

**WEST AVENUE AND NEW ROAD
TRAFFIC STUDY**

**PART III – WEST AVENUE CLOSURE
ALTERNATIVES ANALYSIS**

**CITY OF LINWOOD
ATLANTIC COUNTY, NEW JERSEY**

March 30, 2006

PREPARED FOR:



City of Linwood
400 Poplar Avenue
Linwood, NJ 08221

PREPARED BY:



Concord Atlantic Engineers, Inc.
Dixon Associates
ASSOCIATED ENGINEERS

335 E. Jim Leeds Road
Galloway, New Jersey 08221

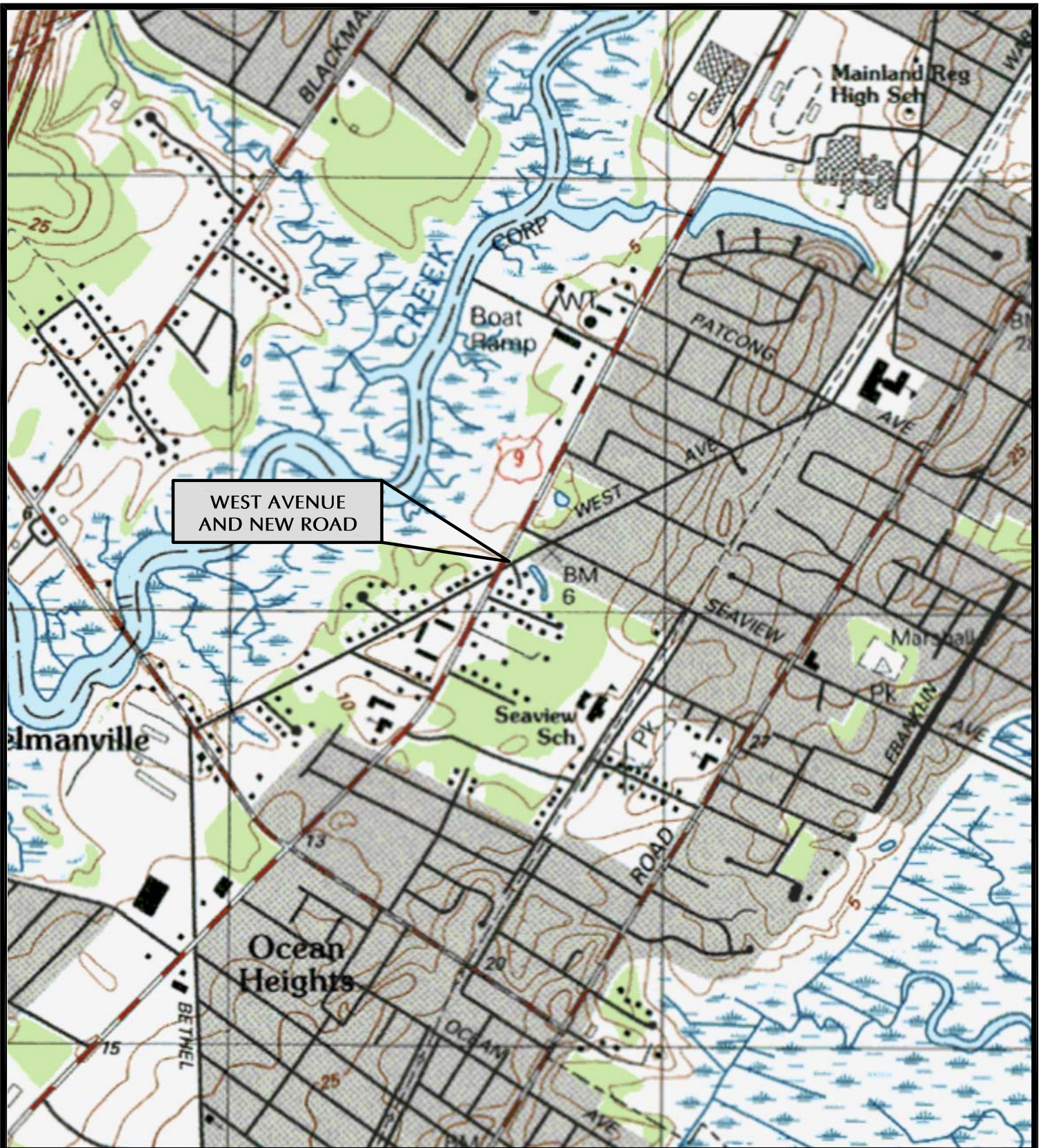
Stephen M. Mazur, PE, PTOE
New Jersey License #45128

I. INTRODUCTION

The City of Linwood conducted a study in 2005 to determine the potential traffic impacts of closing the eastern leg of West Avenue at New Road (U.S. Route 9). See Figure 1 for the intersection location. In that study, dated August 16, 2005 prepared by the City Engineer's Office, Concord Atlantic Engineers / Dixon Associates, it was found that the closure of roadway may cause excessive delays and queuing (back-ups) at the adjacent intersection of Seaview Avenue and New Road. It was the Engineer's recommendation that if the City desired to pursue the closure of the street that a temporary closure first be put in place so that the actual impact of the closure could be measured. The report noted that drivers would most likely seek alternate routes rather than accept excessive delays at Seaview Avenue.

On the Engineer's recommendation the City of Linwood closed West Avenue between New Road and Mary Jane Lane on January 20, 2006. The roadway was reopened on March 3, 2006. A second report was issued on March 28, 2005 which contained a detailed traffic analysis of the actual impact of the road closure. During the closure the City of Linwood and its Engineer began considering a number of alternatives in lieu of or in addition to the closure that could make West Avenue in the vicinity of the New Road a safer street for not only the residents in the immediate neighborhood but also for the residents of the City of Linwood as a whole. The following alternatives for the potential closure of West Avenue at New Road were evaluated.

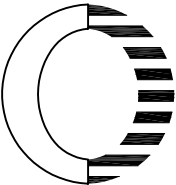
- Do Nothing Alternative.
- Permanent Closure of West Avenue.
- New Road and West Avenue Traffic Signal.
- New Road and Seaview Avenue Traffic Signal.
- West Avenue and Seaview Avenue – All-Way Stop.
- West Avenue and Seaview Avenue – Change Stop Signs.
- Realign West Avenue Approach to New Road.
- Turning Movement Restrictions.
- Other Alternatives.



WEST AVENUE
AND NEW ROAD

LOCATION MAP

SCALE: 1"=1000'



Concord Atlantic Engineers, Inc.
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ASSOCIATED ENGINEERS

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DATE: 8/16/2005

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FIG.
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II. DO NOTHING ALTERNATIVE

The do nothing alternative is considered here in order to document the positives and negatives of making no improvements to West Avenue. The positives and negatives of this alternative are as follows:

A. Positives

1. No traffic increase on other city streets

B. Negatives

1. Doing nothing does not address the problem of the vehicles turning from northbound New Road onto West Avenue at higher than acceptable rates of speed.
2. Doing nothing does not address the sight distance deficiencies on the westbound West Avenue approach to New Road that are due to not only objects in the sight triangle but also the inherent problem of an intersection at an extreme acute angle.

III. PERMANENT CLOSURE OF WEST AVENUE

This alternative involves the permanent closure of West Avenue between New Road and Mary Jane Lane. This alternative was fully evaluated during the temporary closure in January and February 2006. It is anticipated that demolition/construction efforts associated with this alternative would be performed by the Department of Public Works. Demolition involves the saw-cutting and removal of a section of paved surface between New Road and West Avenue. Construction also involves only the backfilling, top-soiling, and seeding of the disturbed areas, the installation of appropriate signage, and the striping of the shoulder on New Road. The total anticipated cost for this improvement would be approximately \$1,000 for materials including topsoil, seed, and signs. The positives and negatives of this alternative are as follows:

A. Positives

1. Elimination of the sight distances issues on West Avenue at New Road.
2. Increased safety of Mary Jane Lane traffic entering West Avenue.
3. Significant decreases in traffic on West Avenue between Seaview Avenue and Forest Drive, potentially including Mainland High School student traffic from Somers Point.

4. Potential positive environmental impact from the reduction in impervious surface.
5. Minimal cost of improvements with City Public Works Department involvement in demolition and restoration.
6. Improved access to New Road from the western leg of West Avenue.

B. Negatives

1. Traffic volume increases at the intersection of Seaview Avenue and New Road. It is noted that previous studies indicate that the increase in traffic had no significant impact on the operation of the intersection.
2. Minor increases in traffic on Forest Drive.
3. Temporary inconvenience to some residents while seeking alternate routes.

IV. NEW ROAD AND WEST AVENUE TRAFFIC SIGNAL

A traffic signal warrant analysis was completed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD)¹. In the State of New Jersey, a traffic signal must be warranted by the MUTCD standards. A traffic signal is not warranted at this intersection. Given that a traffic signal is not warranted the New Jersey Department of Transportation will not approve a traffic signal at this location. Warrant Analysis worksheets are provided at the end of this report.

V. NEW ROAD AND SEAVIEW AVENUE TRAFFIC SIGNAL

A traffic signal warrant analysis was completed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). In the State of New Jersey a traffic signal must be warranted by the MUTCD standards. A traffic signal is not warranted at this intersection. Given that a traffic signal is not warranted, the New Jersey Department of Transportation will not approve a traffic signal at this location. Warrant Analysis worksheets are provided at the end of this report.

¹ Manual of Uniform Traffic Control Devices for Streets and Highways, 2003 Edition, Federal Highway Administration, Washington D.C.

It has been suggested that a traffic signal may be warranted at this location when the property directly across from Seaview Avenue on the west side of New Road is developed. This property is part of a redevelopment zone and as such is subject to the City's redevelopment plan. If the City desires a traffic signal at this location, it should consider amending its redevelopment plan to require that the site's main access point be directly across from Seaview Avenue and be signalized. When a redeveloper is chosen, a warrant analysis would then be completed based on the anticipated traffic generation of the new facility. On New Road in the City of Linwood the NJDOT historically requires that traffic signals be spaced a minimum of one-half mile apart. The nearest traffic signal to the south is at Ocean Heights Avenue and to the north is the proposed traffic signal at the Cornerstone Commerce Center. Both locations are greater than one-half mile from Seaview Avenue and it is therefore this office's opinion that should traffic volumes at Seaview Avenue and New Road, with Bloom Site redevelopment traffic added, warrant a traffic signal that it could be approved by the NJDOT.

VI. WEST AVENUE AND SEAVIEW AVENUE – ALL-WAY STOP

An all-way stop control analysis was completed for the intersection of West Avenue and Seaview Avenue. The warrant analysis was completed in accordance with the MUTCD. A full traffic volume based warrant analysis is provided at the end of this report. An all-way stop sign control is not warrant based on traffic volumes or crash history.

It has been suggested that the all-way stop sign control at the intersection would help alleviate speeding on West Avenue. The MUTCD specifically states "STOP signs should not be used for speed control." As such, Concord Atlantic / Dixon Associates does not recommend the use of stop signs as a method of speed reduction.

The MUTCD lists optional criteria that may be considered in an engineering study for determining whether to install all-way stop sign controls. One of these criteria states that all-way stop signs can be considered at "Locations where road user, after stopping, cannot see conflicting traffic and is not able to reasonably safely negotiate the intersection unless conflicting cross traffic is also required to stop." Field measurements were taken to determine whether a sight distance deficiency exists at the intersection that could not be reasonably corrected. Table I

shows a comparison of the required sight distance triangles versus the actual available sight distance along West Avenue from the Seaview Avenue approaches. As shown in Table I no such sight distance deficiency exists. An all-way stop controlled intersection is not warranted at this location.

**Table I
Intersection Sight Distance Requirements**

Approach	Looking to	Required Sight Distance²	Actual Sight Distance	Compliant?
Seaview Avenue Eastbound	Right	390 feet	450 feet ³	Yes
Seaview Avenue Eastbound	Left	335 feet	> 1,100 feet	Yes
Seaview Avenue Westbound	Right	390 feet	>1,100 feet	Yes
Seaview Avenue Westbound	Left	335 feet	470 feet ⁴	Yes

VII. WEST AVENUE AND SEAVIEW AVENUE – CHANGE STOP SIGNS

It has been suggested that if an all-way stop control was not warranted at the intersection of West Avenue and Seaview Avenue, that the City should remove the stop signs from Seaview Avenue and install them on West Avenue. The idea behind this change was to reduce the speeds on West Avenue. The stop signs as currently installed should remain as is for the following reasons:

- The MUTCD specifically states “STOP signs should not be used for speed control.”
- At an intersection of two similar streets, the street chosen for stop-control is done so by which street has a higher volume of traffic. In the case of this intersection, traffic volumes on West Avenue are higher than those on Seaview Avenue.

² Required intersection distance from, AASHTO, Geometric Design of Highways and Streets, based on a 35 mph design speed.

³ Sight Distance looking right towards New Road is limited only by the intersection of New Road.

⁴ Sight Distance looking left towards New Road is limited only by the intersection of New Road.

- Locating stop signs on the higher volume street is recommended at intersections where there is sight distance deficiency on the lower volume street approach to the higher volume street. As noted in Section VI above no such sight distance deficiency exists.

VIII. REALIGN WEST AVENUE APPROACH TO NEW ROAD

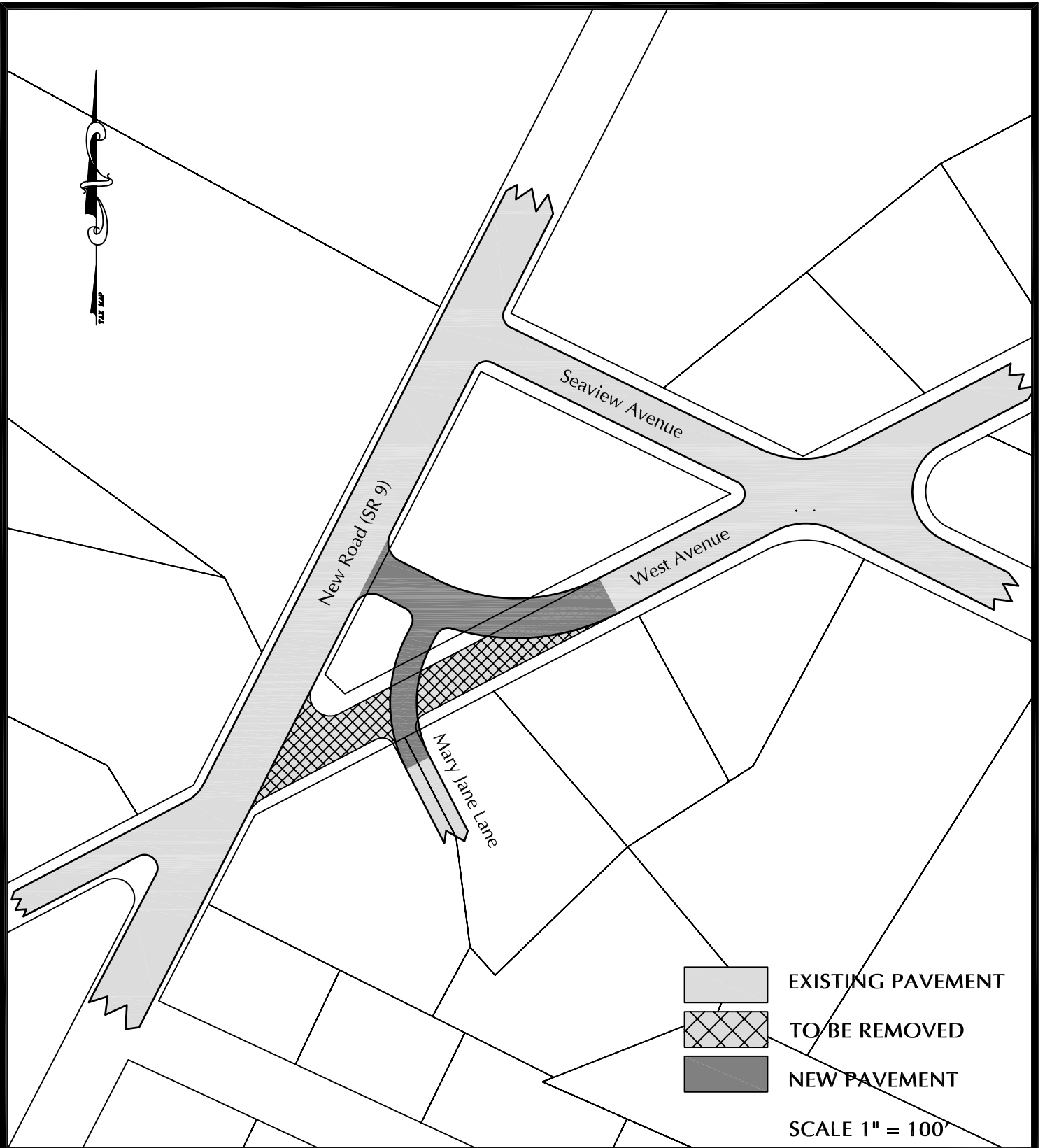
This alternative involves the realignment of the eastern leg of West Avenue at New Road. in lieu of a closure of West Avenue between New Road and Mary Jane Lane. Figure 2 illustrates a conceptual plan for the realignment. This realignment is based on roadway requirements for a residential collector roadway as established by the New Jersey Department of Community Affairs in Residential Site Improvement Standards (RSIS). Concord Atlantic / Dixon Associates considers these requirements to be the minimum acceptable in the design of a roadway. A cost estimate has been prepared and is provided at the end of this report. The cost estimate for construction of these conceptual improvements is approximately \$105,000. This cost does not include anticipated costs associated with wetlands mitigation and any associated environmental permitting. The positives and negatives of this realignment alternative are as follows:

A. Positives

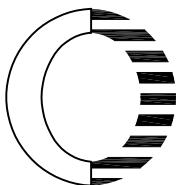
1. Elimination of the sight distances issues on West Avenue at New Road.
2. Elimination of the high speed northbound New Road right turn onto West Avenue.
3. Minimal (if any) change in the established traffic patterns.
4. Improved access to New Road from the western leg of West Avenue.

B. Negatives

1. High Cost
2. Potential infringement on wetlands: This office has identified the triangular piece of property bounded by New Road, West Avenue, and Seaview Avenue as possibly containing wetlands and/or other environmental concerns. It is unlikely that any project that would involve the paving of a wetlands area would receive the support of the Linwood Environmental Commission. Furthermore the Environmental Commission received correspondence from the Greater Egg Harbor Watershed Association stating that no development should occur within this triangular piece of land.



WEST AVENUE REALIGNMENT CONCEPT PLAN



Concord Atlantic Engineers, Inc.
 Dixon Associates
 ASSOCIATED ENGINEERS

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FIG.

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3. This alternative would create a third street intersection with New Road between Seaview Avenue and the existing western leg of West Avenue. These intersections would be spaced approximately 200 feet apart.

IX. TURNING MOVEMENT RESTRICTIONS

Various turning movement restrictions at the intersection of West Avenue and New Road have been suggested both as stand alone and in combination as follows:

A. No Right Turn from Northbound New Road onto West Avenue:

This restriction would eliminate the high speed turning movement onto West Avenue; however, it would not solve the southbound West Avenue sight distance problems inherent with the intersection's tight angle.

B. West Avenue One-Way Northbound Between Mary Jane Lane and New Road:

This restriction would eliminate the high speed turning movement onto West Avenue; however, it would not solve the southbound West Avenue sight distance problems inherent with the intersections tight angle.

C. No Left Turn from West Avenue south onto to New Road.

This restriction would partially eliminate the southbound West Avenue sight distance problems inherent with the intersection's tight angle, but would do nothing to solve high speed turning movement onto West Avenue. This type of restriction could cause further confusion as drivers would not know until they get to the intersection that they may not turn left.

D. West Avenue One-Way Southbound Between Mary Jane Lane and New Road:

This restriction would eliminate the southbound West Avenue sight distance problems inherent with the intersection's tight angle, but would do nothing to solve high speed turning movement onto West Avenue.

E. Combination of “A” and “C” Above

These two restrictions would have nearly the same effect as the temporary road closure given that the two movements being restricted represent more than 85 percent of the turning movements at the intersection.

X. OTHER ALTERNATIVES

The following alternatives are based in part on suggestions from residents of the City of Linwood as a means to make West Avenue safer without closing West Avenue permanently.

A. Install a Flashing Beacon Above the Existing West Avenue Stop Sign at New Road.

This alternative involves the installation of a flashing beacon above the stop sign on the westbound approach of West Avenue to New Road. This alternative would provide little benefit with regards to the traffic safety at the intersection and would cost several thousand dollars. These types of devices are typically installed at locations where the driver does not expect to have to stop. There is no evidence that this condition exists.

B. Install a Hidden Driveway Sign with a Flashing Beacon on New Road:

This improvement was suggested as a means to warn drivers on New Road who are turning onto West Avenue that a hidden driveway, Mary Jane Lane, exists. The suggestion was that the sign would advise drivers to slow down while making the turn. This type of sign with or without the beacon is intended to warn drivers traveling on the road on which the device is installed that a hidden driveway exists on that road. Since the driveway in question, Mary Jane Lane, is located on West Avenue this device would not be appropriate on New Road. Furthermore, the device would not be appropriate on West Avenue given not only Mary Jane Lane’s location with respect to New Road, but also due to the fact that Mary Jane Lane is not actually hidden from drivers on West Avenue.

C. Install a “No Left Turn” Sign on Mary Jane Lane at West Avenue.

Installing such a traffic control device would force residents on Mary Jane Lane to turn right onto West Avenue. The risk would still exist of those residents being involved in a rear end collision from a vehicle turning right onto West Avenue from northbound New Road. Other

traffic control devices are not warranted based on previous discussion contained herein. Therefore the alternative provides little benefit

D. Increase Visibility from West Avenue and Mary Jane Lane at New Road.

Improving and maintaining adequate sight triangles should be done at all intersections in the City of Linwood. At this intersection these improvements would not effectively mitigate the high speed right turn from northbound New Road onto West Avenue. Additionally the difficulty in looking north onto New Road from the eastern leg of West Avenue is not addressed by sight triangle clearing alone.

E. Paint Crosswalks at Seaview Avenue and West Avenue Intersection.

A review of this suggested alternative indicates that crosswalks should be considered at the intersection. While these improvements would not improve conditions at New Road and West Avenue nor address the safety concerns at that intersection, the crosswalks may help to slow down the vehicles as they approach the intersection of Seaview Avenue and West Avenue.

XI. CONCLUSIONS

Given the positives and negatives of each viable alternative, Concord Atlantic Engineers / Dixon Associates has found through this study that the permanent closure of the West Avenue between New Road and Mary Jane Lane is the best alternative to effectively improve traffic safety on West Avenue. Through both Parts II and III of the West Avenue and New Road Traffic Study, it has been demonstrated that the permanent closure will have a minimal impact on other roads in the area.

Should the City of Linwood desire to move forward with the closure of West Avenue a demolition plan would be required and a street improvement application made to the New Jersey Department of Transportation. If the closure is put permanently into place the stop signs at the intersection of Seaview Avenue and West Avenue should be removed from the Seaview Avenue approaches and installed on the West Avenue approaches. It will also be necessary to remove the painted stop bars from Seaview Avenue.

Concord Atlantic / Dixon Associates recommends that should the City move forward with the closure that intersection improvements including drainage at the intersection of New Road and Seaview Avenue also be considered. Regardless of whether the subject section of West Avenue is closed, the sight triangle at the intersection of New Road and Seaview Avenue should be cleared. This would involve the removal of some trees and brush to improve the sight lines at the intersection.

APPENDIX A

Traffic Signal Warrant Analysis Worksheets

APPENDIX B

All-Way Stop Sign Control Warrant Analysis

APPENDIX C

West Avenue Realignment Cost Estimate