

**Halls Mill Road and Elton-Adelphia Road (CR 524)  
Improvement Project  
Freehold and Howell Townships  
Monmouth County, New Jersey**

**ENVIRONMENTAL ASSESSMENT**

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
AND  
NEW JERSEY DEPARTMENT OF TRANSPORTATION**

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## **EXECUTIVE SUMMARY**

The purpose of the proposed Halls Mill Road and Elton-Adelphia Road (CR 524) Improvements project is to relieve congestion and improve the operations of the roadways within the project limits through improvements to current roadway and intersection geometry and the elimination of substandard roadway elements.

The project is located in the Townships of Freehold and Howell in Monmouth County, New Jersey, and encompasses the area bounded by Route 9, Route 33, and Wyckoff Mills Road. The proposed improvements will be carried out by the County of Monmouth. The County has evaluated multiple improvement alternatives, including the no-build alternative, and has selected a preferred alternative based on its ability to satisfy the project's purpose and need while minimizing impacts to the environment and other resources.

This Environmental Assessment (EA) has been prepared to identify and evaluate the potential social, economic and environmental impacts of the proposed project. This EA also documents the project purpose and need, the alternatives considered, and the criteria used to evaluate the alternatives and select the preferred alternative. This EA has been prepared in accordance with Federal NEPA requirements and incorporates the Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) as well as the U.S. Department of Transportation's Environmental Regulations.

As a result of the environmental screening analysis, public outreach and environmental studies conducted for the proposed project, no environmental or public issues were identified that would preclude the preparation of final contract documents for the proposed project. The proposed project has been classified as a Class III Action for which an Environmental Assessment has been prepared.

## SUMMARY OF PROJECT-RELATED IMPACTS AND BENEFITS

The following presents a summary of the potential impacts to natural, social, economic, and cultural resources as a result of the proposed roadway improvement project.

### Impact Category

### Impact Assessment

<b>Noise</b>	<ul style="list-style-type: none"> <li>* No adverse impacts to adjacent residential and commercial properties.</li> <li>* Change in noise levels will not exceed State or Municipal regulatory thresholds at any location.</li> </ul>
<b>Land Use</b>	<ul style="list-style-type: none"> <li>* Existing land use adjacent to the roadways will not change as a result of the project.</li> <li>* The project will involve partial right-of-way acquisitions from residential, agricultural zoned, and Monmouth County owned properties. The vacated roadway right-of-way will be graded and planted.</li> </ul>
<b>Social Impacts</b>	<ul style="list-style-type: none"> <li>* The roadway improvements will not result in the displacement of any residents or businesses. The improvements will provide safer driving condition for the residents in the area.</li> </ul>
<b>Environmental Justice</b>	<ul style="list-style-type: none"> <li>* No minority, low-income, or tribal populations exist on site or within the immediate area and, therefore, no impacts will fall on such populations. The project will not adversely impact the character of the community surrounding the roadway.</li> </ul>
<b>Air Quality</b>	<ul style="list-style-type: none"> <li>* No measurable impacts are anticipated.</li> </ul>
<b>Water Quality</b>	<ul style="list-style-type: none"> <li>* All improvements will be designed and constructed to comply with the new Federal Phase II and State Stormwater Management and Water Quality Regulations. The project will include stormwater management facilities, which will improve the water quality of site runoff.</li> <li>* All improvements will be constructed in accordance with an approved Soil Erosion and Sediment Control Plan.</li> </ul>
<b>Cultural Resources</b>	<ul style="list-style-type: none"> <li>* A Phase IA Archaeological and Architectural Survey was conducted, and concluded that there are no historic structures located within the Area of Potential Effect (APE). Five archaeological sites were identified; two historic period and three prehistoric. As a result, a Phase II Archaeological Survey was conducted. The final Phase II document, accepted by DOT and HPO, concludes that no further sub-surface investigation is necessary. One site will require monitoring during construction.</li> </ul>

**Threatened and Endangered Species**

- \* A Phase I Habitat Survey and a Phase II Visual Survey for Bog Turtle habitat within and adjacent to the project corridor were conducted.
- \* Based on the results of the surveys, no impacts are anticipated to threatened or endangered species habitat.

**Freshwater Wetlands**

- \* The proposed improvements will result in impacts to freshwater wetlands and associated wetland buffers.
- \* Applicant will submit a complete NJDEP Freshwater Wetlands Individual Permit application.

**Floodplains**

- \* A portion of the site is located within the 100- and 500-Year floodplains of Applegates, Debois, and Burkes Creeks.
- \* The proposed project will be designed to comply with the NJDEP Flood Hazard Area Control Act Rules. The applicant will submit a Flood Hazard Area Individual Permit application to the NJDEP.

**Farmland**

- \* Although the project will involve the acquisition of some agricultural zoned property, there will be no disruption to the farming community as a result of the roadway improvements. No adverse impacts on agricultural production are anticipated.

**Hazardous Waste**

- \* A Preliminary Assessment (PA) Report was prepared for the agricultural properties located adjacent to the existing roadways. NJDOT has accepted the PA for the final report. Personnel from the Rutgers Univ. Plant Science Research Center, the owner of the property, requested that excavated material from the impacted areas be transferred to another area of the farm for future use. Therefore, no additional soil investigation is required at this time. Further soil investigation to quantify the environmental and material handling costs will be performed during the final design phase, after the limits of disturbance have been finalized and the disturbed areas have been acquired for the ROW.

**Benefit Category****Traffic Safety****Benefit Assessment**

- \* Substandard roadway elements will be eliminated, reducing potential crashes. Additional roadway features such as guiderail, lighting, and pavement drainage will contribute to the improvements in motorist safety.
- \* Turn lanes will be provided at all intersections and driveways, removing turning vehicles from the travel lanes and reducing potential crashes.
- \* Sidewalks are proposed along CR 524, providing pedestrian access between Adelphia Greens and Ocean Plaza where none currently exists.

\* Realigned intersections and new / upgraded signalization will reduce conflicts at intersections and reduce potential crashes.

**Emergency Access**

\* Police, fire and EMT emergency response times are expected to be improved as a result of improved travel conditions, thereby improving the ability and efficiency of these services to protect project area residents.

**Circulation**

\* Halls Mill Road is part of the Freehold Borough Bypass loop, allowing regional travelers to circumvent the Borough's center. The proposed project will create the final missing link in that route and provide a feasible alternative to Route 9.

\* The proposed improvements will re-align a major intersection to provide direct access between two heavily traveled highways, eliminating the existing circuitous route and reducing the number of vehicle miles traveled.

**Structures**

\* Three functionally obsolete and / or structurally deficient structures are to be replaced as part of this project, improving motorist safety and reducing maintenance costs to the County.

## 1.0 INTRODUCTION

### 1.1 Purpose of Study

This Environmental Assessment (EA) has been prepared to identify and evaluate the potential social, economic and environmental impacts of the proposed Halls Mill Road and Elton-Adelphia Road (CR 524) Improvements in the Townships of Freehold and Howell, Monmouth County, New Jersey. This EA has been prepared in accordance with Federal NEPA requirements and incorporates the Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) as well as the U.S. Department of Transportation's Environmental Regulations.

This Environmental Assessment has been prepared to demonstrate that the preferred alternative is the most prudent and feasible alternative that satisfies the project purpose and need, and that the preferred alternative will not result in any significant adverse impacts to the man-made or naturally-occurring environment, result in cumulative or indirect impacts that would require further evaluation.

This EA is supported by technical studies for threatened & endangered species, floodplain & wetland delineation, archaeology and historic architecture, and air & noise impacts. This project is classified as a Class III action for which no significant impacts have been identified, and for which no further study is required.

The purpose of this EA is as follows:

- To evaluate the proposed improvement alternatives in terms of the project needs and objectives.
- To identify the potential for environmental impacts to the natural and manmade environment as a result of the construction and operation of the proposed project.
- To present the findings for public input.
- To provide sufficient information to serve as a record for environmental approvals and consultations as required by law.

## 1.2 Project Setting

The project area is located in an agricultural and residential area within the Townships of Freehold and Howell, Monmouth County. The project area encompasses Elton Adelpia Road (CR 524) between Route 9 to the west and Wyckoff Road to the east; Halls Mill Road between Elton Adelpia Road to the south and the Route 33 Freeway to the north; and Edinburgh Drive between Route 9 to the south and Elton Adelpia Road to the north. Dubois Creek, Applegates Creek, and Burkes Creek and their associated wetlands and floodplains are located in close proximity to the project.

Halls Mill Road is a narrow, winding, two-lane road with densely vegetated roadsides. The speed limit varies from 50 to 25 miles per hour. Numerous curves, including a sharp S-curve, restrict sight distance and require excessive maneuvering. CR 524 within the project area is a major collector road allowing access to the shopping district along Route 9. CR 524 is a narrow roadway and is congested during peak times. Edinburgh Drive provides access between Route 9 and CR 524. It divides the Adelpia Greens residential development.

The roadways within the project area are part of a larger regional network. Halls Mill Road is part of the Freehold Borough Bypass loop, and serves as an alternative north-south route to Route 9. Halls Mill Road and CR 524 serve both local and regional travelers in the western part of the County. Route 9 is a commercial district with strip malls, big box retail, commercial / light industrial office and manufacturing facilities, and a regional indoor shopping mall.

The project is located in a fully-developed suburban area and is subject to environmental and man-made constraints such as underground and aerial utilities, environmentally sensitive areas, historic properties, endangered species habitats, and nearby structures.

## 2.0 PURPOSE AND NEED FOR PROPOSED PROJECT

### 2.1 Project History and Overview

Halls Mill Road traverses north-south between Elton-Adelphia Road (CR 524), Three Brooks Road, and State Route 33 Bypass (approximately 1.25 miles). It is a two lane roadway with no shoulders and a berm area covered in dense vegetation. The roadway contains several horizontal curves. Traveling south on Halls Mill Road, motorists reduce speed from 50mph to 40mph to 35mph to 30mph and to 25mph and must merge from two lanes into one lane just south of the Route 33 overpass. Traveling north, there are two connecting substandard horizontal curves that form an S-curve at the bridge over Burkes Creek (County Bridge F-29) with a speed advisory sign for 30mph at the first curve and 25mph at the second curve. North of Burkes Creek, the second curve has a steep embankment that impedes sight distance to the Rutgers University Plant Science Research Center driveway and the residential driveways; this condition is mainly on the east side of the road. The obstructed sight distance combined with motorists attempting to enter and exit these driveways creates unsafe conditions for both residents and the traveling public.

Elton-Adelphia Road (CR 524) traverses east/west between Route 9 in Freehold Township and Wyckoff Road in Howell Township (approximately 0.3 of a mile). At the southwest end of the study area is a shopping mall which runs along Elton-Adelphia Road to Debois Creek. The Route 9 / Elton-Adelphia Road intersection was recently widened and re-aligned by the NJ Department of Transportation. This portion of Elton-Adelphia Road has been widened to two lanes in each direction with a center turning lane and sidewalks. Elton-Adelphia Road narrows to one travel lane in each direction at Debois Creek with a varying shoulder and a berm area that is typically covered with dense vegetation. The narrow roadway continues east over Bridges F-30 & F-59 at Debois Creek and into a signalized “T” intersection with Halls Mill Road. At the intersections with Halls Mill Road and Edinburgh Drive, Elton-Adelphia Road is on a horizontal curve with narrow shoulders and an embankment with vegetation. All of these factors limit the stopping sight distance of the motorists traveling along Elton-Adelphia Road approaching the Halls Mill Road intersection.

The intersection of Elton-Adelphia Road with Halls Mills Road has been studied and was found to have an unacceptable level of service (LOS) as described in the Needs Assessment. In addition, the intersections of Elton-Adelphia Road with Edinburg Drive and with Halls Mill Road are approximately 300 feet apart. The close proximity introduces conflicting vehicle movements from motorists attempting to access Edinburg Drive.

## 2.2 Project Purpose

The purpose of the proposed project is to relieve congestion and improve the safety of the traveling public and local residents by upgrading the current roadway geometry and intersection configurations. The proposed improvements promote vehicular safety by minimizing the elements that contribute to crashes while minimizing environmental impacts.

Roadway geometry will be improved to provide adequate sight distance and correct substandard design elements. The subject roadways will be widened to provide a consistent section with shoulders and a clear roadside. Turn lanes are proposed to improve safety and traffic flow by removing turning vehicles from the through lanes. Intersections within the project limits will be upgraded to function at an acceptable level of service. Functionally obsolete and structurally deficient structures are to be replaced in their entirety.

To enhance regional mobility, a direct connection from Route 9 to Halls Mill Road will be established via Edinburgh Drive. The provision of this new movement with controlled signalization will facilitate safe and efficient circulation and reduce the total number of vehicle miles traveled (VMT).

## 2.3 Traffic Safety, Traffic Volumes, and Operational Analysis

Based on the crash information obtained for the project, it is clear that improving the safety of the public is one of the most important aspects of the project. Less than optimal conditions resulting from substandard geometry, poor sight distance, driver error, and congested conditions have caused numerous crashes within the project area. Between 2007 and 2009, the most recent years for which data is available, there were 107 crashes reported within the project area.

A major contributing factor of the conditions on this project is the limited sight distances and substandard roadway geometry. This creates a situation in which drivers do not have adequate time to stop, slow down, or avoid a potential crash. Both roadways contain multiple horizontal curves that vary in radii. Some of the radii are less than 250 feet. This would require the roadway to be posted for a speed of 25 mph with a minimum stopping sight distance of 225 feet. This does not meet current standards for Urban Minor Arterial roadways and the elimination of these curves is desirable to improve the operation of the roadway. Substandard sight distance also contributes to potential crashes due to numerous driveways along this roadway. Motorists may encounter unexpected obstructions in the form of vehicles queued behind stopped vehicles waiting for a break in traffic to turn into a driveway.

The roadway network connectivity is an important part of the need for this project. Halls Mill Road is part of the Freehold Borough bypass loop, along with East Freehold Road and Kozloski Road. This connectivity is interrupted at Elton Adelphia Road. Current traffic patterns show vehicles traveling through a circuitous route between Route 9 and Halls Mill Road. Vehicles traveling northbound on Route 9 access Wyckoff Road make a left onto Elton-Adelphia Road then proceed right onto Halls Mill Road. The reverse movement is also generally made. Some vehicles also choose to utilize the newly constructed Edinburgh Drive to access Route 9 from Elton-Adelphia Road. This can only be accomplished in the southbound direction due to turning restrictions at the Edinburgh Drive/Elton-Adelphia Road intersection.

#### **2.4 Capacity and Level of Service Analysis**

It is necessary to upgrade current roadway geometry and safety features to accommodate the increasing traffic volumes and reduce the congestion in the project area. Providing these improvements will enhance the health, safety, and quality of life of the traveling public and local residents in the project area. Based on the findings of the previous traffic analysis entitled, *Traffic Report – Elton-Adelphia Road (CR 524)/Halls Mill Road Improvements Project*, the 2025 design year analysis of the studied roadways reveal operating conditions with unacceptable Level of Service (LOS) and Delay at all of the intersections and on the portion of Halls Mill Road within the study area. Halls Mill Road and its intersections with Three Brooks Road and Elton-Adelphia Road will operate at a LOS F. In addition, conditions at the Wyckoff/Elton-Adelphia Road and Spy Glass Hill/Elton-Adelphia Road intersections also deteriorate, ultimately operating at LOS F. With these conditions, the volume of traffic traveling on the Elton-Adelphia Road and Halls Mill Road corridors will exceed the capacity of the roadways. Vehicles will travel alternate routes through residential neighborhoods and along the already congested NJ Route 9 corridor. The vehicles that remain on Elton-Adelphia Road and Halls Mill Road will experience excessive vehicle delays that will most likely cause driver frustration and increase the potential for crashes, thereby decreasing quality of life. Residents have commented that cut-through traffic is already an issue in some locations. Residents of Adelphia Greens have noted speeding vehicles on Spy Glass Hill Road and that some drivers disregard the stop sign at Edinburgh and Wentworth Drives.

## 2.5 Structural and Operational Deficiencies of Bridge Structures

### Halls Mill Road over Burkes Creek (Bridge Structure F-29)

Structure F-29 is comprised of a reinforced concrete slab, spanning 17 feet, supported on a timber pile and sheeting substructure. Based on the 1998 Bridge Evaluation Survey Report (Cycle No. 1), the bridge is functionally obsolete due to the inadequate deck geometry and narrow/ substandard roadway width. In addition, due to low ratings, the bridge is structurally deficient. Bi-annual inspection is not required because the span is less than 20 feet. The findings of the 1998 report have been corroborated by field observations conducted in March of 2010 which determined that no repairs have taken place since the last inspection. It is recommended that the bridge be replaced. The sufficiency rating at the time of the inspection report was 42.0, below the threshold rating of 50.0 which indicates that it is sufficiently deficient to be eligible for replacement under Federal guidelines. Color photographs of the structure are provided in Section 9.0 of this report.

### Elton Adelphia Road (CR 524) over Applegates Creek (Bridge Structure F-30)

Structure F-30 consists of a reinforced concrete arch with a clear span of approximately 30 feet supported on a spread footing. Based on the 2009 (Cycle No. 12) Bridge Evaluation Survey Report, the bridge is functionally obsolete due to the inadequate deck geometry and narrow/ substandard roadway width and substandard safety features. The findings of the 2009 report have been corroborated by field observations conducted in March of 2010 which determined that no repairs have taken place since the last inspection. It is recommended that the bridge be replaced. The sufficiency rating at the time of the inspection report was 55.5, below the threshold rating of 80.0 which indicates that it is sufficiently deficient to be eligible for rehabilitation under Federal guidelines. Color photographs of the structure are provided in Section 9.0 of this report.

### Elton Adelphia Road (CR 524) over Debois Creek (Bridge Structure F-59)

Structure F-59 is a 14.5-foot reinforced concrete culvert. Based on the 1998 (Cycle No. 1) Bridge Evaluation Survey Report, the bridge is functionally obsolete due to the poor hydraulic opening of the structure and narrow, substandard, roadway width. In addition, due to low ratings, the bridge is structurally deficient. Bi-annual inspection is not required because the span is less than 20 feet. The findings of the 1998 report have been corroborated by field observations conducted in March of 2010 which determined that no repairs have taken place since the last inspection. It is recommended that the bridge be replaced. The sufficiency rating at the time of the inspection report was 69.4, below the threshold rating of 80.0 which indicates that it is sufficiently deficient to

be eligible for rehabilitation under Federal guidelines. Color photographs of the structure are provided in Section 9.0 of this report.

## **2.6 Summary of Project Needs**

- Improve driver and pedestrian safety within the project limits.
- Improve traffic circulation and levels of service within the project limits.
- Relieve congestion and increase mobility in the regional roadway network.
- Replace functionally obsolete and structurally deficient structures within the project limits.

### 3.0 ALTERNATIVES

The alternative analysis process involves a detailed examination of various alternatives in an effort to address the issues raised in the Project Need Statement. Each of the alternatives considered addressed some aspect of the project needs & objectives. Both construction alternatives and non-construction alternatives are considered to determine if a feasible method of satisfying the ever-growing demand on the area roadways can be implemented without construction. Seven alternatives are described in this report:

**Non-construction Alternatives**

No-Build Alternative

Traffic Management Alternatives

**Construction Alternatives**

Alternative 1

Alternatives 2, 2A, and 2B

Alternative 3

These alternatives are analyzed in-depth below in terms of their ability to meet the purpose and need of the proposed project while still taking practicable measures to avoid, minimize, and mitigate potential impacts to the built and natural environment.

Please refer to the Alternatives – Conceptual Alignments (Figure 9) provided in Section 6.0 for information on the alternative configurations.

#### 3.1 No-Build Alternative

As required, the No-Build Alternative was considered. The “No-Build” alternative would maintain the existing Elton-Adelphia Road and Halls Mill Road alignments and roadway widths. This alternative does not improve the inadequate sight distance that results from the tight horizontal curvature and narrow roadway width along Halls Mill Road and Elton-Adelphia Road. The existing curves along Halls Mill Road vary from 95’ to 500’ radii, which correlate to design speeds of 25 – 40 MPH. Safety issues presented by narrow pavements, unexpected turns, and obstructions close to the roadway are not rectified.

The No-Build alternative does not address the poor level of service in the present conditions or the expected increase in traffic demand for the design year of 2025. Vehicles attempting to enter and exit the driveways to the residences and to the Rutgers Agricultural Research Center without the benefit of a turning lane would continue to impede the flow of through traffic, affecting both safety and travel time. The projected 50% increase in traffic will only exacerbate the already unacceptable levels of service. Capacity analysis indicates that level of service along Halls Mill Road would reach LOS F by 2025. Cut-through traffic on Spy Glass Hill Road and Wentworth Drive would continue

to plague residents. In addition, congestion to these roadways will lead to the depletion of air quality far beyond the limits of the project area.

The offset intersection of Halls Mill Road and Edinburgh Drive with Elton-Adelphia Road would remain, causing vehicles to travel along multiple roadways to make the disjointed connection between Halls Mills Road and Route 9. This in turn increases turning movements along the route, amplifying the number of vehicular conflicts and associated congestion.

This alternative clearly has the least amount of physical impact in comparison to any improvement alternative. However, this alternative does not improve the roadway safety, capacity, system linkage, or existing bridge structures. For these reasons, this alternative was rejected because it does not meet the project purpose and need.

### **3.2 Traffic Management Alternatives**

Traffic management alternatives do not physically change the roadway configurations within the project area, therefore they do not meet the system linkage or bridge structure needs of the project. Additionally, since their only benefit is to reduce vehicular traffic, safety is not directly addressed; however, the overall number of crashes may be reduced by reducing the overall number of vehicles in the project area.

#### High-Occupancy-Vehicle Lanes

High-occupancy-vehicle (HOV) lanes can be used to influence travelers who drive to and from work alone to switch to higher-occupancy methods such as mass transit, car pools or van pools. These alternate methods of transportation are allotted specific travel lanes or toll lanes in order to reduce travel times and ultimately serve as an incentive for greater HOV use.

HOV lanes are generally applicable to freeway sections. Since none of the area roadways are capable of supporting a HOV lane, this type of traffic management alternative is not applicable and would not meet the project need.

#### Park and Ride Lots

Park and ride lots, similar to HOV lanes, encourage people to park their vehicles in designated areas and rely on mass transit to reach their final destinations. The Route 9 corridor presently contains several park and ride facilities along its alignment. Expanding existing facilities or constructing a new facility within the project limits would not address the geometric deficiencies, safety, or system linkage and would create environmental disturbance in order to create the required parking areas.

In addition, traffic would still be required to travel on Halls Mill Road and Elton-Adelphia Road in order to reach the designated park and ride areas, which would continue to contribute to the overall congestion. Based on these issues, the Park & Ride Alternative is not a probable solution, and was therefore rejected.

#### Car and Van Pools

The alternative of promoting car and van pools, similar to park and ride lots and HOV lanes, represents a temporary solution to congestion, but does not mitigate the other project needs. The problem within the project area is not solely related to the commuter AM and PM peak hour traffic flows. Although reducing congestion is one aspect of the project need, the poor geometric features and system linkage are equally important.

Similar to HOV lanes and park and ride facilities, motorist participation and employer sponsorship / contribution to provide vehicles for this service are the main issues associated with this alternative. Monmouth County and the New Jersey Department of Transportation can promote this method, but cannot assure its success. Given these detriments, this alternative is not a viable option to relieve the existing and future problems associated with the roadway network, and was therefore rejected. Car and van pools may be part of the answer but they are not the solution.

#### Mass Transit

Increasing mass transit throughout the project area was considered as an alternative to the improvements. This method represents a reasonable effort to eliminate a certain percentage of commuter traffic; however, the addition of buses to the Route 9 corridor represents a potential problem. Route 9 is already heavily traveled by buses, as it serves as a corridor between the northern and southern portions of the region. By adding more buses to this heavily traveled roadway, congestion may actually worsen. This alternative does not appear to satisfy the project goal of relieving congestion, and was therefore rejected.

#### Monmouth Ocean Middlesex Rail (MOM)

The proposed Monmouth-Ocean-Middlesex Rail link will be located near the project area and, if implemented, would have an effect on vehicular traffic in the entire region. As with the addition of bus transit, MOM would eliminate a certain percentage of commuter traffic. However, MOM is intended as an inter-regional link serving medium and long distance commuters. It is doubtful that the addition of the rail link will have a significant effect on the roadway network. The rail link will also not correct the safety and sight distance issues that exist. Additionally, there is the possibility

that MOM may actually increase vehicular trips in the project area. If a station is constructed that is accessible via Elton-Adelphia Road or Halls Mill Road, MOM will actually increase congestion and traffic volume in the study area. At best, MOM is part of the answer but is not the solution.

### 3.3 Widening Alternatives

In addition to the non-construction alternatives, three widening alternatives have been developed for Halls Mill Road. All of these alternatives assume the same proposed improvements for Elton Adelphia Road (CR 524) due to strict constraints along that roadway, including the NJNG Gas Transfer Station, existing homes and the detention basin on the south, and the County land to the north. Similarly, the proposed improvements to Edinburgh Drive are assumed to be the same in all alternatives due to the restrictions imposed by the surrounding neighborhood.

The widening alternatives that were considered for Halls Mill Road are as follows:

*Alternative 1-* Improvements along existing alignment

*Alternative 2-* Realignment west of existing dam

*Alternative 2A-* Realignment west of existing dam with reduced roadside

*Alternative 2B-* Realignment west of existing dam with reduced pavement and roadside

*Alternative 3 -* Realignment east of existing dam

The Alternatives considered were chosen to minimize the impacts to the surrounding residential, park, farm, and commercial properties, along with environmentally sensitive areas, while providing improvements to the geometry, capacity, system linkage, traffic safety, and bridge structures. To provide a geometric alignment in accordance with AASHTO and NJDOT standards, a minimum roadway horizontal radius of 1,080' is required. This safety requirement must be balanced with the need to accommodate access to and from driveways, provide an acceptable Level of Service at intersections, and minimize impacts to the right-of-way and environmentally sensitive areas. The proposed sections and horizontal alignments are sufficient to construct the proposed improvements in stages, thus eliminating the need for road closures and detours.

#### 3.3.1 Elton-Adelphia Road

The western limit of the proposed Elton Adelphia Road (CR 524) improvements will meet the recently completed intersection improvements at State Highway Route 9. The eastern limit will meet the existing CR 524 cross-section approximately 200 feet east of Spy Glass Hill Road. Within

these limits, CR 524 is bounded on the south by the New Jersey Natural Gas Transfer Station and an existing detention basin; Monmouth County lands to the north at Debois Creek; freshwater wetlands and transition areas on both sides of the roadway at Debois Creek; the Adelphia Green residential development to the south at Edinburgh Drive and Spy Glass Road; the Rutgers Agricultural Research Center to the north; and the Adelphia Historic District on both sides of the roadway at the east project terminus. The multitude of restrictions in this corridor has resulted in only one proposed improvement alternative.

Proposed improvements include widening of the existing roadway to provide a typical section of 62'. This section provides two through lanes in each direction and a 12' center turn lane. This section matches the NJDOT constructed improvements at the intersection with Route 9. The proposed section provides adequate capacity for the design year 2025 and is sufficient to accommodate bicycle traffic per the AASHTO Guidelines for Design of Bicycle Facilities. Minor adjustments to the horizontal alignment will be made to improve sight distance.

Features appurtenant to the improved roadway include the construction of concrete curb and sidewalk, guiderail where required, replacement of the existing bridge F-30 over Debois Creek, removal of existing bridge F-59 over Applegates Creek, construction of an underground storm drain system, and relocation of existing utilities where appropriate. Modifications are proposed to the existing stormwater management basin at Edinburgh Drive in order to provide attenuation of stormwater runoff, water quality, and groundwater recharge as required by the NJDEP BMP Manual, April 2004.

The 62' proposed typical section is adequate to construct the proposed improvements in stages. A detour will not be required and Elton-Adelphia Road may therefore remain open to traffic during construction.

#### Project Need Analysis

The proposed improvements to Elton-Adelphia Road will meet the project need by providing additional capacity and ameliorating hazardous conditions caused by congestion.

#### Bridge Structures

The proposed improvements will replace the existing bridge F-30 over Debois Creek and eliminate the existing bridge F-59 over Applegates Creek. The new structure will correct existing deficiencies and will improve hydraulic performance and pedestrian and traffic safety.

### Impacts

Impacts associated with freshwater wetlands disturbance and ROW acquisition have been included in the impacts calculated for the various alternatives to Halls Mill Road.

#### **3.3.2 Edinburgh Drive**

The proposed improvements to Edinburgh Drive encompass the entirety of the road from State Highway Route 9 to CR 524. Edinburgh Drive is bounded on both sides by the Adelpia Greens residential development. The sensitivity to roadway improvements of the surrounding residences has resulted in only one proposed improvement alternative.

Proposed improvements include widening of the existing roadway to provide a typical section of 66'. This section provides two through lanes in each direction with a 16' raised median and left turn lanes at Wentworth Drive.

The proposed section provides adequate capacity for the design year 2025 and is sufficient to accommodate bicycle traffic per the AASHTO Guidelines for Design of Bicycle Facilities. A signal is proposed at the intersection of Edinburgh Drive and Elton Adelpia Road, allowing full turning movements for all approaches. Increasing the movements permitted at this intersection will permit the conversion of Spy Glass Hill Road to a cul-de-sac at CR 524.

Capacity analyses included in the appendix of this report demonstrate the need for two through lanes on Edinburgh Drive. One lane in each direction results in a LOS E for Wentworth Drive in the AM peak. Adding a lane in each direction brings the LOS to a more acceptable C. Providing two through lanes will also improve driver and pedestrian safety. A reduction in the number of lanes south of CR 524 will require a merge. In addition to the inherent conflict between vehicles at the merge point, a merge causes drivers to focus on merging rather than remaining alert to the pedestrian crossing ahead at Wentworth Drive.

The 66' proposed typical section is adequate to construct the proposed improvements in stages. A detour will not be required and Edinburgh Drive may remain open to traffic during construction.

### Project Need Analysis

The proposed improvements to Edinburgh Drive will meet the project need by providing additional capacity. This will improve hazardous conditions at other intersections in the study area caused by congestion by providing an alternate route for through traffic.

Impacts

There are no environmentally sensitive areas within the limits of work on Edinburgh Drive.

**3.3.3 Halls Mill Road Alternative 1**

Alternative 1 consists of improvements along the existing alignment of Halls Mill Road. Proposed improvements include widening the existing road to a 4 through lane section in order to improve safety and capacity. The typical section of the roadway consists of a 12' inside lane and 15' outside lane in each direction with 5' shoulders, totaling a 64' wide cartway. In locations where there are existing driveways, the section transitions to a five lane section with a 12' center turning lane and no shoulders. An 8'-16' raised grassed median will be considered for all alternatives as requested by many residents during the public information centers. Any additional impacts resulting from the addition of a median will be the same for all alternatives and will be addressed during the final design phase.

The proposed roadway improvements will require the reconstruction of the existing bridge over Burkes Creek (F-29). Features appurtenant to the improved roadway include the construction of guiderails in certain locations, an underground storm drain system, reconstructed driveways, relocation of existing aerial utilities where appropriate and minor widening of Three Brooks Road from its intersection with Halls Mill Road to the existing bridge over Applegates Creek. This alternative includes stormwater management in accordance with the NJDEP BMP Manual, April 2004. Aboveground retention and detention basins are proposed to attenuate stormwater runoff and provide the necessary water quality and groundwater recharge.

Project Need Analysis

Safety - Like the No-Build alternative, Alternative 1 does not address geometric deficiencies along Halls Mill Road. This alternative does not substantially improve the inadequate sight distance. Sight distance would be marginally improved only by the widening of the pavement, providing minimal improvements in stopping sight distance.

Congestion - This alternative would not provide relief at the Halls Mill Road and Edinburgh Drive intersections with Elton-Adelphia Road. Some relief to through movements would be provided as vehicles attempting to access driveways would be removed from the flow of through traffic, affecting both safety and travel time. However, the positive effects of these improvements are negated by the inadequate sight distance and low design speed, and the poor LOS at Halls Mill Road and Elton Adelphia Road. Per AASHTO and NJDOT design guidelines, Halls Mill Road after

improvement should be posted at 25 MPH.

Since the Edinburgh Road intersection will allow all movements via a traffic signal, it is expected that northbound vehicles would divert to this location from the Wyckoff Road intersection. Therefore, the intersection of Elton-Adelphia Road and Wyckoff Road will become less congested than the No-Build alternative. However, because of the 300' offset between the Halls Mill Road and Edinburgh intersections, queuing between these traffic signals will be an issue, likely causing localized congestion. Capacity analysis of the intersections shows a LOS F in the AM peak hour and LOS E in the PM peak hour.

System Linkage – Traffic will continue to seek the shortest travel time and utilize the new signalized intersection of Edinburgh Drive and Elton-Adelphia Road to accommodate the desired flow between Route 9 and Halls Mill Road. The offset intersection of Halls Mill Road and Edinburgh Drive with Elton-Adelphia Road will require circuitous travel, multiple stops, and conflicting movements that interfere with the traffic flow.

Bridge Structure – Because this alternative will replace the existing bridge, the associated deficiencies will be rectified. However, since the roadway geometry around bridge F-29 will remain, the tendency for vehicular impacts will continue, thus shortening the life expectancy of the structure.

#### Impacts

Alternative 1 requires disturbance of 1.58 Acres of freshwater wetlands and transition areas and 0.41 Acres of County land to accommodate the road widening. This alternative will also require the acquisition of 7.66 Acres of ROW from residential, commercial, and farm properties. Permanent Drainage easements will be required in addition to ROW to allow construction of stormwater management facilities. An Individual Permit will be required from NJDEP to work in the freshwater wetlands and transition areas.

### **3.3.4 Halls Mill Road Alternative 2**

Alternative 2 improves the alignment of Halls Mill Road by providing minimum radii of 1,080', per NJDOT and AASHTO requirements for a 50 MPH design speed. This alternative maintains the location of the bridge over Burkes Creek at a point downstream of the dam at the Rutgers irrigation ponds. The alignment of Halls Mill Road north of the dam would diverge eastward from the existing alignment, cutting into the western limit of the Rutgers Agricultural Research Center plot. The proposed alignment would meet up with the existing alignment at a distance roughly 900' south of Rutgers Agricultural Research Center driveway. From that location north to the project terminus

near Rt. 33, minor adjustments will be made to straighten the roadway alignment to improve sight distance, but the roadway improvements generally consist of roadway widening. South of the crossing over Burkes Creek, the proposed alignment moves to the east to align with Edinburgh Drive at Elton Adelphia Road.

Alternative 2 proposes a maximum roadway section of 64' along Halls Mill Road. This section provides a 12' inside lane and 15' outside lane in each direction with 5' shoulders. In locations where there are existing driveways, the section transitions to a five lane section with a 12' center turning lane. This design is sufficient to accommodate through traffic with acceptable levels of service through the design year 2025. Use of the center left-turn lane removes turning vehicles from the traffic flow, thus improving traffic safety and travel time. An 8'-16' raised grassed median will be considered for all alternatives as requested by many residents during the public information centers. Any additional impacts resulting from the addition of a median will be the same for all alternatives and will be addressed during the final design phase.

Features appurtenant to the improved roadway include the construction of guiderails in certain locations, an underground storm drain system, reconstructed and extended driveways, relocation of existing utilities where appropriate, and minor widening of Three Brooks Road from its intersection with Halls Mill Road to the existing bridge over Applegates Creek. This alternative includes stormwater management in accordance with the NJDEP BMP Manual, April 2004. Aboveground retention and detention basins are proposed to attenuate stormwater runoff and provide the necessary water quality and groundwater recharge.

#### Project Need Analysis

Safety - This alternative meets the project need to improve traffic safety by eliminating the substandard roadway curvature and by providing a turn lane to remove stopped vehicles from the flow of traffic. Since the roadway will be completely reconstructed and aligned, the proper superelevation and clear zone values will be utilized.

Congestion - This alternative increases the level of service on Halls Mill Road and at the intersections within the study area by providing extra through and turning lanes and higher design speeds. Since Halls Mill Road and Edinburgh Drive will be aligned, it is expected that vehicles utilizing the Wyckoff Road intersection would divert to this location. Therefore, the intersection of Elton-Adelphia Road and Wyckoff Road will become less congested than the No-Build alternative.

System Linkage - By realigning Halls Mill Road with Edinburgh Drive, this alternative addresses

roadway system linkage by providing a connection from Rt. 33 to Rt. 9, and by providing safe, alternate routes in an already congested area. This also corrects a deficiency in the roadway system linkage of Elton-Adelphia Road, Halls Mill Road, and Edinburgh Drive. Therefore, moving this intersection to Edinburgh Drive has the additional important effect of improving the level of service, and thus safety, of this intersection. Edinburgh Drive would provide a continuous and direct connection to Route 9 through a four-legged traffic signal controlled intersection to accommodate congestion on Halls Mills Road and Elton-Adelphia Road.

Bridge Structure - Because this alternative will replace the existing bridge, the associated deficiencies will be rectified. Additionally, since the roadway alignment will be improved, the frequency of vehicle collisions with the structure should decrease, therefore increasing the life expectancy of the structure.

County Property (Green Acres Encumbered) - Alternative 2 requires the disturbance of 0.38 acres of County land to construct the roadway improvements. 0.60 Acres of existing ROW adjoining the County parcel will be vacated; resulting in a net gain of County land for Green Acres mitigation.

Stormwater Management Impacts- Alternative 2 will include stormwater management in accordance with the NJDEP BMP Manual, April 2004. Aboveground retention and detention basins are proposed to attenuate stormwater runoff and provide the necessary water quality and groundwater recharge. Sites within the existing ROW where the existing roadway will be realigned are proposed for stormwater management.

Freshwater Wetlands Impacts- Alternative 2 will disturb 1.19 acres of freshwater wetlands and transition areas, requiring an Individual Permit from NJDEP. Wetlands mitigation will be required. Although there are sites within the project limits that appear to be suitable for mitigation, further analysis and investigation is required before on-site mitigation can be assumed. As an alternative, DEP will accept a monetary contribution to the Wetlands Restoration Fund in lieu of mitigation. This cost is typically in the range of \$300,000 per acre of disturbance.

### **3.3.5 Halls Mill Road Alternative 2A**

In an effort to reduce the environmental impacts of Alternative 2, a reduced roadside is proposed. Alternative 2A uses retaining walls in place of a graded embankment in environmentally sensitive areas. All other aspects of this alternative, including the alignment and typical roadway section, are identical to Alternative 2.

Project Need Analysis

Safety - Alternative 2A meets the project need to improve traffic safety by eliminating the substandard roadway curvature and by providing a turn lane to remove stopped vehicles from the flow of traffic. Since the roadway will be completely reconstructed and aligned, the proper superelevation and clear zone values will be utilized. This alternative substantially increases safety over existing conditions; however, the proposed walls in Alternative 2A would require a disabled vehicle to occupy some of the outside lane since no border area is provided adjacent to the edge of pavement. Additionally, where walls are proposed, additional guide rail may be required, thus introducing additional obstructions within the clear zone.

Congestion - This alternative increases the level of service on Halls Mill Road and at the intersections within the study area by providing extra through and turning lanes and higher design speeds. Since Halls Mill Road and Edinburgh Drive will be aligned, it is expected that vehicles utilizing the Wyckoff Road intersection would divert to this location. Therefore, the intersection of Elton-Adelphia Road and Wyckoff Road will become less congested than the No-Build alternative.

System Linkage - Alternative 2A increases the level of service on Halls Mill Road and at the intersections within the study area by providing extra through and turning lanes and higher design speeds. Since Halls Mill Road and Edinburgh Drive will be aligned, it is expected that vehicles utilizing the Wyckoff Road intersection would divert to the new location, improving congestion at Wyckoff Road.

Bridge Structure - Because this alternative will replace the existing bridge, the associated deficiencies will be rectified. Additionally, since the roadway alignment will be improved, the frequency of collisions with the structure should decrease, thereby increasing the life expectancy of the structure.

County Property (Green Acres Encumbered) - Alternative 2A disturbs the same acreage of County land as Alternative 2, 0.38 acres. This is because the majority of the disturbance is the result of the widening of Elton Adelphia Road, which is the same for all Halls Mill Road alternatives. In all three alternatives, 0.60 Acres of existing ROW adjoining the County parcel will be vacated; resulting in a net gain of County land for Green Acres mitigation.

Stormwater Management Impacts- Alternative 2A will include stormwater management in accordance with the NJDEP BMP Manual, April 2004. Aboveground retention and detention basins are proposed to attenuate stormwater runoff and provide the necessary water quality and groundwater recharge. Sites within the existing ROW where the existing roadway will be realigned

are proposed for stormwater management.

Freshwater Wetlands Impacts- Alternative 2A will disturb 0.57 acres of freshwater wetlands and transition areas, which is still above the threshold requiring an individual permit and wetlands mitigation. Although there are sites within the project limits that appear to be suitable for mitigation, further analysis and investigation is required before on-site mitigation can be assumed. As an alternative, DEP will accept a monetary contribution to the Wetlands Restoration Fund in lieu of mitigation. This cost is typically in the range of \$300,000 per acre of disturbance.

### **3.3.6 Halls Mill Road Alternative 2B**

In an effort to further reduce environmental impacts; Alternative 2B will also use retaining walls in place of a graded embankment in environmentally sensitive areas. In addition, the center turning lane will be eliminated and the pavement width will be reduced to 54' in environmentally sensitive areas. All other aspects of this alternative, including the alignment, are identical to Alternative 2.

#### Project Need Analysis

Safety – As with the other alternatives, this alternative substantially increases safety over existing conditions. However, the proposed walls would require a disabled vehicle to occupy some of the outside lane since no border area is provided adjacent to the edge of pavement. Additionally, where walls are proposed, additional guide rail may be required, thus introducing additional obstructions within the clear zone.

Alternative 2B also reduces the pavement width, meaning that bicyclists and pedestrians are closer to the traveled lane and disabled vehicles will project further into the travel lane. Additionally, the turning lane for the two residential properties located near Burke's Creek is eliminated in this alternative. Without the addition of this center turn lane, turning vehicles are more vulnerable to crashes. Their presence also impedes through traffic and reduces the LOS compared to Alternatives 2 and 2A.

Congestion - Alternative 2B increases the level of service on Halls Mill Road and at the intersections within the study area by providing extra through and turning lanes and higher design speeds. Since Halls Mill Road and Edinburgh Drive will be aligned, it is expected that vehicles utilizing the Wyckoff Road intersection would divert to the new location, improving congestion at Wyckoff Road. LOS is slightly lower than in Alternatives 2 and 2A due to the elimination of the center turn lane in environmentally sensitive areas.

System Linkage - By realigning Halls Mill Road with Edinburgh Drive, Alternative 2B addresses roadway system linkage by providing a connection from Rt. 33 to Rt. 9, and by providing safe, alternate routes in an already congested area. This also corrects a deficiency in the roadway system linkage at Elton-Adelphia Road, Halls Mill Road, and Edinburgh Drive, improving the level of service and safety of this intersection. Edinburgh Drive would provide a continuous and direct connection to Route 9 through a four-legged traffic signal controlled intersection to accommodate congestion on Halls Mills Road and Elton-Adelphia Road.

Bridge Structure - Because this alternative will replace the existing bridge, the associated deficiencies will be rectified. Additionally, since the roadway alignment will be improved, the frequency of collisions with the structure should decrease, thereby increasing the life expectancy of the structure.

County Property (Green Acres Encumbered) - Alternative 2B disturbs the same acreage of County land as Alternatives 2 and 2A, 0.38 acres. This is because the majority of the disturbance is the result of the widening of Elton Adelphia Road, which is the same for all Halls Mill Road alternatives. In all three alternatives, 0.60 Acres of existing ROW adjacent to the County land will be vacated; resulting in a net gain of County land for Green Acres mitigation.

Stormwater Management Impacts- Alternative 2B will include stormwater management in accordance with the NJDEP BMP Manual, April 2004. Aboveground retention and detention basins are proposed to attenuate stormwater runoff and provide the necessary water quality and groundwater recharge. Sites within the existing ROW where the existing roadway will be realigned are proposed for stormwater management.

Freshwater Wetlands Impacts- Alternative 2B will disturb 0.51 acres of freshwater wetlands and transition areas, which is still above the threshold requiring an individual permit and wetlands mitigation. Although there are sites within the project limits that appear to be suitable for mitigation, further analysis and investigation is required before on-site mitigation can be assumed. As an alternative, DEP will accept a monetary contribution to the Wetlands Restoration Fund in lieu of mitigation. This cost is typically in the range of \$300,000 per acre of disturbance.

### **3.3.7 Halls Mill Road Alternative 3**

Alternative 3 encompasses all potential alignments that locate Halls Mill Road east of the existing dam at the Rutgers irrigation ponds. In this alternative, Halls Mill Road would be relocated up to 500' to the east, providing a generally straight alignment between the Rutgers Agricultural Research Building and the intersection of Edinburgh Drive and Elton-Adelphia Road. Alternative 3 proposes

a maximum roadway section of 64' along Halls Mill Road. This section provides a 12' inside lane and 15' outside lane in each direction with 5' shoulders. In locations where there are existing driveways, the section transitions to a five lane section with a 12' center turning lane. An 8'-16' raised grassed median will be considered for all alternatives as requested by many residents during the public information centers. Any additional impacts resulting from the addition of a median will be the same for all alternatives and will be addressed during the final design phase.

Features appurtenant to the improved roadway include the construction of guiderail in certain locations, an underground storm drain system, reconstructed and extended driveways, relocation of existing utilities where appropriate and minor widening of Three Brooks Road from its intersection with Halls Mill Road to the existing bridge over Applegates Creek. This alternative includes stormwater management in accordance with the NJDEP BMP Manual, April 2004. Aboveground retention and detention basins are proposed to attenuate stormwater runoff and provide the necessary water quality and groundwater recharge.

#### Project Need Analysis

Safety –This alternative meets the project need for motorist safety by providing a straight alignment with generally unrestricted sight distance. A straight alignment reduces the locations where superelevation is required, providing a more comfortable riding surface. A relatively straight alignment may cause higher 85<sup>th</sup> percentile travel speeds, however, contributing to increased high speed crashes.

Congestion – As with Alternative 2, this alternative provides adequate capacity through the 2025 design year. Since the lane configurations and minimum radii are identical along the study roadways and intersections, the results of the capacity analyses are the same.

System Linkage – Again, this alternative provide the same system linkage as with Alternative 2. The realigned Halls Mill Road intersect Elton-Adelphia Road at Edinburgh Road, thus providing a continuous uniform link between Halls Mill Road and Route 9.

Bridge Structures – The existing bridge F-29 will remain for access to existing residences. A new, 315' long bridge will be constructed over the Rutgers pond (Burke's Creek). As with all alternatives, the new bridges will be designed to current standards.

#### Impacts

As evident by observation, any alignment that locates Halls Mill Road east of the dam will have a

significant impact on the agricultural research station. Alternative 3 requires the acquisition of 22.05 Acres of ROW, as well as additional permanent easements to construct stormwater management facilities. Additionally, any alignment east of the dam would require a structure of approximately 315' long to span over the ponds, thus increasing construction and maintenance costs of this alternative. Alternative 3 requires disturbance of 1.2 acres of state open waters, which falls within the range of an Individual Permit.

Because the Rutgers Agricultural Research facility conducts long-term (15+ years) research, meetings have been held with the facility administration so that they may anticipate the potential scope of this project when selecting the location of long-term research plots. Recognizing the importance of the project to promote public health, safety and welfare, Rutgers has endorsed any alternative in which Halls Mill Road remains west of the existing barn. In anticipation of this project, Rutgers has limited long term research to plots east of the barn. In addition, the existing ponds are responsible for irrigation of the research plots. For these reasons, Rutgers will not endorse Alternative 3 because it places the roadway in long-term research areas and introduces the potential for roadway pollutants to enter the irrigation ponds.

### **3.4 Summary of Alternatives**

The alternatives that have been deemed to meet the project need have been further compared and judged on their ability to meet the project need while minimizing impacts. The alternatives that meet the project need are summarized below.

**Alternatives 2, 2A, and 2B** widen & realign Halls Mill Road to the east of the existing roadway and to the west of the dam.

#### Advantages:

- Improves traffic safety by providing adequate curvature, superelevation, and clear zone, and by providing a turn lane to remove stopped vehicles from the flow of traffic.
- Increases the level of service on Halls Mill Road and at the intersections within the study area by providing extra through and turning lanes and higher design speeds.
- Corrects a deficiency in the roadway system linkage by providing a connection from Rt. 33 to Rt. 9, and by providing safe, alternate routes in an already congested area.
- Replaces deficient structures.

Disadvantages:

- Between 0.51 and 1.19 Acres of freshwater wetlands and transition areas will be disturbed by construction activity.
- 0.38 acres of County land subject to Green Acres will be disturbed by construction activity.
- 11.94 acres of ROW must be acquired to construct the proposed improvements, including demolition of one (vacant) residence. Permanent drainage easements are also required.

Alternative 3 widens & realigns Halls Mill Road to the east of the dam.

Advantages:

- Improves traffic safety by providing adequate curvature, superelevation, and clear zone, and by providing a turn lane to remove stopped vehicles from the flow of traffic.
- Increases the level of service on Halls Mill Road and at the intersections within the study area by providing extra through and turning lanes and higher design speeds.
- Corrects a deficiency in the roadway system linkage by providing a connection from Rt. 33 to Rt. 9, and by providing safe, alternate routes in an already congested area.
- Replaces deficient structures.

Disadvantages:

- 1.20 Acres of freshwater wetlands and transition areas will be disturbed by construction activity.
- 0.27 acres of County land subject to Green Acres will be disturbed by construction activity.
- 22.05 acres of ROW must be acquired to construct the proposed improvements, including demolition of one (vacant) residence. Permanent drainage easements are also required.
- This alignment disturbs the Rutgers long-term research plots and creates the potential for pollutants to enter the irrigation pond.

### 3.5 Selection of the Preferred Alternative

Weighing the advantages and disadvantage of each of the alternatives and given the growth trends of the Study Area, the prudent alternative is to invest public funds at this time to meet the anticipated needs of the future. As shown in this report, the **Alternative 2** alignment is considered to be the

best solution to the issues of improving roadway safety and meets the project need while minimizing impacts to wetlands and private and public property. Alternative 2 is also the least expensive alternative to construct.

Alternatives 2A and 2B do not eliminate the need to obtain an Individual Permit, and have a higher total cost than Alternative 2. While Alternatives 2A and 2B result in less wetlands disturbance, and thus have a lower mitigation cost, that savings is countered by the construction cost of the necessary retaining walls, resulting in no net cost savings.

In addition, while all three alternatives meet the project goals of safety, congestion, linkage, and structure improvements, Alternative 2 offers a slightly better design in terms of safety and congestion. The proposed walls for Alternative 2A would require a disabled vehicle to occupy some of the outside lane since no border area is provided adjacent to the edge of pavement. Additionally, where walls are proposed, additional guide rail may be required, thus introducing obstructions within the clear zone. Alternative 2B uses a reduced pavement width in conjunction with the walls, placing bicyclists and pedestrians closer to the traveled lane and projecting disabled vehicles further into the travel lane.

## ALTERNATIVES COMPARISON MATRIX

ALTERNATIVES		I	II	II A	II B	III	IV
PROJECT GOALS AND CONCERNS		Improvements along Existing Alignment	Alignment West of the Existing Dam	Alignment West of the Existing Dam w/ retaining walls	Alignment West of the Existing Dam w/ walls & reduced pavement	Alignment East of the Existing Dam	NO BUILD
PURPOSE AND NEED	Improves sight distance and traffic safety	No	Yes	Yes	Yes	Yes	No
	Improves Accident Reduction	No	Yes	Yes	Yes	Yes	No
	Improves traffic signal operations	No	Yes	Yes	Yes	Yes	No
	Consistent with local, County, and regional transportation planning objectives	No	Yes	Yes	Yes	Yes	No
	Meets the Project Need	No	Yes	Yes	Yes	Yes	No
HISTORIC PRESERVATION IMPACTS	Adelphia Historic District	No	No	No	No	No	No
	Historic Architectural Resources	No	No	No	No	No	No
	Archaeological Resources	Yes	Yes	Yes	Yes	Yes	No
ENVIRONMENTAL IMPACTS	Freshwater Wetlands	1.58 Ac	1.19 Ac	0.57 Ac	0.51 Ac	1.20 Ac	None
	Water Quality	Yes	Yes	Yes	Yes	Yes	No
	Permits Individual Wetlands	Yes	Yes	Yes	Yes	Yes	None
	Air Quality (CO levels)	Medium	Low	Low	Low	Low	Medium
	Noise Level (sensitive receptors)	Medium	Low	Low	Low	Low	Medium
	Hazardous Materials (Farmland)	Low	Medium	Medium	Medium	High	None
LAND USE IMPACTS	Acquisitions / Easements	1.51 Ac	1.54 Ac	1.54 Ac	1.54 Ac	1.35 Ac	None
	Rutgers ROW impacts	6.15 Ac	10.4 Ac	10.4 Ac	10.4 Ac	20.7 Ac	None
	Parkland Impacts	0.41 Ac	0.38 Ac	0.38 Ac	0.38 Ac	0.27 Ac	None
COSTS	Construction Cost	\$12.8M	\$12.6M	\$ 12.7M	\$ 12.7M	\$21.6M	None
	Wetlands Mitigation Costs	\$ 0.5M	\$ 0.3M	\$ 0.2M	\$ 0.2M	\$ 0.3M	None
	Total Cost	\$13.3M	\$12.9M	\$ 12.9M	\$ 12.9M	\$21.9M	Delay Costs

## **4.0 OTHER PROPOSED ACTIONS IN THE PROJECT AREA**

Within the project area, no private or public development projects have been identified by any local, county, or State agency. Other than individual building permit applications and perhaps variance actions by individual property owners, no development projects other than single-family and commercial property improvements are expected to take place within the project area.

NJDOT recently completed improvements to the intersection of Route 9 and Elton-Adelphia Road (CR 524). That project involved widening the approach roadways and reconstructing the jughandles to provide additional capacity and level of service at the signalized intersection. The easterly terminus of the DOT improvements is coincident with the westerly terminus of this project. The proposed CR 524 section is a continuation of the recently completed NJDOT improvements.

## 5.0 ENVIRONMENTAL IMPACTS & MITIGATION

In this Chapter of the Environmental Assessment, environmental consequences of the proposed project are reviewed and general predictions and assessments of impacts are presented.

### 5.1 Land Use

The project area can be characterized as a mix of residential and agricultural properties with some commercial development. The undeveloped areas within the project limits include deciduous woods, freshwater wetlands, and state open waters.

West of Halls Mill Road primarily consists of single-family residential homes. These homes are oriented around Three Brooks Road and are separated from Halls Mill Road by the environmentally sensitive areas (e.g., flood plains, wetlands, transition areas, etc.) of Debois Creek and Applegates Creek. East of Halls Mill Road is primarily occupied by the Rutgers Plant Science Research Center. The research center adjoins another agricultural property and extends to the north from Elton-Adelphia Road towards Three-Brooks Road. The environmentally sensitive areas of Burkes Creek are located within the limits of the research center and adjoining agricultural property. The eastern limits of the research center extend towards the Adelphia Historic District and a housing development off of Queen Anne Boulevard in Howell Township. Single-family homes and small businesses line Halls Mill Road in the vicinity of Three Brooks Road.

From Route 9 to Debois Creek, Elton Adelphia Road is primarily commercial with a shopping center at Route 9 and other small businesses. To the east, it separates agricultural uses on the north from residential on the south. The southern reaches of the project along Edinburgh Drive are residential multi-family.

According to NJDEP Digital GIS Land Use Data (2002), the site is situated in an urban and agricultural area with wetlands, forest, and water identified near the project limits. Please refer to Figure 3 in Section 6.0 of this report for the NJDEP GIS Land Use Map.

The project will also involve the acquisition of some residential and agricultural zoned property and some of the existing roadway right-of-way will be graded and planted. Existing land use adjacent to the roadways will not change as a result of the project.

### 5.2 Parkland

The Manasquan River Stream Valley (Block 80.10 Lot 11 and Block 80.10 Lot 12) adjoins Elton Adelphia Road to the north of Bridges F-30 and F-59. The property was acquired by Monmouth

County and is administered through the Monmouth County Parks Department. The property is included on the Department of Environmental Protection Green Acres list of Recreational and Open Space Inventory; therefore, it is Green Acres encumbered. The property was acquired by the Monmouth County for the purpose of flood control; recreational uses were not envisioned for this land. In accordance with CFR 23 774.11 (d) Section 4(f) applies only to lands which function for, or are designated as being for significant park, recreation, or wildlife and waterfowl refuge purposes. Therefore, our involvement with the Manasquan River Stream Valley is not subject to Section 4(f) regulations.

The Manasquan River Stream Valley is an undeveloped 12.69 acre tract of land. Approximately 0.38 of an acre of land will be required for the proposed improvements. This project will not impact the water surface elevation of the Flood Hazard Area design flood, as required by the NJDEP Flood Hazard Area Rules, and so shall not impair the use of the land for its intended purpose. For Alternatives 2 and 3, in which Halls Mill Road is re-aligned to meet Edinburgh Drive at Elton-Adelphia Road, it is proposed to vacate the former Halls Mill Road ROW adjacent to the County parcel and give that land to the Parks Department as compensation for the disturbed area. The vacated area (0.60 Acres) in either alternative exceeds the disturbed area, resulting in a net gain of County land. The preferred alternative will return 0.60 acres of former right-of-way, resulting in a final tract size of 12.91 acres.

There is no feasible alternative to the use of this land due to geometric constraints. Halls Mill Road will be improved to provide an alignment that conforms to AASHTO and NJDOT standards. Adherence to these design standards affects the possible alignments for the improved roadway. In addition, it is not feasible to widen to the other side of the park land ROW due to the presence of residential development and a large natural gas transfer station on the other side of the road. The proposed improvements have been designed with measures to minimize harm to the County parcel. The proposed lane and shoulder widths are the minimum acceptable per County design standards, sheet pile walls were provided and 2:1 slopes are used in order to minimize disturbance.

Correspondence between the agencies that have jurisdiction over the property, the Monmouth County Parks Department and NJDEP Green Acres Program, has resulted in mutual support of the project. A Resolution of Approval for the proposed project by the County of Monmouth is included in the Appendix to this report, as is correspondence with NJDEP Green Acres. The County approved the project with Resolution 10-484 on June 10, 2010, and the Township of Freehold approved the project with resolution R-10-140 on May 11, 2010.

### 5.3 Geology and Geomorphology

The project area is located within the Coastal Plain Physiographic Province. The Bedrock Geologies underlying the project area are the Hornerstown Formation and the Vincetown Formation. The Hornerstown Formation consists of fine to medium grained glauconite sand. The Vincetown Formation consists of quartz sand, medium grained, clayey; and glauconitic near base; locally a calcarenite or coquina. The Bedrock Geology Map is Figure 5 in Section 6.0 of this report.

The site is relatively flat gently sloping toward the adjacent streams. Elevations range from approximately 100 feet (sea level) to approximately 110 feet above mean sea level in areas near the project area.

### 5.4 Soils

Information utilized to document existing soil units within the site has been compiled from the USDA's-Soil Conservation Service (USDA-SCS) publication, Soil Survey for Monmouth County, New Jersey (1987). Secondary resources included NJDEP I-Map SSURGO soils and the Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS).

The project area is underlain by a variety of soil formations. The information below summarizes the different soil units underlying the project area. The location of the soil units discussed is illustrated on the Soil Map provided as Figure 4 in Section 6.0.

#### **SacB – Sassafras sandy loam, 2 to 5 percent slopes**

This is a gently sloping, well drained soil on divides. Areas of soil are irregular in shape and range from 5 to 35 acres in size. The parent material consists of loamy and/or gravelly fluviomarine deposits. Permeability of this soil is moderate in the subsoil and moderate to rapid in the substratum. The available water capacity is high. Seasonal high water table is at a depth of 6 feet. Runoff is medium and erosion is a slight hazard. In unlimed areas reaction is strongly acid to extremely acid.

#### **SafA – Sassafras loam, 0 to 2 percent slopes**

This is a nearly level well drained soil on divides. Areas of soil are irregular in shape and typically range from 10 to 50 acres in size. Permeability of this soil is moderate in the subsoil and moderate to rapid in the substratum. The available water capacity is high and the seasonal high water table is more than 6 feet. The runoff is slow and erosion is a slight hazard. Organic matter content is moderate and in unlimed areas reaction is strongly acid to extremely acid.

**FrkE2 – Freehold sandy loam, 15 to 25 percent slopes, eroded**

This is a moderately steep and steep, well drained soil on side slopes. Areas of the soil are long and narrow in shape and typically range from 5 to 35 acres in size. Permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The water capacity is high and the seasonal high water table is at a depth of more than 6 feet. Runoff is very rapid and erosion is a severe hazard. Organic matter content is moderate and in unlimed areas reaction is strongly acid to extremely acid.

**FrkD2 – Freehold sandy loam, 10 to 15 percent slopes, eroded**

This is a strongly sloping, well drained soil on side slopes. Areas of the soil are long and narrow in shape and range from 5 to 25 acres in size. Permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The available water capacity is high and the seasonal high water table is at a depth of more than 6 feet. Runoff is rapid and erosion is a severe hazard. Organic matter content is moderate and in unlimed areas reaction is strongly acid to extremely acid.

**FrkB – Freehold loamy sand, 0 to 5 percent slopes**

This is a nearly level to gently sloping, well drained soil on divides. Areas of the soil are irregular in shape and typically range from 5 to 25 acres in size. Permeability of this soil is moderate in the subsoil and moderate or moderately rapid in the substratum. The available water capacity is high and the seasonal high water table is at a depth of more than 6 feet. Runoff is slow and water erosion is a slight hazard. Organic matter content is moderate and in unlimed areas reaction is strongly acid to extremely acid.

**FrkC – Freehold sandy loam, 2 to 5 percent slopes**

This is a gently sloping, well drained soil on divides. Areas of the soil are irregular in shape and typically range from 15 to 75 acres in size. Permeability of this soil is moderate in the subsoil and moderate or moderately rapid in the substratum. The available water capacity is high and the seasonal high water table is at a depth of more than 6 feet. Runoff is medium and erosion is a slight hazard. Organic matter content is moderate and in unlimed areas reaction is strongly acid to extremely acid.

**FrkD – Freehold sandy loam, 5 to 10 percent slopes**

This is a moderately sloping, well drained soil on side slopes. Areas of the soil are irregular in shape and typically range from 5 to 35 acres in size. Permeability of this soil is moderate in the subsoil and

moderate or moderately rapid in the substratum. The available water capacity is high and the seasonal high water table is at a depth of more than 6 feet. Runoff is medium and erosion is a moderate hazard. Organic matter content is moderate and in unlimed areas reaction is strongly acid to extremely acid.

**HumAt – Humaquepts, 0 to 3 percent slopes, frequently flooded**

This is a nearly level, somewhat poorly drained to very poorly drained soil. They are on flood plains along perennial and intermittent streams. Areas of these soils are long and narrow in shape and range from 10 to 50 acres in size. Although these soils differ greatly depending on location, generally, the surface layer and the subsoil consist of stratified layers of sandy loam, loam and silt loam. The substratum consists of stratified layers of loamy sand, sandy loam, loam or silt loam. In some areas the stratified layers are gravelly or mucky. Permeability is moderate or moderately rapid in the subsoil and substratum. The available water capacity is high and the apparent seasonal high water table is between the surface and a depth of 1.5 feet. Runoff is slow and organic matter content is low to high. The soil is subject to frequent flooding mainly in the early spring or after a heavy rainfall. In unlimed areas reaction is extremely acid to slightly acidic.

**CopC – Collington-Urban land complex, 0 to 10 percent slopes**

This consists of gently sloping and moderately sloping, well drained Collington sandy loam and urban land. Areas of each are in such an intricate pattern that it is not practical to map them separately. The mapped areas are irregular in shape and typically range from 20 to 40 acres in size. Collington sandy loam makes up about 40 percent of the mapped area and urban land makes up 30 percent, while others make up the additional 30 percent. Urban land consists of areas covered by impermeable surfaces, such as dwellings, roads and streets, shopping centers, parking lots, and industrial parks. Permeability of the Collington soil is moderately slow or moderate in the subsoil and moderately slow to moderately rapid in the substratum. The available water capacity is high and the seasonal high water table is at a depth of more than 6 feet.

Many of the soils groups on site are identified as acidic. As such, mitigative measures will be conducted if necessary. The Standard for Management of High Acid Producing Soils from the current Standards for Soil Erosion and Sediment Control in New Jersey will be followed to minimize erosion, sedimentation and acid leachate related damages.

The following mitigation measures would be undertaken when the soils have been exposed:

- i. Minimize the area and time of exposure.
- ii. Minimize the spread or mixing of the soil into soil free of such deposits, and controlling the disposal inside or outside the floodplain.
- iii. Covering the acid soils with limestone and non-acidic producing soil to permit the establishment of vegetation. Provide prompt, temporary and permanent stabilization of areas where soils are exposed.

### **5.5 Freshwater Wetlands**

The Federal Interagency Committee for Wetland Delineations (FICWD) has outlined a three-parameter approach to identify the boundary between wetland and upland in their January 1989 “Manual for Identifying and Delineating Jurisdictional Wetlands.” The three parameters involved are soils, vegetation, and hydrology. The three-parameter approach is based on the evaluation of on-site conditions for evidence of hydric soils, hydrophytic vegetation and supporting wetland hydrology.

There are freshwater wetlands and associated wetland buffers located within the limits of the project area. A Freshwater Wetlands Letter of Interpretation (LOI) Line Verification was approved by the NJDEP on September 22, 2005 (NJDEP File No. 1300-04-0011.1) for the project corridor. The approved LOI classified the wetlands as intermediate resource value with a 50-foot buffer. The project plan included with this report indicates the limits of the wetlands and State Open Waters onsite. The Approved NJDEP LOI is included in Section 8.5.

According to Executive Order 11990 concerning the protection of wetlands, federal assistance for new construction located in wetlands is to be avoided unless it can be demonstrated that there is no practicable alternative to such construction, and that the proposed action includes all practicable measures to minimize harm to wetlands potentially resulting from such use. The subject project is in compliance with the Executive Order 11990 and with 23 Code of Federal Regulations (CFR) Part 777. As per applicable State regulations, approvals must be obtained by submitting a combined Freshwater Wetland Individual and Flood Hazard Area permit application.

Based on the concept design in the alternatives analysis, the disturbance to wetlands, wetland buffers and State open waters onsite varies from 0.51 to 1.58 acres, depending on the alternative. 1.19 acres of disturbance is anticipated for the preferred alternative. This amount of disturbance is necessary

for the roadway widening, structure replacement and drainage improvements. The required Freshwater Wetlands Individual Permits will be submitted to the NJDEP DLUR to address the project's compliance with the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A). Upon finalizing areas of impact, the appropriate mitigation proposal will be submitted to the NJDEP for review and approval. The mitigation approval will be implemented to offset wetland impacts incurred during construction of the project. As required by the NJDEP, wetland disturbance is to be mitigated at a 4:1 ratio.

Several areas within the project limits have been investigated for suitability for wetlands mitigation. All areas are adjacent to existing wetlands transition areas. Detailed investigation into each site's suitability will be made during the final design phase, prior to submission of the Freshwater Wetlands Individual Permit application.

## 5.6 Vegetation Communities

The vegetation located adjacent to the project area mainly consists of wooded wetlands and upland habitats with grassland/open emergent habitats associated with the farmland.

### Upland Vegetation

The majority of the upland is located on the eastern portion of Halls Mill Road and consists of maintained lawn associated with the Rutgers University Plant Science Research Center. The uplands located on the western side of Halls Mill Road are located on the shoulder. The dominant vegetative species found in the uplands are Black Cherry (*Prunus serotina*, FACU), Honey Locust (*Gleditsia triacanthos*, FAC), Fescue Grasses (*Festuca spp.*, NI), and Canada Goldenrod (*Solidago canadensis*, FACU).

### Wetland Vegetation

The wetlands consist of broad leaved deciduous forested wetlands associated with the floodplain adjacent to Applegates Creek. The site borders the eastern bank of Applegates Creek. The dominant vegetative species in this community consist of Red Maple (*Acer rubrum*, FAC), Black Willow (*Salix nigra*, FACW+), Silver Maple (*Acer Saccharinum*, FACW), Northern Arrowwood (*Viburnum recognitum*, FACW-), Red-osier Dogwood (*Cornus stolonifera*, FACW+), Greenbrier (*Smilax rotundifolia*, FAC), Reed Canary Grass (*Phalaris arundinacea*, FACW), Jewelweed (*Impatiens capensis*, FACW), and Common Reed (*Phragmites australis*, FACW).

The shrub/scrub and emergent wetland associated with Applegates, Burkes and Dubois Creek;

south of Three Brooks Road include a typical vegetative community for this type of project setting. Shrub species include silky dogwood (*Cornus ammomum*), smooth alder (*Alnus serrulata*), black willow (*Salix nigra*), red osier dogwood (*Cornus sericea*), buttonbush (*Cephalanthus occidentalis*), swamp rose (*Rosa palustris*), and poison sumac (*Toxicodendron vernix*). Herbs and forbs found on the site consist of the dominants common cattail (*Typha latifolia*), narrow-leaved cattail (*Typha angustifolia*), and reed canary grass (*Phalaris arundinacea*), along with sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), skunk cabbage, (*Symplocarpus foetidus*), wool grass (*Scirpus cyperinus*), halberd-leaved tearthumb (*Polygonum arifolium*), spotted jewelweed (*Impatiens capensis*), tussock sedge (*Carex stricta*), fringed sedge (*Carex crinita*), climbing false boneset (*Mikania scandens*), common arrowhead (*Sagittaria latifolia*), spatterdock (*Nuphar lutea*), sweet flag (*Acorus calamus*), New York ironweed (*Vernonia noveboracensis*), pickerelweed (*Pontederia cordata*), mud-plantain (*Heteranthera multiflora*), clearweed (*Pilea pumila*), dodder (*Cuscuta gronovii*), Turk's cap lily (*Lilium superbum*), false hellebore (*Veratrum viride*), and stinging nettle (*Urtica dioica*).

#### Vegetation Impacts

The proposed project requires partial removal of vegetation that currently exists along the roadways. As a result, resident and migratory wildlife species will lose habitat. Common wildlife species currently using the site will be displaced to adjacent woodlots. After construction is complete, it is expected that the vegetated areas along the roadway alignment will provide intermediate resource value habitat for various bird and mammal species. This is particularly the case along the immediate edge of the road where the alignment meets adjoining vegetated areas. The edges leading to interior portions of adjoining woodlots will offer sensitive species a more contiguous habitat which can be populated by a diverse community of passerines and potentially serve as stop-over points for neo-tropical migrants.

The wetlands located in the project area serve as an important watering area for resident wildlife. These wetland areas also serve as habitat area for various species of turtles and frogs. Effects on vegetation and aquatic species (i.e., amphibians) in these areas will be minimized to the greatest extent practicable. All necessary wetland and floodplain permits will be obtained from the NJDEP Land Use Regulation Program prior to construction.

A soil erosion and sediment control plan (SESCP) will be prepared for the project and will provide some mitigation for the loss of vegetative cover and wildlife habitat. The SESCO requires that exposed soil must be planted with the appropriate mix of cool weather and hot weather seed mix. The resulting groundcover will provide some forage and cover habitat for

resident and migratory wildlife species.

## 5.7 Wildlife

The diversity of the landscape around the project area provides habitat for a variety of wildlife species, but can basically be broken down into two categories specified as open land habitat and forested habitat. Open land habitat, including the adjacent agricultural properties, supports birds and mammals that usually live in open areas, meadows, and similar environments. Examples are red-tailed hawks, meadowlarks, mourning doves, various sparrow species, common crow, eastern cotton-tail rabbits, and groundhogs. Forest wildlife consists of birds and mammals that require cover and protection provided by a forested environment, whether deciduous or coniferous. Examples of avifauna utilizing forested habitats include great-horned owl, blue jay, various woodpecker species, Carolina chickadee, tufted titmouse, white-breasted nuthatch, eastern pewee, veery, wood thrush, red-eyed vireo, ovenbird, American redstart, scarlet tanager, and rose-breasted grosbeak. Small mammals such as gray squirrels are frequently encountered in deciduous or mixed woodlands. Opossums, raccoons, striped skunks, white-footed mouse and weasel species are also known to utilize forested habitats though they are less frequently encountered. White-tailed deer take advantage of the edge habitat where the forested habitats and open habitats converge, often feeding in the open areas and utilizing forested areas for cover.

## 5.8 Threatened & Endangered Species

The New Jersey Department of Environmental Protection (NJDEP) Natural Heritage Program maintains a database of the locations of rare plants and wildlife species in the State of New Jersey. The NJDEP Threatened and Endangered Species Map is provided as Figure 7 in Section 6.0.

On December 21, 2000, the US Fish and Wildlife Service (USFWS) completed a review of a freshwater wetland permit application for a development in close proximity to the project area. The USFWS determined that there was a known occurrence of bog turtle (*Glyptemys mublenbergii*) within one half mile of the project area. Pursuant to the Endangered Species Act of 1973, the northern population of bog turtles is listed as federally threatened by the USFWS and State Endangered by the NJ Division of Fish and Wildlife. Section 7 of the Federal Endangered Species Act Amendments of 1978 and the National Environmental Policy Act requires that any action undertaken shall not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species determined to be critical.

Accordingly, a habitat suitability study, dated June 27, 2006, was undertaken to determine if the project area contained bog turtle habitat. The study was concentrated in the open marsh and deciduous wooded wetlands adjacent to the project area. It was determined that the project area contained suitable habitat for bog turtles located on approximately 3 acres of emergent wetland near the intersection of Halls Mill Road and Elton-Adelphia Road at the site identified as Block 80.10, Lot 11 in Freehold Township, Monmouth County, NJ.

As a follow-up to the habitat suitability study, a Phase II visual survey was performed to determine if bog turtles were in the areas of potentially suitable habitat. The Phase II Survey was conducted over a four day period in May and June. Although other herptile species were encountered, no bog turtles were observed in the suitable habitat noted above. No additional species-specific wildlife surveys have been required. A report has been prepared that includes the details of the bog turtle surveys. The Phase I Habitat Survey and Phase II Visual Survey were submitted and approved under separate cover.

The following paragraphs were taken from the Phase II Visual Survey report:

The study area consists of a shrub/scrub and emergent wetland associated with Applegates, Burkes and Dubois Creek, south of Three Brooks Road. Shrub species present include silky dogwood (*Cornus ammomum*), smooth alder (*Alnus serrulata*), black willow (*Salix nigra*), red osier dogwood (*Cornus sericea*), buttonbush (*Cephalanthus occidentalis*), swamp rose (*Rosa palustris*), and poison sumac (*Toxicodendron vernix*). Herbs and forbs found on the site consist of the dominants common cattail (*Typha latifolia*), narrow-leaved cattail (*Typha angustifolia*), and reed canary grass (*Phalaris arundinacea*), along with sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), skunk cabbage, (*Symplocarpus foetidus*), wool grass (*Scirpus cyperinus*), halberd-leaved tearthumb (*Polygonum arifolium*), spotted jewelweed (*Impatiens capensis*), tussock sedge (*Carex stricta*), fringed sedge (*Carex crinita*), climbing false boneset (*Mikania scandens*), common arrowhead (*Sagittaria latifolia*), spatterdock (*Nuphar lutea*), sweet flag (*Acorus calamus*), New York ironweed (*Vernonia noveboracensis*), pickerelweed (*Pontederia cordata*), mud-plantain (*Heteranthera multiflora*), clearweed (*Pilea pumila*), dodder (*Cuscuta gronovii*), Turk's cap lily (*Lilium superbum*), false hellebore (*Veratrum viride*), and stinging nettle (*Urtica dioica*).

Much of the study area was found to be too dry to support bog turtles. While much of the study area had vegetation very similar to that present at sites with known bog turtle populations, it lacked the flowing surface water, seepage areas, and the areas of deep muck necessary to support the turtle.

It was concluded that the majority of the study area consisted of unsuitable habitat for bog turtles due to canopy cover, hydrology not typical of documented bog turtle habitat and the absence of a soft, mucky substrate.

It should be noted, however, that approximately 3 acres of emergent wetland near the intersection of Halls Mill Road and Elton-Adelphia Road was identified as potential bog turtle habitat. This wetland exhibited all the characteristics necessary for suitable bog turtle habitat. Therefore, a Phase II Visual Survey for the Presence of Bog Turtles was performed on this portion of the wetlands.

The visual surveys were conducted on May 21, May 28, June 3, and June 10. During each of the surveys, no bog turtles were observed. A total number of 43.5 field/person hours were expended during the four survey dates. The wetland area deemed potentially suitable in the Phase I survey was intensively searched visually and by probing in mucky areas, particularly in the very wet and mucky micro-sites along the northern edge of the survey area. Parts of the survey site had become considerably drier by the end of the survey period, indicating that much of the standing water found during the Phase I survey was due to heavy rains and stream flooding in May, and did not originate from springs or seeps. The northern edge micro-sites remained quite wet and mucky through the end of the period, due to seepage and possibly spring. These areas were very intensively searched during the last two site visits.

Other herptile species found during the surveys included common snapping turtle, eastern painted turtle, northern watersnake, eastern garter snake, and green frog. This survey was performed using the accepted protocols for conducting Phase II bog turtle surveys during the approved season as presented in the U.S. Fish and Wildlife Service Northern Population Recovery Plan, May 2001. During the surveys no bog turtles were observed.

## **5.9 Surface Water**

As mentioned above, the project area is located adjacent to Applegates Creek, Debois Creek and Burkes Creek. The three streams are identified as Freshwater Non-trout (FW2-NT) Category 2 Waters. According to NJDEP Digital GIS Data, the site is located in the Manasquan River (from Route 9 to 74d17m50s Road) Sub-watershed (HUC 14) which is part of the Manasquan River Watershed (HUC 11). These waterbodies are all part of the Monmouth Watershed Management Area (WMA) Number 12.

According to the NJDEP Digital GIS FEMA Flood Data, the portions of the project area are

located within the 100-year and 500-year floodplain of the Burkes Creek and Applegates Creek. The 100-Year Floodplain does not reach the landward limits of the project. In order to demonstrate the project's compliance with the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13), a Flood Hazard Area Permit application will be submitted to the NJDEP Division of Land Use Regulation for review and approval during the final design phase.

Applegates Creek, Burkes Creek, and Debois Creek are not listed as a component of the Federal, State or Wild and Scenic River system, nor are they rivers officially designated by Congress or State Legislature as a "study river" for possible inclusion in either system while the river is in an official study status.

Proposed improvements must be designed in such a manner so as to limit potential environmental impacts. The proposed project will include the replacement of the bridge/culvert crossings where necessary. All regulated activities that may have an impact on these areas must be authorized by the NJDEP Division of Land use Regulation prior to construction. As per applicable State regulations, approvals must be obtained by submitting a combined freshwater wetland and Flood Hazard Area permit application.

Potential short-term impacts to surface water quality are generally associated with soil loss, erosion, and sedimentation during construction activities. As previously described, soil disturbance will be largely confined to areas surrounding the proposed improvements and roadway construction. Any potential adverse impacts, should they occur, will be minimized by the installation and maintenance of proven soil erosion and sediment control measures presented in the finals plans. These measures will retain disturbed soil sediment within the areas of construction, and will mitigate the potential for sediment being transported to the adjacent waterbodies.

### **5.10 Floodplains**

The proposed project is located within the 100-year and 500-year floodplains of Debois, Applegates, and Burkes Creeks. The proposed project will be designed to meet the requirements of the NJDEP Flood Hazard Rules (N.J.A.C. 7:13) and will be addressed in the Flood Hazard Area Permit application to be submitted.

The proposed construction activities will not cause interruption to a sole excavation route for this area. The project does not constitute a longitudinal floodplain encroachment, nor does the project involve any significant risks to life or property as defined by FHWA regulations. There will be no substantial adverse impacts on the natural or beneficial floodplain values. Therefore, the proposed

action does not constitute a significant encroachment as defined in Chapter 23 of the Code of Federal Regulations (CFR) Part 650A; the project is also in compliance with Executive Order 11988 regarding floodplain management.

### **5.11 Stormwater Management**

NJDEP Stormwater Management Rules define a major development as any project that disturbs more than 1 acre of land or creates more than 1/4 acre of new impervious surface. The improvements proposed for this project are above the thresholds for major development; therefore, Phase II stormwater management rules are applicable. The proposed improvements will comply with NJDEP regulations concerning runoff quantity, water quality, and groundwater recharge. Nonstructural runoff control will be provided to the greatest extent practicable as per the LID guidelines and structural measures will be incorporated as required. The preferred structural stormwater management measures will be determined during the final design phase. It is anticipated that above or below ground detention basins will be used in conjunction with infiltration structures in order to satisfy all applicable regulations. The proposed stormwater management measures will be subject to review and approval by NJDEP.

### **5.12 Aquifers**

The site is underlain by the Coastal Plain Sole Source Aquifer. In addition, the site is underlain by the Composite confining unit and Composite confining unit aquifer Bedrock Aquifer. There are no mapped surficial aquifers underlying the site. The Aquifer Map is provided as Figure 6 in Section 6.0.

Pursuant to section 1424(e) of the Safe Drinking Water Act, the Administrator of the U.S. Environmental Protection Agency (EPA) has determined that the New Jersey Coastal Plain Aquifer System, underlying the New Jersey Coastal Plain Area, is the sole or principal source of drinking water for the Counties of Monmouth, Burlington, Ocean, Camden, Gloucester, Atlantic, Salem, Cumberland, Cape May and portions of Mercer and Middlesex Counties, New Jersey, and that the aquifer, if contaminated, would create a significant hazard to public health. This information was documented from the USEPA Region 2 Coastal Plain Aquifer Information on their website ([http://www.epa.gov/Region2/water/aquifer/coast/fr\\_coast.htm#I4](http://www.epa.gov/Region2/water/aquifer/coast/fr_coast.htm#I4)).

### 5.13 Air Quality

#### Background

Ambient air is defined by the United States Environmental Protection Agency (USEPA) as that portion of the atmosphere, external to buildings, to which the general public has access. National Ambient Air Quality Standards (NAAQS) have been promulgated by the USEPA for the protection of public health and welfare, allowing for an adequate margin of safety. The Federal and State environmental regulatory agencies have established permissible concentrations, termed air quality standards, for common airborne pollutants such as individual pollutants, including sulfur dioxide, total suspended particulates, intolerable particulates, carbon monoxide, ozone, nitrogen oxides, lead and other metals, smoke shade, toxic pollutants, and acid precipitation. These standards have been shown to reduce to an acceptable level the risk of health effects to vulnerable human populations, primarily the young, the elderly, and those with respiratory ailments. Primary standards define air quality levels intended to protect the public health with an adequate margin of safety. The secondary standards define levels of air quality intended to protect the public welfare from any known or anticipated adverse effects of a pollutant.

The USEPA promulgated the Transportation Conformity Rules (TCR) under the Clean Air Act Amendments (CAAA) effective December 27, 1993. The TCR provides criteria and procedures for determining conformity to the State Implementation Plans (SIP) of transportation plans, programs and projects funded or approved under Title 23 U.S.C. or the Federal Trust Act.

The proposed project is located within the approved FY 2010-2019 State Transportation Improvement Program (STIP), DB#HP01002.

#### Existing Conditions

The NJDEP monitors air quality statewide for all of the above listed pollutants. Freehold Township is located within the New Jersey/New York/Connecticut Air Quality Control Region. The EPA has classified this area as Priority 1, meaning that violations of established standards for each criterion pollutant have been recorded at monitoring sites within the region. New Jersey as a whole is in violation of the ozone standard and the concern over the abatement of this air contaminant is regional (i.e., spanning several northeastern states).

The project area is in the Northern Coastal Region (Monmouth and Ocean Counties). Pollutants monitored within the Northern Coastal Region are carbon monoxide (CO), Particulates, and ozone (O<sub>3</sub>). The air monitoring station within the region closest to the project area is the Freehold Station.

Data compiled at the Freehold Station for 2004 indicates that the first and second highest one hour average recorded levels for carbon monoxide (CO) were 8.6 ppm and 3.6 ppm, respectively, which is well below the New Jersey and National one hour standard of 35 ppm. The first and second highest recorded eight hour averages were 2.3 ppm, also below the 9.0 ppm eight hour standard.

In summary, none of the monitoring sites recorded exceedances of any CO standard during 2004. The overall ambient air quality for the project site is good. According to the NJDEP Air Quality Report, ozone was the only parameter which was identified as a problem in late spring, summer and early fall months and is a problem Statewide. Additionally, the entire State of New Jersey is located in an Ozone attainment area for the one-hour standard.

**Table 1** presents the New Jersey and National Ambient Air Quality Standards and **Table 2** presents the data from the 2004 *Air Quality Report* (NJDEP, 2005) which compiles data from the air monitoring stations.

**Table 1**  
**Air Quality Standards**

<u>Pollutant</u>	<u>Period</u>	<u>New Jersey Standard</u>	<u>National Standard</u>
Carbon Monoxide	1 hr. avg.	35.00 ppm	35.00 ppm
	8 hr. avg.	9.00 ppm	9.00 ppm

**Table 2**  
**2004 Air Quality Monitoring Data**

<u>Station</u>	<u>Pollutant</u>	<u>Period</u>	<u>Maximum</u>	<u>2nd Highest</u>
Freehold Lab	Carbon Monoxide	1 hr. avg.	8.6 ppm	3.6 ppm
		8 hr. avg.	2.3 ppm	2.3 ppm

Because the project is located in a CO attainment area, conformity with the SIP can be demonstrated if the project reduces the severity of CO levels in the study area.

An air quality assessment was performed based on the change in traffic volumes, vehicle classification, and travel speed on the affected roadways to address the potential change in pollutant emissions of carbon monoxide and fine particulate matter levels within the project corridor. In short, the assessment concluded that based on the improved traffic flow through the project corridor, pollutant levels

associated with vehicle emissions would be reduced. The conclusion is that the proposed project will not have a significant long-term effect on air quality.

#### Temporary (Construction) Impacts

Short-term air quality impacts during construction are related to production of fugitive dust and generation of emissions from exhausts of construction vehicles. Mitigating measures including dust control practices and the use of air pollution control devices on construction equipment will minimize adverse effects on local air quality. A temporary increase in particulate matter may occur during construction, however standard dust control measures will be implemented to minimize disturbance. No equipment or machinery will be used at the site that would result in long term air quality impacts. Suspended particulate matter may increase due to slightly higher airborne dust levels resulting from site grading. Proper dust control measures such as siltation fences, temporary seeding of exposed soil stockpiles, and wetting exposed unpaved surfaces during construction will minimize any potential impacts of soil erosion and dust from exposed soil. Restoration of all disturbed areas will follow construction.

#### Project Impacts

Based on the Air and Noise Impact Analysis and upon review of the project design plans for the Conceptual Alternative Alignment, it was determined that several receptors would experience a change in the receptor distance from the edge of the existing roadway. The level-of-service (LOS) operating conditions for traffic at the critical intersection were also evaluated using the information provided in the traffic study. The traffic study prepared for the project was reviewed to determine if significant changes in traffic volumes or roadway speeds will occur that might affect air quality.

There were a total of 7 single-family residences, 76 multi-family units among 8 buildings, and 2 commercial properties within 400 feet of the roadway that would end up closer to the new road alignment and related traffic, and a total of 7 single-family residential properties and 1 commercial property that would end up farther from the roadway alignment.

Based on the projected traffic volumes and the shift in the roadway alignment closer to receptors, there is some potential for increased air quality impacts to occur at several of the residential receptors despite the projected improvement to traffic flow in the area. The future traffic volumes would increase by a negligible 4% compared to the “No Build” conditions at the critical intersection of Elton-Adelphia Road and Halls Mill Road. However, it was determined that there would be limited potential for significant impacts to air quality in the affected study area due to improved LOS

operating conditions, despite the increased traffic and reduced receptor distances. The assessment concluded that based on the improved traffic flow through the project corridor, pollutant levels associated with vehicle emissions would be reduced. The report concluded that the proposed project would not have a significant long-term effect on air quality.

## 5.14 Noise Quality

### Background

Sound is conducted through air as a series of pressure waves having kinetic energy. The kinetic energy of these sound waves can be quantified in decibels - scalar units that are geometrically related to the energy of the sound at the receptor. The decibel (dBA) scale ranges from 0 for the threshold of perception of sound to approximately 130 dBA for the threshold of pain at the ear; a quiet residential street may have noises in the 55-60 dBA range while heavy street traffic generates noises in the 85-95 dBA range (EPA 1976). The "A" suffix means that the sound energy characteristics have been weighted to emphasize the upper audible frequency ranges (A-weighting).

### Methodology

A field survey was conducted to identify sensitive receptors (i.e. residences, schools, and hospitals) and related environmental constraints along the project roadway alignment. This task identified all the sensitive receptors within 400 feet of the proposed alignment as required for the proposed roadway and the receptors. Based on the review of the project plans and the aerial photographs of the study area, the field reconnaissance was conducted to verify the receptor locations near the edge of the existing roadway. The results of the field survey indicated that there was a combined total of 90 residential properties (14 single-family residences, 8 multi-family units with 76 condominiums [6 buildings with 10 condos each and 2 buildings with 8 condos each]), 2 light-industrial/commercial properties, and 1 commercial/retail property with several businesses within 400 feet that will be affected by the proposed roadway improvements. These receptors were evaluated to satisfy the typical EA requirements for addressing receptors affected by potential noise impacts due to the proposed project. It was concluded that these receptors would not experience a discernible increase in noise as a result of this project.

### Project Impacts

Noise levels will both increase and decrease slightly along Halls Mill Road due to the shifting alignment of the preferred alternative. Project noise levels will not increase more than 3dBA over existing noise levels and by 0-2dBA over No Build levels. In addition, the noise levels will generally

remain the same along Edinburgh Drive in particular near both Elton Adelphia Road and Route 9 where traffic on those roadways dominates the noise levels in the area. Under the Preferred Alternative conditions even with the traffic diverted to Edinburgh Drive, both Elton Adelphia Road and Route 9 continue to dominate the traffic noise levels at Edinburgh Drive receptors, except for those more distant residential structures midway between these two roadways.

The results show Build noise levels of  $Leq=57\text{dBA}$  at most of the Edinburgh Drive receptors shielded by existing berms and  $Leq=59\text{dBA}$  at receptors not shielded by the berms, while receptors near Elton Adelphia Road experience noise levels of  $63\text{dBA}$  due primarily to Elton Adelphia Road traffic with negligible effects from traffic diverted to Edinburgh Drive. Similar conditions are expected along the more heavily traveled Route 9 where Edinburgh Drive traffic diversions would have a negligible effect on traffic noise at residential receptors compared to the Route 9 traffic.

The results of the analysis also indicate that residential receptor noise levels along Edinburgh Drive will increase by less than  $3\text{dBA}$  between 2004 Existing and 2025 No Build conditions, and noise levels will be relatively unaffected ( $0\text{-}2\text{dBA}$  change) between 2025 No Build and Build conditions. No assessment of noise impacts was performed at receptors along Elton Adelphia Road due to the realigned intersection with Edinburgh Drive since the traffic volumes would decrease along this section of roadway under the Build conditions. Receptor noise levels would be expected to improve along Elton Adelphia Road due to lower traffic volumes despite minor lane widening that would shift the travel lanes slightly closer to the adjacent receptors.

The less than 3 decibel change in No Build noise levels represents a negligible change that is imperceptible to human response. In addition, no changes in average operating speeds were predicted based on the existing and proposed design speeds for the affected roadways.

Along Halls Mill Road, there are 2 of the 9 single-family residential properties, 8 multi-family condominium units, and 1 commercial property that will end up closer to the new roadway alignment and related traffic, and there will be 7 of the 9 single-family residences and 1 commercial property that would end up farther from the proposed roadway alignment. The residences along Halls Mill Road will experience a maximum project increase in noise levels of  $2\text{dBA}$  over the 2025 No Build conditions and  $3\text{dBA}$  over 2004 existing conditions based on normal traffic growth and the reduction in distance from the roadway traffic to the receptors. As stated previously, a  $3\text{dB}$  change in noise levels represents a barely perceptible change to human response indicating the project would have an insignificant affect on existing noise levels.

### Conclusions

Based on this review of the existing and projected traffic volumes and the shift in the roadway alignment for the Preferred Alternative, there is limited potential for project related noise impacts to occur at the affected receptors due to the proposed improvements. The change in traffic related noise levels due to the project is expected to be insignificant resulting in no substantial increase in noise levels at local receptors. In fact, Build noise levels for the Preferred Alternative will be reduced by 3dBA at 4 residential receptors along Halls Mill Road due to the shift in roadway alignment, thus eliminating 4 No-Build receptors that exceeded the 67dBA residential land use NAC. The Build noise levels will slightly increase from 64dBA to 66dBA at 5 residential receptors that would be considered approaching the 67dBA NAC. Also, there will be no change in the number of commercial receptors that will approach the FHWA NAC despite similar negligible increases comparing the Build versus No-Build noise levels.

### Mitigation

Mitigation measures would be ineffective and not feasible for this project due to the number of breaks in any barrier that would be required along the roadway corridor to provide access to the existing land use. Therefore, the land service nature of the affected roadways precludes the use of noise barriers as a traffic noise mitigation measure.

## **5.15 Historic, Architectural, Archaeological and Cultural Resources**

### Architectural Resources

A historic archaeological sites survey and Phase I archaeological investigation concluded that there are **no historic architectural resources** within the Area of Potential Effect (APE) for Architectural history that are determined to be eligible for inclusion in the National Register of Historic Places. Therefore, there will be no adverse impacts to historic architectural resources.

### Archaeological Resources

A total of five archaeological sites were identified during the Phase I Survey of the Halls Mill Road realignment Area of Potential Effect (APE). Of these sites, two sites are identified as historic and three are prehistoric. A Phase II investigation was therefore recommended in both historic site areas. The Phase II Survey concluded that the First and Second Prehistoric Sites did not merit Phase II level investigation. This was based on initial shovel test pits excavated within the limits of these two sites. It was determined that the artifact yield from these two sites is insubstantial and

widely dispersed and all cultural materials were recovered from a plowzone which has been tilled in recent years to a depth of at least two feet. No evidence of intact buried features was noted in the earlier fieldwork and the potential for significant archaeological data is considered very low. Therefore, no further investigation of these two sites is considered necessary. The Third Prehistoric Site archaeological testing produced a very low yield of Native American artifacts, all recovered from the plowzone. Based on this low artifact yield, a lack of diagnostic materials, and the absence of cultural materials in soils beneath the plowzone, no further archaeological study of this site is considered necessary.

While located beyond the limits of the project corridor, the remains of a former mill site were also evaluated. Fieldwork and primary archival research show that the focus of the Richmond/Halls Mill Site (including the mill dam and the mill building) lies roughly 125 feet north and upstream of the existing Elton-Adelphia Road, outside the proposed limits of disturbance of the project. Except possibly for the furthest downstream portion of the mill tail race, the mill is located well away from the area of the projected road improvements. A full evaluation of the National Register eligibility of the mill site is not offered as part of this study because the focus of the site lies outside the project's archaeological area of potential effect.

A potential Revolutionary War encampment at the northeast corner of Elton-Adelphia Road and Halls Mill Road was also investigated. Surface inspection, remote sensing, and archaeological testing found no evidence to suggest that this area contained the site of the Revolutionary War-era riflemen's encampment at the Richmond mill in late June of 1778. A single musket ball was recovered.

Archaeological testing at the Nevis House Site found the remains of a late 19th/early 20th-century farmhouse that is documented in historic photographs. This property has no significant historical associations and the archaeological data is of minimal historical interest. The site does not meet the criteria for inclusion in the National Register of Historic Places. No further archaeological study is considered necessary.

### **5.16 Social Impacts/Environmental Justice**

The proposed action will not force the relocation of any residential or businesses nor divide or disrupt established communities. The project will involve the acquisition of some residential and agricultural zoned property. However, the overall safety and traffic conditions will be improved to assist the people living along Halls Mill Road. The need for the improvements is mainly due to the

unsafe conditions resulting from the substandard geometry that results in poor sight distance and poor level of service that is the cause of numerous accidents within the project area and delays for emergency vehicles. It is necessary to upgrade current roadway geometry and safety features to accommodate the increasing traffic volumes and reduce the congestion in the project area. Providing these improvements will enhance the health, safety, and quality of life of the traveling public and local residents in the project area.

No minority, low-income, or tribal populations will be adversely affected by the proposed action since these populations do not live within the immediate area.

### **5.17 Projected Socioeconomic Impacts**

It is necessary to upgrade current roadway geometry and safety features to accommodate the increasing traffic volumes and reduce traffic congestion in the project area. Providing these improvements will enhance the health, safety, and quality of life of the traveling public and local residents. Construction of the roadway improvements will create numerous jobs and bolster the local and regional economies by providing improved access to the commercial properties in the area. It is not anticipated that the roadway improvements will generate secondary impacts.

### **5.18 Farmland**

The project will involve the acquisition of some agricultural zoned property. There will be no disruption to the farming community as a result of the roadway improvements. No adverse impacts on agricultural production are anticipated.

### **5.19 Short Term Construction Impacts**

Short-term impacts are expected to occur during construction as a result of earthwork and contractor activities. During these periods, there is a potential for an increase in noise and dust in the vicinity of the road improvements. These impacts will be minimized through the establishment of best management practices including dust control, and the use of air pollution control devices on construction equipment will minimize adverse effects on local air quality. The project specification will also include provisions to limit construction noise, such as restricting the time of day heavy equipment may be used, and requiring noise shielding for continuously running stationary equipment.

Implementation of a site-specific Soil Erosion and Sediment Control Plan is required by both the NJDEP and the Freehold Soil Conservation District. Measures will include silt fencing around the

construction area and immediate stabilization of bare soil upon completion of the earthwork. A landscaping plan will be implemented upon completion of construction activities. No adverse impacts to the environment are expected as a result of the construction activities associated with the roadway improvements.

## **5.20 Hazardous Materials**

There are three (3) Areas of Concern (AOCs) within the project limits, as described below:

**AOC#1** - The project area contains historic and current agricultural properties. As such, soil sampling pursuant to NJDEP's March 1999 guidance document, Findings and Recommendations for the Remediation of Historic Pesticide Contamination, is recommended to determine the presence (or absence) and concentration of pesticide contamination. The results will suggest how soils in the proposed roadway development section of the corridor should be handled. The proposed roadway located north of Elton-Adelphia Road bisects a portion of the Rutgers Plant Science Research Center. Potentially hazardous pesticides may have historically been used on this parcel and may impact the soil reuse or disposal options. Although NJDOT recommended further soil investigation in order to quantify the environmental and material handling costs, Rutgers Research Center personnel requested that the excavated material be transferred to another part of the farm for future use. As such, no additional soil investigation is required at this time. These soil tests should be performed during the final design phase after the limits of disturbance have been finalized and the disturbed areas have been acquired for ROW.

**AOC#2** - Several transformers were observed on utility poles in the project area. The transformer units on these utility poles contain polychlorinated biphenyls (PCBs), a known carcinogen. The transformers did not visibly show signs of leaking on the utility poles and no pavement staining was observed in the vicinity of the utility poles. Realignment of utility poles along Halls Mill Road is anticipated during the construction phase of the project. Coordination with JCP&L during the utility pole relocation procedure is required.

**AOC#3** - The PA Report states that Adelphia Greens and Ocean Plaza are listed in the NJDEP's iMAP database as sites with known sources of contamination. These sites were not listed in the Federal/State Corridor study. In addition, the Known Contaminated Sites List has not been updated since 2001. According to Freehold Township records, the Adelphia Greens townhouse complex entered into a Memorandum of Agreement (MOA) with the NJDEP for the construction of residential property on land that has confirmed dieldrin in the soil. This pesticide was historically

used on farm fields until the Environmental Protection Agency (EPA) prohibited its use for food commodities in 1974 and banned all uses by 1987. The NJDEP residential soil cleanup criteria for dieldrin is 0.042 parts per million (ppm). The non-residential soil cleanup criterion for dieldrin is 0.18 ppm.

Ocean Plaza (formerly Adelphia Shopping Center) is listed in the NJDEP Known Contaminated Sites List (KCSL). It has also been listed as a State Hazardous Waste Site (SHWS) after a Phase II investigation revealed chlorinated volatile compounds in groundwater near a dry cleaning facility.

Based on the locations of these two sites relative to the intervening development in the southern portion of the project area near Edinburgh Drive, it does not appear groundwater flow is of high concern, due to the fact that groundwater flows away from the proposed alignment. Figure 10 in Section 6.0 shows the migration of the groundwater contamination plume away from the project area.

### **5.21 Summary of Mitigation Efforts**

The following summarizes the anticipated efforts that will be required to mitigate project impacts for the areas of special environmental, social, cultural, or aesthetic concern:

- *Soil Erosion* – In order to minimize sedimentation and dust associated with construction, the applicant will implement an approved soil erosion and sediment control plan.
- *Air Quality* – To minimize short term air pollution the applicant will request the contractor to utilize low sulfur diesel fuel and minimize idling of equipment. Additionally, the contractor will be required to adhere to the NJDEP requirements for diesel risk reduction.
- *Noise Quality* – In order to minimize noise the applicant will require the contractor to adhere to the Township noise ordinance and timing restrictions, as well as the provisions of the supplementary specifications.
- *Regulated Lands* – The applicant's design engineers will minimize impacts on environmentally sensitive areas (wetlands, river, and buffers) and obtain all required State and Federal approvals.
- *Wetlands* – The Wetland Individual Permit will require mitigation of wetlands at a minimum ratio of 4:1 (i.e., for every acre disturbed, 4 acres have to be mitigated). If no on-site areas are determined to be suitable, the applicant will mitigate off-site within the same watershed or make a monetary contribution to a restoration fund.

- *Stormwater Management* – The design will utilize existing and new stormwater detention basins in order to provide pollutant amelioration and achieve New Jersey Surface Water Quality Standards.
- *Archaeological Resources* – The Richmond Mill site will be monitored during adjacent construction activities.
- *Aesthetics* – Upon project completion the disturbed areas will be restored and replanted with a seed mixture. Additional vegetative planting will enhance the visual environment upon completion of the project.
- *Section 4(f) Resources* – Existing ROW to be vacated under the preferred alternative will be ceded to the Parks Department, resulting in a net gain of County land.

## 6.0 FIGURES

Figure 1 - Project Location USGS Map

Figure 2 – GIS Aerial Map

Figure 3 - Land Use Map

Figure 4 – Soils Map

Figure 5 – Bedrock Geology Map

Figure 6 – Aquifer Map (Surficial, Bedrock and Sole Source Aquifers)

Figure 7 – Threatened and Endangered Species Map

Figure 8 – FEMA Flood Map

Figure 9 – Alternatives – Conceptual Alignments

Figure 10 – Groundwater flow at AOC#1



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 ASSOCIATES Fax: 732-671-7365

**Figure 1: USGS Topographic Map  
 Elton-Adelphia and Halls Mill Road  
 Improvement Project  
 Townships of Freehold and Howell  
 Monmouth County, New Jersey**

0 1,000 2,000 4,000  
 Feet

Prepared by: EJM, 4/14/09  
 Source: NJDEP Digital GIS Data, USGS Topographic Freehold Quadrangle (1981)  
 File Path: H:\MCTY\00421\Calculations & Reports\EIS\USGS Map.mxd



NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



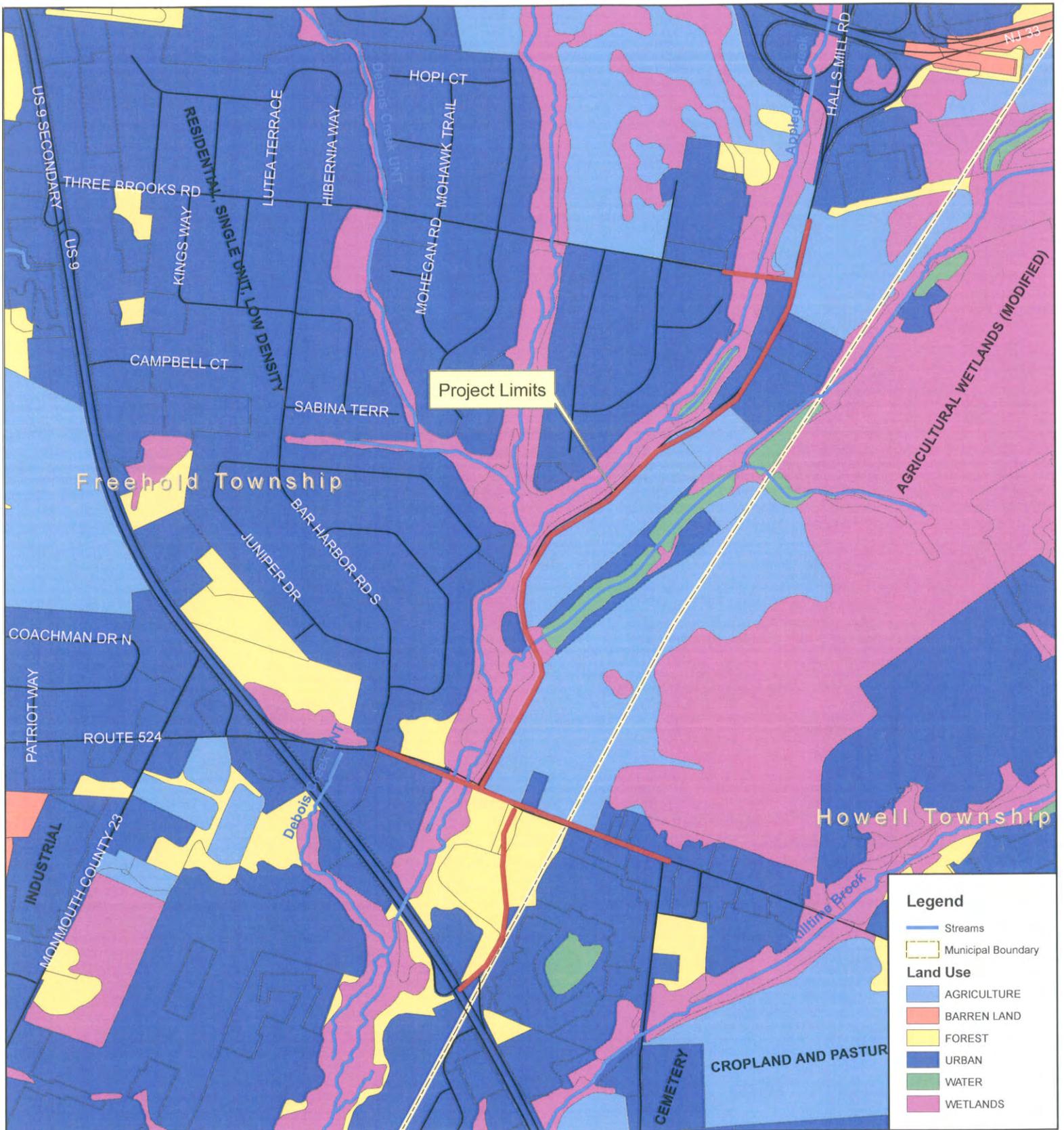
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**Figure 2: Aerial Map  
 Elton-Adelphia and Halls Mill Road  
 Improvement Project  
 Townships of Freehold and Howell  
 Monmouth County, New Jersey**



Prepared by: EJM, 4/14/09  
 Source: NJDEP Digital GIS Data, NJDOT Roads  
 File Path: H:\MCTY\00421\Calculations & Reports\EIS\Site Location Map.mxd

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



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**Figure 3: 2002 Land Use Map  
 Elton-Adelphia and Halls Mill Road  
 Improvement Project  
 Townships of Freehold and Howell  
 Monmouth County, New Jersey**

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Prepared by: EJM, 4/14/09  
 Source: NJDEP Digital GIS Data, NJDOT Roads, 2002 Land Use Data WMA 12  
 File Path: H:\MCTY\00421\Calculations & Reports\EIS\Land Use Map.mxd



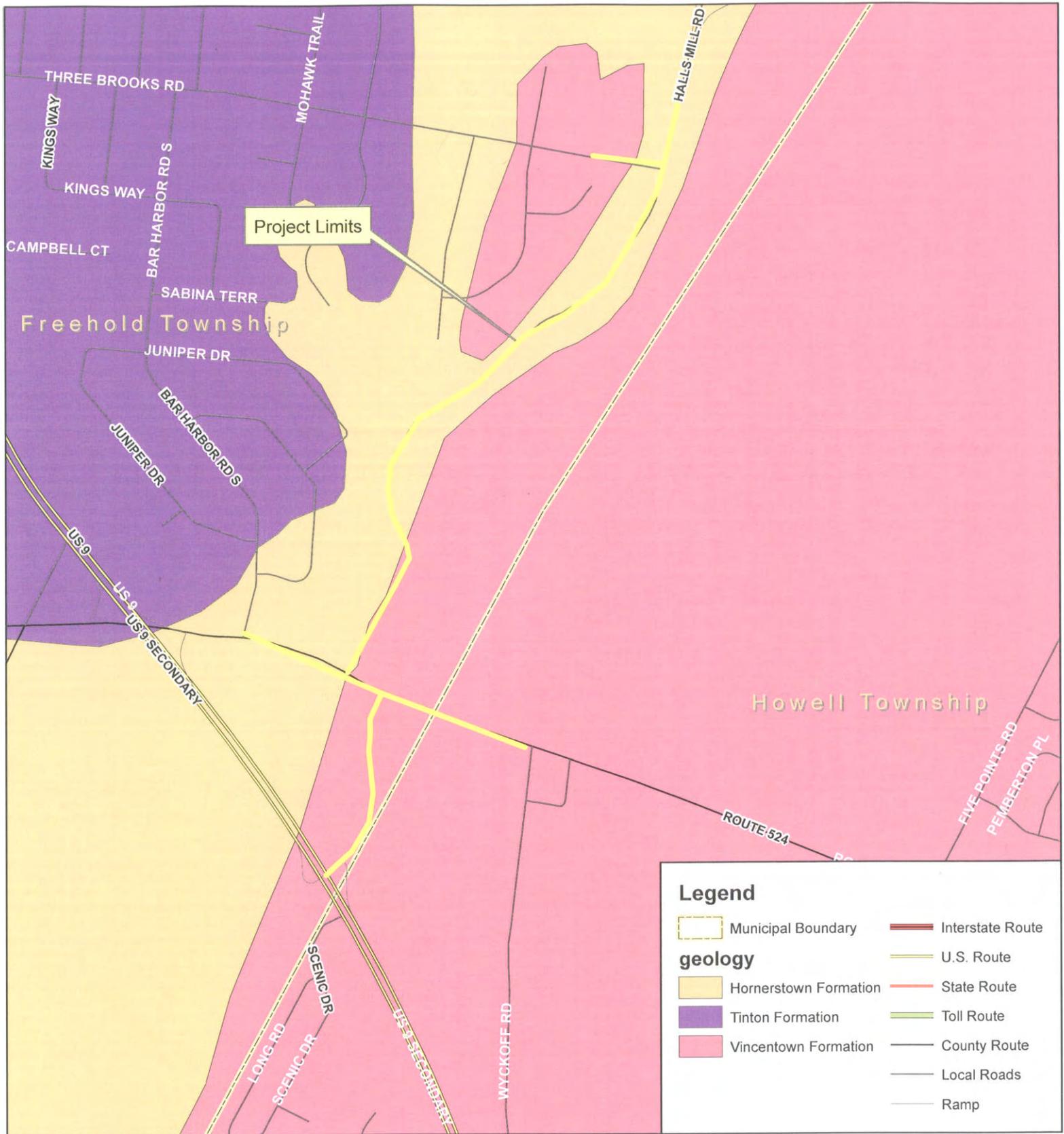
**Figure 4: Soil Map  
Elton-Adelphia and Halls Mill Road  
Improvement Project  
Townships of Freehold and Howell  
Monmouth County, New Jersey**

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Prepared by: EJM, 4/14/09  
 Source: NJDEP Digital GIS Data, NJDOT Roads, SSURGO Soil Data  
 File Path: H:\MCTY\00421\Calculations & Reports\EIS\Soil Map

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

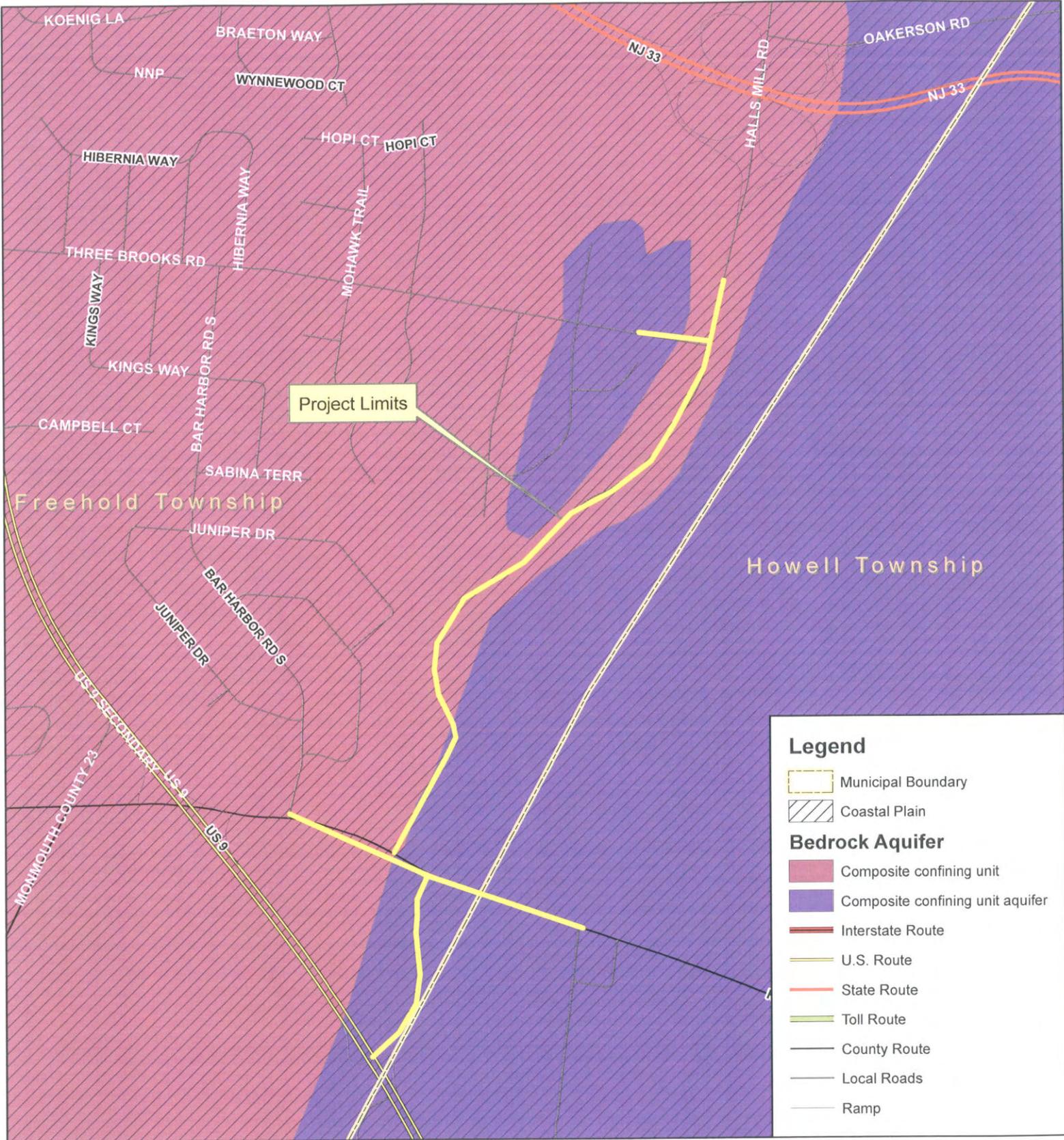


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**Figure 5: Bedrock Geology Map  
 Elton-Adelphia and Halls Mill Road  
 Improvement Project  
 Townships of Freehold and Howell  
 Monmouth County, New Jersey**

Prepared by: E.J.N, 4/14/09  
 Source: NJDEP Digital GIS Data, NJDOT Roads  
 File Path: H:\MCTY\00421\Calculations & Reports\EIS\Geology Map.mxd

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



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Prepared by: EJN, 4/14/09  
 Source: NJDEP Digital GIS Data, NJDOT Roads  
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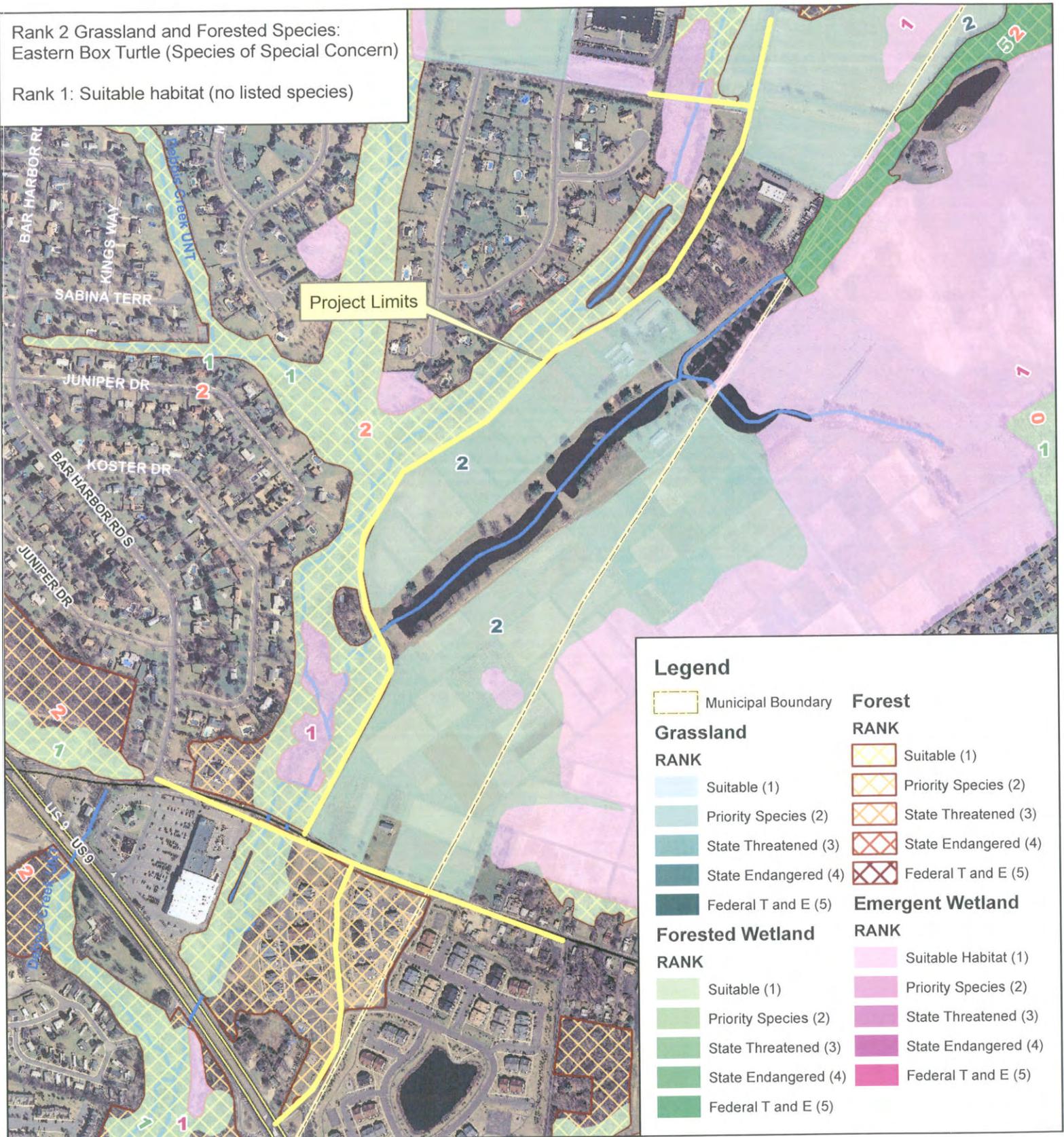


**Figure 6: Aquifer Map  
 Elton-Adelphia and Halls Mill Road  
 Improvement Project  
 Townships of Freehold and Howell  
 Monmouth County, New Jersey**

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Rank 2 Grassland and Forested Species:  
Eastern Box Turtle (Species of Special Concern)

Rank 1: Suitable habitat (no listed species)



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**Figure 7: Threatened and Endangered Species Map  
Elton-Adelphia and Halls Mill Road  
Improvement Project  
Townships of Freehold and Howell  
Monmouth County, New Jersey**



Prepared by: EJN, 4/14/09  
Source: NJDEP Digital GIS Data, NJDOT Roads, Landscape Project Data (Version 2)  
File Path: H:\MCTY\00421\Calculations & Reports\EIS\T&E Map.mxd



NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



**Legend**

- Streams
- Municipal Boundary

**FEMA Floodplain**

**ZONE**

- 100-Year Floodplain
- 500-Year Floodplain

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**Figure 8: FEMA Map Elton-Adelphia and Halls Mill Road Improvement Project Townships of Freehold and Howell Monmouth County, New Jersey**

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Prepared by: EJN, 4/14/09  
 Source: NJDEP Digital GIS Data, NJDOT Roads, FEMA Flood Data  
 File Path: H:\MCTY\00421\Calculations & Reports\EIS\FEMA Map.mxd



**DELIVERED FROM THE  
FREEHOLD TOWNSHIP  
UPSTAIRS FAX LINE - (732) 431-0449**

TO: Sen Barnes

TELEPHONE #: 671-6411 x1169

ADDRESS: \_\_\_\_\_

FAX #: 671-7365

FROM: Gileen Good

TELEPHONE #: (732) 294-2045

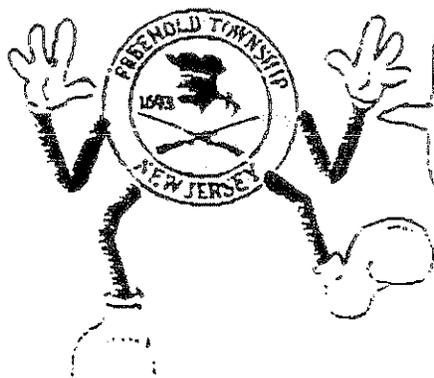
ADDRESS: \_\_\_\_\_

FAX #: 431-0449

# OF PAGES 10 (INCLUDE COVER SHEET)

DATE: 6/15/04 TIME: 11:55

COMMENTS AND/OR SPECIAL INSTRUCTIONS: As per our conversation,  
here's the info on Ocean Plaza (a.k.a  
Adelphia Shopping Center) & Adelphia Greens -  
Let me know if you need any further info.



PLEASE, just GIVE  
US the FAX!

**FAX**  
JUN 15 REC'D  
By \_\_\_\_\_

TO: S. Barnes

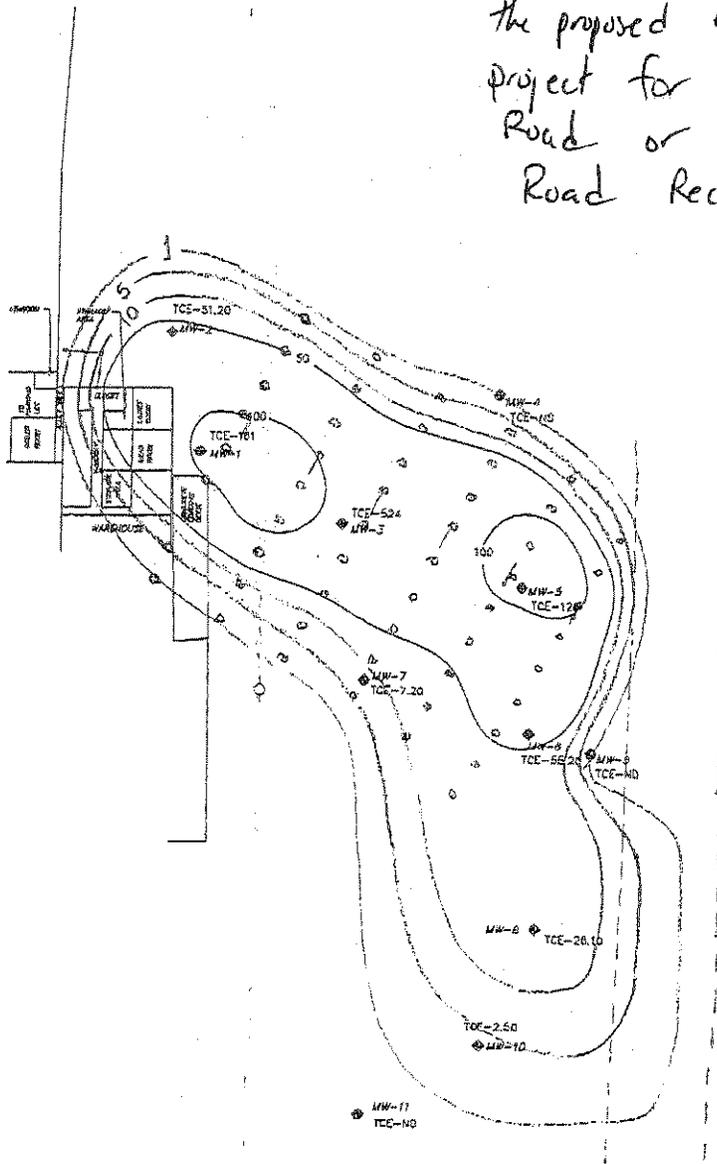
FR: J. MALKIN

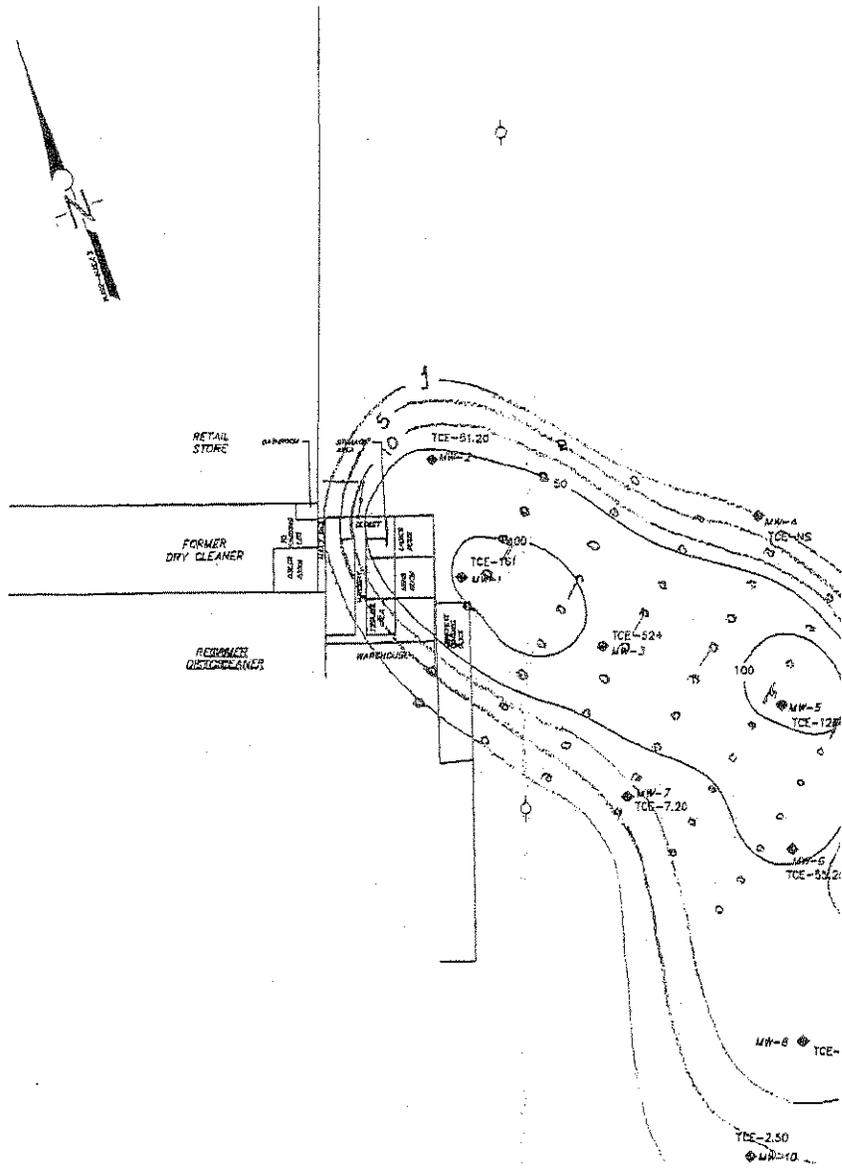
2 pages

Note for file

This is the TCE contamination plume from Ocean Plaza. As seen on the 2<sup>nd</sup> page, the plume is migrating southeast from the building which does not impact the proposed roadway widening project for Elton-Adelphiin Road or Halls Mill Road Reconstruction projects.

Sera Barnes





## 7.0 COMMUNITY OUTREACH

The project's lengthy scoping process included extensive and on-going community outreach and meetings with various stakeholders early in the project development process. Information pertaining to the proposed project has been shared, presented and made available for review and comment by local stakeholder groups, local officials and regulatory agencies. Ultimately, it was the intent of the community outreach and agency coordination to identify a Preferred Alternative that would have the support of the project area communities, regulatory agencies and local stakeholder groups. The development of alternatives for the proposed project included ongoing coordination with local public officials. Letters, fact sheets and flyers were used to announce the project as it developed.

A Public Information Center was held on January 24, 2007. This meeting gave area stakeholders as well as the general public the opportunity to review the alternatives and ask questions of the project design team. Twelve comments were received from the approximately 43 attendees. Generally, the public responses show a concern for an increase in the number of lanes, noise, heavy traffic, and the proposed posted speed limits. Residents whose homes are on Halls Mill Road are sensitive to the impacts of the widening alternatives, but do not necessarily object to the project. Several homeowners from Adelpia Greens objected to some of the improvements. It is noted that the construction plans for Adelpia Greens show Edinburgh Drive as a 4 lane section to be constructed in the future. Attendees requested appurtenances such as sidewalks, landscaping, decorative street lighting, wooden fences, and earthen berms. Some of the attendees concerns, such as roadway geometry and capacity, have been addressed in this report (refer to the Alternatives section above). Other concerns, such as sidewalks, lighting, and noise abatement, will be addressed in the final design phase.

Resolutions of support have been obtained from the Townships of Freehold and County. The resolutions are included in the appendix to this report.

## **8.0 CONSULTATION COORDINATION**

8.1 Natural Heritage Program Response Letter

8.2.1 ARCH2, Inc Phase IA Archaeological and Architectural Survey

8.2.2 Hunter Research Phase II Archaeological and Architectural Survey

8.3 Amy S. Greene Inc. Phase I Habitat Survey and Phase II Visual Survey for Bog Turtle

8.4 T&M Associates Preliminary Assessment

8.5 NJDEP Approved Letter of Interpretation (Appendix D in Alternatives Analysis)

8.6 T&M Associates Alternatives Analysis

8.7 Potenta Air Quality and Noise Impact Assessment

## 9.0 COLOR PHOTOGRAPHS



Photo 1: Rutgers Agricultural Research facility



Photo 4: Edinburgh Drive.



Photo 2: Bridge F-29.



Photo 5: Culvert on Three Brooks Road.



Photo 3: Bridge F-29.



Photo 6: Halls Mill Road.



Photo 7: Halls Mill Road.



Photo 10: Rutgers Dam.



Photo 8: Elton-Adelphia Road.



Photo 11: Halls Mill Road and Rutgers Property.

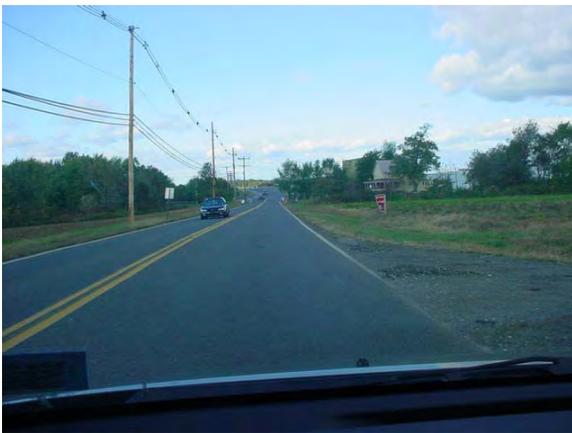


Photo 9: Halls Mill Road.



Photo 12: Rutgers Property.



Photo 13: Bridge F-30.



Photo 14: Bridge F-59.



Photo 15: Bridge F-29.

## 10.0 REFERENCES

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## 11.0 LIST OF PREPARERS

**Project Manager:** Wendy Smith: NJDOT, Local Aid

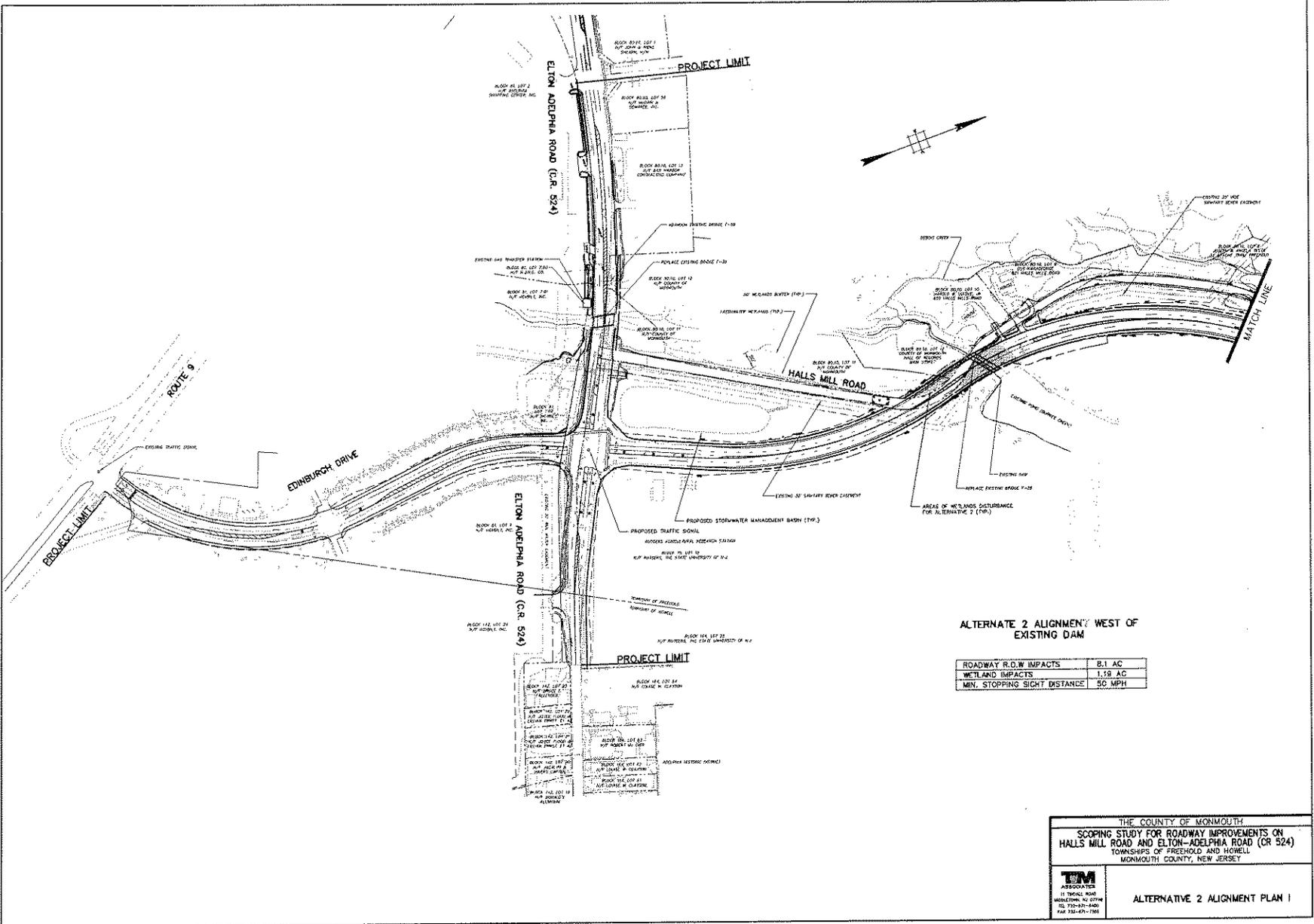
**Environmental Project Manager:** Pamela Garrett: NJDOT, Bureau of Environmental Program Resources

### **Environmental Assessment Document Preparation:**

Eric E. Nathanson: T & M Associates, B.S.: Marine Science

Ericka J. Naklicki: T & M Associates, B.S. Environmental Studies

## 12.0 SITE PLAN



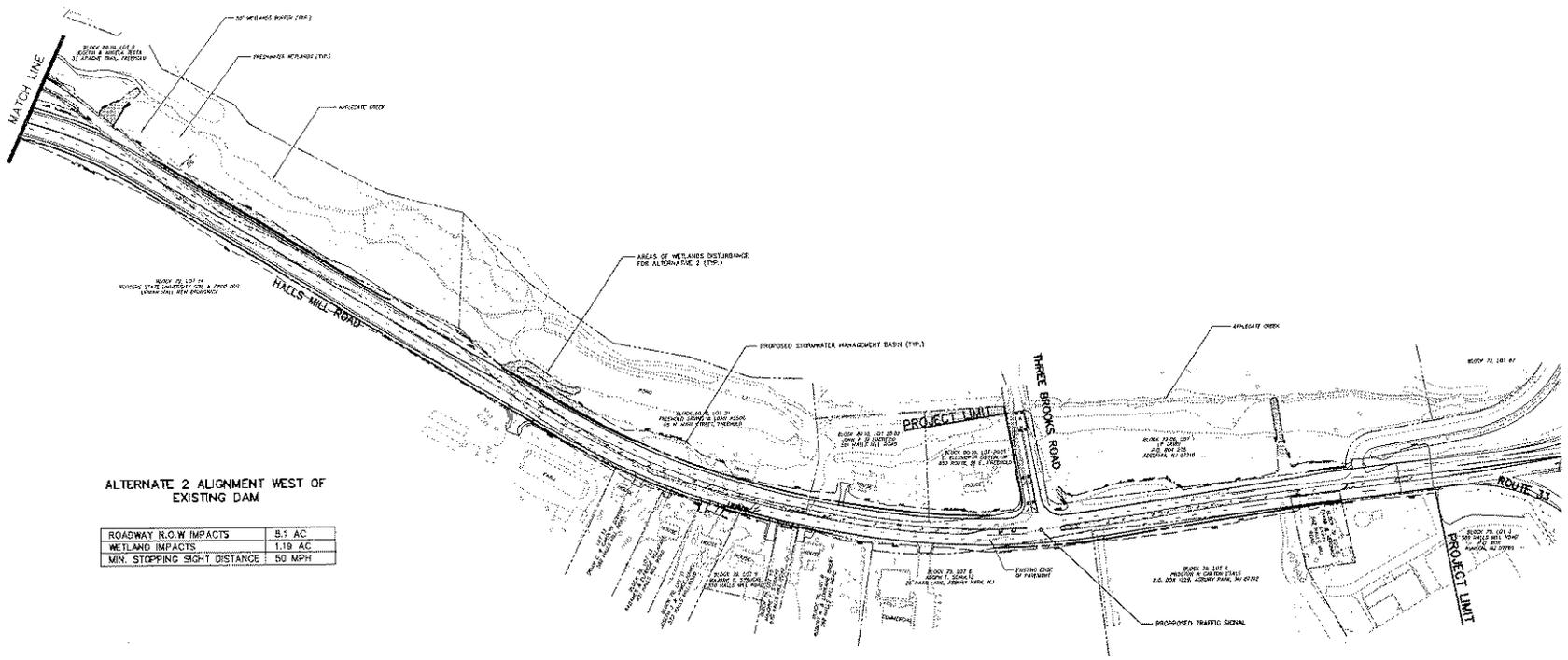
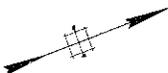
ALTERNATE 2 ALIGNMENT WEST OF EXISTING DAM

ROADWAY R.O.W IMPACTS	8.1 AC
WETLAND IMPACTS	1.15 AC
MIN. STOPPING SIGHT DISTANCE	50 MPH

THE COUNTY OF MONMOUTH  
 SCOPING STUDY FOR ROADWAY IMPROVEMENTS ON  
 HALLS MILL ROAD AND ELTON-AELPHIA ROAD (CR 524)  
 TOWNSHIPS OF FREEHOLD AND HOWELL  
 MONMOUTH COUNTY, NEW JERSEY

**EM**  
 ASSOCIATES  
 11 THORAC ROAD  
 FREEHOLD, NJ 07728  
 TEL: 732-837-8400  
 FAX: 732-837-7300

ALTERNATE 2 ALIGNMENT PLAN 1



ALTERNATE 2 ALIGNMENT WEST OF EXISTING DAM

ROADWAY R.O.W IMPACTS	5.1 AC
WETLAND IMPACTS	1.19 AC
MIN. STOPPING SIGHT DISTANCE	50 MPH

THE COUNTY OF MONMOUTH  
 SCOPING STUDY FOR ROADWAY IMPROVEMENTS ON  
 HALLS MILL ROAD AND ELTON-ADELPHA ROAD (OR 524)  
 TOWNSHIPS OF FRESHFIELD AND HOWELL  
 MONMOUTH COUNTY, NEW JERSEY

**TM**  
 TERRACON CONSULTANTS  
 11 DICKINSON ROAD  
 HUNTSVILLE, NJ 07464  
 TEL: 973-271-9900  
 FAX: 973-271-7366

ALTERNATIVE 2 ALIGNMENT PLAN II

# APPENDIX

Engineering  
Resolution No. 10-484

**RESOLUTION SUPPORTING THE PROPOSED HALLS MILL ROAD/  
COUNTY ROUTE 524 (ELTON ADELPHIA ROAD) REALIGNMENT AND  
RECONSTRUCTION PROJECT IN THE TOWNSHIP OF FREEHOLD**

**WHEREAS**, it has been determined that Halls Mill Road, from its intersection with State Route 33 Bypass to County Route 524 (Elton Adelphia Road) in the Township of Freehold is in need of realignment and reconstruction, and that an extension of this road is necessary from County Route 524 to State Route 9, for the safety of the community and the public at large; and

**WHEREAS**, the Board of Chosen Freeholders has reviewed and concurs that the proposed improvement project should be designed in accordance with Initially Preferred Alternative (IPA) recommended in the October 2007 Alternative Analysis Report which analyzed accidents, background growth, site specific trip generation, trip diversion, level of service, and the existing bridges within the project limits; and

**WHEREAS**, the proposed project will provide important safety improvements, including roadway alignment and congestion relief, which will enhance the public safety of the community, as well as motorists and pedestrians at large; and

**WHEREAS**, Federal funding for the proposed improvement project has been made available through a grant received by the Township of Freehold; and

**WHEREAS**, the County and the Township have been working together to advance the initial scoping phase of this project; and

**WHEREAS**, the County and Township are in agreement as to the need and benefits of the proposed improvement project; and

**WHEREAS**, the New Jersey Department of Transportation has requested that the County and Township reconfirm their support for the aforementioned improvements.

**NOW, THEREFORE, BE IT RESOLVED** that the Board of Chosen Freeholders of the County of Monmouth continues to fully support the Realignment and Reconstruction of Halls Mill Road and County Route 524 (Elton Adelpia Road) in the Township of Freehold, and the extension of Halls Mill Road from County Route 524 to State Route 9, which the Board believes to be vital to increase the safety of motorists and pedestrians of that community.

**BE IT FURTHER RESOLVED** that the Clerk forward a certified true copy of this Resolution to the New Jersey Department of Transportation, Attention: Robert Werkmeister, District III Manager, the Township of Freehold, the County Engineer, and the County Planning Board.

RECORD OF VOTE						
FREEHOLDERS	YES	NO	ABSTAIN	ABSENT	MOVED	SECOND
Mr. Curley	✓				✓	
Mrs. Mallet	✓					✓
Mr. D'Amico	✓					
Mr. Clifton	✓					
Mrs. Burry	✓					

**CERTIFICATION**  
 I HEREBY CERTIFY THE ABOVE TO BE A TRUE COPY OF A RESOLUTION ADOPTED BY THE BOARD OF CHOSEN FREEHOLDERS OF THE COUNTY OF MONMOUTH AT A MEETING HELD June 10 20 10

*J. James Strong*  
 \_\_\_\_\_  
 CLERK



Resolution of the Township of Freehold  
Monmouth County, New Jersey

No: R-10-140

Date of Adoption: May 11, 2010

**TITLE: RESOLUTION SUPPORTING THE PROPOSED HALLS MILL ROAD REALIGNMENT AND RECONSTRUCTION PROJECT IN THE TOWNSHIP OF FREEHOLD**

**--- RESOLUTION ---**

WHEREAS, it has been determined that Halls Mill Road, from its intersection with Route 33 Bypass to County Route 524 within the Township of Freehold, is in need of realignment and reconstruction and that an extension of this road is necessary from County Route 524 to State Route 9 within Freehold and Howell Townships for the safety of the community and the public at large; and

WHEREAS, the Township Committee of the Township of Freehold has reviewed and concurs with the findings found in the Traffic and Alternatives Studies which analyzed accidents, background growth, site specific trip generation, trip diversion, level of service, and the existing bridges within the project; and

WHEREAS, the planned improvements to the Road alignment would provide an important relief to congestion and would ultimately benefit public safety of the community, as well as motorists and pedestrians at large; and

NOW, THEREFORE, BE IT RESOLVED that the Township Committee of the Township of Freehold is in full support of the Realignment and Reconstruction of Halls Mill Road, and believes it to be vital to the increased safety of motorists and pedestrians in the Halls Mill Road vicinity in the Township of Freehold;

BE IT FURTHER RESOLVED that a certified copy of this Resolution shall be forwarded to the New Jersey Department of Transportation, the Monmouth County Engineering Department, and the Freehold Township Engineering Department.

# TOWNSHIP OF FREEHOLD

"Preserving and Enhancing the Quality of Life"

MAYOR  
Dorothy H. Avallone  
TOWNSHIP COMMITTEE  
Anthony J. Ammiano, Deputy Mayor  
Eugene B. Golub  
Robert C. McGirr  
David M. Salkin

May 12, 2010

RECEIVED

MAY 18 2010

FREEHOLD TOWNSHIP  
ENGINEER'S OFFICE

Robert Werkmeister  
Manager, District III Office  
Bureau of Local Aid, NJDOT  
Central Region Headquarters  
100 Daniels Way  
Freehold, NJ 07728-2668

Re: Scoping Study for Roadway Improvements to Halls Mill Road & Elton-Adelphia Road (CR 524) in the Township of Freehold, Monmouth County

Dear Mr. Werkmeister:

This Office has reviewed the overall concept plans, Alternatives and Traffic Report prepared by T&M Associates for the above-referenced project.

We concur with the assumption and methodology used in the Traffic and Alternative Studies, which analyzed accidents, background growth, site specific trip generation, trip diversion, level-of-service, and the existing bridges within the project. The bridges are structurally deficient and/or functionally obsolete and need to be replaced to accommodate the roadway improvements.

We concur that the improvement is mainly due to the unsafe conditions resulting from the substandard geometry that results in poor sight distance and poor level of service that is the cause of numerous accidents within the project area and delays for emergency vehicles.

As summarized in the Alternatives Analysis Report, the improvements to the alignment, widening and new intersection at Elton-Adelphia Road with Halls Mill Road/Edinburgh Drive would provide an important relief to congestion and improvement in safety for the future traffic demand.

These improvements would ultimately benefit the local community, as well as the community at large, by reducing the average travel times in those areas and improve the quality of life.

The improvements will correct substandard and unsafe roadway conditions, improve the operation of roadway systems, improve functionally obsolete and structurally deficient bridges, and accommodate future traffic demand.

Similar letters of support of this project will be provided to NJDOT concerning Police, Fire and Emergency Services. If we may be of further assistance, please do not hesitate to call. Thank you.

For the Township Committee,

  
DOROTHY HAVALLONE  
MAYOR

DHA/smm

cc: Township Committee  
Joseph M. Mavuro, Township Engineer  
Ernest H. Schriefer, Police Chief  
Thomas Luongo, Fire Official

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www.twp.freehold.nj.us

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## Monmouth County Park System

Providing Open Space, Parks, and Recreation

805 Newman Springs Road, Lincroft, NJ 07738-1695 732-842-4000  
monmouthcountyparks.com

October 20, 2008

David R. Smith, Compliance Officer  
NJ Dept. of Environmental Protection  
Green Acres Program  
P.O. Box 412  
Trenton, NJ 08625-0412

RE: HALLS MILL ROAD, FREEHOLD & HOWELL TWP. RE-ALIGNMENT

Dear Mr. Smith:

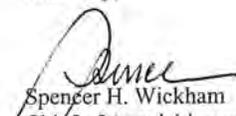
As a follow-up to your e-mail sent September 26<sup>th</sup> attached is the proposed re-alignment (Alternates 2 & 3) of Halls Mill Road and its effect on existing dedicated park property.

Alternate #1 is to do nothing. But as you are aware the road has a lot of twists and turns, and traffic in that area has increased to the point where a re-alignment is needed not just to handle the volume, but also from a safety standpoint. The County is working with NJDOT on this project and would be looking to assure, as would we, that the form of mitigation depicted on Alternate #2 would be appropriate with Green Acres.

In Alternate #2, the County's preferred alignment, the park would be losing approximately .37 acres and receiving approximately .60 acres in return (areas of existing roadway would be vacated as a result of the re-alignment). As this project is still in the scoping stage, there has been no appraisal work done as to value of either what is being lost or what is to be proposed as mitigation. I would point out that on the Alternate #2 alignment parkland impacted along Elton-Adelphia road is primarily wetland.

Your review of this proposal would be greatly appreciated, and if you need any additional information please don't hesitate to contact me either by phone at 732-842-4000, extension 4268, or by e-mailing me at [swickham@monmouthcountyparks.com](mailto:swickham@monmouthcountyparks.com).

Sincerely,

  
Spencer H. Wickham  
Chief of Acquisition and Design

enc.  
SHW/bd  
pc. J. Truncer, MCPS  
A. Coeyman, MCPS  
✓ I. Englehart, County Engineering

RECEIVED

OCT 22 2008

ENGINEERING DEPT.  
cc: Inkyung *me*

J:\ADMINISTRATION 2011\SHW\shw\drs hallsmillrdrealignment.doc

The Nation's First Accredited Park and Recreation Agency

