

ADDENDUM I

**2003 AMENDMENT NO. 1
TO
MONTGOMERY TOWNSHIP
TRAFFIC CIRCULATION PLAN ELEMENT
PREPARED BY McDONOUGH & REA ASSOCIATES
APRIL 30, 2003**

2003 AMENDMENT 1
TO
MONTGOMERY TOWNSHIP
TRAFFIC CIRCULATION PLAN ELEMENT

MONTGOMERY TOWNSHIP

SOMERSET COUNTY

NEW JERSEY

PREPARED BY:

APRIL 29, 2003

MCDONOUGH & REA ASSOCIATES
2517 Highway 35
Building G, Suite 201
Manasquan, New Jersey 08736

INTRODUCTION

The intersection of State Route 206 at Somerset County Route 518 is currently operating at unsatisfactory “levels of service” during peak morning and afternoon roadway hours. In addition to the unsatisfactory levels of service, the geometry of the intersection is insufficient to permit large trucks to make certain turns without encroaching upon opposing traffic lanes. Furthermore, existing driveways in the vicinity of the intersection experience operational problems.

The area of Montgomery Township surrounding the Route 206/Route 518 intersection contains significant tracts of undeveloped land and there have been numerous concepts for developing these tracts in the recent past. In response to these conditions, the Montgomery Transportation Advisory Committee (TAC) has established a traffic circulation study area in the vicinity of the Route 206/Route 518 intersection defined as follows:

- Bounded to the north by Orchard Road/Montgomery Road.
- Bounded to the east by the Borough of Rocky Hill Municipal boundary.
- Bounded to the south by Cherry Valley Road/Princeton Avenue.
- Bounded to the west by Cherry Hill Road and Opossum Road.

In 2002, two amendments to the Township’s Traffic Circulation Plan Element were adopted, Amendment No 4 focused on the Route 206/Cherry Valley Road/Princeton Avenue intersection, and Amendment No 2 focused on the Route 206/Route 518 intersection area. The purpose of 2003 Amendment No. 1 is to supercede those amendments. Maps appended to this narrative illustrate the limits of the study area and the new roadway links that are proposed.

EXISTING LEVELS OF SERVICE AND PROBLEM AREAS WITHIN 2003 AMENDMENT NO. 1 STUDY AREA

The Route 206/518 intersection is the focal point of the Amendment No. 2 study area. This intersection currently experiences level of service “F” conditions during peak hours due to a high level of traffic volume passing through the intersection north and south along Route 206 and east and west along Route 518. As a result of increasing traffic volumes, “peak hours” are expanding beyond normal peak hour periods (7 to 9 AM, 4 to 6 PM) to other hours of the day. The ability to process through volumes is further compromised by a significant number of left-turns at the intersection. Advance left-turn phases are provided for all four directions of travel; however, the amount of time allocated to the left-turn phases reduces the ability to process through traffic at the intersection.

The New Jersey Department of Transportation (NJDOT) has recently completed a retiming of the intersection at the request of the Township, which has extended the green time available to the left-turn phases in order to allow more left-turning traffic to be processed during each traffic signal cycle. Furthermore, radii improvements on the northeast and southwest corners are being designed and are anticipated to be constructed shortly.

Further improvements to the intersection in order to improve safety and capacity are required based on existing traffic conditions. Given the amount of undeveloped land in the vicinity and the inevitability of development of that land, it is imperative that a master plan for the intersection and surrounding roads be implemented in order to ensure that the future transportation needs for both vehicles and pedestrians are provided for.

Due to development on all four corners of the Route 206/518 intersection, a plan has been proposed to create new roadways in certain quadrants of the intersection to allow certain right-turns and left-turns to be removed from the intersection itself. By transferring right and left-turn demand to other newly created intersections outside of the main Route 206/518 intersection, additional through movements can be processed at the intersection without significant intersection widening. Additionally, the new roadways will enhance the overall safety of the intersection itself.

PROPOSED IMPROVEMENT PLAN FOR STUDY AREA

At the Route 206/518 intersection, several new roadways are proposed in the different quadrants of the intersection as follows:

NORTHWEST QUADRANT

In the northwest quadrant of the Route 206/518 intersection, 3 new roadways are proposed. Each roadway is proposed to be for 2-way traffic with a 30 foot wide cartway within a 50 foot right-of-way. Widening at the touchdown (intersection) points at Route 206/518 will likely require slightly larger right-of-way requirements.

An “inner-loop” roadway sometimes referred to as the “Tiger’s Tale” loop is proposed which will intersect Route 518 just west of the Amboy Bank property and intersect Route 206 just north of the Tiger’s Tale restaurant. The northwest quadrant “inner-loop” will serve the following functions:

- To divert southbound Route 206 right-turns to westbound Route 518 around the Route 206/518 intersection.
- To allow westbound Route 518 left-turns to Route 206 south to be diverted via a series of right-turns onto Route 206, thereby eliminating existing direct left-turns for this movement.
- By providing consolidated and shared access to the various properties in this quadrant thereby eliminating the need for multiple curb cuts on Route 206 and Route 518.

**MONTGOMERY TOWNSHIP
PROPOSED TRAFFIC CIRCULATION STUDY AREA**



FRANKLIN TOWNSHIP
SOMERSET COUNTY

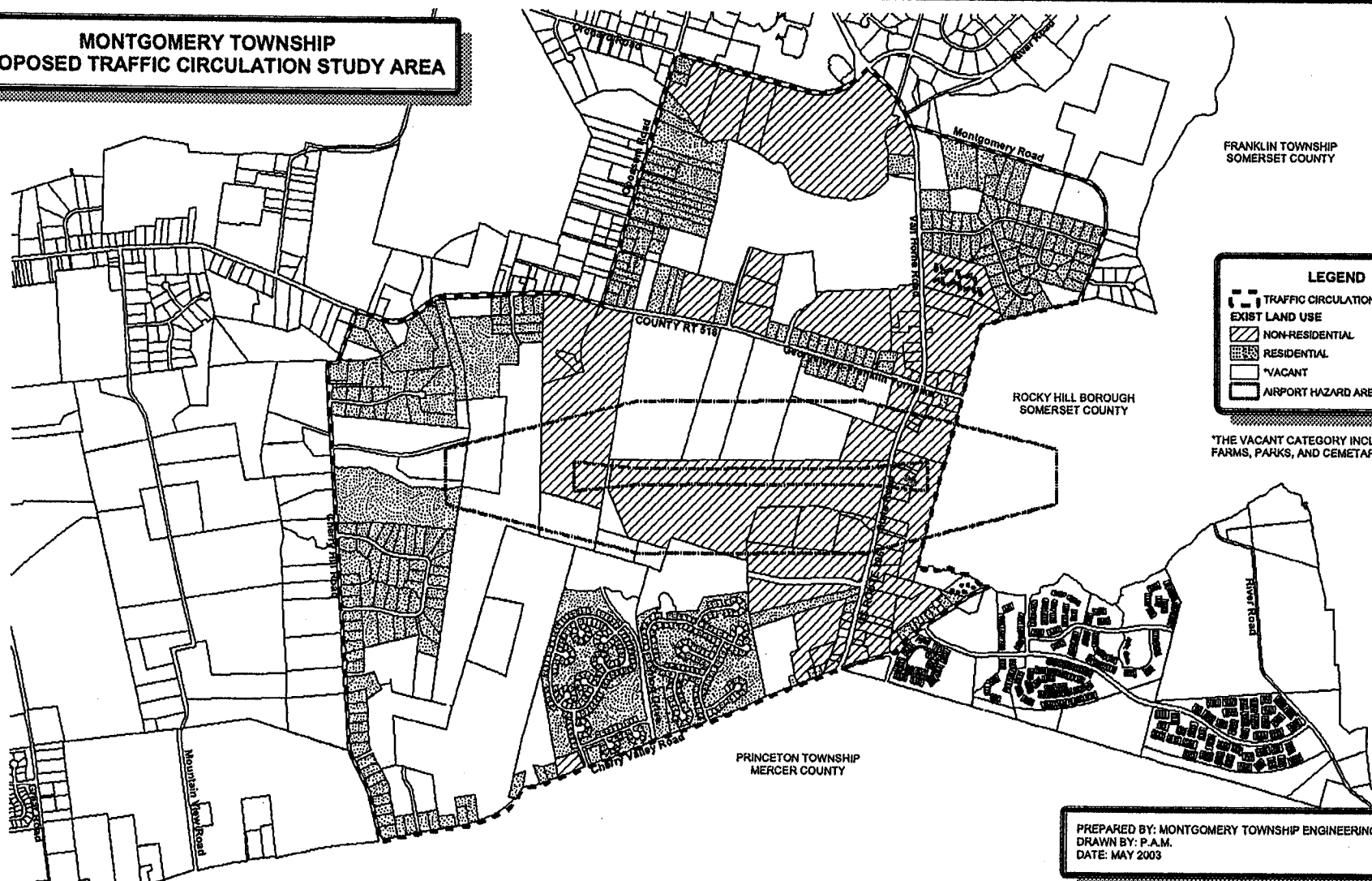
LEGEND	
	TRAFFIC CIRCULATION STUDY AREA
EXIST LAND USE	
	NON-RESIDENTIAL
	RESIDENTIAL
	VACANT
	AIRPORT HAZARD AREA

*THE VACANT CATEGORY INCLUDES VACANT LOTS,
FARMS, PARKS, AND CEMETARIES.

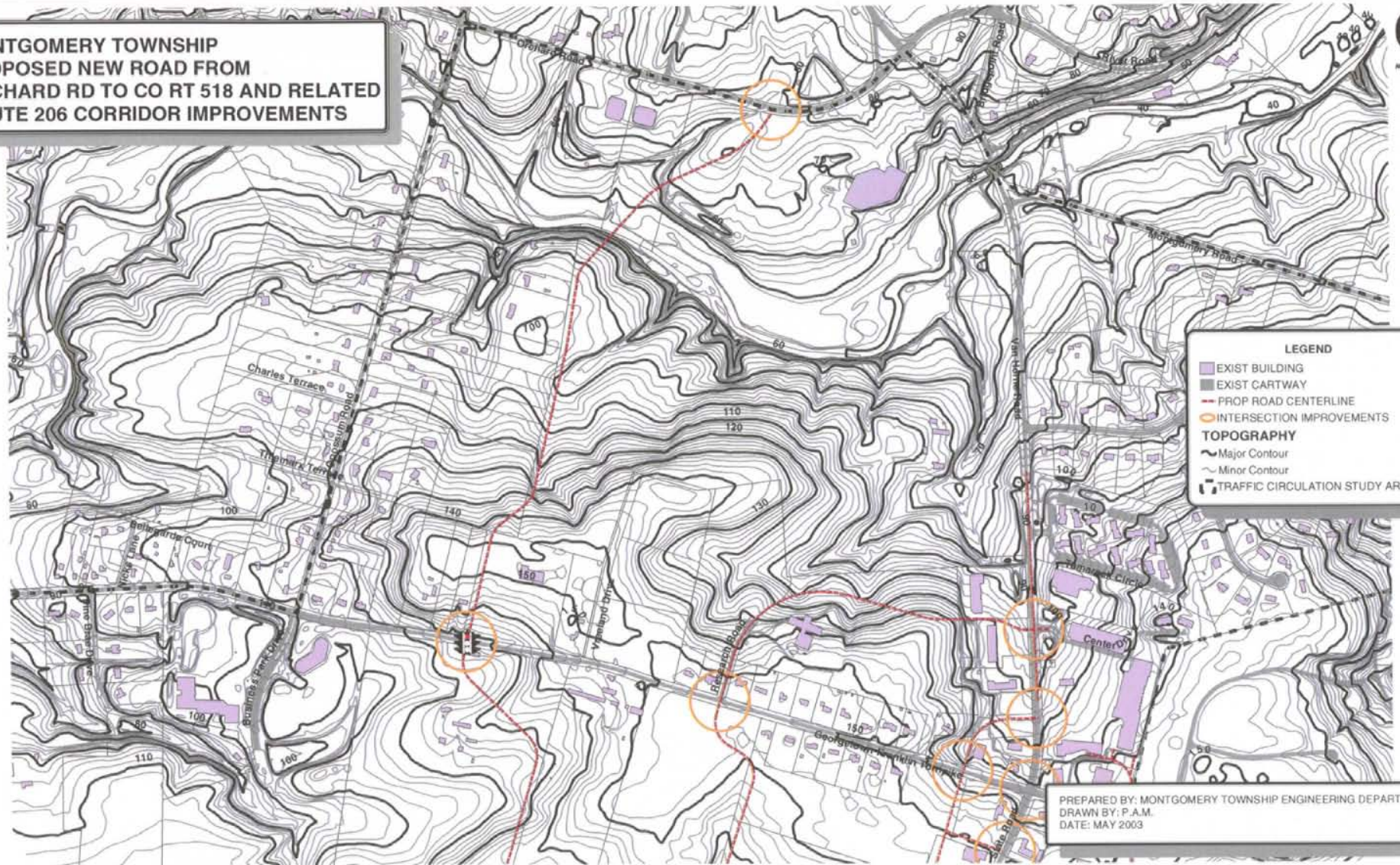
ROCKY HILL BOROUGH
SOMERSET COUNTY

PRINCETON TOWNSHIP
MERCER COUNTY

PREPARED BY: MONTGOMERY TOWNSHIP ENGINEERING DEPARTMENT
DRAWN BY: P.A.M.
DATE: MAY 2003

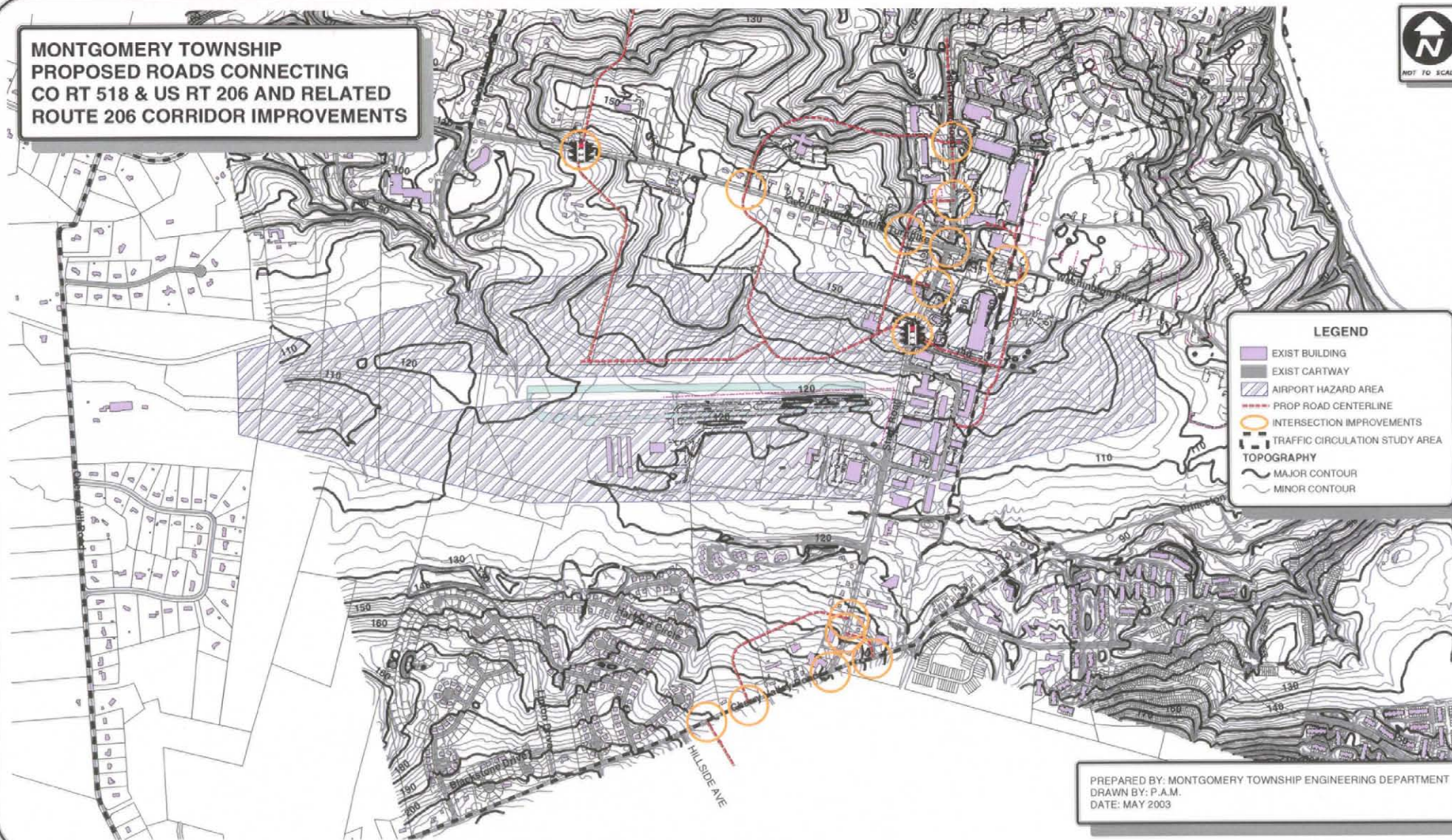


**MONTGOMERY TOWNSHIP
PROPOSED NEW ROAD FROM
ORCHARD RD TO CO RT 518 AND RELATED
ROUTE 206 CORRIDOR IMPROVEMENTS**



- LEGEND**
- EXIST BUILDING
 - EXIST CARTWAY
 - PROP ROAD CENTERLINE
 - INTERSECTION IMPROVEMENTS
- TOPOGRAPHY**
- Major Contour
 - Minor Contour
 - TRAFFIC CIRCULATION STUDY AREA

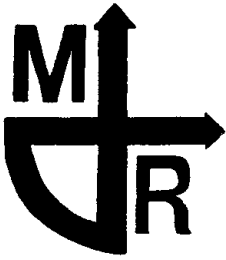
PREPARED BY: MONTGOMERY TOWNSHIP ENGINEERING DEPARTMENT
DRAWN BY: P.A.M.
DATE: MAY 2003



PREPARED BY: MONTGOMERY TOWNSHIP ENGINEERING DEPARTMENT
DRAWN BY: P.A.M.
DATE: MAY 2003

ADDENDUM II

**AMENDMENT
TO
TRAFFIC CIRCULATION PLAN AMENDMENT
ROUTE 206 INTERSECTION
AT
CHERRY VALLEY ROAD AND PRINCETON AVENUE
PREPARED BY McDONOUGH & REA ASSOCIATES
MARCH 8, 2002**



AMENDMENT
TO
TRAFFIC CIRCULATION PLAN ELEMENT
ROUTE 206 INTERSECTION
AT
CHERRY VALLEY ROAD/PRINCETON AVENUE

MONTGOMERY TOWNSHIP

SOMERSET COUNTY

NEW JERSEY

PREPARED BY:

MARCH 8, 2002

MCDONOUGH & REA ASSOCIATES
2517 Highway 35
Building G, Suite 201
Manasquan, New Jersey 08736

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INTRODUCTION

The intersection of Route 206 at Cherry Valley Road/Princeton Avenue is currently operating at unsatisfactory “levels of service” during peak morning and peak afternoon roadway hours. Traffic engineers describe capacity conditions at a particular intersection in terms of levels of service. Levels of service range from “A” to “F” with “A” being the highest or best attainable level of service and “F” being the lowest. In addition to the unsatisfactory levels of service, the geometry of the intersection and lack of left-turn lanes present additional safety problems. In response to these conditions, the Montgomery Township Transportation Advisory Committee (TAC) has investigated means of improving the capacity and safety of this intersection.

EXISTING LEVELS OF SERVICE

Based on the existing configuration of the Route 206 Cherry Valley Road/Princeton Avenue intersection, the overall intersection is operating at level of service “F” during both AM and PM peak street hours. *Figures 1 and 2* illustrate existing AM peak street hour traffic volumes (including Hillside Avenue in Princeton Township) and levels of service for the intersection as a whole and on each of the four approaches to the intersection. *Figures 3 and 4* illustrate existing PM peak street hour traffic volumes and levels of service for the intersection as a whole and on each of the four approaches to the intersection.

PROPOSED IMPROVEMENT PLAN

After evaluating existing peak hour traffic volumes and peak hour levels of service, the TAC investigated numerous ways to improve the intersection. Initially, consideration was given to the type of traditional intersection widening that would be required to accommodate turning lanes at the intersection itself. However, in order to provide for the proper cross sections to accommodate approach and departure lanes on each leg of the intersection, it was concluded that extensive right-of-way takings would be required. The likelihood of obtaining the necessary right-of-way, preparing design plans and implementing those changes within a short time frame was considered unrealistic. Furthermore, due to the angle at which the roadways intersect, even with significant right-of-way takings and widening, certain turning movements at the intersection would remain geometrically difficult.

Based on the foregoing, alternative methods of improving the intersection were explored. A concept was put forward for discussion which included construction of a two-way municipal roadway to be constructed in the northeast quadrant of the intersection (behind the existing Sunoco station) in combination with a similar two-way roadway to be constructed in the southwest quadrant of the intersection within Princeton Township. The conceptual improvement is shown on the following page. The proposed roadways would be under municipal jurisdiction in both Montgomery and Princeton Townships and would enable all left-turns at the intersection to be prohibited and shifted to the new municipal roadways. For example, northbound Route 206 traffic wishing to make a left-turn onto Cherry Valley Road westbound would travel northbound through the intersection, turn right onto the new municipal roadway, turn right at the municipal roadway intersection with Princeton Avenue and then proceed straight through to Cherry Valley Road westbound. Southbound Route 206 traffic would turn left onto Princeton Avenue via a similar series of right-turns on the new Princeton Township roadway in the southwest quadrant of the intersection.

Motorists on Cherry Valley Road and Princeton Avenue wishing to turn left onto Route 206 would travel through the intersection and then make a left-turn at the appropriate municipal roadway. They would then proceed to a right-in/right-out intersection on Route 206 where they would make a right-turn to proceed to their destination.

Meetings have been held with Princeton Township officials and with the New Jersey Department of Transportation (NJDOT) to explore and discuss this concept. Both Montgomery Township and Princeton Township officials have reached a consensus that this intersection improvement scenario is feasible and have decided to work toward its implementation. NJDOT officials have conceptually agreed to the concept subject to further review of detailed plans.

ANALYSIS OF PROPOSED IMPROVEMENT ALTERNATIVES

Figure 5 illustrates existing AM peak street hour traffic volumes redistributed through the intersection and on connecting municipal roadways assuming the alternative improvement plan is in place. *Figure 6* illustrates the overall intersection level of service and level of service on each approach should this improvement alternative be implemented. Similarly, *Figure 7* illustrates PM peak street hour volumes redistributed in accordance with the improvements and *Figure 8* illustrates the overall intersection level of service and level of service by approach, if implemented.

The overall intersection level of service can be improved to level of service “B” during the AM peak street hour and to level of service “C” during the PM peak street hour with the improvements in place. Furthermore, all approaches to the intersection will operate at level of service “E” or better during both peak hours.

CONCLUSION

It is the conclusion of the Montgomery TAC that the Route 206/Cherry Valley Road/Princeton Avenue improvements as outlined in this report offer a viable means of improving intersection capacity and safety. Furthermore, the level of right-of-way acquisition necessary to effectuate this alternate is less intense, thereby decreasing costs and design considerations and dramatically increasing the possibility of implementing a solution within a relatively short time frame. This improvement alternative is therefore being offered as an amendment to the Montgomery Township Traffic Circulation Plan Element.

APPENDIX



McDONOUGH & REA ASSOCIATES

TRAFFIC AND TRANSPORTATION CONSULTING

FIGURE 1

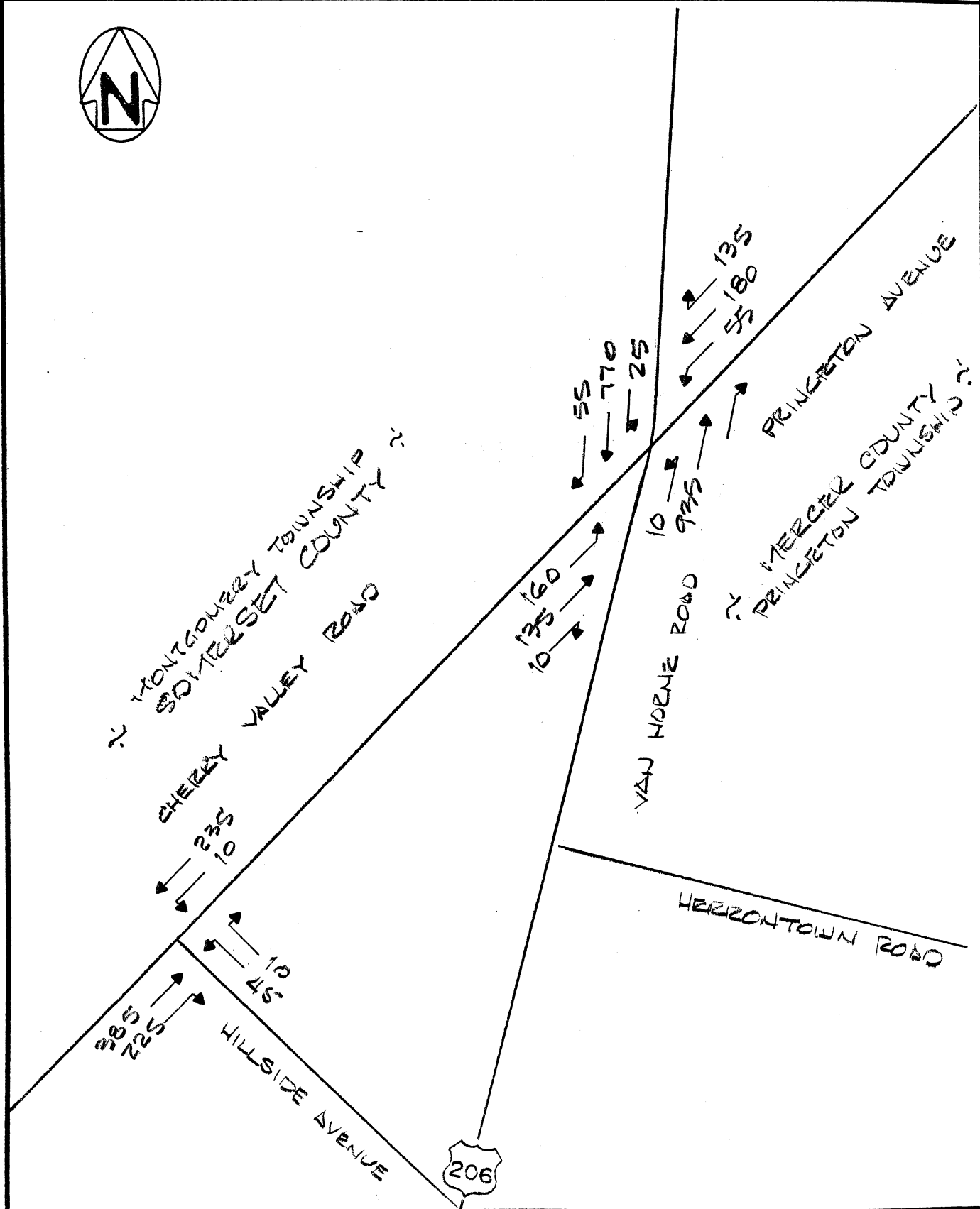
JOB No:

01-158

DATE:

JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
BASE TRAFFIC VOLUMES & EXISTING CONDITION - AM PSH





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TRAFFIC AND TRANSPORTATION CONSULTING

FIGURE 2

JOB No:

01-158

DATE:

JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
LEVELS OF SERVICE - EXISTING CONDITION - A.M. PSH



MONTGOMERY TOWNSHIP
SOMERSET COUNTY
CHERRY VALLEY ROAD

PRINCETON AVENUE
MERCER COUNTY
PRINCETON TOWNSHIP
VAN HORNE ROAD

HORIZONTOWN ROAD

HILLSIDE AVENUE



* - OVER CAPACITY



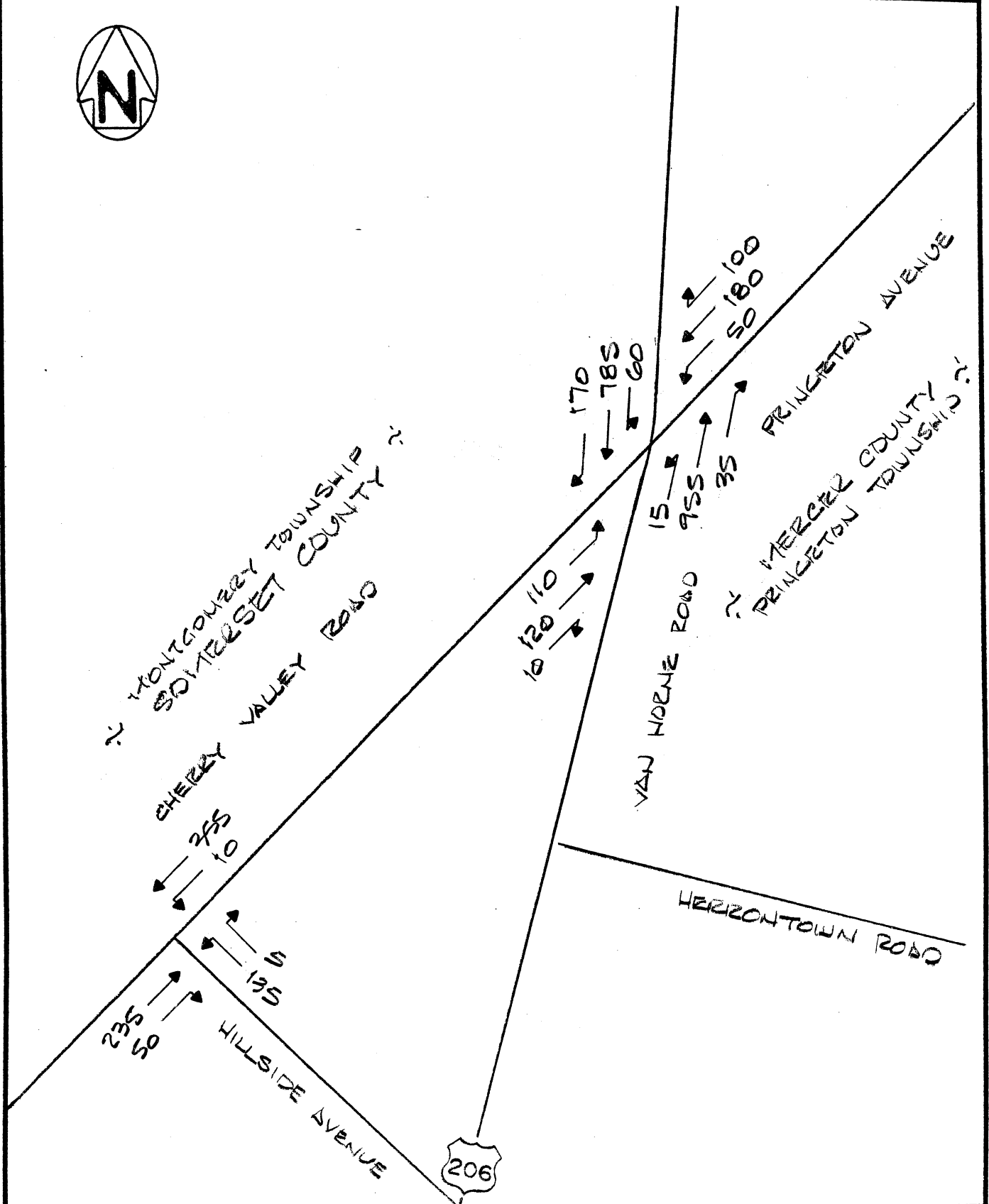
McDONOUGH & REA ASSOCIATES
TRAFFIC AND TRANSPORTATION CONSULTING

FIGURE 3

JOB No:
01-158

DATE:
JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
BASE TRAFFIC VOLUMES & EXISTING CONDITION - PM PSH





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FIGURE 4

JOB No:

01-158

DATE:

JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
LEVELS OF SERVICE - EXISTING CONDITION - P11 PSH



MONTGOMERY TOWNSHIP
SOMERSET COUNTY
CHERRY VALLEY ROAD

VAN HORNE ROAD

PRINCETON AVENUE

MERCER COUNTY
PRINCETON TOWNSHIP

HERZONTOWN ROAD

HILLSIDE AVENUE



* = OVER CAPACITY



McDONOUGH & REA ASSOCIATES
TRAFFIC AND TRANSPORTATION CONSULTING

FIGURE 5

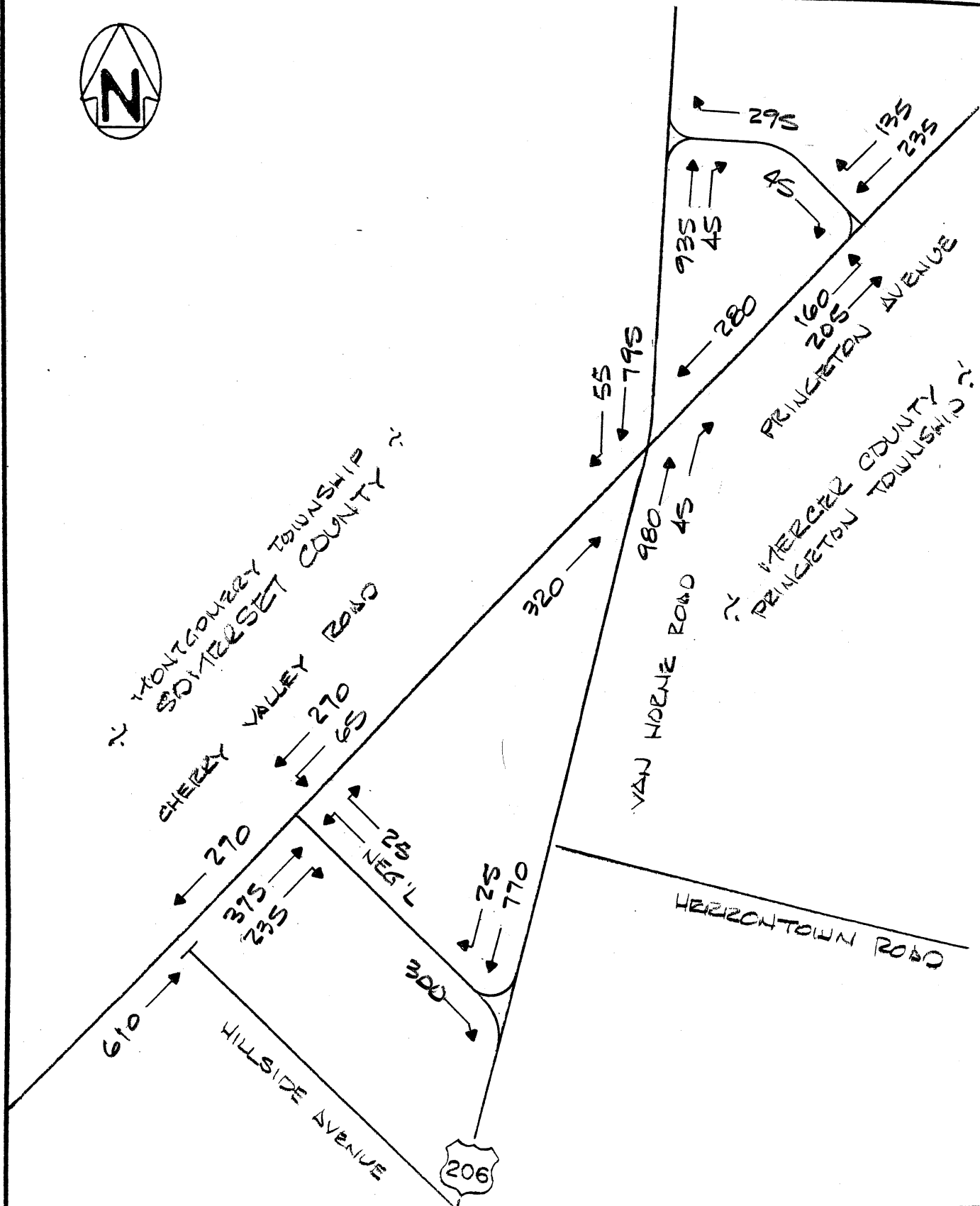
JOB No:

01-158

DATE:

JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
BASE TRAFFIC VOLUMES W/ CONCEPTUAL IMPROVEMENT AM PSH





McDONOUGH & REA ASSOCIATES
TRAFFIC AND TRANSPORTATION CONSULTING

FIGURE 6

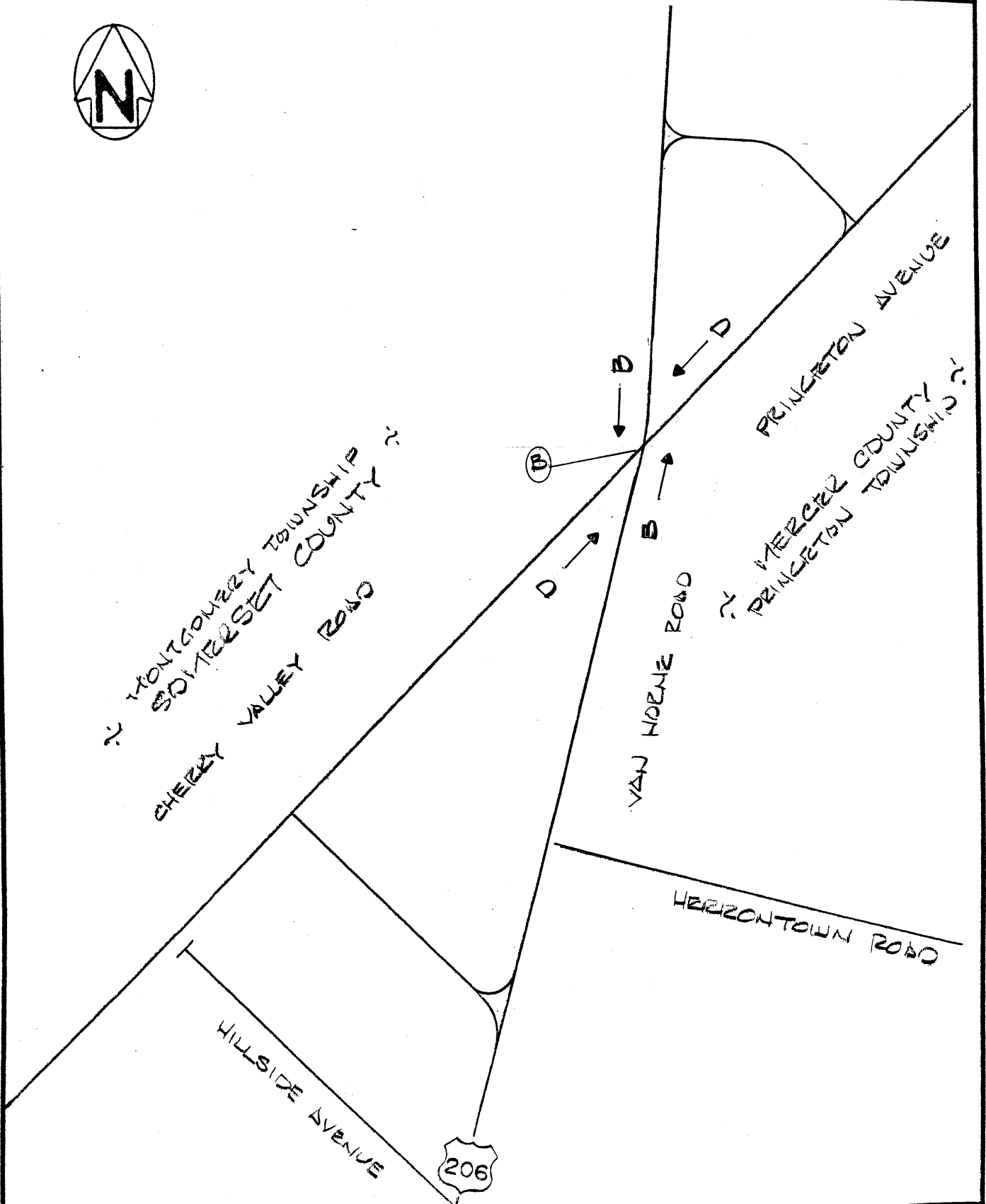
JOB No:

01-158

DATE:

JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
LEVELS OF SERVICE - W/ CONCEPTUAL IMPROVEMENT AM PSN





McDONOUGH & REA ASSOCIATES
TRAFFIC AND TRANSPORTATION CONSULTING

FIGURE 7

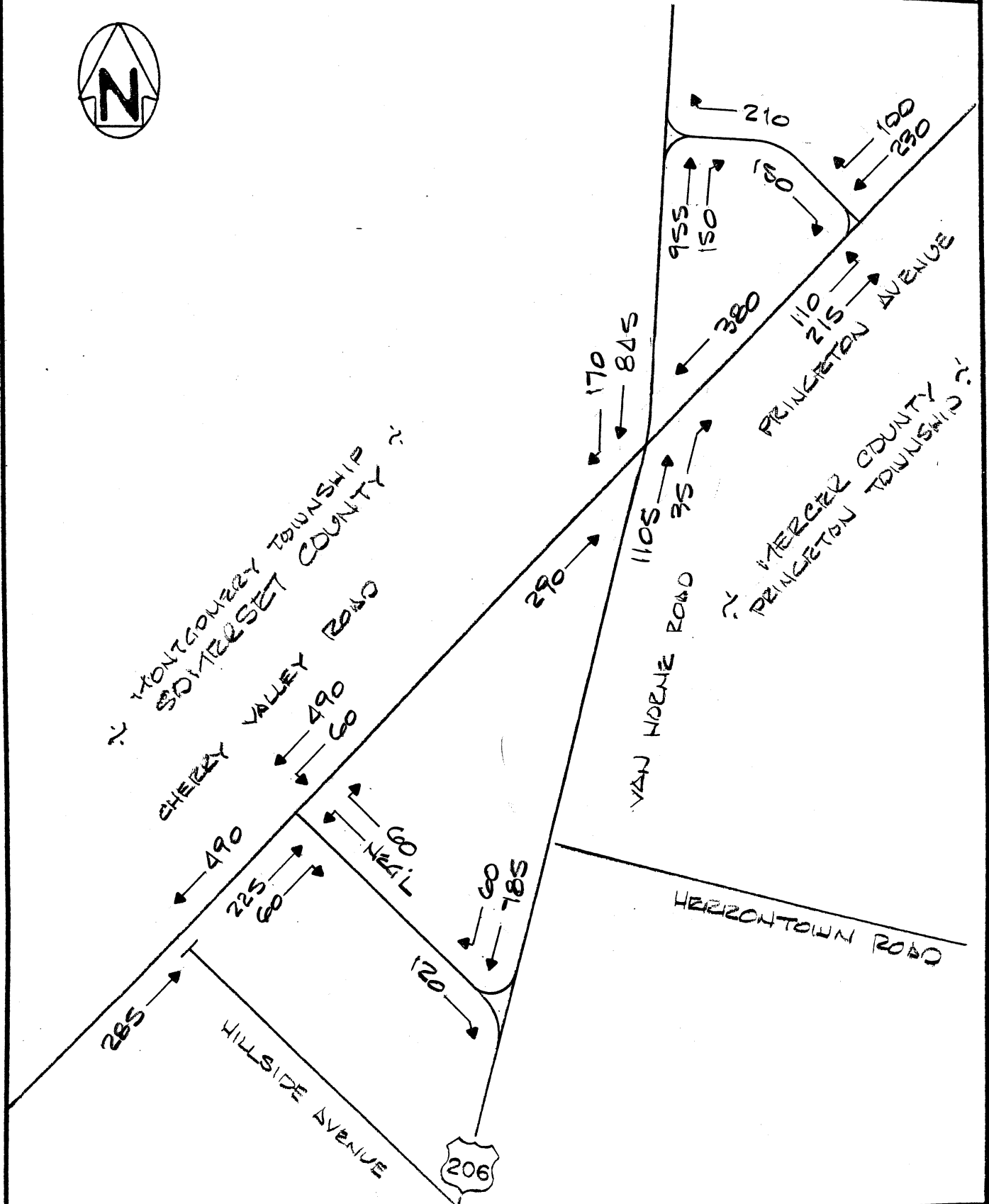
JOB No:

01-158

DATE:

JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
BASE TRAFFIC VOLUMES W/ CONCEPTUAL IMPROVEMENT PM PSH





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TRAFFIC AND TRANSPORTATION CONSULTING

FIGURE 8

JOB No:

01-158

DATE:

JAN 2002

SUBJECT: MONTGOMERY TOWNSHIP TRAFFIC ADVISORY COMMITTEE
LEVELS OF SERVICE - W/ CONCEPTUAL IMPROVEMENT - PHA PSH



MONTGOMERY TOWNSHIP
SOMERSET COUNTY
CHERRY VALLEY ROAD

C

D

C

VAN HORNE ROAD

HERZONTOWN ROAD

PRINCETON AVENUE

MERCER COUNTY
PRINCETON TOWNSHIP

HILLSIDE AVENUE

206



DATE	02/12/02	PROPOSED ROADS
SCALE	1"=100'	PRINCETON AREA (NEAR RT 206)
DESIGN BY:		MONTGOMERY TOWNSHIP
DRAWN BY	P.A.M.	SOMERSET COUNTY NEW JERSEY
BOOK		MONTGOMERY TOWNSHIP
SHEET		ENGINEERING DEPARTMENT
DIST NO.		2281 ROUTE 206
FILE NO.		BELLE MEAD, N.J. 08502
CHECK BY:		908-369-8211

ADDENDUM III

**TRC OMNI ENVIRONMENTAL CORPORATION
WETLANDS INVESTIGATION REPORT
REGARDING A CONNECTOR ROAD
BETWEEN
ROUTE 518 & CHERRY VALLEY ROAD
APRIL 3, 2002**

I. INTRODUCTION

TRC Omni Environmental Corporation (TRC Omni) was requested by Montgomery Township to investigate the possibility of constructing a "Master Plan Road," that would provide a new, north-south connection between Cherry Valley Road and Route 518. The key issue on this matter is that the "Master Plan Road" would need to be constructed through very high quality wetlands, defined as "exceptional" because of the presence of threatened and endangered species in the area.

The three proposed alternatives, all of which pass through a forested wetland complex that comprises the headwaters of Van Horne Brook and Cherry Brook, were:

- a. A northerly extension of Linton Dr. directly through the wetland complex, passing to the west of the airport and running north to Route 518 (Shown in red on Figure 1).
- b. A road running northerly from Cherry Valley Rd. that intersects the western end of Applegate Rd., then extending westerly through the wetland before turning north past the airport to Route 518 (Shown in blue on Figure 1).
- c. A new road running northerly from Cherry Valley Rd. passing to the west of the Yorkshire Woods subdivision, then passing northeasterly through the wetland, before turning to the north to Route 518 (Shown in green on Figure 1).

Figure 1 depicts the approximate locations of these alternative routes and shows the location and classification of wetlands as recorded in the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) database, which is used by New Jersey Department of Environmental Protection (NJDEP).

TRC Omni conducted a field reconnaissance of the wetland complex to verify the approximate boundaries relative to the NWI mapping and to assess the quality of the wetland and its suitability as wildlife habitat. The three different proposed routes were walked to see if there were any significant differences in the quality of the wetlands that would be affected by the various alternatives. A meeting with the New Jersey Department of Environmental Protection (NJDEP) was held to discuss its permitting concerns relative to the various proposed alternatives. This report summarizes those investigations.

II. FIELD RECONNAISSANCE

All three alternatives pass through a deciduous forested wetland complex that is located between the Princeton Airport and the existing subdivisions (Yorkshire Woods and Woodsedge) off of Cherry Valley Road. The main wetland complex comprises approximately 83 acres and is roughly 750 feet wide and a mile long, running east-west from Route 206 towards Cherry Hill Road. The wetland complex is a high quality, palustrine forested wetland (PFO) according to the USFWS classification (Cowardin *et al.*, 1979). This wetland complex includes some of the headwaters of Van Horne Brook and Cherry Brook. The primary forest canopy is dominated by red maples (*Acer rubrum*), black gum (*Nyssa sylvatica*), green ash (*Fraxinus pennsylvanica*) and pin oaks (*Quercus palustris*), with an assortment of other hardwoods such as hickories (*Carya sp.*) and American beech (*Fagus grandifolia*). The understory, which is heavily browsed by white-tail deer, contains various shrubs and saplings such as spice bush (*Lindera benzoin*) and American elms (*Ulmus americana*). There was hydrologic evidence (blackened leaves) of vernal pools throughout the wetland that would be appropriate breeding habitat for various amphibian species. Figures 2 through 4 depict typical views of this wetland.

Based on the field reconnaissance, the depiction of the wetland complex on the NWI maps is approximately correct in terms of both location and classification. There is no significant difference in either quality or nature of the wetland between the three alternative routes. Using the NWI boundaries and assuming a fifty-foot wide right of way, the approximate area of wetlands affected by each of the alternatives is summarized in Table II.1. This estimate includes only the wetlands between Cherry Valley Road and the point west of the airport where the three alternatives meet. It does not include any wetlands that might be crossed on the route north to Route 518 and does not include wetland transition areas.

Table II.1: Wetland Acreage Affected By Various Alternatives

Alternative Route	Total acres of Wetlands Impact
(a) Linton	1.5
(b) Western	1.5
(c) Applegate	2.7

III. PERMITTING ISSUES

On March 18th, 2002, Dr. Peter L. Kallin of TRC Omni Environmental Corporation and Mr. Donald Johnson of Johnson Consulting Engineers (Montgomery Township's Environmental Engineer, met with Chris Jones and Kim Kissinger of the New Jersey Department of Environmental Protection Land Use Program to discuss permitting issues associated with the proposed road crossing of the wetland complex north of Linton Drive. The three different alternative versions of the "Master Plan Road" depicted on Figure 1 were discussed.

All three of these alternatives pass through the forested wetland complex that comprises the headwaters to Van Horne Brook and Cherry Brook. This deciduous forested wetland is classified by NJDEP as an "Exceptional Resource Value" wetland. NJAC 7:7A-2.4 defines an "Exceptional Resource Value Wetland" as one that:

1. Discharges into FW-1 or FW-2 trout production waters or tributaries;
2. Is a present habitat for threatened or endangered species; or
3. Is a documented habitat for threatened or endangered species, and which remains suitable for breeding, resting, or feeding by these species during the normal period these species would use the habitat.

According to NJDEP's Natural Heritage Database for threatened and endangered species, the wetland complex in question is present habitat for at least one endangered species (a bird) and documented habitat and remains suitable for two others (a reptile and an amphibian). An "Exceptional Resource Value Wetland" warrants a 150-foot transition area (NJAC 7:7A-2.5(d))

According to Mr. Jones, who is the permitting authority for this area, obtaining a permit to disturb these wetlands would be a "long and difficult process." It would require an Individual Freshwater Wetlands Permit, which would only be granted if the applicant could demonstrate that all the requirements of NJAC 7:7A-7.2 were met. This section of the code lists 14 different criteria that must be met, including an alternatives analysis to demonstrate that the applicant:

1. *"Has no practical alternative which would:
 - i. "Have a less adverse impact on the aquatic ecosystem or would not involve a fresh-water wetland or State open water;" and
 - ii. "Would not have other significant adverse environmental consequences, that is, it shall not merely substitute other significant environmental consequences for those attendant on the original proposal;"*
2. *"Will result in the minimum feasible alteration or impairment of the aquatic ecosystem including existing contour, vegetation, fish and wildlife resources, and aquatic circulation of the freshwater wetland and hydrologic patterns of the HUC-11 in which the activity is located;*
3. *"Will not destroy, jeopardize or adversely modify a present or documented habitat for threatened or endangered species; and shall not jeopardize the continued existence of a local population of a threatened or endangered species, as defined at NJAC 7:7A-1.4."*

These criteria would be extremely difficult to meet with any of the proposed alternatives. For example, the Land Use personnel suggested two possible alternatives that would have significantly less environmental impact:

- a. A road running easterly off Cherry Hill Rd. between Cherry Vail Ct, and Cherry Brook Dr. and then turning north towards Rt. 518;
- b. A road running westerly off Rt. 206 north of the airport and then turning north towards Rt. 518.

These alternatives are depicted on Figure 5 along with the original options. The applicant would have to demonstrate that neither of these alternatives is practical in order to satisfy the first criterion, above.

To meet the second criterion, i.e., minimize impact to the hydrology and endangered species; the wetland crossing would likely have to be some type of raised causeway to allow unimpeded flow of water and movement of wildlife under the road. This would significantly

increase the construction cost and even then, the criteria might not be judged as met due to noise, potential polluted runoff, or destruction of habitat (criterion 3).

The total wetlands impact of the proposed alternatives and the two additional alternatives suggested by NJDEP are summarized in Table III.1. The totals in this table differ from Table II.1 in that they also include the impacts from the portion of the road north of the airport to Route 518. The new alternatives do not cross the Exceptional Resource Value wetland complex and disturb significantly fewer wetland acres.

Table III.1: Wetland Acreage Disturbed By Alternatives (a)-(e)

Alternative Route	Total acres of Wetlands Impact
(a) Linton	2.00
(b) Western	1.90
(c) Applegate	3.04
(d) Cherry Hill	0.43
(e) Rt. 206	0.31

IV. CONCLUSIONS AND RECOMMENDATIONS

In our opinion, the likelihood of obtaining an Individual Freshwater Wetlands Permit to disturb these Exceptional Resource Value wetlands is low. While NJDEP cannot officially deny a permit before reviewing the entire permit package and associated environmental impact statements (EIS), they predict a "long and difficult process" that would involve public meetings with residents to defend the various alternatives and justify the impacts. The time and effort that would be spent in this process is probably better spent in evaluating other alternatives that would accomplish the same goals but with less adverse environmental impact.

An interesting option that we believe is worth investigating is the possibility of permanently preserving the Exceptional Resource Value wetlands in order to obtain mitigation credits that could be used to offset wetlands impacts elsewhere within Montgomery Township. Under the provisions of NJAC 7:7A-15, the Wetlands Mitigation Council may accept the

permanent protection of property from future development as mitigation for other wetland impacts. Among the criteria they use to evaluate this option are size, location relative to other preserved open space, habitat value, and interaction with other resources. The presence of critical habitat for threatened or endangered species is specifically cited as an example of when this option might be approved. If approved, the mitigation credit is generally calculated at a nominal 27:1 ratio, i.e., preservation of 27 acres would be accepted as mitigation for destruction of one acre. If the entire 83-acre tract were preserved, Montgomery Township could potentially acquire over 3 acres of mitigation credits that could be used to offset wetland losses on other Township projects.

There are two different ways that the Township could possibly generate wetlands credits through preservation. The first would be to simply wait until a need for mitigation occurs (e.g., if wetlands needed to be destroyed to construct a new road). The Township could propose to NJDEP that preservation be approved as a mitigation option. There are some restrictions on the use of public land [NJAC 7:7A-15.4] for mitigation. Specifically, land that is purchased with Green Acres funding is not eligible. There is also a caveat that the land is supposed to have been acquired or held specifically for mitigation. If the original intent for acquiring the land included preservation, this would most likely suffice. Public property has also been approved in the case where the land to be preserved was donated to a private conservancy such as The Nature Conservancy. Middle Township in Cape May County recently obtained mitigation credits in this fashion. To make this happen, the option would have to be discussed in some detail with NJDEP Land Use Program personnel involved in mitigation, specifically Bob Piel or Virginia Kop'kash. If they endorse the idea, a detailed mitigation proposal would then have to be prepared and presented to the Wetlands Mitigation Council for their approval.

A second possibility would be to take a proactive approach and apply to NJDEP to create a mitigation bank that the Township could either draw against whenever they needed credits or sell to others needing credits. These credits would normally be available for use anywhere within the same HUC-II region [02030105160- Millstone River below and including Carnegie Lake]. Again, the first step would be to meet informally with Bob Piel and/or Virginia Kop'kash to discuss the possibility. At this meeting, the land currently owned by the Township, or readily attainable by the Township would be assessed in terms of size, habitat value, relationship to

other preserved land, etc. If they felt it was feasible, a detailed mitigation proposal would have to be prepared and presented to the Mitigation Council for conceptual approval.

The establishment of a mitigation bank is a fairly lengthy process. A full delineation and wetland functional assessment of all wetlands on the property would have to be conducted and a detailed proposal for creation, enhancement, or preservation completed. The water budget would have to be calculated and existing soils sampled and assessed. For creation or enhancement, a detailed planting plan would have to be prepared. If the proposal is only for preservation, it becomes somewhat easier and basically a habitat assessment would be the main requirement. A detailed plan for both use of the credits and long-term maintenance of the site would need to be prepared. The Wetlands Mitigation Council must initially give conceptual approval for the bank and then final approval once all the requirements are met. The total process can run anywhere from two to seven years. Again, if the credits are to be generated through preservation, the process is considerably easier and the time frame should be on the low end of the range.

If Montgomery Township is interested in further investigation of either of these options, we would recommend setting up an informal meeting with NJDEP Land Use Program mitigation personnel to discuss the possibilities and solicit their feedback.

V. REFERENCES

Cowardin, L.M., V. Carter, F. Golet, and E. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. 103 pp.

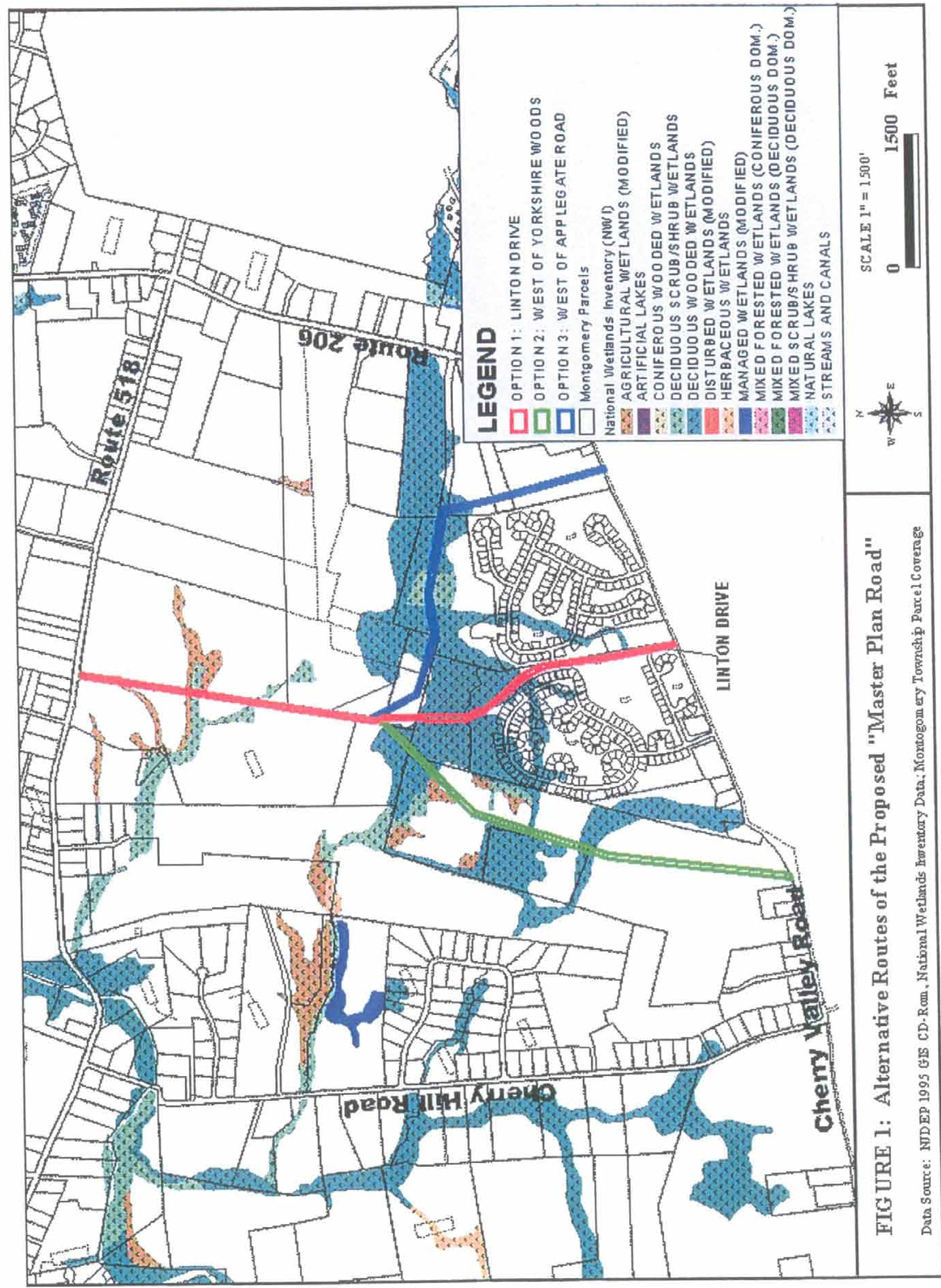




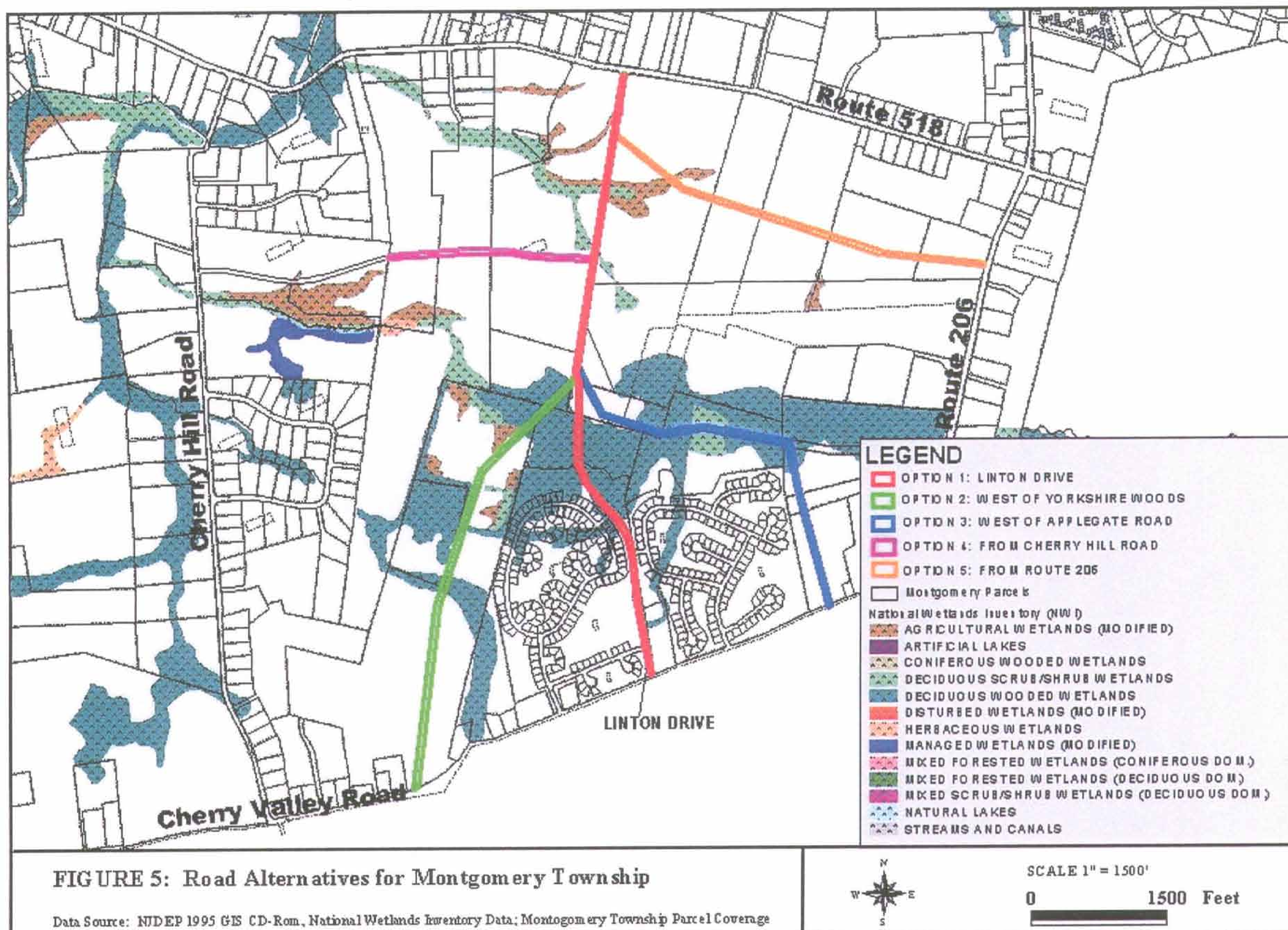
Figure 2. Forested wetland along proposed Linton Dr. extension.



Figure 3. Edge of wetland next to a field through which alternative (b) would run.



Figure 4. Forested wetland along the route of the proposed extension of Applegate Rd.



ADDENDUM IV

**TRC OMNI ENVIRONMENTAL CORPORATION
WETLANDS INVESTIGATION REPORT
REGARDING A CONNECTOR ROAD
BETWEEN
ORCHARD ROAD & ROUTE 518
JUNE 3, 2002**

I. INTRODUCTION

TRC Omni Environmental Corporation (TRC Omni) was asked to complete a preliminary wetlands delineation to identify wetlands permitting issues associated with a proposed new, north-south connector road between Orchard Road and Route 518, approximately midway between Opossum Road and Route 206. Figure 1 depicts the approximate location of the proposed road and shows the location and classification of wetlands as recorded in the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) database, which is used by New Jersey Department of Environmental Protection (NJDEP).

On April 30, 2002 and May 2, 2002, Dr. Peter L. Kallin, a wetlands scientist from TRC Omni, conducted a field reconnaissance of the proposed route to verify the NWI mapping, mark the wetland areas that met the technical criteria of the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, 1989 (FMIDJW, 1989), and to assess the quality of the wetland and its suitability as wildlife habitat. Additionally, a written query was submitted to NJDEP's Heritage Data Base to obtain information on possible endangered species in the vicinity. This report summarizes the preliminary results of those investigations.

II. FIELD RECONNAISSANCE

Wetlands possess three essential characteristics: 1) hydrophytic vegetation; 2) hydric soils; and 3) wetland hydrology. These three technical characteristics are mandatory and, except in disturbed areas, must be present for an area to be identified as wetlands (FMIDJW, 1989). Hydrophytic vegetation is defined as macrophytic plant life growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content (FMIDJW, 1989). Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (USDA, Soil Conservation Service, 1987). In general, hydric soils are flooded, ponded, or saturated for usually one week or more during the period when soil temperatures are above biological zero (41°F). Wetland hydrology (permanent/periodic inundation or soil saturation to the surface) is the driving force behind wetland formation. The presence of water for a week or more during the growing season creates anaerobic conditions in the soil, which affects the types of plants that can emerge and the types of soils that develop.

On April 30, 2002 and May 2, 2002, Dr. Peter L. Kallin of TRC Omni delineated the wetlands along the proposed road route, using the Routine Onsite Determination Method

(FMIDJW, 1989). Additional references were used as listed in the references at the end of this report. Data sheets were filled out for representative points in the project area. These sheets are available for any future permit applications. There were several areas that met all the technical criteria of FMIDJW (1989) and these wetlands are depicted on the Site Plan (Figure 2, attached). These locations are based on hand-held GPS mapping and should be accurate to approximately 20 feet.

The proposed route intersects Orchard Road between two large corporate parking lots and runs south across the Beden Brook and then through an existing agricultural field until Route 518. A small unnamed tributary stream runs from Orchard Rd. to Beden Brook, to the west of the proposed route. This stream has a narrow fringe of riparian scrub/shrub wetlands associated with it that varies from 2 - 25 ft wide, with the widest portion on the western bank of the stream. The dominant trees are floodplain species such as black willows (*Salix nigra*), box elder (*Acer negundo*), and green ash (*Fraxinus pennsylvanica*). The understory, which is heavily browsed by white-tail deer, contains various shrubs and saplings such as stiff, silky, and red osier dogwoods (*Cornus foemina*, *C. amomum*, and *C. stolonifera*), spice bush (*Lindera benzoin*) and elderberry (*Sambucus canadensis*). The herbaceous layer includes such wetland species as swamp saxifrage (*Saxifraga pensylvanica*) and jewelweed (*Impatiens capensis*), as well as upland plants such as garlic mustard (*Alliaria petiolata*). The soils are floodplain soils derived from the Klinesville Shaly Sandy Loam that is present in the nearby uplands. While not normally hydric, these soils meet the hydric criteria due to the presence of mottles and oxidized pore linings along plant roots, which are indicative of hydric conditions. There is field evidence of frequent flooding, including debris drift lines and flow patterns in the sediments.

This scrub/shrub wetland is too small to provide significant wildlife habitat, but does provide a linear travel route from Orchard Road to the larger wetland complex along the Beden Brook Floodplain. Figures 3 and 4 depict typical views of this wetland. Additionally, there is a small wetland meadow between the stream and the parking lot to the west of the stream. This meadow appears to receive runoff from the parking lot and is dominated by tussock sedge (*Carex stricta*), soft rush (*Juncus effusus*) and swamp saxifrage, with multiflora rose (*Rosa multiflora*), black willows, and silky dogwoods along the edges. Figure 5 shows this meadow area.

The only area of wetlands along the route south of Beden Brook is a small patch of modified agricultural wetlands that was mapped previously during the LOI for the corporate complex off of Rt. 518. That wetland was described in that LOI and will not be further discussed here.

III. PERMITTING ISSUES

The wetlands identified between Orchard Road and Route 518 are smaller and of lower quality than the wetlands complex north of Linton Drive that was investigated earlier. It is anticipated that the resource value classification of these wetlands will be intermediate, as defined by NJAC 7:7A-2.4, resulting in a transition area requirement of 50 feet. The only way that this would not be the case is if NJDEP had documented threatened or endangered species habitat in this area. A request has been submitted to NJDEP to query their Natural Heritage Database for threatened and endangered species for this area but to date a response has not yet been received.

Assuming a 50-foot wide right of way and 50-foot transition area, the proposed road would cross approximately 300 feet of wetlands, affecting approximately 1/3 of an acre of wetlands. This exceeds the limitations for a General Permit 10A (Very minor road crossings) so an individual wetlands permit would be required. This would require an alternatives analysis as required by NJAC 7:7A-7.2, but assuming the intermediate resource value is correct; this permit could likely be obtained without too much difficulty. It would be granted subject to mitigation requirements based on the total wetlands impacts and would likely require construction of approximately 2/3 of an acre of similar wetlands in the vicinity.

IV. CONCLUSIONS AND RECOMMENDATIONS

It is our professional opinion that, unless NJDEP believes there are threatened or endangered species in this vicinity, it will be possible to obtain permits to construct this connector road without too much difficulty. We should receive a response to our Natural Heritage Database query shortly that will resolve the endangered species issue. If the Traffic Advisory Committee then wants to proceed with this alternative, the next step in the process is to arrange a pre-application meeting with Mr. Chris Jones, NJDEP's permitting authority for this area. Based on that meeting we could move forward with a complete permit application.

V. REFERENCES

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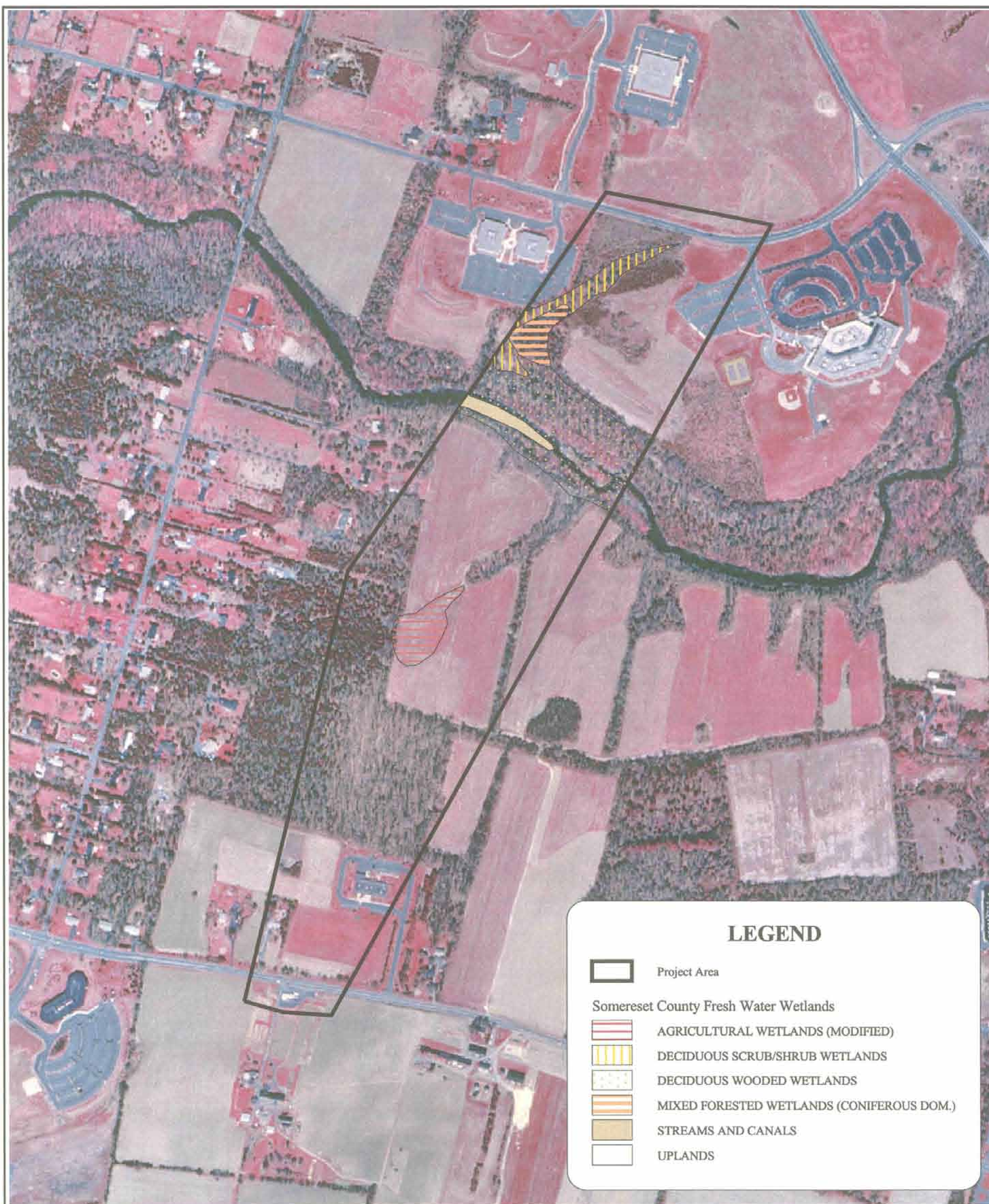
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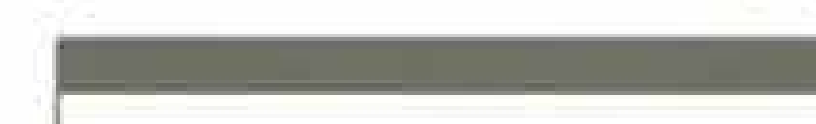
**FIGURE 1: Project Location Map
with National Wetlands Inventory**

DATA SOURCE: NJDEP 1995/97 Digital Imagery



SCALE: 1" = 1000'

0 1000 Feet



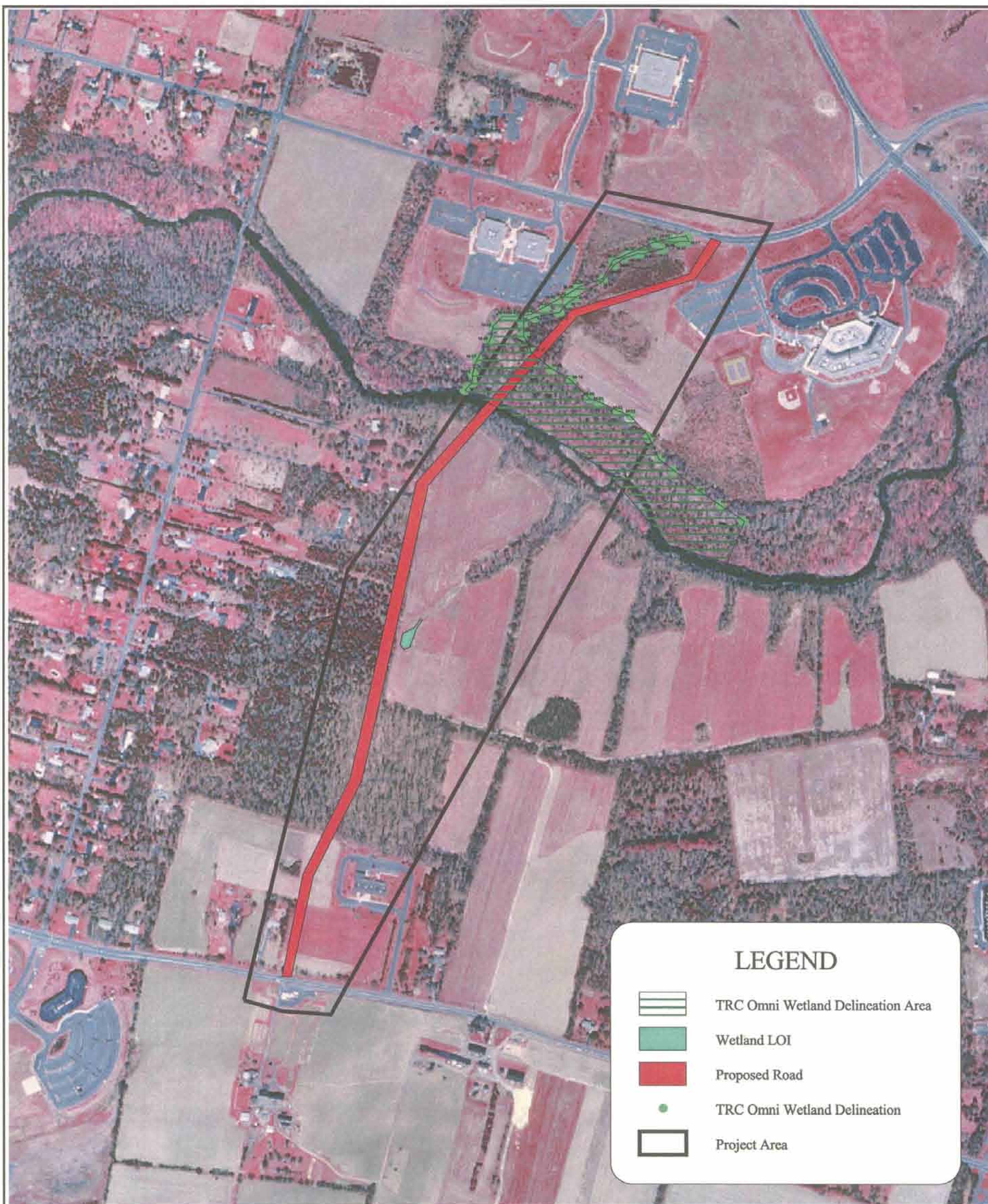
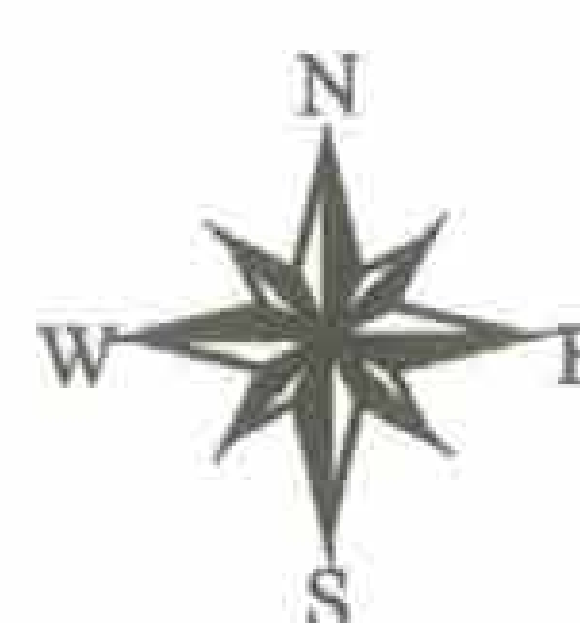


FIGURE 2: Proposed Connector Road from Orchard Road to Rt. 518

DATA SOURCE: NJDEP 1995/97 Digital Imagery



SCALE: 1" = 1000'

0 1000 Feet



Figure 3. Scrub/shrub wetland along tributary stream to the west of the proposed route.



Figure 4. Scrub/shrub wetland along stream.



Figure 5. Small wet meadow between parking lot and stream.

The largest area of wetlands along the proposed route is a large palustrine forested wetland in the floodplain along the northern bank of the Beden Brook. The wetland is approximately 250 feet wide at the point where the road crossing is proposed. Due to the higher topography on the southern bank, with a sharp topographic break, there are no riparian wetlands along that side of the brook. This wetland complex is a typical forested floodplain, dominated by red maples, green ash, and black willows. The understory is very sparse due to heavy deer browsing but contains a few dogwoods and some elderberry. Soft rush and various wetlands grasses dominate the herbaceous layer. There was extensive evidence of frequent flooding, including standing water, vernal pools, and areas of blackened leaves. It appears to be good wildlife habitat, but no threatened or endangered species were observed. Several white-tail deer and a number of great blue herons were observed in this area. Based on the field reconnaissance, the depiction of the floodplain wetland complex on the NWI maps is approximately correct in terms of both location and classification although the wetland is entirely confined to the northern shore of the brook. Figure 6 is a typical view of the floodplain wetland along the northern shore and Figure 7 shows a picture of the southern shore as seen from the northern shore, illustrating the sharp terrain break to the water's edge.



Figure 6. Typical view of floodplain wetland along northern shore of Beden Brook.



Figure 7. Southern bank of Beden Brook illustrating sharp break in topography to the water's edge.