guidelines, such as site access, to negotiated agreements, such as exactions or impact fees, communities can ensure that new development is consistent with their long-term land use and infrastructure plans, as well as the aesthetic character of the community.

- **Access Management** – Access management involves the application of local and state planning and regulatory tools, transportation improvements, and site design standards in efforts to provide access to land development while simultaneously preserving and/or enhancing the function of the surrounding roadway system in terms of safety, capacity,

and/or speed. This measure includes zoning ordinances and development guidelines/standards, corridor preservation, transportation improvements, and finance techniques. Benefits of access management include increased capacity, shorter travel times, improved safety, and bicycle and pedestrian-friendly roadways.

APPENDIX D
ELIMINATED STRATEGIES

The following tables list each strategy that was eliminated for further consideration and provide the reason(s) why the strategy was eliminated.

TABLE D-1
ELIMINATED TDM STRATEGIES

STRATEGY	REASONS FOR ELIMINATION
HOV Lanes	• Travel patterns and demand do not warrant HOV lanes; • Would require considerable ROW to construct separate lane and accompanying ramps; • Enforcement would be an issue due to the multi-jurisdictional police forces; and • History of HOV lanes as an ineffective congestion reduction measure in New Jersey (e.g. I-287, I-80).
Park-and-Ride Lots	• Sufficient levels of transit service and/or availability of HOV lanes necessary to support this strategy do not exist in the corridor.
Fare Reduction	• NJ Transit has recently increased the fares for bus and rail service. Present financial difficulties at NJ TRANSIT and State make approach not practical at this time.
Trip Reduction Ordinance	• Although organizations such as KMM encourage specific commuter alternatives, trip reduction efforts are no longer mandated by law in New Jersey.
Road User Fees	• Heavy use of CR 537 for local travel makes this strategy inappropriate; • Lack of precedent for user fees on County Roads in NJ; • There are no existing tolls on the roadway; and • Current lane configurations on CR 537 would not accommodate the construction and operation of toll collection booths.
Congestion Pricing	• Heavy use of CR 537 for local travel makes this strategy inappropriate; • There are no existing tolls on the roadway; and • Would cause traffic diversions onto local parallel routes.
Parking Fees	• Requires proper incorporation with transportation alternatives including ridesharing programs, transit subsidies, and/or access to transit; • Most employee parking along the corridor and in Monmouth County is free; and • May make employer less attractive to prospective employees.
Auto Restriction Zones (Pedestrian Malls)	• There is no portion of the study area that is appropriate for an auto restriction zone or pedestrian mall, e.g. a sizeable downtown; and • Effectiveness of this strategy throughout the United States is uncertain.
Truck Restrictions	• Would likely result in the shift of truck traffic onto alternative routes, causing impacts on local roadways.

TABLE D-2
Eliminated TSM Strategies

STRATEGY	REASONS FOR ELIMINATION
Roadway Restrictions	• Heavy local traffic and the multi-use nature of CR 537 make restrictions impractical.
Incident Detection and Management	• Methods of incident detection (i.e., electronic surveillance, closed-circuit television, etc.) would likely not be applicable on CR 537 because of the wider regional coverage necessary for this system to function effectively; and • Greater levels of safety can likely be accomplished through incident prevention measures, rather than incident detection measures alone.
Creation of Express and Collector /Distributor Lanes	• Inappropriate due to the heavy local traffic and multi-use nature of CR 537; • Demand does not warrant this strategy; and • ROW constraints along portions of CR 537 make the addition of multiple lanes infeasible.
Reversible Lane Control	• Traffic patterns during peak travel times are not supportive of this measure; and • Existing lane configurations along most of CR 537 are not conducive to reversible lane control since most of the roadway consists of a two-lane cross section.
Ramp Metering	• Functional classification of CR 537 makes ramp metering inappropriate.

APPENDIX E
PUBLIC COMMENTS

The Monmouth County Planning Board held a public information session to give the public an opportunity to review and provide input on the Draft Final Report for the Western Monmouth County Route 537 Corridor Study. The event took place on Thursday December 11, 2003 at the Monmouth County Library in Manalapan, NJ. An overview of the study and Draft Final Report was provided by the project team via a series of poster board displays, a PowerPoint presentation, and informal discussion. Members of the public reviewed key aspects of the study and Draft Final Report, asked questions, and provided important feedback. Additionally, the Draft Final Report was posted on the Planning Board website and a two-week comment period was provided.

NOTE: *The following comments reflect the exact wording of the public comments submitted. Edits were made only where language was deemed inappropriate or to protect the privacy of the submitter.*

- When reviewing the improvements to Route 537 in western Monmouth County. Please take into account the intersection of County Road 524 as it comes from the west and angles into 537. It is very difficult to assess oncoming traffic from the west on 537 when you are turning to go east on 537 off of 524. This is especially difficult and dangerous in the situation of first aiders driving the ambulance. This is a regular route which we must take from Roosevelt to Centra State Hospital.

  Please do all you can to make this a perpendicular intersection and safer for drivers turning from 524 on to 537. Thank you for your consideration of this concern.

- Your team's work is outstanding. Most of the issues appear to be adequately addressed. The following comments (in no particular order of priority) are based upon my observations and may assist your planning and implementation efforts for improving traffic flow, enhancing safety and preserving the corridor:

  - Burnt Tavern Road (Millstone Township) – The intersection of Burnt Tavern Road with CR 537 is a problem area because of its proximity to I-195 and the street across in Jackson. I would recommend closing the intersection since the alternate and better road for local and transient traffic use is CR 526/571 that is a signalized intersection with CR 537. There are few homes and commercial establishments on Burnt Tavern Road and the impact upon access to CR 537 and I-195 would be minimal. The Petebilt commercial establishment at the intersection of CR 537 and Burnt Tavern Road has been on the market (once considered as a supermarket site using an assemblage of multiple lots). If No. 2 below is implemented, then closure of Burnt Tavern Road should be considered.

  - I-195 Cloverleaf – This is a three-leaved cloverleaf. It should become a full four-leaf clover to accommodate the intense westbound traffic heading to Six Flags/Great Adventure. As stated in No. 1 above, the Peterbilt commercial property has been for

sale. Closure of Burnt Tavern Road and adding this improvement would greatly enhance this area. Any bridge enhancements should include adding the missing cloverleaf.

- Squan and Brookside Roads (Millstone Township) – Squan Road was a through street until a hurricane (many years ago) washed away the dam/road. Since that time the road has been two cul-de-sacs. When Brookside Road is realigned, the Squan Roads should be reconnected and the access closed to Route CR 537. Access to CR 537 from Squan Road residences can be easily accommodated from its westerly connection with CR 571/526.

- I did not see any mention of school bus traffic impacts. There are numerous homes along the CR 537 corridor requiring pick-up and drop-off of children. During peak times the stop-and-go buses causes traffic problems.

- The State has a corridor plan known as the Capital to Coast Greenway, connecting Manasquan to Trenton. The plan is to connect Turkey Swamp Wildlife Area (Freehold) and Prospertown Lake Wildlife Management Area (Jackson) with the Assunpink Wildlife Management Area (Millstone and Upper Freehold). Pedestrian, bicycle and equine crossovers should be considered. Best alternatives to consider are either tunnels under CR 537 or overpasses over CR 537 at the critical crossover points. The State Green Acres Program can provide details on their plans and acquisitions.

- Bicycle Paths / Horse Trails / Multi-Use Trails – In conjunction with the Capital to Coast (No. 5), there is a Capital to the Coast bicycle path planned. The identified crossover points should be understood and tunnels or overpasses planned accordingly.

- Millstone Township's new Master Plan and recent adopted zoning change should be studied for its positive impacts upon traffic.

- State, County and local land acquisitions as well as plans for acquisition along CR 537 should be identified. Road widening of State-owned lands will require diversion approvals.

- I live at [*address omitted*] Freehold Township, on the north side of Route 537. Presently, in order to travel east on 537, I go around the block to Gully Road, and come out at the "Moore's Inn" corner. It is too dangerous, and too long a wait on most occasions to exit east onto Route 537 from Gravel Hill Road, and the same could be said for those on the south side trying to exit onto 537 west. A traffic light is needed there, although it should be one sensitive to traffic (light turns green when a car approaches) to eliminate long waits on either road. Also, traffic is backing up with regularity at the Wemrock Rd./Stillwell Corners light during evening commuter hours (5-6 p.m.). 537 is not wide enough to accommodate traffic from the Mall to this intersection. Also, it is sometimes backed up during the same hours where 537 goes from two lanes to one lane near the Verizon entrance.

With the introduction of a Walmart and other major retailers, Route 537 will probably have to be a 6-lane highway to accommodate the increased traffic. Much of this traffic comes from Jackson and Manalapan Twps. As well as Freehold Twp. As these towns continue to expand with housing developments, the traffic will only become denser. For once, it would be nice to have adequate highways before development.

I hope the Planning Board and Freeholders will use their best judgment in planning for the future transportation needs of western Monmouth County.

- We have been living in Millstone Township on Route 537 between Eli Harmony Road and Paint Island Spring Road for over 17 years. The increase in traffic over these years has been incredible. There are times of the day where it takes several minutes to pull out of our driveway. Not only are there few breaks in traffic, but also cars and trucks traveling well above the 50 MPH speed limit. We have children who board school buses every school day. Several times we have tried to have signs put up warning drivers that a school bus stop is ahead, only to get the run-around. No one wants to take the responsibility to put up a sign. When (not if) a school bus is rear-ended in front of our house, I'm sure there will be a sign erected, after the damage including injuries are done.

  We live in what's known as Section B of this study. I believe the roadway realignments proposed for the intersections will help with traffic flow. However, building a Wal-Mart in Section A will only increase traffic. Any improvements to the roads will not reduce the number of cars. Only curbing development will do so. Not only commercial development, but residential development as well. I know the mayor of Freehold wants his ratable, but we want to be able to pull out of our driveway in under three minutes. We're looking forward to attending the nest meeting on Feb. 5. We were unable to attend the last meeting due to a death in our family.

- Freehold Township has often been described as a donut surrounding a center hole or Freehold Borough. Well I am afraid part of that donut is being eaten away together with the taxpaying citizens who live in and around the area of the Freehold Mall. The traffic on Route 537 this past month has been overwhelming with backed up traffic congestion and that is without the new proposed Walmart project. For the people who live in the surrounding area of Route 537 or who must travel through that area delays and frustration will be commonplace not only during the building of the Walmart project but every day thereafter. Mayor Kershaw believes "improvements that will be made on Route 537 will help alleviate more traffic". We could use those improvements right now without the Walmart project. He also believes it will be " a really good ratable". That I'm afraid is where the greed comes in. Money for the inconvenience and quality of life for the taxpaying citizens.

  One last thought for the rest of the donut and the inside hole, Freehold Borough. Are your streets and children prepared for the increased truck traffic that will be inevitable in order to supply these stores with merchandise?

- I have read about the Monmouth County Planning board reviewing the volume of traffic along Route 537 and would like to pass on to you a number of points that should be taken into consideration.

  1. The article I recently read refers to intersections were there are lights and the high volume of accidents. The area between Iron Bridge Road and Route 527 should be reviewed because there are no lights. Along this stretch of Route 537 there are numerous developments and crossing or turning can be difficult at times. I believe the accident volume is low because the residents are transporting children and we want to keep them safe.

  2. Specifically, the intersection of Thompson Grove Road and Route 537 can be treacherous if you are not careful. The residents in the area know to be careful (since many of the cars are containing children) and you need to take your time. The main reason that I suggest this intersection be reviewed, and more specifically in need of a traffic signal, is that Thompson Grove Road is at the base of a hill. Trying to make a left (onto Route 537 East) is tough because the traffic is going fast since the last light they had to possibly slow down is two miles away and you are blind to cars coming until they actually reach the top of the hill. Also trying to cross Route 537 is tough because traffic is coming fast over the hills from both directions. Thompson Grove Road is a major road since it is used by many buses to reach Manalapan schools and also to reach Route 33. In addition, there are three major developments presently being built off of Thompson Grove Road that will all need to go through this intersection just to go food shopping.

  3. The traffic flow through the light at Route 527 should be reviewed because from the hours of 4-6 p.m. Mon - Fri. and Saturday afternoons the traffic can easily back up to Thompson Grove Road. I live on Shira Lane and at these times trying to make a left onto Route 537 East is impossible. You need to sit there for a least 5-10 minutes and only then if you have a nice driver who will let you through and help you see oncoming traffic. Shira Lane (before Route 524) also sits at the bottom of a hill so the same applies as with Thompson Grove Road when it comes to turning.

  Thank you so much for reviewing my comments and hopefully we can see some improvements.

- I continue to be extremely concerned about county leadership's almost casual attitude towards the steady loss of productive farmland to virtually unchecked sprawl. Land capable of producing food or other things critical to human existence is a rapidly decreasing, irreplaceable resource. It is also a trust, a God-given asset that should be treated with the greatest of care and with an eye towards the well-being of future generations and their needs.

  Farmland along the CR 537 corridor needs to be protected, using every creative and thoughtful approach possible. With hungry people in our nation and millions undernourished or starving overseas, the notion of destroying more farmland to build yet another un-needed Walmart or Sam's Club (or to meet the never satisfied needs of the automobile, one of the key driver's of sprawl and congestion) frankly feels criminal. When do we say "enough?"

Enough subdivisions, enough higher taxes, enough traffic congestion, enough loss of precious farmland?

Please be an advocate for wise planning that thinks beyond local and immediate concerns. Visionary insightful leadership is desperately needed.

- As Chair of the Millstone EC, former member of the [PB and BOAD?] current member of the County Board of Health, any changes to CR 537 that negatively impact the rural character of the town are not acceptable. Changed need to improve traffic flow while considering the impact to Millstone's zoning objectives.
- Regarding the County Route 537 Corridor Study, I would like to offer the following suggestion: Provide a left turn traffic signal at the intersection of West Main Street (Rt. 537) and Park Avenue (Rt. 33) for vehicles traveling east on West Main Street. As it is now, during heavy traffic times, vehicles wishing to go north on Park Avenue are lucky if one or two can make the turn before the light changes. Vehicles going west on West Main Street have a left turn traffic signal. I see no reason why it cannot work in both directions at the same time. Sufficient traffic lanes currently exist at this intersection to allow this change.
- The study was great but my concern is regardless of how much you widen the road you will never keep pace with the ongoing development at Great Adventure. Can we lower speed limits? Add traffic lights? Anything to discourage additional traffic. It's a rare occasion when anyone observes the speed limit. Can someone look into regarding the intersection of 537 and Deer Run Drive? If you're driving east it is a blind spot.
- Please investigate the traffic signal synchronization to provide more breaks in traffic at intersection. I.e. Thompson Grove Rd and Gravel Hill Rd.
- County Staff was very helpful in explaining the County's responsibilities and lack of enforcement capabilities of the county. Many of the ideas and plans looked helpful in helping the traffic congestion in this area. Traffic has become a real problem in Freehold Borough and Freehold Township and has contributed to quality of life issues that adversely affected our lives.
- Could we have a flashing light at or before the intersection of Deer Run and 537?
- Provide right of way enhancement for properties that are the "gaps" in developed areas, such as existing homes at and near Gravel Hill Road, especially if widening will occur.
- A middle turning lane is mandatory to allow continuous flow of traffic and to eliminate accidents from Centra State Hospital to Route 195.
- Include Great Adventure and Ocean County in the Route 537 planning/funding. Java Moon/Burnt Tavern Road intersection – very dangerous. Grade on Route 537 Bridge over Route 195 is dangerous. Driver's heading north on Route 537 need more visibility/time to stop on traffic lights.

Study Section A

Along CR 537 Corridor

Freehold Raceway Mall
Along Winners Circle, the ring roadway encircling the main parking areas, only limited sections of sidewalk are available. Although Raceway Mall Drive, extending from Winners Circle to US Route 9 has no sidewalk, a footpath to the Sam's Club/Home Depot parking lot was noted. While the intersection at US Route 9 does have pedestrian pushbuttons, marked crosswalk and signals on the south side of Raceway Mall Drive, the eastern end of the crosswalk is within the US Route 9 jughandle. There are no sidewalks or any other path provided for pedestrians on the east side of US 9.

The Cardigan Bay Lane entrance to the mall from NJ Route 33 Business lacks sidewalk. Due to steep slopes on both sides of the roadway, pedestrian traffic would have to walk in the roadway. Where Cardigan Bay Lane intersects NJ Route 33 Business, there are pedestrian pushbuttons on all four corners, but no sidewalks. NJ Route 33 Business has wide shoulders that could accommodate some pedestrian activity.

CR 537Freehold Raceway Mall to Wemrock / Stillwells Corner Road
The intersection of Wemrock Road and Route 537 provides full pedestrian facilities and signals. Although sidewalks are available both north and south of CR 537 along Wemrock Road and Stillwells Corner Roads, sidewalks along CR 537 are only available west of the intersection. Although the lack of sidewalk or shoulder area along CR 537 east of this intersection makes bicycle and pedestrian travel difficult, pedestrian activity was observed along this segment of CR 537, particularly near the Route 33 Freeway overpass.

Within CR 537 Study Area

West Freehold / Raintree / Wyndham / Monmouth Battlefield Area
Continuous sidewalk extends along the west side of Wemrock Road from the CR 537 intersection to the Raintree Village entrance. Pedestrians must then cross (without signal or crosswalk) to the east side of Wemrock Road for continuous sidewalk to the signalized intersection of Wemrock and Gully Roads. No sidewalk is presently available along Gully Road, despite the presence of Applewood Estates, a major senior assisted living community, and Wyndham, a condominium community of several hundred units and nearby single family home residential areas located only ¼ to ½ mile away from Wemrock. Notably, these developments were constructed with internal sidewalks throughout that extend to Gully Road, and significant pedestrian activity was observed along Gully Road.

Sidewalks end at Gully Road, although NJ Route 33 Business and Monmouth Battlefield State Park are only about a mile further north. The signalized intersection of Wemrock Road and Route 33 Business is equipped with a pedestrian pushbutton, however, no other pedestrian accommodations are available.

Schank Road / US Route 9 / Brookdale Community College Freehold Campus Area
Although the intersection of US Route 9, Route 33, and Route 79 lacks crosswalks, pedestrian signal heads, or even sidewalk approaching the intersection to suggest where a pedestrian might cross safely, a single pedestrian pushbutton is available on the southernmost approach (on the island between Stonehurst Blvd. and US Route 9). The only crosswalk spanning US Route 9 is located north of this intersection between the Fleet Bank headquarters and the Park and Ride segment of the shopping center parking lot. Once a pedestrian reaches the bank on the west side of US Route 9, driveways accessing the bank or the Brookdale College Campus behind are very narrow, curved, and poorly lit at night, and therefore poorly suited to pedestrian access.

The neighboring Freehold and Shop Rite Shopping Centers on the east side of US Route 9 are fairly accessible from downtown Freehold by foot; the streets behind it (Helen Ave. and Barkalow Ave.) have good sidewalks and narrow paved paths that extend into the shopping center's parking lot from E. and W. Barbara Dr. (short "no outlet" spurs off of Helen). There is presently no signage to indicate access to the shopping centers. While the shopping center can also be entered from South Street via sidewalk (near the intersection for ramps to Route 33 Freeway), this route is significantly longer.

Freehold Borough / Transportation Center / Throckmorton Street / US Route 9 Area
The Throckmorton corridor from CR 537 west is heavily used by pedestrian traffic. Despite continuous sidewalk along Throckmorton Street, heavy pedestrian volume was observed between the transportation center (old railroad station) along the railroad tracks past Rhea Street on Throckmorton. The gravel on the rail line is heavily worn by foot traffic, as are footpaths on the east side north of Avenue C. Where CR 522 passes beneath US Route 9, there is a footpath worn into the north side of Throckmorton Street and east of and along the access ramp to NB US Route 9.

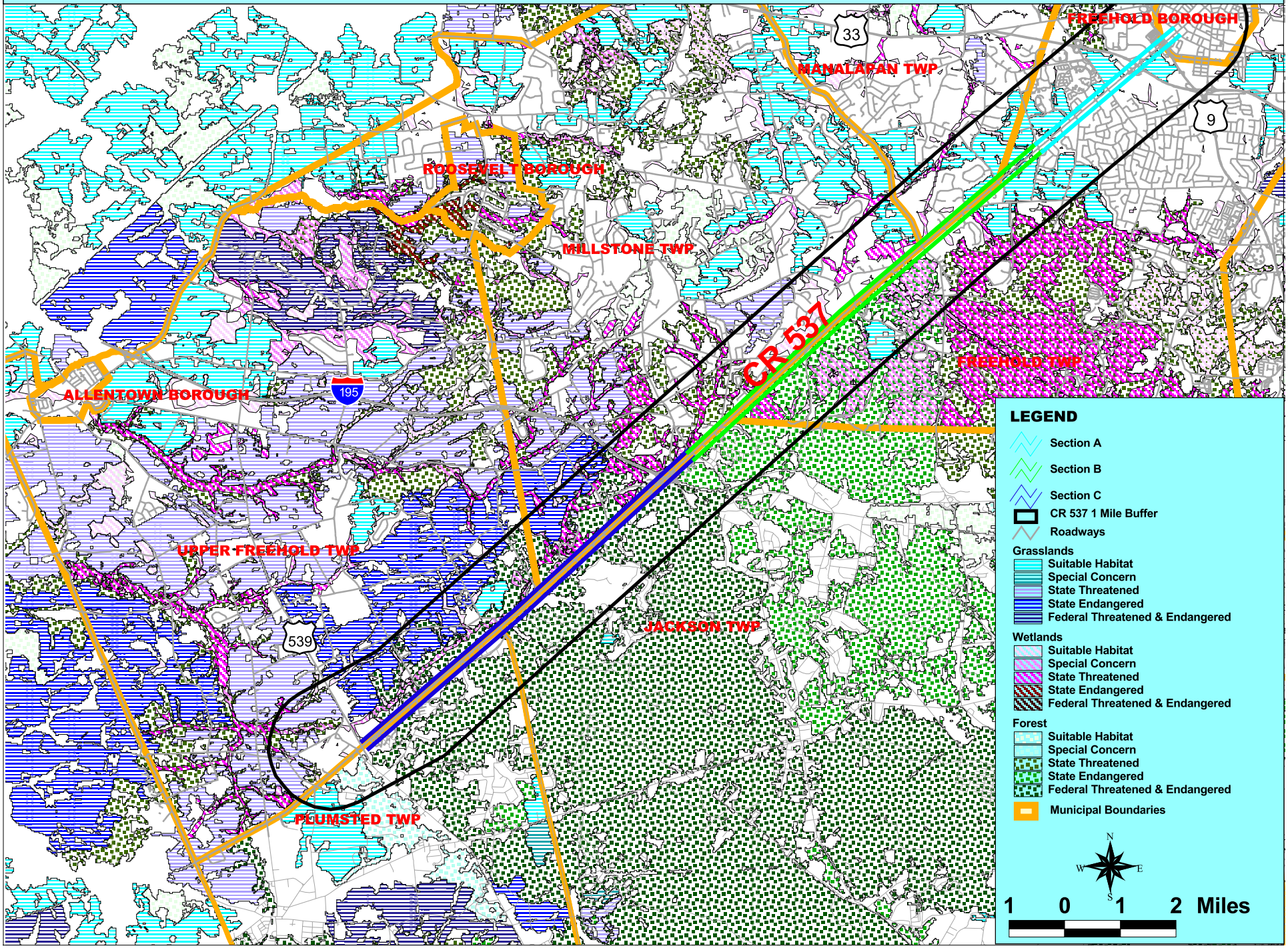
Study Section C

As mentioned, little or no pedestrian activity was observed in the majority of Study Sections B and C. However, CR 537 between I-195 and the entrance to Great Adventure is used by pedestrians during summer season by many employees residing on-site at Six Flags Great Adventure to reach fast food and convenience stores near I-195. Although both intersections at Pine Avenue and the signalized jughandle U-Turn just to the east have crosswalks, pedestrian signals and pushbuttons on most approaches, no sidewalks are currently available. Unfortunately, the present design of the I-195 overpass with its access ramps and lack of sidewalk inhibits pedestrian access across I-195. These conditions make access between Great Adventure, and Jackson Outlet Village and shops to the east of I-195 difficult for pedestrian traffic.

Western Monmouth County Route 537 Corridor Study

Figure 3-7: Overall Environmental Conditions Along CR 537 Corridor

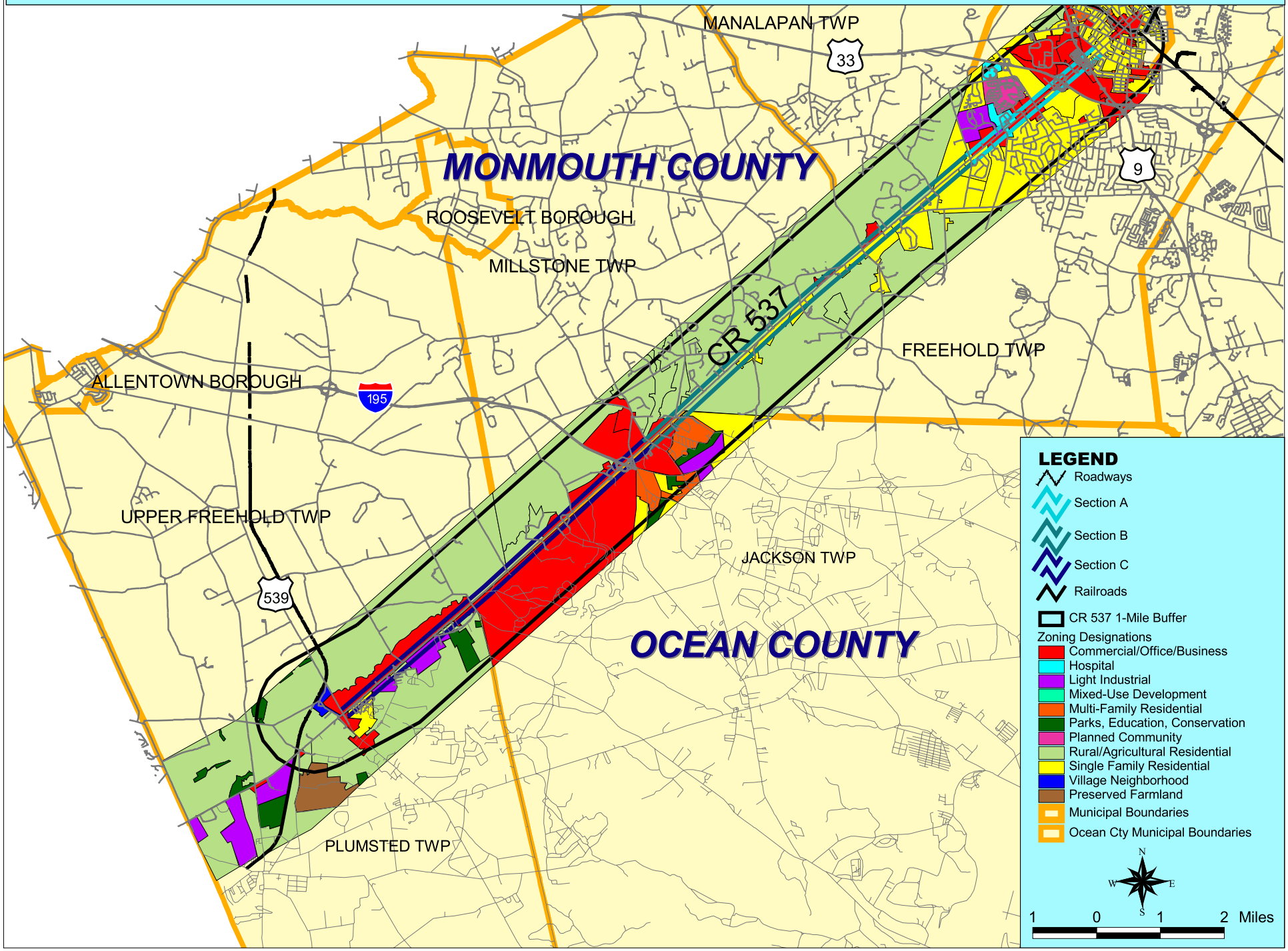
Prepared by the
Monmouth County Planning Board, 2003



Western Monmouth County Route 537 Corridor Study

Figure 3-1: Overall Zoning Designations

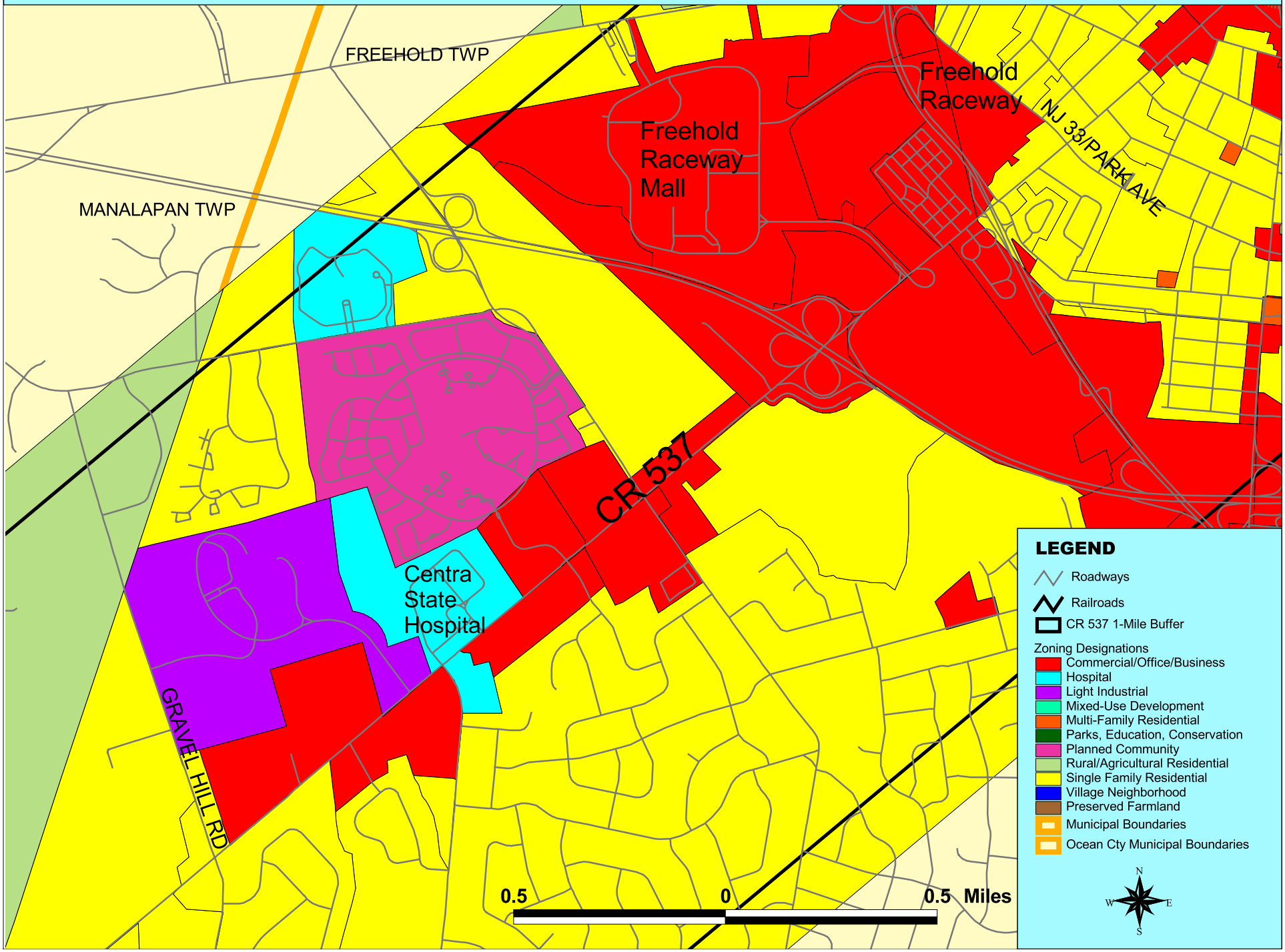
Prepared by the
Monmouth County Planning Board, 2003



Western Monmouth County Route 537 Corridor Study

Figure 3-2: Zoning Designations for Section A: NJ Route 33/Park Avenue to Gravel Hill Road

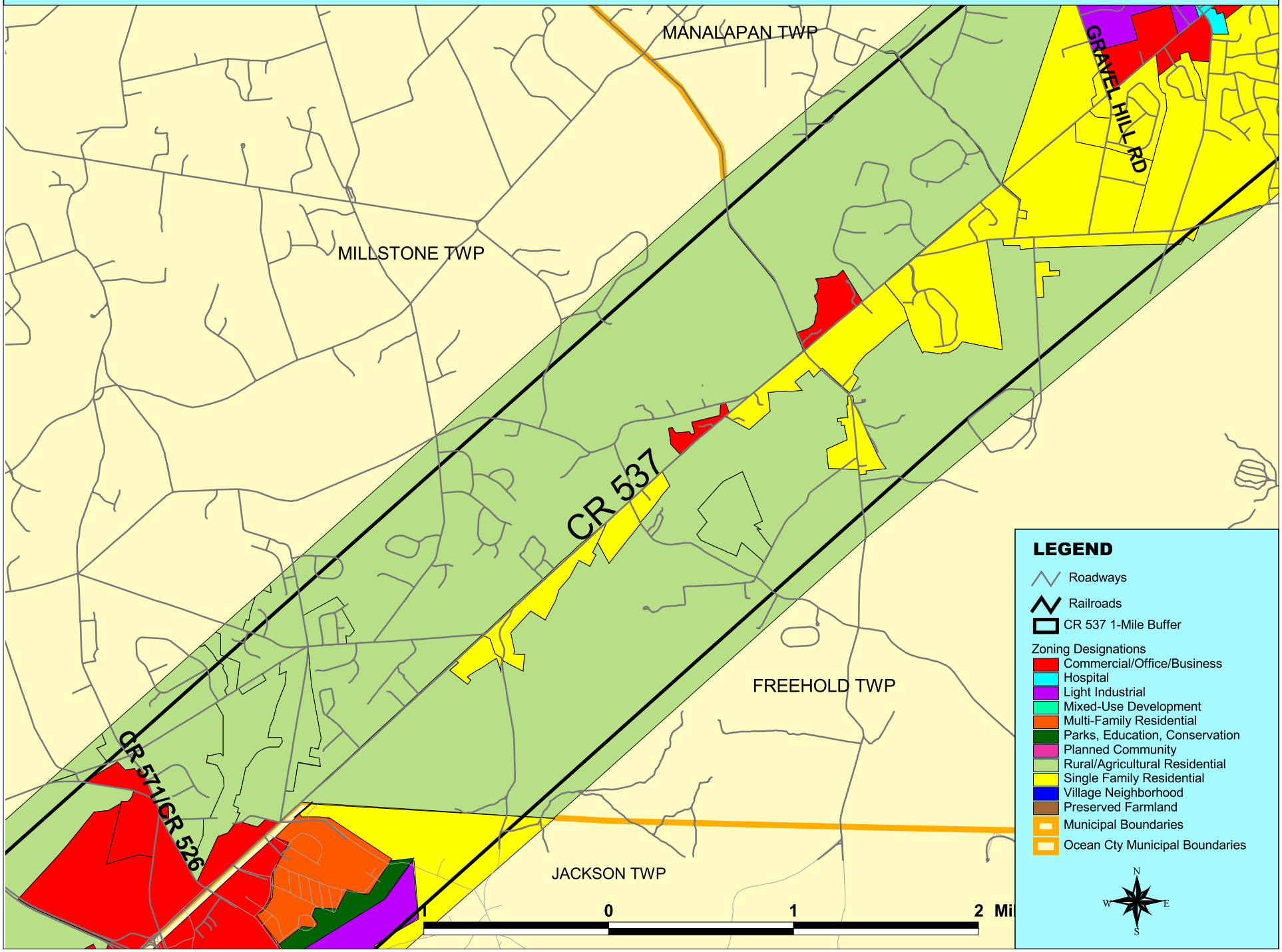
Prepared by the
Monmouth County Planning Board, 2003



Western Monmouth County Route 537 Corridor Study

Figure 3-3: Zoning Designations for Section B: Gravel Hill Road to CR 571/CR 526

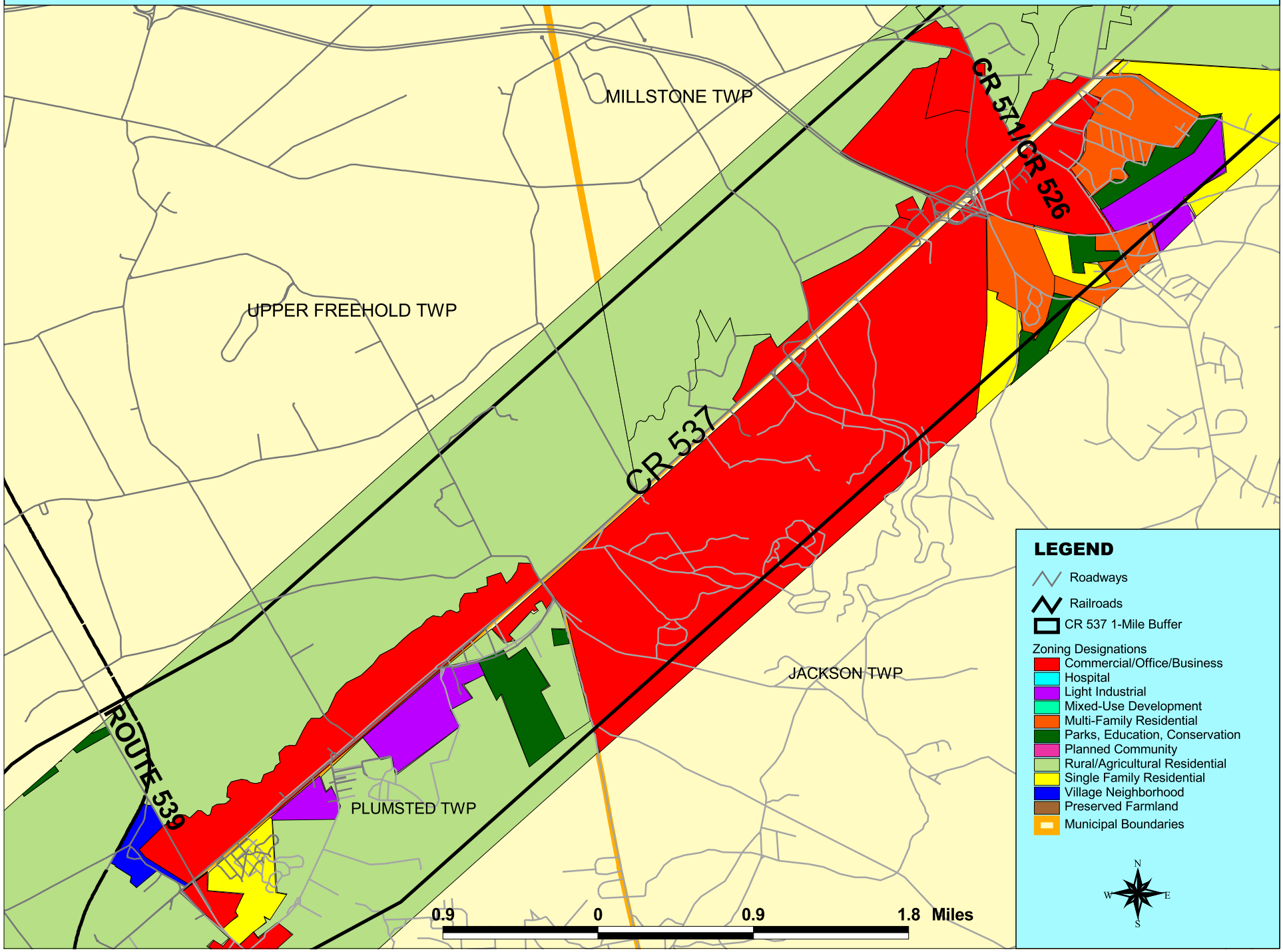
Prepared by the
Monmouth County Planning Board, 2003



Western Monmouth County Route 537 Corridor Study

Figure 3-4: Zoning Designations for Section C: CR 571/CR 526 to CR 539

Prepared by the
Monmouth County Planning Board, 2003

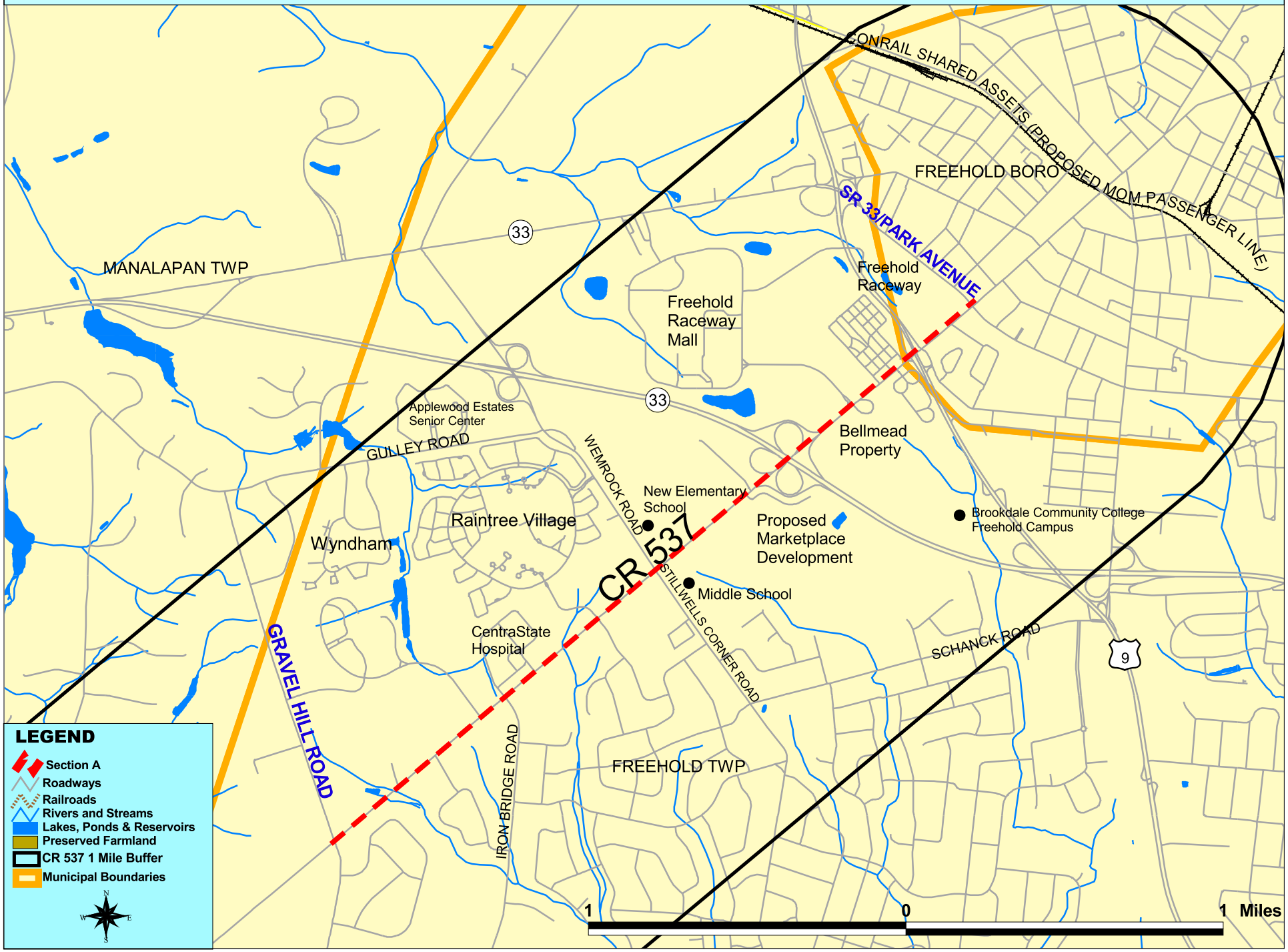


Western Monmouth County Route 537 Corridor Study

Figure 2-2: Base Map of Section A: Intersection of NJ Route 33/Park Avenue to Intersection of Gravel Hill Road

Produced by the
Monmouth County Planning Board

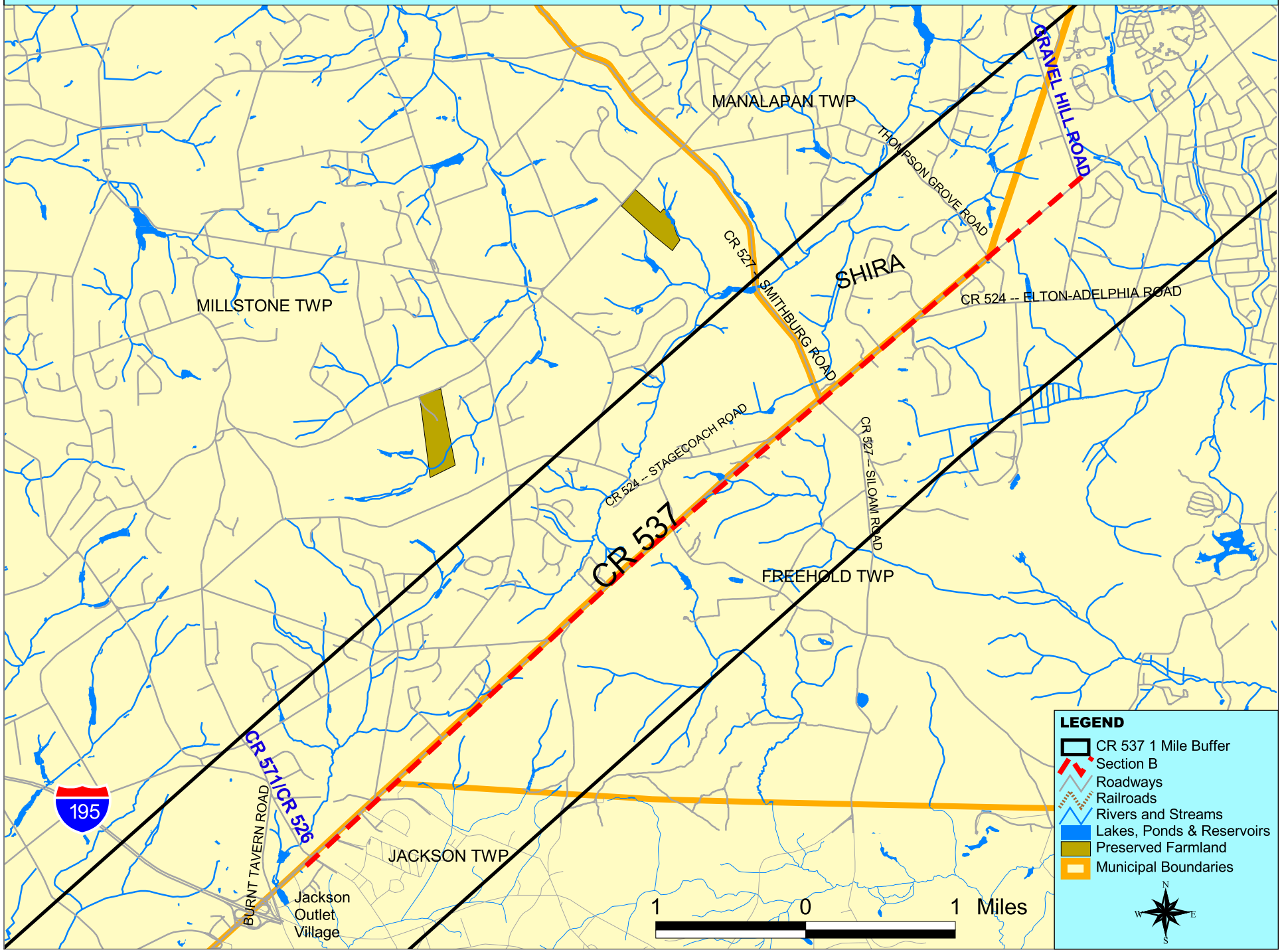
Zoning Layer Source: MCGIS 2003



Western Monmouth County Route 537 Corridor Study

Figure 2-3: Base Map of Section B: Intersection of Gravel Hill Road to Intersection of CR 571/CR 526

Produced by the
Monmouth County Planning Board



Western Monmouth County Route 537 Corridor Study

Produced by the
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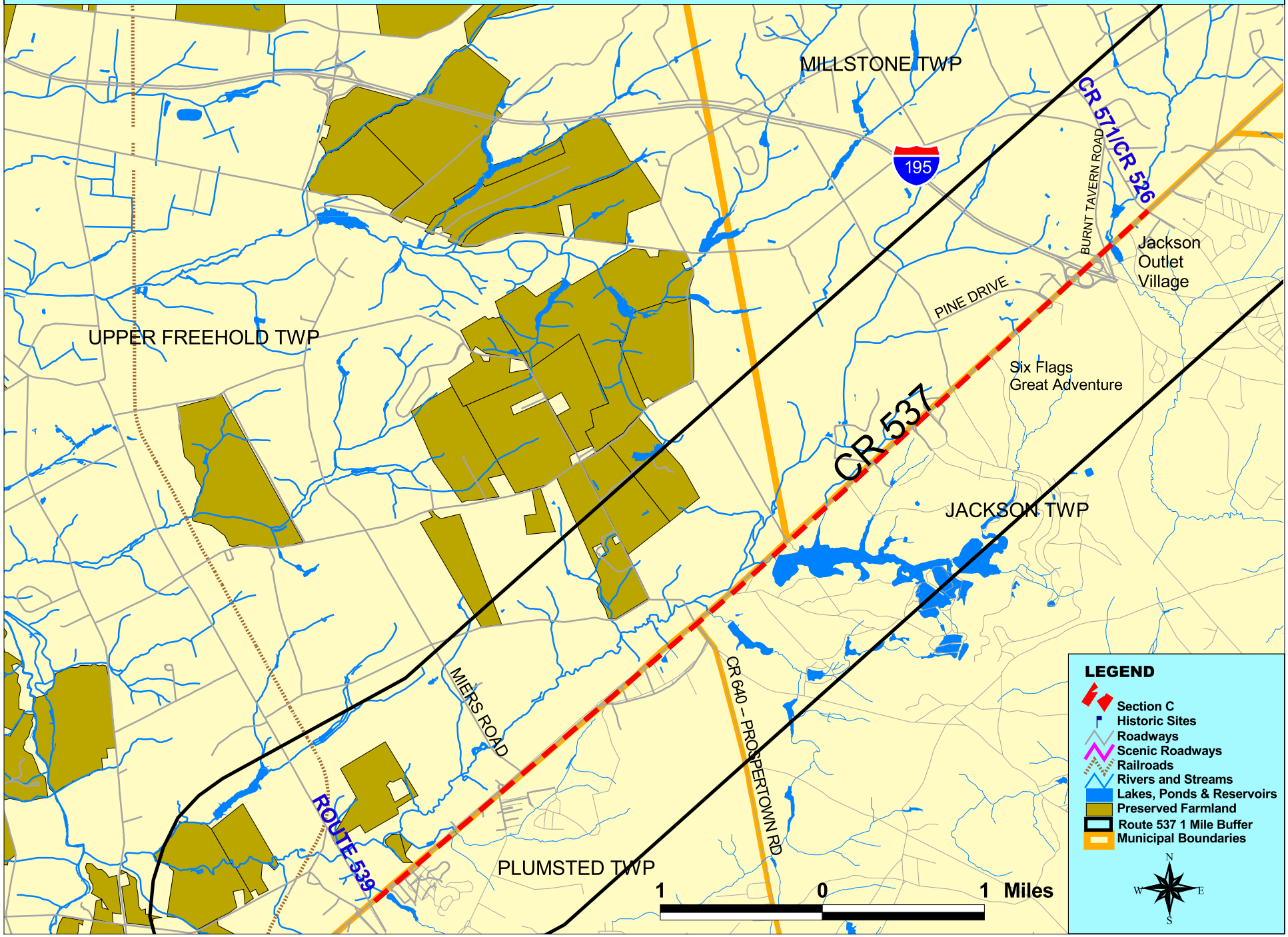
Figure 2-4: Base Map of Section C: Intersection of CR 571/CR 526 to Intersection of CR 539



Western Monmouth County Route 537 Corridor Study

Figure 3-5: Location of Bridges Along CR 537 Corridor

Prepared by the
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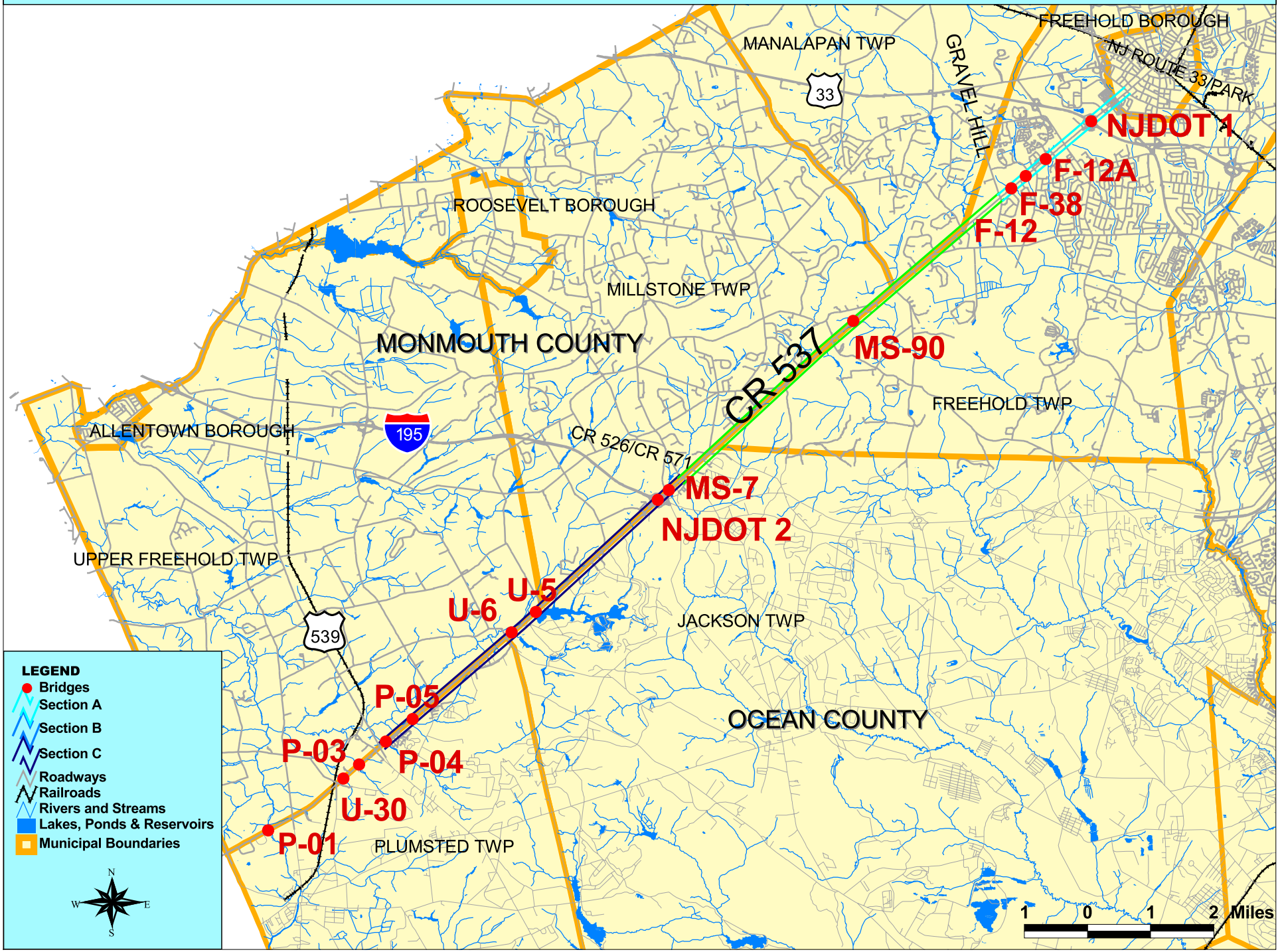
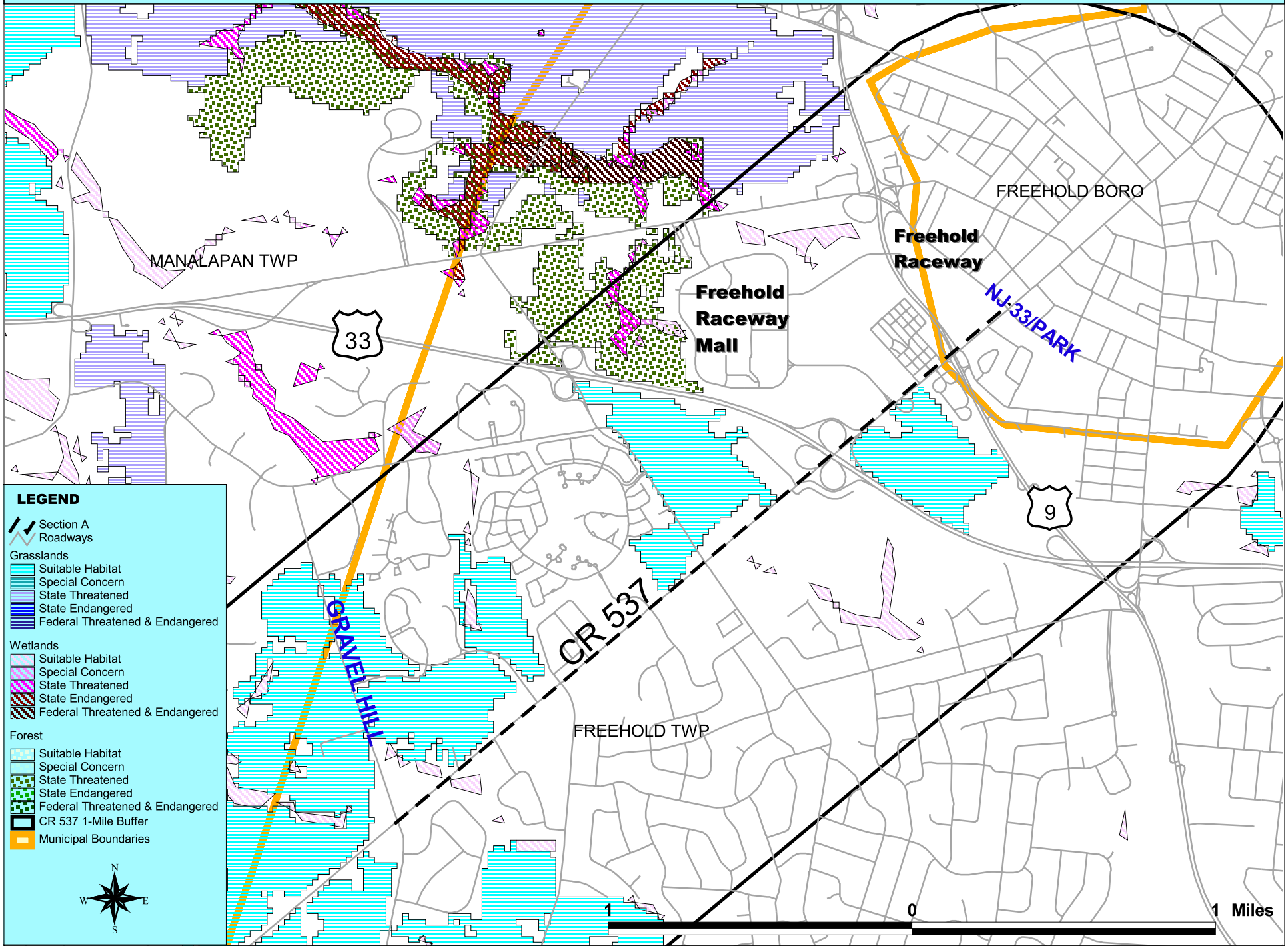


Western Monmouth County Route 537 Corridor Study

Figure 3-8: Environmental Conditions for Section A:
Intersection of NJ Route 33/Park Ave to Intersection of Gravel Hill Rd

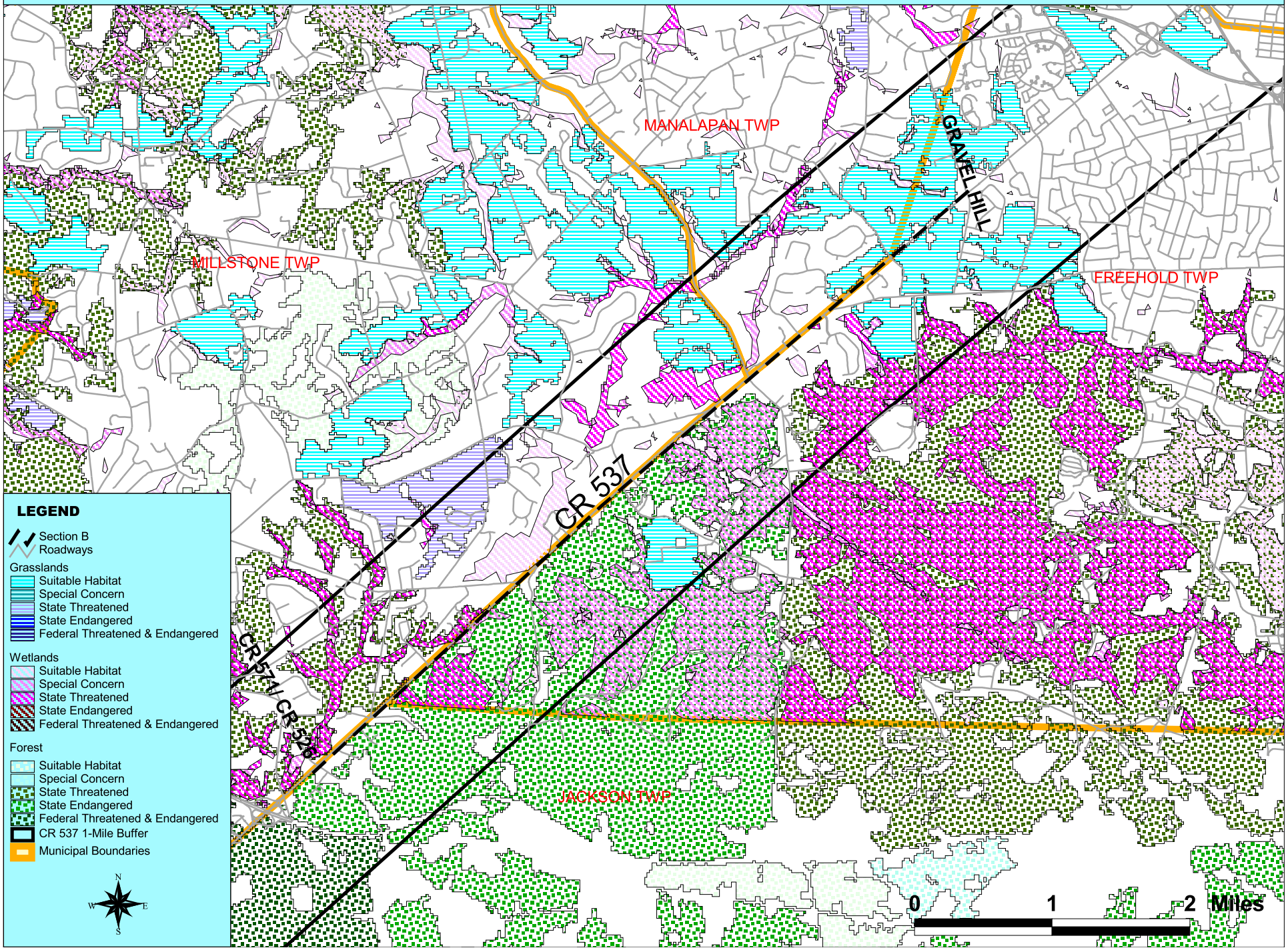
Prepared by the
Monmouth County Planning Board, 2003



Western Monmouth County Route 537 Corridor Study

Figure 3-9: Environmental Conditions for Section B:
Intersection of Gravel Hill Road & Intersection of CR 571/CR 526

Prepared by the
Monmouth County Planning Board, 2003



Western Monmouth County Route 537 Corridor Study

Figure 3-10: Environmental Conditions for Section C: Intersection of CR 571/CR 526 to Intersection of R 539

Prepared by the
Monmouth County Planning Board, 2003

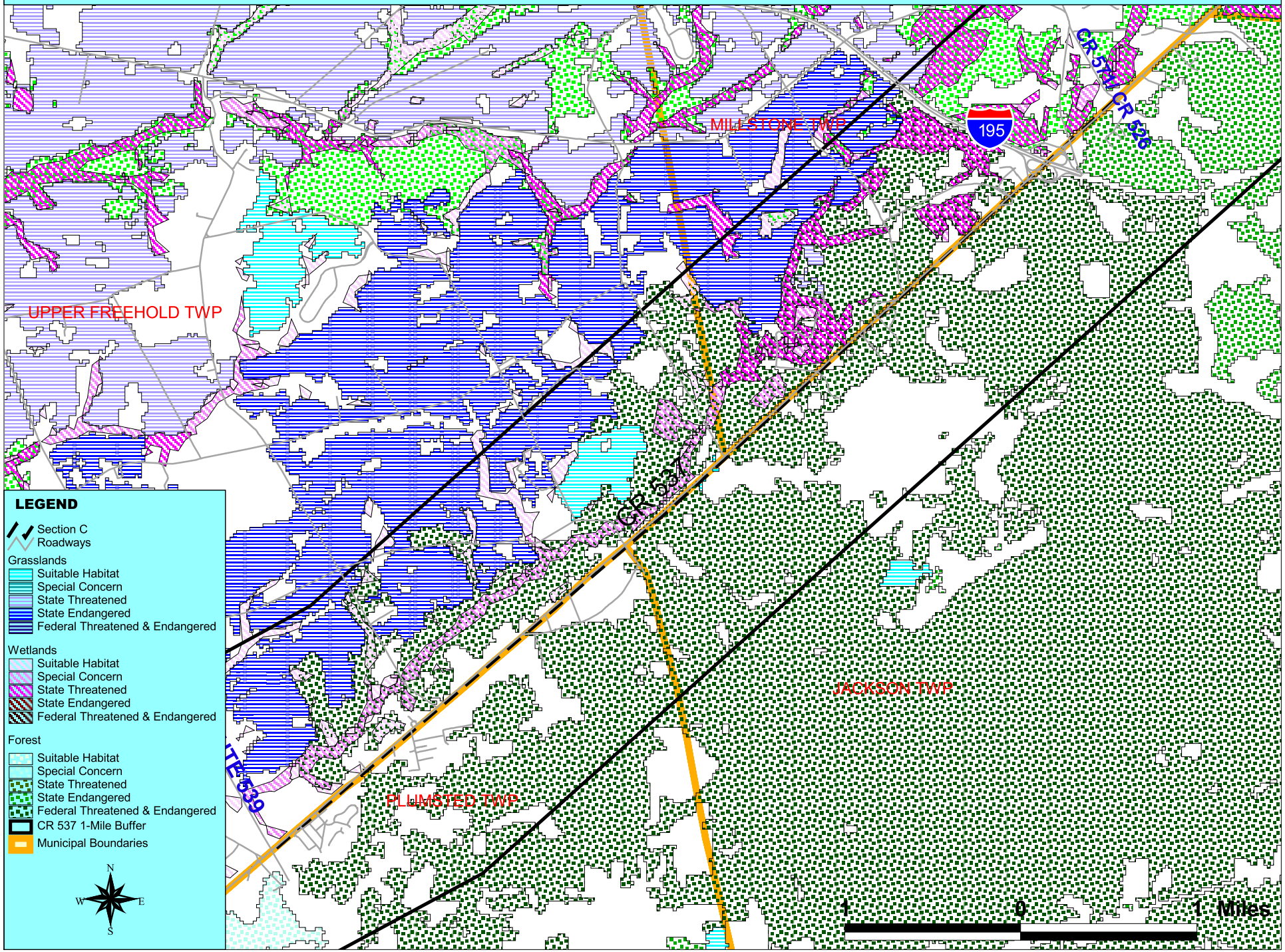
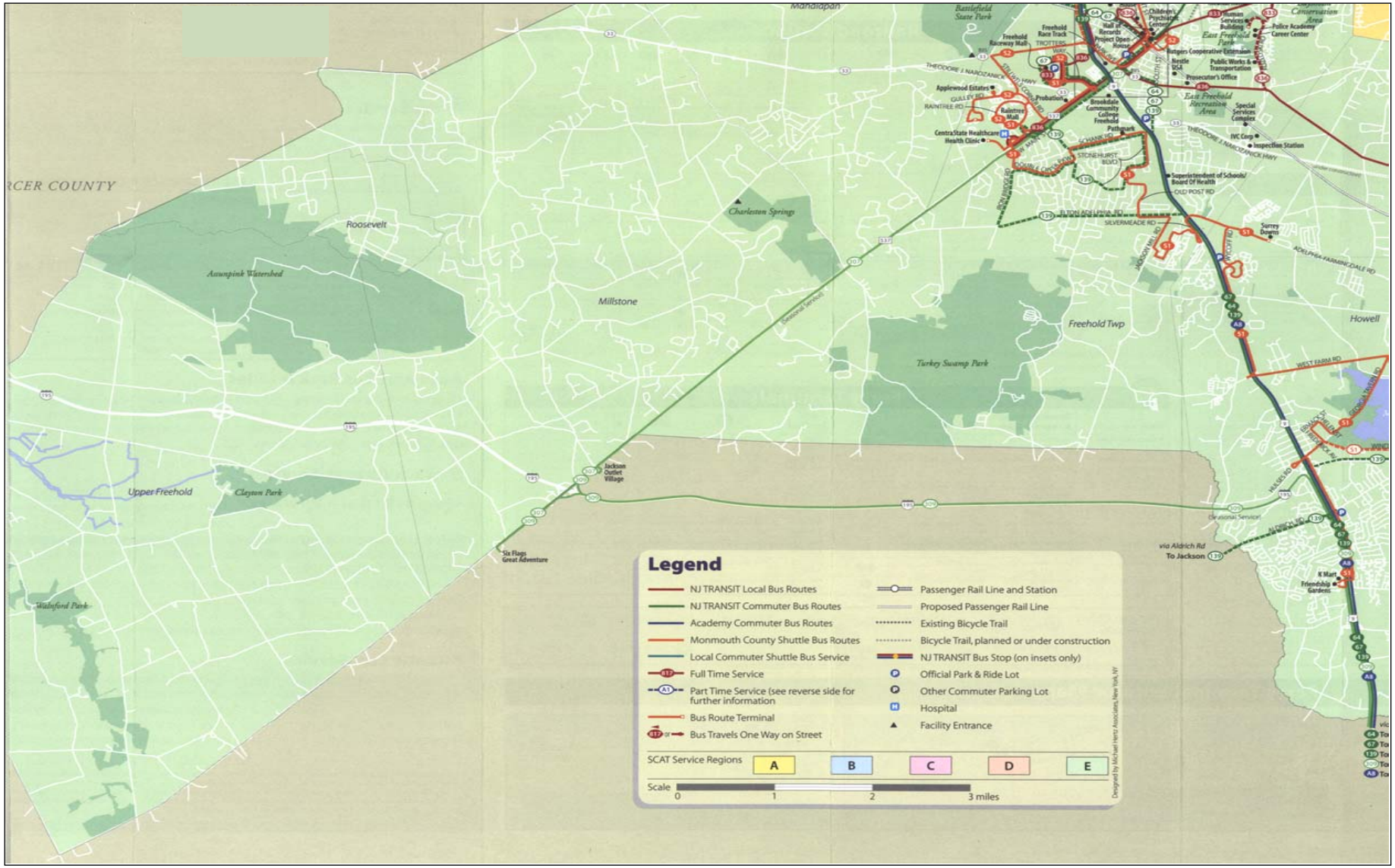


Figure 3-6: Public Transportation Services in the CR 537 Corridor Study Area

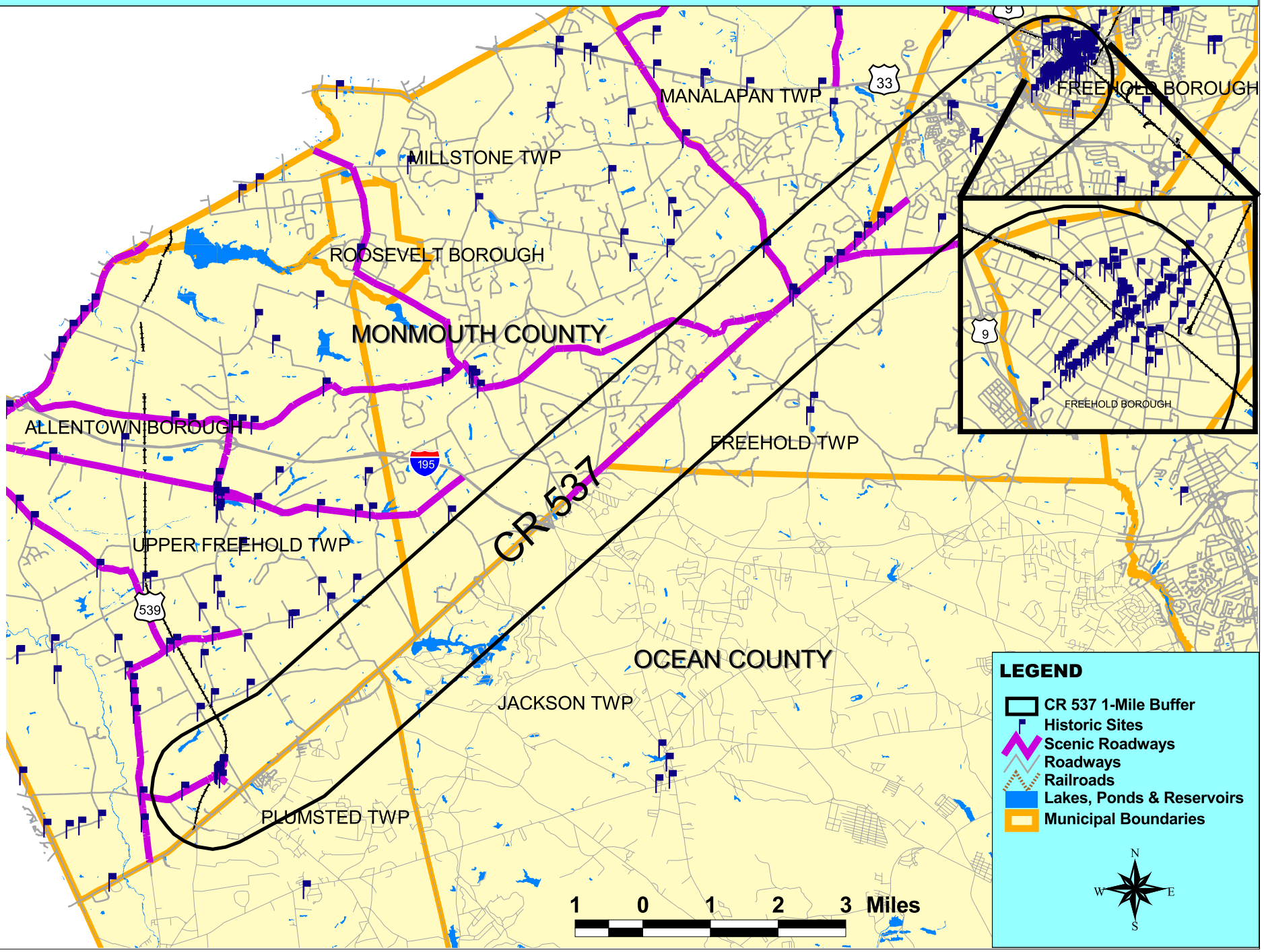


Source: Monmouth County Transit Guide

Western Monmouth County Route 537 Corridor Study

Figure 3-11: Scenic Roads and Historic Sites

Prepared by the
Monmouth County Planning Board, 2003



Western Monmouth County Route 537 Corridor Study

Figure 2-1: Base Map of Project Area

Prepared by
Monmouth County Planning Board, 2003