ROUTE 55 FREEWAY EXTENSION FEASIBILITY STUDY
Atlantic County, Cape May County and Cumberland County

prepared by:

State of New Jersey
Department of Transportation
Bureau of Preliminary Engineering

Technical Memorandum #2

Land Service Improvements and Bypases

in association with

Gannett Fleming, Inc.
Taylor, Wiseman & Taylor, Inc.
New Jersey Department of Transportation
Bureau of Environmental Analysis

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HOW TO USE THIS MANUAL

This Manual is the second in a series of four (4) Technical Memoranda, each one
devoted to a particular aspect of the Route 55 Freeway Extension Feasibility Study. The
titles of the four memoranda are as follows:

Technical Memorandum No. 1: Freeway Alignments

Technical Memorandum No. 2: Land Service Improvements and Bypasses

Technical Memorandum No. 3: Environmental Constraints

Technical Memorandum No. 4: Needs Assessment and Traffic Data

The information contained within each of the above mentioned memoranda has been
summarized in a Final Summary Report.

Technical Memoranda No. 1 & 2 present ten (10) alternative courses of action that
attempt to satisfy the Project Need. These memoranda are most useful for determining
future conditions should one of the alternates be constructed. Technical Memoranda No. 3 &
4 describe the existing traffic conditions and environmental constraints in detail and define
the Project Need. These are most useful for obtaining information regarding existing
conditions.

There are two major categories that separate the ten alternates. The first category
assumes that a 20± mile four lane extension of Route 55 is constructed along a new
alignment that closely parallels the existing Route 47/670/83 corridor. Two alternates
(Alternatives 1 & 2) are presented under this category and are described in Technical
Memorandum No. 1: Freeway Alignments.

The second major category assumes that several existing roadways within the study
limits could be upgraded in lieu of the construction of a Route 55 Extension. Due to the vast
number of possibilities this category presents, the category was further broken down into
three (3) separate schemes. Scheme 1 provides for the existing Route 47/670/83 corridor to
remain as a two lane roadway, but both horizontal and vertical alignment deficiencies are
rectified and bypasses of the towns of Port Elizabeth and Dennisville are provided. Scheme
1 is represented by alternatives 3 and 4. Scheme 2 is similar to Scheme 1 except that the
existing two lane roadways would be expanded to four lanes. Scheme 2 is represented by
Alternatives 5, 5A, 6, and 6A. Finally, Scheme 3 provides for a two lane upgrade along the
Route 49/50 corridor and is represented by Alternatives 7 and 7A. All of these alternates are
presented and described in Technical Memorandum No. 2: Land Service Improvements and
Bypasses.

Both the new freeway extension and the Route 47/670/83 corridor traverse highly
sensitive environmental areas and will impact both residential and commercial properties. To
simplify the analysis of each alternate's impacts on these resources, the freeway extension
and the Route 47/670/83 corridor were divided into four segments labelled A, B, C, and D.
In order to see what impacts each of the alternatives will have on a given area, first determine whether the area in question is nearest to the Route 47/670/83 corridor or the Route 49/50 corridor (refer to the Project Location Map, Plate I, located in Section I of Technical Memorandum No. 1 & 2). If the area in question is along the Route 49/50 corridor, refer to Section III of Technical Memorandum No. 2. If the area in question is closest to the Route 47/670/83 corridor, refer to Plate 2 in Section I of either Technical Memorandum No. 1 or 2 and determine which Segment (A, B, C, or D) the subject area is contained within. Then refer to Section II of both Technical Memoranda No. 1 and 2 to compare the impacts each of the eight applicable alternatives will have on the area in question.

Note that each alternative is summarized on two pages. The first page gives a brief description of the alternate within the limits of the segment as well as design parameters (typical section, design speed, etc.), serviceability (Levels of Service), and a description of significant intersection improvements and/or interchanges that will be required. The second page is a tabulation of environmental impacts, including impacts to cultural resources, endangered species, wetlands, contamination sites, and socioeconomic, land use, and visual constraints.
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INTRODUCTION

Two roadways are described in the "Needs Assessment" Study as alternative parallel corridors for the possible extension of the Route 55 Freeway. The two roadways are the Route 47/670/83 corridor and the Route 49/50 corridor. Routes 47, 670, and 83 are the major arterial routes for the distribution of existing Route 55 corridor traffic through Cumberland and Cape May Counties, from the terminus of the Route 55 Freeway to the Southern New Jersey resort towns. Routes 49 and 50 are also used by travellers as an access to and from the Cape May County towns.

Consideration of improvements to the existing 47/670/83 and 49/50 corridors within the study limits is the subject of Technical Memorandum No. 2: Land Service Improvements and Bypasses. The upgrading of one of these corridors would provide a more efficient means for motorists to access the seashore resort towns of Cape May County as well as alleviate traffic congestions and hazardous driving conditions during the summer tourist months. Three possible schemes are presented in this memorandum:

Scheme 1 - 47/670/83 Corridor: Two Lane Upgrade

Scheme 2 - 47/670/83 Corridor: Four Lane Upgrade

Scheme 3 - 49/50 Corridor: Two Lane Upgrade

Two alternates (alternates 3 & 4) are presented under Scheme 1, four alternates (alternates 5, 5A, 6, & 6A) are presented under Scheme 2, and two alternates (alternates 7 & 7A) are presented under Scheme 3. The main difference between alternates within Schemes 1 & 2 are the alignments of the bypasses around Port Elizabeth. Scheme 3 alternates differ by their treatment of the Route 49/Route 50 intersection.

Another scheme examined an extension of the existing Route 55 Freeway along a new alignment that parallels the 47/670/83 corridor. Two alternates (alternates 1 & 2) were analyzed under this scheme and are presented in Technical Memorandum No. 1: Freeway Alignments.

Environmental Impacts & Needs Assessment

Key environmental factors that had to be addressed for each alternate are presented in Technical Memorandum No. 3: Environmental Constraints. These factors include:

Cultural Resources - Impacts to the cultural heritage of the region had to be considered, including the affects to historic architecture (including buildings and their settings), historic districts, potentially historic buildings and bridges, documented historic and prehistoric archaeological sites, and areas that show high potential to yield archaeological resources.
Endangered Species - Serious consideration had to be made towards each alternate’s affect on endangered and threatened species and their habitats.

Socioeconomic, Land Use, and Visual Constraints - Social and economic impacts, including community and business district disruption and number of residents and businesses displaced were considered for each alternate. Also, each alternate was compared to policies that govern land use in the study area, including Pinelands and CAFRA policies, Agricultural Development Area policies, policies concerning potential secondary development, and the impacts the alternates will have on parks, forests, gamelands, and wildlife refuges. Finally, the visual impact each alternate will have on local scenic corridors was addressed.

Wetlands - A considerable percentage of the land within the study area is designated as wetlands, ranging from average to high quality. Impacts to water quality and upland forests were also a concern.

Contamination Sites - Affects to potential and hazardous waste and contamination sites were examined for each alternate studied.

Each alternate also had to satisfy the project needs as set forth in Technical Memorandum No. 4: Needs Assessment & Traffic Data. Existing Levels of Service (LOS) for both average day and tourism season conditions were compared to proposed Levels of Service.

Scheme 1 - 47/670/83 Corridor: Two Lane Upgrade
(Alternates 3 & 4)

The feasibility of a two (2) lane upgrade along the Route 47/670/83 corridor was evaluated as an additional option to satisfy the distribution of existing traffic through Cumberland and Cape May Counties, specifically through the towns of Port Elizabeth and Dennisville. From a traffic viewpoint, this scheme considered the upgrading of existing horizontal and vertical alignment deficiencies necessary to maintain a posted speed limit of 50 mph throughout the entire corridor. It should be noted that the implementation of this alternative by itself, will not significantly improve the current Level of Service (LOS) experienced along the corridor during the summer peak hours.

The specific locations along the noted corridor which were studied in detail are around the towns of Port Elizabeth and Dennisville, where the existing facilities during the 30 weekend days of the summer peak hours, are operating under a LOS F/E respectively. A two (2) lane bypass around the noted locations was assumed to minimize the impacts to the existing towns (see Photos 1, 2, 4, & 5).
Two (2) twc lane land service alternatives along the 47/670/83 alignment were examined based upon review of the following typical section options:

Alternate 3 - two (2) lane roadway with shoulders and an easterly bypass of Port Elizabeth and a westerly bypass of Dennisville

Alternate 4 - two (2) lane roadway with shoulders and a westerly bypass of Port Elizabeth and a westerly bypass of Dennisville

Horizontal Alignment

Currently, approximately 55 percent of the existing horizontal alignment was found to be substandard for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the pavement having the proper superelevation.

The deficiencies addressed with regard to the existing horizontal geometries included the improvement of selective curve radii, adequate superelevation rates, and provisions for sufficient tangent between curves, corrections which were primarily accomplished by localized realignment of the roadways within the above noted corridor. All of the existing horizontal curve information was evaluated for conformance based on the criteria predicated by the Department’s Roadway Design Manual. In general, the degree of curves were selected between 0.5 degrees to 4 degrees based on the level of improvements necessary to meet minimum standards, which also kept the right-of-way acquisition to a minimum.

Utilizing all the information generated from the analysis described above and the Environmental/Socioeconomic Constraint Maps, modifications to the horizontal alignment were developed making every attempt to minimize the effects to the various environmental concerns and R.O.W. impacts, where possible. The alignment was driven by the locations of the medium and high quality wetlands, however in order to avoid substantial residential and commercial right-of-way acquisition through the towns of Port Elizabeth and Dennisville, bypass alignments were assumed which required spanning the wetlands by viaduct structures.

Vertical Alignment

Currently, approximately 70 percent of the existing vertical alignment was found to be substandard for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the minimum profile grade requirements of 0.50%. Also, there exists stretches of pavement, specifically along Routes 47 and 83, which were constructed with small changes in profile grade without vertical curves, but rather points of vertical intersections (P.V.I.’s).

In order to improve the overall corridor Level of Service to a degree with the adoption of a two (2) lane upgrade, provisions for grade separated in lieu of at grade intersections have been adopted as a desirable condition for this feasibility report. Locations for the required two (2) lane bridges are listed below:
1. Route 55 over Route 47 Ramp  
2. Route 55 over High Quality Wetlands and Manumuskin River  
3. Route 55 over P.R.S.L. and Muskee Creek  
4. Route 55 over Route 47  
5. Route 55 over P.R.S.L. (existing 83/P.R.S.L.)  
6. County Route 626 over Route 55  
7. Route 55 over Route 9  
8. Route 55 over GSP northbound/southbound

Minimum roadway, waterway, and railroad underclearance requirements governed the profile grades along the alignment.

**Bypasses**

It was identified in the "Needs Assessment" that the towns of Port Elizabeth and Dennisville presently experience congestion during the summer peak hours occurring over 30 weekend days.

Due to the close proximity of commercial and residential properties complicated by the historic nature of many of these properties, a bypass of Route 47 was developed for both areas. Westerly bypasses were developed around Port Elizabeth and Dennisville in order to minimize the impact to the relatively undisturbed nature of the land surrounding these towns. Although both alternates utilize the westerly bypass of Dennisville, only alternate 4 utilizes the westerly bypass of Port Elizabeth. Alternate 3 bypasses Port Elizabeth to the east along a portion of the alignment developed for the two freeway alternatives (see Technical Memorandum No. 1: Freeway Alignments). The development of each of the bypasses is described below:

**Easterly Bypass @ Port Elizabeth (orange dashed line; see Photos 1 & 2)** - This easterly two (2) lane undivided bypass commences at the southerly end of the Route 55 Freeway and follows an avoidance alignment as described in Technical Memorandum No. 1: Freeway Alignments for approximately 4.5 miles. The bypass then diverts the new alignment to a horizontal bend in County Route 670 where a smooth transition back to the existing alignment occurs.

**Westerly Bypass @ Port Elizabeth (yellow dashed line; see Photo 2)** - This westerly two (2) lane undivided bypass commences in the vicinity of Fralinger Lane (Route 47 M.P. 34.04) and spans across the High Quality Wetlands and the Manumuskin River with a structure of 750’ in length. The centerline of the bypass roadway realigns with the Route 47 centerline in the vicinity of Ferry Lane (Route 47 M.P. 33.23).
Westerly Bypass @ Dennisville (yellow dashed line; see Photos 4 & 5) - This westerly two (2) lane undivided bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150' in length. This alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east of the bypass alignment. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. (Route 47 M.P. 17.35 = Route 83 M.P. 0.15).

Localized Geometric Improvements

Listed below are locations along the corridor, besides the bypasses around Port Elizabeth and Dennisville, that are geometrically substandard and will require R.O.W. acquisition for implementation:

1. County Route 670, approx. 2,200’ west of Dorchester/ Hunters Mill Road, 900’ curve improvements requiring 42’ of additional R.O.W.

2. County Route 670, commencing approximately 1,500’ west of Belleplain Road (County Route 550) heading east, 5.0 miles of reconstruction requiring 18’ to 84’ of additional R.O.W. Included within this segment of roadway is the realignment of Hands Mill Road (County Route 550), which must also be addressed.

3. Route 47 from the County Route 670 intersection in Cape May County, 1.3 miles of profiling within the existing R.O.W. (see Photo 3)

4. Route 83 from the existing P.R.S.L. structure to Route 9, 3.65 miles of reconstruction which predominantly can be performed within the State’s R.O.W. (see Photo 6)

Scheme 2 - 47/670/83 Corridor: Four Lane Upgrade
(Alternates 5, 5A, 5, & 6A)

This scheme considered the widening of two lanes of additional capacity along the Routes 47/670/83 corridor. Port Elizabeth and Dennisville bypasses (see Photos 1, 2, 4, & 5) and the extension of Route 83 to a full interchange with the G.S.P. were also considered.
Four (4) four lane service alternatives along the 47/670/83 alignment were examined based upon review of the following typical section options:

Alternate 5 - four (4) lane roadway with shoulders and barrier median with west bypass of Port Elizabeth and west bypass of Dennisville

Alternate 5A - four (4) lane roadway with shoulders and barrier median with east bypass of Port Elizabeth and west bypass of Dennisville

Alternate 6 - four (4) lane roadway with shoulders and grass median with west bypass of Port Elizabeth and west bypass of Dennisville

Alternate 6A - four (4) lane roadway with shoulders and grass median with east bypass of Port Elizabeth and west bypass of Dennisville

Horizontal Alignment

All of the existing horizontal curves within the Route 47/670/83 corridor were found to be substandard for the design requirements regarding the upgrade of this facility to a design speed of 60 mph. Currently, approximately 55 percent of the existing horizontal alignment is deficient for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the pavement having the proper superelevation.

The deficiencies of the existing horizontal geometries were corrected primarily by the realignment of the roadways within the above noted corridor. All of the existing horizontal curve information was evaluated for conformance based on the criteria predicated by the Department's Roadway Design Manual. In general, the degree of curves were selected between 0.5 degrees to 4 degrees based on the level of improvements necessary to meet minimum standards, which also kept the right-of-way acquisition to a minimum. Upon selection of a curve radius, the appropriate maximum rate of superelevation was computed which correspondingly determined the need for transition curves. The criteria used for all tangent distances set between consecutive horizontal curves was governed by the minimum length required to properly "roll over" the superelevated sections. Even though transition curves are not indicated on the exhibits for this study, they were considered in the development of the horizontal alignment.

Utilizing all the data generated from the analysis described above in addition to utilizing the information obtained from the Environmental and Socioeconomic Constraint Maps, an alignment was developed making every attempt to minimize the effects to the various environmental concerns and R.O.W. impacts, where possible. Since significant reconstruction was required in order to provide two (2) lanes of additional capacity to the corridor, the locations selected for all widening were based upon these considerations. Specifically, the alignment was driven by the locations of the medium and high quality
wetlands, however in order to avoid substantial residential and commercial right-of-way acquisition through the towns of Port Elizabeth and Dennisville, bypass alignments were assumed which required spanning the wetlands by viaduct structures.

In addition to addressing the geometrical features along the alignment, access onto this four (4) lane land service roadway, specifically the barrier median condition required special attention. All major crossroads along the corridor were evaluated with provisions for jug handles developed at major signalized intersections. Provisions have also been made for emergency vehicles with full loop jug handles positioned between 1/2 to 1 mile intervals along the alignment.

**Vertical Alignment**

All of the vertical curves within the Route 47/670/83 corridor were found to be substandard for the design requirements regarding the upgrade of this facility to a design speed of 60 mph. Currently, approximately 70 percent of the existing vertical alignment is deficient for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the minimum profile grade requirements of 0.50%. Also, there exists stretches of pavement, specifically along Routes 47 and 83, which were constructed with small changes in profile grade without vertical curves, but rather points of vertical intersections (P.V.I.’s).

"Minimum" instead of "desirable" crest and sag curve design requirements were adopted in the design process for the determination of the extent of improvements. Standards for tangent alignments have been determined as:

- Four Lanes w/ Barrier Median: Min. Grade = 0.50%
  Max. Grade = 3.00%

- Four Lanes w/ Grass Median: Min. Grade = 0.50%
  Max. Grade = 3.00%

In order to improve the overall Level of Service along this widened four (4) lane alignment, provisions for grade separated in lieu of at grade intersections have been adopted as a desirable condition for final presentation. Locations of required bridges are as follows:

1. Route 55 over Route 47 Ramp
2. Route 55 over High Quality Wetlands and Manumuskin River
3. Route 55 over P.R.S.L. and Muskee Creek
4. Route 55 over Route 47
5. Route 55 over P.R.S.L. (existing 83/P.R.S.L.)
6. County Route 626 over Route 55
7. Route 55 over Route 9
8. Route 55 over GSP northbound/southbound

Minimum roadway, waterway, and railroad underclearance requirements governed the profile grades along the alignment.
Bypasses

It was identified in the "Needs Assessment" that the towns of Port Elizabeth and Dennisville presently experience congestion during the summer peak hours occurring over 30 weekend days.

Due to the close proximity of commercial and residential properties complicated by the historic nature of many of these properties, a bypass of Route 47 was developed for both areas. Westerly bypasses were developed around Port Elizabeth and Dennisville in order to minimize the impact to the relatively undisturbed nature of the land surrounding these towns. Although all four of the alternates utilize the westerly bypass of Dennisville, only alternates 5 & 6 utilize the westerly bypass of Port Elizabeth. Alternates 5A and 6A bypass Port Elizabeth to the east along a portion of the alignment developed for the two freeway alternatives (see Technical Memorandum No. 1: Freeway Alignments). The development of each of the bypasses is described below:

**Easterly Bypass @ Port Elizabeth (orange dashed line; see Photos 1 & 2)** - This easterly four (4) lane divided/undivided bypass commences at the southerly end of the Route 55 Freeway and follows an avoidance alignment as described in Technical Memorandum No. 1: Freeway Alignments for approximately 4.5 miles. The bypass then diverts the new alignment to a horizontal bend in County Route 670 where a smooth transition back to the existing alignment occurs.

**Westerly Bypass @ Port Elizabeth (yellow dashed line; see Photo 2)** - This westerly four (4) lane divided/undivided bypass commences in the vicinity of Fralinger Lane (Route 47 M.P. 34.04) and spans across the High Quality Wetlands and the Manumuskin River with a structure of 750' in length. The centerline of the bypass roadway realigns with the existing centerline of Route 47 in the vicinity of Ferry Lane (Route 47 M.P. 33.23).

**Westerly Bypass @ Dennisville (yellow dashed line; see Photos 4 & 5)** - This westerly four (4) lane divided/undivided bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150' in length. The bypass alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. (Route 47 M.P. 17.35 = Route 83 M.P. 0.15).
Route 47 and Route 83 Intersection Improvements

Two (2) levels of intersection improvements were evaluated for the present at grade condition at Route 47/83.

The first option was to utilize the existing at grade situation at the noted intersection during the development of the four (4) lane horizontal and vertical alignments for the 60 mph land service roadway. Modifications were made to upgrade the present intersection geometry. Other provisions were also made to alleviate the heavy stacking for left turn movements from Route 47 onto Route 83 heading east.

The second option was to upgrade this condition to a grade separated intersection with a feasibility analysis performed for overpass and underpass alternates for Route 55.

The grade separated condition of Route 55 over Route 47 was chosen in lieu of the at grade improvements option and underpass scheme for the following reasons:

1. The four (4) lane Land Service Roadway upgraded for a 60 mph design speed will provide traffic with uninhibited flow in both directions while eliminating the "bottleneck" of left hand turns from existing Route 47.

2. A significant drainage pocket would be created between the end of the Route 55 viaduct structure at M.P. 6.35 and Route 47 (prop. M.P. 5.86) as an at grade condition, due to the 14' difference in elevations with a separation of 1,000' horizontally. In addition, in order to provide vertical alignment conformance by the Roadway Design Manual, the existing tangent grade of 5% between Route 47 and the Route 83 over the PRSL structure would require a grade reduction to 3% (max.), for the two (2) structures separated by 950' and 30' in elevation. The desirable vertical alignment to address this situation was to create a low point between the end of the viaduct structure and the Route 55 over Route 47 structure continue climbing at a 1% grade to satisfy the 16'-6" minimum underclearance requirements over Route 47, and meet the existing bridge deck elevation of the PRSL structure.

3. Since the existing Route 47 intersection is located in a highly sensitive wetland area, it was determined to be more feasible to span Route 55 over Route 47 constructed with an embankment condition, after evaluating the two (2) scenarios listed below:
a. Minimizing the wetland impacts by continuing the viaduct structure over Route 47 for an additional 1,000' (resultant viaduct span length would be 4,150')—this situation would require all the ramps on the west side to be on structure creating excessive construction costs.

b. Construction of a Route 55 underpass condition would require more wetland acquisition, reconstruction of Route 47 to satisfy the 16'-6" underclearance requirements over Route 55, and the resultant grade differential between the Route 55 finished pavement elevation and the existing PRSL structure. (separation of 950’ between structures)

4. The construction of a grade separated intersection scheme along the realignment bypassing Dennisville, does not adversely impact the local residential and business community.

**Route 83 and Route 9 Intersection Improvements**

Two (2) levels of intersection improvements were evaluated for the present at grade condition at Route 83/9.

The first option was to utilize the existing at grade situation at the noted intersection during the development of the four (4) lane horizontal and vertical alignments for the 60 mph limited access roadway. Modifications provided for the signalization of this intersection and the upgrading and widening of the existing horizontal alignment of Route 9 to conform with superelevation and sight distance requirements. The following traffic movements are anticipated at this intersection:

1. Deceleration lane provided for traffic heading east on Route 83 with a slip ramp onto Route 9 south; Route 9 will utilize the existing shoulder as an acceleration lane for traffic merging into the southbound lane.

2. Deceleration lane provided for traffic heading south on Route 9 with a slip ramp onto Route 83 west; Route 83 will utilize the shoulder as an acceleration lane for traffic merging into the westbound lanes.

3. Two (2) lanes of through movement each direction across the signalized intersection to and from the Garden State Parkway Northbound or Southbound.
4. Traffic heading north on Route 9 traveling towards Route 83 east must exit to a loop jug handle in the northeast quadrant of the intersection and merge with traffic from the Parkway connection towards the noted destination. This movement eliminated left hand turns from Route 9.

It should be noted that the assumed slip ramps on and off Route 9 will require the acquisition of three (3) businesses and possible impact to a fourth along Routes 83 and 9.

The second option was to upgrade this condition to a grade separated intersection with again a feasibility analysis performed for overpass and underpass alternates for Route 55.

The grade separated condition of Route 55 over Route 9 was chosen in lieu of the at grade improvements option and underpass scheme for the following reasons:

1. The four (4) lane limited access roadway upgraded for a 60 mph design speed will provide traffic with uninhibited flow in both directions from the existing Route 55 southern terminus to the Garden State Parkway.

2. In order to provide a Route 55 underpass condition at Route 9, significant excavation of the existing ground in addition to the reconstruction of Route 9 would be required to provide a 16'-6" minimum underclearance over Route 55.

3. Since the desirable condition was to span Route 55 over the Garden State Parkway (northbound and southbound lanes) maintaining the same underclearance requirements, it was more feasible on a construction cost basis to remain in an embankment condition between the structures.

This study also addressed "land locked" properties created by the Route 83 extension and Route 9 intersection improvements. The development of a 2,100' frontage road which parallels the Route 83 extension for 650' would satisfy access requirements for existing residential properties east of the Route 9 intersection. Access has been provided approximately 430' north of the grade separated intersection to a frontage road terminated by a cul-de-sac servicing two (2) existing residential properties between Route 9 and the Parkway interchange. Based on the location of these properties shown on the 200-scale and 400-scale aerial mapping, it appears that one (1) home may require acquisition by the Department, due to the close proximity of the embankment toe of slopes from the construction of the Route 83 extension.
Interchanges

The study also included the evaluation of the Route 83 extension beyond the Route 9 intersection to a full trumpet interchange with the existing Garden State Parkway (GSP) in the vicinity of GSP M.P. 15.0 (see Photo 6).

The development of this extension was based on a tangent horizontal alignment from Radcliff Lane to the G.S.P. interchange, a distance of 5,140’. The following traffic movements are anticipated between the Parkway and the Route 83 extension:

1. The four (4) lane limited access roadway heading east from Route 9 will have a lane drop for the slip ramp onto the G.S.P. heading southbound. The eastbound through lane traffic will continue across the two (2) lane southbound and northbound structures to the loop ramp onto the G.S.P. northbound.

2. Heading northbound on the Parkway from the direction of M.P. 11.0, the interchange provides an exit ramp on the outside of the double barrier curb separation of the GSP northbound on-ramp, for traffic proceeding onto Route 83 heading westbound.

3. Heading southbound on the Parkway from the direction of M.P. 17.0, a slip ramp has been provided for traffic proceeding onto Route 83 heading westbound or Route 9 northbound.

4. One (1) movement which did not appear to be feasible and has been restricted by this interchange, is traffic traveling from G.S.P. northbound exiting for Route 83 westbound and attempting for a direct connection with Route 9 heading south. This condition can be attained either by using the Land Service Roadway condition and continuing west on Route 83 to the first jug handle and reversing back to Route 9 or exiting the G.S.P. at M.P. 11.0.

It was assumed during the plan development of the horizontal and vertical alignments for the Route 83 extension beyond the Route 9 intersection to the G.S.P. interchange, that the New Jersey Department of Transportation jurisdiction limits would terminate at the existing right-of-way line of the Garden State Parkway (N.J.H.A.). However, the Preliminary Construction Cost Estimate prepared for this length of roadway includes the all the costs associated with ramp construction and the two (2) structures over the Parkway.
Photo 1:
Schooner Landing Road over Existing Route 55. The freeway alignment, shown as an orange dashed line, provides an easterly bypass of Port Elizabeth. The yellow line represents the current alignment.

Photo 2:
Southern terminus of existing Route 55 at the Route 47/55 intersection. The yellow dashed line is a bypass to the west of Port Elizabeth. The freeway alignment/east Port Elizabeth bypass is shown in the background (orange dashed line).
Photo 3:

Intersection of East Creek Pond Road (CR 670) and Delsea Drive (Rt. 47).

Photo 4:

Existing Route 47 in the vicinity of Ludlams Pond near Dennisville. The freeway alignment (orange) provides a westerly bypass around Dennisville. The yellow dashed line represents a bypass utilizing the existing alignment.
Photo 5:

Existing Routes 47/83 interchange. Both the Dennisville bypass (yellow dash) and the freeway alignment (orange) tie into and follow the exiting Route 83 alignment to provide access to Route 9 and the Garden State Parkway.

Photo 6:

Southern terminus of Route 83 at the Routes 83/9 intersection. All land service alternates and both freeway alignment alternates would extend beyond Route 9 to connect with the Garden State Parkway (foreground).
Scheme 3 - 49/50 Corridor: Two Lane Upgrade
(Alternates 7 & 7A)

This scheme considered a two (2) lane upgrade for the Route 49/Route 50 corridor as an alternate to a new freeway alignment and land service improvements to the 47/670/83 corridor. Improvements to existing horizontal and vertical alignments were necessary to facilitate a design speed of 60 mph. Specific locations were also examined for modifications, including the Route 55 interchange with Route 49 (see Photo 7), a bypass around the town of Tuckahoe, and the intersection of Route 50 with Route 9 in Seaville (see Photo 8).

Two (2) two lane land service alternatives along the 49/50 alignment were examined based upon review of the following typical sections:

Alternate 7 - two (2) lane roadway with shoulders, a bypass of Tuckahoe, and an at grade intersection at Routes 49 & 50.

Alternate 7A - two (2) lane roadway with shoulders, a bypass of Tuckahoe, and a grade separated intersection at Routes 49 & 50.

Horizontal Alignment

All of the horizontal curves within the Route 49/50 corridor are substandard in that the pavement is not properly superclevated. With few exceptions, this deficiency can be corrected by providing the appropriate superelevation without change to the alignment or acquisition of additional right-of-way. In these cases, significant reconstruction would be required to provide superelevation with necessary runoff. In several cases the existing radii are less than the minimum permitted for the maximum rate of superelevation. In these cases, improvement to meet "desirable" design criteria, including 10 ft. shoulder width, were designed for.

Where consecutive horizontal curves in opposite directions were found, the minimum tangent between the curves was held as that required to properly "roll over" the superelevation sections. In the case of "broken back" horizontal alignment, consecutive curves in the same direction, no minimum separating tangent length was required as a minimum condition. Although this is contrary to the normal "desirable" design criteria, substantial lengths of roadway traversing very environmentally sensitive areas would have been impacted if this lessor standard was not used.

Route 50 in the vicinity of Seaville could not reasonably be reconstructed for a design speed of 60 miles per hour. Substantial damage to adjacent residential and commercial properties would have been required. The only reasonable solution to provide for this increased design speed would have been the construction of a significant bypass. This was deemed impractical and therefore a reduced design speed of 50 miles per hour was used for Route 50 between Cape May County Route 616 and Route 9.

No horizontal curves along Route 49 and three (3) curves along Route 50 required acquisition of right-of-way to improve to the specified design standards. Seventeen (17) and
sixteen (16) horizontal curves along Route 49 and Route 50 respectively require reconstruction but do not need acquisition of additional right-of-way. Two (2) and five (5) of these horizontal curves within Route 49 and 50 respectively are within sections of the existing highways which would not be a part of the alternative route if the Tuckahoe Bypass were constructed. Accordingly, reconstruction costs for these curves have not been included within the cost estimation process.

*Vertical Alignment*

A significant number of the existing vertical curves located along the alternative route are substandard based upon the previously stated design speeds and in accordance with current design criteria. Along Route 49, 67 vertical curves are substandard, of which three (3) would fall outside the alternative route if Tuckahoe Bypass were constructed. Along Route 50, fifteen (15) vertical curves are substandard, of which nine (9) would be outside of the alternative route if the bypass were constructed. Only that reconstruction required to upgrade vertical alignment within the alternative route, assuming the Tuckahoe Bypass is constructed, is included within the cost estimation process.

*Tuckahoe Bypass*

Due to the close proximity of commercial and residential properties to both Route 49 and Route 50 in the vicinity of their intersection and the historic nature of many of these properties, a bypass of Tuckahoe was studied. In order to minimize impact to the relatively undisturbed nature of the land surrounding the town of Tuckahoe, the bypass was generally located parallel to the existing north-south railroad tracks west of Tuckahoe. To minimize the number of costly crossings of these existing tracks, the westerly route was also preferred.

The bypass crosses over County Route 557 and an existing rail line west of Tuckahoe. The grade separation at the Route 557 crossing is necessary because the bypass profile cannot be brought back down to existing grade due to the close proximity of the rail line. An interchange with extended Tuckahoe Road (Co. Rt. 631) is provided due to the significant turning traffic volume from Route 50 southbound to Route 631 eastbound as well as the reverse movement. At the southerly end of the bypass, Route 50 is in part redefined as a frontage road or abandoned. Relocation of the northern end of Cedar Avenue and construction of an extended frontage road adjacent to the bypass/Route 631 interchange were also assumed. At grade intersections with Cedar Lane and Tuckahoe-Mount Pleasant Road as well as reconstruction of the Route 50/Route 631 intersection will be required.

**55/49 Interchange Improvements**

The design objective at the existing interchange of the Route 55 Freeway and Route 49 was to provide a direct connecting ramp from Route 55 southbound to Route 49 eastbound to facilitate the use of the Route 49/50 alternative route (see Photo 7).
In order to provide the direct connection loop ramp from Route 55 southbound to Route 49 eastbound, the existing finger ramp from Route 49 eastbound to Route 55 southbound must be relocated. The existing Route 50 westbound ramp to Route 55 southbound ramp is removed due to insufficient weave distance between adjacent on and off ramps on Route 55. To reduce the number of intersection points along Route 49 in the vicinity of the new Route 55 southbound ramp terminals, the existing ramp from Route 55 southbound to Route 49 is removed. The new Route 55 southbound off ramp should adequately serve both east and westbound Route 49 traffic. The existing Route 49 westbound to Route 55 northbound ramp is improved to meet current design criteria with resultant impacts to Greissenger Avenue and Burns Road.

Routes 50/9 Intersection Improvements

Two (2) levels of intersection improvement were considered, both of which orientate Route 50 toward the Garden State Parkway and eliminate the existing "cut off" currently present at the southwest quadrant of the existing intersection (see Photo 8). To remove the existing angle point at the terminus of the Garden State Parkway Connector alignment at Route 50, a 5,200 ft. radius is provided for realigned Route 50. The radius ties into the Parkway Connector tangent alignment and compounds into the existing 1,433 ft. radius along Route 50.

The first level of improvement (alternate 7A) considered provides a grade separated interchange. To provide sufficient room for acceleration and deceleration lanes along Route 50 prior to existing ramps at the Parkway, all ramps are assumed to be on the west side of Route 9. The loop-finger ramp combination at the northwest quadrant will potentially impact an historic site. Existing access for the shopping at the northeast quadrant should be realigned opposite the terminus of these ramps along Route 9. At the southwest quadrant, the ramps will require the demolition of several dwellings and businesses. Based upon the current and proposed State Highway Access Code regulations, it appears that access to Route 50 must be denied on both sides of the highway throughout the vicinity of the acceleration and deceleration lanes. This would mean that numerous properties along Route 50 would be affected. Widening along Route 9 provides left turn slots into the Route 50 ramps. Along Route 9 southbound, an auxiliary lane for right turns to and from Route 50 ramps was anticipated.

The second level of improvement (alternate 7) studied is an at grade intersection. Two (2) lanes are provided in each direction of both Routes 50 and 9 with opposing left turns slots.

Typical Intersection Improvements

For purposes of estimating necessary construction costs, it was assumed that certain typical intersection improvements would be performed. Lacking traffic counts on which to base these improvements, the typical improvement was assumed to consist of signalization and widening of the shoulders to fifteen (15) ft. for use as auxiliary lanes. No exclusive left hand turning lanes were assumed. Intersections of Route 49 with the Cumberland County
Routes 671, 646, and 644; Cape May County Routes 548 and 617; and Mays Landing Road were estimated to be improved. Route 50 intersections with Cape May County Routes 631, 610 and 616 were assumed to be similarly improved.
Photo 7:

Existing Route 49 under existing Route 55. The blue line represents land service improvements for the Route 49/50 corridor alternates. Ramp improvements (not shown in blue) would also be required.

Photo 8:

Route 50/Route 9 intersection (foreground) and connection to the Garden State Parkway. The Route 50/9 intersection would remain "at-grade" under alternate 7, but would be reconstructed as a "grade-separated" intersection as alternate 7A.
ROUTE 55 EXTENSION STUDY

PLATE 2
Study Limits for Segments A, B, C, & D
(see Plates 2, A-1, B-1, C-1 & D-1)

To ease comparison and to make the corridor manageable, the Route 47/670/83 corridor was broken down into Study Segments A, B, C, and D. The Study Segment limits, as set forth in the Route 55 Feasibility Study Scope of Work, are as follows, and indicated on Plate 2 in Section I and Plates A-1, B-1, C-1 and D-1 in Section II of this report:

Segment A - Begins on existing Route 55 at a point northeast where the existing freeway ends, continues on to Route 47, continues along Route 47 to County Route 670, continues along County Route 670 to the point indicated on Plate A-1 as the southern terminus of Segment A.

Due to the relatively large number of options available for improvements to this region, Segment A was further broken down into three sub-segments labelled A1, A2, & A3 as indicated on Plate A-1.

Segment B - Begins on County Route 670 as shown on Plate B-1, continues along County Route 670 to Route 47, continues on Route 47 to the point indicated on Plate B-1 as the southern terminus of Segment B.

Segment C - Begins on Route 47 as shown on Plate C-1 and continues along Route 47 to the interchange with Route 83, continues along Route 83 to the railroad overpass just east of the Route 47/Route 83 interchange. In addition, this segment continues along Route 47 to south of the intersection with County Route 585.

Segment D - Begins at the railroad overpass on Route 83 adjacent to the Route 47/Route 83 interchange as shown on Plate D-1, continues along Route 83 to the intersection with Route 9, then continues on a new alignment to the Garden State Parkway.
LAND SERVICE ALTERNATES

Route 47/670/83 Corridor: Study Segment A
<table>
<thead>
<tr>
<th>Freeway Alignment (Orange &amp; Orange Dash Lines)</th>
<th>Alt. 1</th>
<th>Alt. 2</th>
<th>Alt. 3</th>
<th>Alt. 4</th>
<th>Alt. 5</th>
<th>Alt. 5A</th>
<th>Alt. 6</th>
<th>Alt. 6A</th>
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</thead>
<tbody>
<tr>
<td>4 Lanes w/ Barrier Curb &amp; Shoulders</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>East Bypass of Port Elizabeth (Orange Dash Line)</td>
<td>NA</td>
<td>NA</td>
<td>2 Lanes w/ Shoulders</td>
<td>NA</td>
<td>NA</td>
<td>4 Lanes w/ Barrier Curb &amp; Shoulders</td>
<td>NA</td>
<td>4 Lanes w/ Grass Median &amp; Shoulders</td>
</tr>
<tr>
<td>West Bypass of Port Elizabeth (Yellow Dash Line)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>2 Lanes w/ Shoulders</td>
<td>4 Lanes w/ Barrier Curb &amp; Shoulders</td>
<td>NA</td>
<td>4 Lanes w/ Grass Median &amp; Shoulders</td>
<td>NA</td>
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<tr>
<td>Existing Rt. 47 (Yellow Line)</td>
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<td>To Remain As Is</td>
<td>To Remain As Is</td>
<td>2 Lanes (Upgraded) w/ Shoulders</td>
<td>4 Lanes (Upgraded) w/ Barrier Curb &amp; Shoulders</td>
<td>To Remain As Is</td>
<td>4 Lanes (Upgraded) w/ Grass Median &amp; Shoulders</td>
<td>To Remain As Is</td>
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<tr>
<td>Existing Rt. 670 (Yellow Line)</td>
<td>To Remain As Is</td>
<td>To Remain As Is</td>
<td>To Remain As Is</td>
<td>2 Lanes (Upgraded) w/ Shoulders</td>
<td>4 Lanes (Upgraded) w/ Barrier Curb &amp; Shoulders</td>
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<td>4 Lanes (Upgraded) w/ Grass Median &amp; Shoulders</td>
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</tbody>
</table>

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 1: Freeway Alignments*
**Alternative 3 (Segment A) - Two Lane Upgrade**  
(Orange Dashed Line - see Plate A-1)

This alternate provides for an easterly bypass around the town of Port Elizabeth. This two (2) lane undivided bypass commences at the southerly end of the Route 55 Freeway and follows an avoidance alignment as described in *Technical Memorandum No. 1: Freeway Alignments*. The bypass then diverts the new alignment to a horizontal bend in County Route 670 where a smooth transition back to the existing alignment occurs. Total length of Segment: approximately 4.5 miles.

<table>
<thead>
<tr>
<th>Design Parameters</th>
<th>Typical Section:</th>
<th>One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction</th>
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<tr>
<td>Design Speed:</td>
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<td>Superelevation:</td>
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<td>Total Acres Req’d:</td>
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<td>Design Year:</td>
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<tr>
<th>Serviceability</th>
<th>Existing/Proposed Level of Service (Average Day):</th>
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<tbody>
<tr>
<td></td>
<td>Existing/Proposed Level of Service (Tourism Season):</td>
<td><strong>/</strong>_</td>
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</table>

| Interchanges & Intersections | No significant intersection improvements or interchanges will be necessary for this alternate within the limits of Segment A. |
**Environmental Impacts**

### Cultural Resources (Plate A-2)
- 0 Potentially Historic Bridges (50+ years) replaced/repaired
- 0 Historic Buildings (acquired)
- 0 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 0 Known Historic Archaeological Sites Disrupted by ROW
- 1 Known Prehistoric Archaeological Sites Disrupted by ROW
- 6 Areas with High Potential for Archaeological Resources

### Endangered Species (Plates A-3 & A-4)
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

### Socioeconomic, Land Use, Visual (Plates A-5 & A-6)
- General Impact on Social Constraints: Adverse
  - Residences Displaced by Alternate: 17 residences
  - Impact to Communities Disrupted by ROW: Adverse
- General Impact on Economic Constraints: Minor
  - Businesses Displaced by Alternate: 2 businesses
  - Affect to Businesses Bypassed by Alternate: None
- General Impact on Land Use Constraints: Adverse
  - Consistent with Pineland Policies: No
  - Consistent with CAFRA Policies: NA
  - Potential Secondary Development: Yes
  - Acquired Agricultural Development Areas: 0 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 0 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 0 acres
- General Impact on Visual Constraints: Adverse
  - Number of Scenic Corridors Impacted: 1 scenic corridor

### Wetlands Emphasis (Plate A-4)
- Acres of Wetlands Acquired: 11.5 acres
- Mitigation at @ 2:1 Replacement Ratio: 23.0 acres
- Quality of Wetlands Acquired: Average to High
- Impacts to Buffer Areas in Segment A: Yes
- Impacts to Water Quality in Segment A: Adverse
- Impacts to Upland Forests in Segment A: Adverse

### Contamination Sites (Plate A-6)
- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
Alternative 4 (Segment A) - Two Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate A-1)

This alternate provides for a westerly bypass around the town of Port Elizabeth. This two (2) lane undivided bypass commences in the vicinity of Fralinger Lane and spans across the High Quality Wetlands and the Manumuskin River with a structure of 750’ in length. The centerline of the bypass roadway realigns with the existing Route 47 centerline in the vicinity of Ferry Lane. Total length of Segment: approximately 5 miles.

Design Parameters

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<th>Parameter</th>
<th>Details</th>
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<td>Typical Section</td>
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<td>Design Speed</td>
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<td>Superelevation</td>
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Serviceability

Existing/Proposed Level of Service (Average Day): ___/___
Existing/Proposed Level of Service (Tourism Season): ___/___

Interchanges & Intersections

County Route 670, approx. 2,200’ west of Dorchester Hunters Mill Road, is considered geometrically substandard. The 900’ curve improvements will require the acquisition of approximately 42 feet of additional right of way. Also, a two lane bridge will be required over the Route 47 ramp.
Alternative 4 (Segmen: A) - cont.

Environmental Impacts

**Cultural Resources (Plate A-2)**
- Potentially Historic Bridges (50+ years) replaced/repaired
- Historic Buildings (acquired)
- Historic Buildings (disrupted setting)
- Historic Districts Encroached by ROW
- Known Historic Archaeological Sites Disrupted by ROW
- Known Prehistoric Archaeological Sites Disrupted by ROW
- Areas with High Potential for Archaeological Resources

**Endangered Species (Plates A-3 & A-4)**
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual (Plates A-5 & A-6)**

General Impact on Social Constraints: **Adverse**
- Residences Displaced by Alternate: 17 residences
- Impact to Communities Disrupted by ROW: **Adverse**

General Impact on Economic Constraints: **Minor**
- Businesses Displaced by Alternate: 1 business
- Affect to Businesses Bypassed by Alternate: **Minor**

General Impact on Land Use Constraints: **Moderate**
- Consistent with Pineland Policies: NA
- Consistent with CAFRA Policies: No
- Potential Secondary Development: Yes
- Acquired Agricultural Development Areas: 0 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 0 acres
- Wildlife Refuges Disrupted, Acres Acquired: 0 acres

General Impact on Visual Constraints: **Adverse**
- Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis (Plate A-4)**
- Acres of Wetlands Acquired: __ acres
- Mitigation at @ 2:1 Replacement Ratio: __ acres
- Quality of Wetlands Acquired: High
- Impacts to Buffer Areas in Segment A: __
- Impacts to Water Quality in Segment A: __
- Impacts to Upland Forests in Segment A: __

**Contamination Sites (Plate A-6)**
- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites

33
Alternative 5 (Segment A) - Four Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate A-1)

This alternate provides for a westerly bypass around the town of Port Elizabeth. This four (4) lane divided bypass commences in the vicinity of Fralinger Lane and spans across the High Quality Wetlands and the Manumuskin River with a structure of 750’ in length. The centerline of the bypass roadway realigns with the existing Route 47 centerline in the vicinity of Ferry Lane. The roadway is divided by a concrete barrier curb. Total length of Segment: approximately 5 miles.

**Design Parameters**

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**Serviceability**

Existing/Proposed Level of Service (Average Day): D/A
Existing/Proposed Level of Service (Tourism Season): F/D

**Interchanges & Intersections**

A four lane bridge will be required over the Route 47 ramp. No other significant intersection improvements or interchanges will be necessary for this alternate within the limits of Segment A.
**Alternative 5 (Segment A) - cont.**

**Environmental Impacts**

### Cultural Resources
* (Plate A-2)
- 1 Potentially Historic Bridges (50+ years) replaced/repairsed
- 0 Historic Buildings (acquired)
- 1 Historic Buildings (disrupted setting)
- 3 Historic Districts Encroached by ROW
- 0 Known Historic Archaeological Sites Disrupted by ROW
- 2 Known Prehistoric Archaeological Sites Disrupted by ROW
- 8 Areas with High Potential for Archaeological Resources

### Endangered Species
* (Plates A-3 & A-4)

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

### Socioeconomic, Land Use, Visual
* (Plates A-5 & A-6)

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<td>Impact to Communities Disrupted by ROW:</td>
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<table>
<thead>
<tr>
<th>General Impact on Economic Constraints:</th>
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<tr>
<td>Affect to Businesses Bypassed by Alternate:</td>
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<table>
<thead>
<tr>
<th>General Impact on Land Use Constraints:</th>
<th>Adverse</th>
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<tbody>
<tr>
<td>Consistent with Pineland Policies:</td>
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<tr>
<td>Consistent with CAFRA Policies:</td>
<td>No</td>
</tr>
<tr>
<td>Potential Secondary Development:</td>
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<td>Acquired Agricultural Development Areas:</td>
<td>0 acres</td>
</tr>
<tr>
<td>Parks Disrupted by ROW, Acres Acquired:</td>
<td>0 acres</td>
</tr>
<tr>
<td>State Forests Disrupted, Acres Acquired:</td>
<td>0 acres</td>
</tr>
<tr>
<td>Wildlife Refuges Disrupted, Acres Acquired:</td>
<td>0 acres</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Impact on Visual Constraints:</th>
<th>Adverse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Scenic Corridors Impacted:</td>
<td>1 scenic corridor</td>
</tr>
</tbody>
</table>

### Wetlands Emphasis
* (Plate A-4)

| Acres of Wetlands Acquired: | 11.4 acres |
| Mitigation at @ 2:1 Replacement Ratio: | 22.8 acres |
| Quality of Wetlands Acquired: | High |
| Impacts to Buffer Areas in Segment A: | Yes |
| Impacts to Water Quality in Segment A: | Adverse |
| Impacts to Upland Forests in Segment A: | Minor |

### Contamination Sites
* (Plate A-6)

| Hazardous Waste Sites within ROW: | 0 sites |
| Potential Hazardous Waste Sites: | 0 sites |
Alternative 5A (Segment A) - Four Lane Upgrade
(Orange Dashed Line - see Plate A-1)

This alternate provides for an easterly bypass around the town of Port Elizabeth. This four (4) lane divided bypass commences at the southerly end of the Route 55 Freeway and follows an avoidance alignment as described in Technical Memorandum No. 1: Freeway Alignments. The bypass then diverts the new alignment to a horizontal bend in County Route 670 where a smooth transition back to the existing alignment occurs. The roadway is divided by a concrete barrier curb. Total length of Segment: approximately 4.5 miles.

### Design Parameters

<table>
<thead>
<tr>
<th></th>
<th>Typical Section:</th>
<th>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb</th>
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</thead>
<tbody>
<tr>
<td>Design Speed:</td>
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<tr>
<td>Superelevation:</td>
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<td></td>
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<tr>
<td>Existing ROW:</td>
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<td></td>
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<tr>
<td>Proposed ROW:</td>
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</tr>
<tr>
<td>Total Acres Req'd:</td>
<td>195 acres</td>
<td></td>
</tr>
<tr>
<td>Design Year:</td>
<td>2005</td>
<td></td>
</tr>
</tbody>
</table>

### Serviceability

<table>
<thead>
<tr>
<th></th>
<th>Existing/Proposed Level of Service (Average Day): D/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing/Proposed Level of Service (Tourism Season): F/D</td>
</tr>
</tbody>
</table>

### Interchanges & Intersections

For this alternate, an interchange to the Route 55 Freeway was assumed at Route 47 (just south of Schooner Landing Road). This interchange will continue to provide an existing direct connection to Route 55 for the local residents of Port Elizabeth. A southbound exit ramp to Route 47 and a northbound entrance ramp from Route 47 utilizing a bridge over Route 55 are provided. To provide for the ramp movements currently missing at the Schooner Landing Road interchange, a northbound exit ramp was considered with its exit prior to the northbound connector entrance ramp to avoid a substandard weave situation. On southbound Route 55 there is sufficient room to provide the 2,000 ft. minimum weave distance required between the entrance ramp and the connector exit.
Environmental Impacts

**Cultural Resources**
*(Plate A-2)*
- 0 Potentially Historic Bridges (50+ years) replaced/repaired
- 0 Historic Buildings (acquired)
- 0 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 0 Known Historic Archaeological Sites Disrupted by ROW
- 1 Known Prehistoric Archaeological Sites Disrupted by ROW
- 6 Areas with High Potential for Archaeological Resources

**Endangered Species**
*(Plates A-3 & A-4)*
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**
*(Plates A-5 & A-6)*
General Impact on Social Constraints: Adverse
- Residences Displaced by Alternate: 17 residences
- Impact to Communities Disrupted by ROW: Adverse

General Impact on Economic Constraints: Minor
- Businesses Displaced by Alternate: 2 businesses
- Affect to Businesses Bypassed by Alternate: None

General Impact on Land Use Constraints: Adverse
- Consistent with Pineland Policies: No
- Consistent with CAFRA Policies: NA
- Potential Secondary Development: Yes
- Acquired Agricultural Development Areas: 0 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 0 acres
- Wildlife Refuges Disrupted, Acres Acquired: 0 acres

General Impact on Visual Constraints: Adverse
- Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis**
*(Plate A-4)*
- Acres of Wetlands Acquired: 13.5 acres
- Mitigation at @ 2:1 Replacement Ratio: 27.0 acres
- Quality of Wetlands Acquired: Medium to High
- Impacts to Buffer Areas in Segment A: Yes
- Impacts to Water Quality in Segment A: Adverse
- Impacts to Upland Forests in Segment A: Adverse

**Contamination Sites**
*(Plate A-6)*
- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
Alternative 6 (Segment A) - Four Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate A-1)

This alternate provides for a westerly bypass around the town of Port Elizabeth. This four (4) lane bypass commences in the vicinity of Fralinger Lane and spans across the High Quality Wetlands and the Manumuskin River with a structure of 750’ in length. The centerline of the bypass roadway realigns with the existing centerline in the vicinity of Ferry Lane. The roadway is divided by a 10’ wide grass median. Total length of Segment: approximately 5 miles.

**Design Parameters**

Typical Section: Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median.

- Design Speed: 60 mph
- Superelevation: 6% (maximum)
- Existing ROW: 66 feet
- Proposed ROW: 148 feet
- Total Acres Req’d: 88.9 acres
- Design Year: 2005

**Serviceability**

Existing/Proposed Level of Service (Average Day): D/A
Existing/Proposed Level of Service (Tourism Season): F/D

**Interchanges & Intersections**

A four lane bridge will be required over the Route 47 ramp. No other significant intersection improvements or interchanges will be necessary for this alternate within the limits of Segment A.
**Environmental Impacts**

**Cultural Resources**  
(Plate A-2)  
1 Potentially Historic Bridges (50+ years) replaced/repaired  
0 Historic Buildings (acquired)  
1 Historic Buildings (disrupted setting)  
3 Historic Districts Encroached by ROW  
0 Known Historic Archaeological Sites Disrupted by ROW  
2 Known Prehistoric Archaeological Sites Disrupted by ROW  
8 Areas with High Potential for Archaeological Resources

**Endangered Species**  
(Plates A-3 & A-4)  
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**  
(Plates A-5 & A-6)  
General Impact on Social Constraints:  
- Residences Displaced by Alternate: 41 residences  
- Impact to Communities Disrupted by ROW: Adverse

General Impact on Economic Constraints:  
- Businesses Displaced by Alternate: 5 businesses  
- Affect to Businesses Bypassed by Alternate: NA

General Impact on Land Use Constraints:  
- Consistent with Pineland Policies: No  
- Consistent with CAFRA Policies: No  
- Potential Secondary Development: Yes (high)  
- Acquired Agricultural Development Areas: 0 acres  
- Parks Disrupted by ROW, Acres Acquired: 0 acres  
- State Forests Disrupted, Acres Acquired: 0 acres  
- Wildlife Refuges Disrupted, Acres Acquired: 0 acres

General Impact on Visual Constraints:  
- Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis**  
(Plate A-4)  
Acres of Wetlands Acquired: 14.4 acres  
Mitigation at @ 2:1 Replacement Ratio: 28.8 acres  
Quality of Wetlands Acquired: High  
Impacts to Buffer Areas in Segment A: Yes  
Impacts to Water Quality in Segment A: Adverse  
Impacts to Upland Forests in Segment A: Moderate

**Contamination Sites**  
(Plate A-6)  
Hazardous Waste Sites within ROW: 0 sites  
Potential Hazardous Waste Sites: 0 sites
Alternative 6A (Segment A) - Four Lane Upgrade
(Orange Dashed Line - see Plate A-1)

This alternate provides for an easterly bypass around the town of Port Elizabeth. This four (4) lane bypass commences at the southerly end of the Route 55 Freeway and follows an avoidance alignment as described in Technical Memorandum No. 1: Freeway Alignments. The bypass then diverts the new alignment to a horizontal bend in County Route 670 where a smooth transition back to the existing alignment occurs. The roadway is divided by a 10’ wide grass median. Total length of Segment: approximately 4.5 miles.

Design Parameters

Typical Section: Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median

Speed: 60 mph
Superelevation: 6% (maximum)
Existing ROW: NA
Proposed ROW: 250 feet
Total Acres Req’d: 220 acres
Design Year: 2005

Serviceability

Existing/Proposed Level of Service (Average Day): D/A
Existing/Proposed Level of Service (Tourism Season): F/D

Interchanges & Intersections

For this alternate, an interchange to the Route 55 Freeway was assumed at Route 47 (just south of Schooner Landing Road). This interchange will continue to provide an existing direct connection to Route 55 for the local residents of Port Elizabeth. A southbound exit ramp to Route 47 and a northbound entrance ramp from Route 47 utilizing a bridge over Route 55 are provided. To provide for the ramp movements currently missing at the Schooner Landing Road interchange, a northbound exit ramp was considered with its exit prior to the northbound connector entrance ramp to avoid a substandard weave situation. On southbound Route 55 there is sufficient room to provide the 2,000 ft. minimum weave distance required between the entrance ramp and the connector exit.
### Environmental Impacts

#### Cultural Resources (Plate A-2)

- 0 Potentially Historic Bridges (50+ years) replaced/repaired
- 0 Historic Buildings (acquired)
- 0 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 0 Known Historic Archaeological Sites Disrupted by ROW
- 1 Known Prehistoric Archaeological Sites Disrupted by ROW
- 6 Areas with High Potential for Archaeological Resources

#### Endangered Species (Plates A-3 & A-4)

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

#### Socioeconomic, Land Use, Visual (Plates A-5 & A-6)

**General Impact on Social Constraints:** Adverse

- Residences Displaced by Alternate: 17 residences
- Impact to Communities Disrupted by ROW: Adverse

**General Impact on Economic Constraints:** Minor

- Businesses Displaced by Alternate: 2 businesses
- Affect to Businesses Bypassed by Alternate: None

**General Impact on Land Use Constraints:** Adverse

- Consistent with Pineland Policies: No
- Consistent with CAFRA Policies: NA
- Potential Secondary Development: Yes
- Acquired Agricultural Development Areas: 0 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 0 acres
- Wildlife Refuges Disrupted, Acres Acquired: 0 acres

**General Impact on Visual Constraints:** Adverse

- Number of Scenic Corridors Impacted: 1 scenic corridor

#### Wetlands Emphasis (Plate A-4)

- Acres of Wetlands Acquired: 15 acres
- Mitigation at @ 2:1 Replacement Ratio: 30 acres
- Quality of Wetlands Acquired: Medium to High
- Impacts to Buffer Areas in Segment A: Yes
- Impacts to Water Quality in Segment A: Adverse
- Impacts to Upland Forests in Segment A: Adverse

#### Contamination Sites (Plate A-6)

- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 2
LAND SERVICE IMPROVEMENTS
AND BYPASSES

Plate A-3
Endangered Species
47/670/83 Corridor: Segment A

KEY
- Natural Heritage Priority Site for the Preservation of Biological Diversity
- Documented Location of a Threatened or Endangered Species is Known Precisely
- Documented Location of a Threatened or Endangered Species is Known within 1.5 Miles

Scale: 1' = 1/2 Mile
LAND SERVICE ALTERNATES

Route 47/670/83 Corridor: Study Segment B
### Table B-1: Alternate Configurations

<table>
<thead>
<tr>
<th>Freeway Alignment (Orange Line)</th>
<th>Rt. 55 Freeway Alternates*</th>
<th>Rt. 47 / 670 / 83 Land Service Alternates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alt. 1</td>
<td>Alt. 2</td>
</tr>
<tr>
<td>Freeway Alignment (Orange Line)</td>
<td>4 Lanes w/ Barrier Curb &amp; Shoulders</td>
<td>4 Lanes w/ Grass Median &amp; Shoulders</td>
</tr>
<tr>
<td>Existing Rt. 670 (Yellow Line)</td>
<td>To Remain As Is</td>
<td>To Remain As Is</td>
</tr>
<tr>
<td>Existing Rt. 47 (Yellow Line)</td>
<td>To Remain As Is</td>
<td>To Remain As Is</td>
</tr>
</tbody>
</table>

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 1: Freeway Alignments*
Alternative 3 (Segment B) - Two Lane Upgrade
(Yellow Line - see Plate B-1)

Through Segment B, this alternate provides for a two lane upgrade along existing Routes 670 & 47. Horizontal and vertical alignment deficiencies along the existing routes will be upgraded to maintain a posted speed of 50 mph. Total length of Segment: approximately 9 miles.

**Design Parameters**

Typical Section: One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction
Design Speed: 55 mph
Superelevation: 6% (maximum)
Existing ROW: _____ feet
Proposed ROW: _____ feet
Total Acres Req’d: _____ acres
Design Year: 2005

**Serviceability**

Existing/Proposed Level of Service (Average Day): _____
Existing/Proposed Level of Service (Tourism Season): _____

**Interchanges & Intersections**

The following locations are geometrically substandard and will require additional right-of-way acquisition for implementation:

1. County Route 670, commencing approx. 1,500’ west of Belleplain Road (County Route 550) heading east, 5.0 miles of reconstruction requiring 18 to 84’ of additional right-of-way. Included within this segment of roadway is the realignment of Hands Mill Road (County Route 550), which must also be addressed.

2. Route 47 from the County Route 670 intersection in Cape May County, 1.3 miles of profiling within the existing right-of-way.
Environmental Impacts

**Cultural Resources**
(Plate B-2)

- Potentially Historic Bridges (50+ years) replaced/repairsd
- Historic Buildings (acquired)
- Historic Buildings (disrupted setting)
- Historic Districts Encroached by ROW
- Known Historic Archaeological Sites Disrupted by ROW
- Known Prehistoric Archaeological Sites Disrupted by ROW
- Areas with High Potential for Archaeological Resources

**Endangered Species**
(Plates B-3 & B-4)

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic,**
**Land Use, Visual**
(Plates B-5 & B-6)

General Impact on Social Constraints:
- Residences Displaced by Alternate: ___ residences
- Impact to Communities Disrupted by ROW: ___

General Impact on Economic Constraints:
- Businesses Displaced by Alternate: ___ businesses
- Affect to Businesses Bypassed by Alternate: ___

General Impact on Land Use Constraints:
- Consistent with Pineland Policies: ___
- Consistent with CAFRA Policies: ___
- Potential Secondary Development: ___
- Acquired Agricultural Development Areas: ___ acres
- Parks Disrupted by ROW, Acres Acquired: ___ acres
- State Forests Disrupted, Acres Acquired: ___ acres
- Wildlife Refuges Disrupted, Acres Acquired: ___ acres

General Impact on Visual Constraints:
- Number of Scenic Corridors Impacted: ___ scenic corridor

**Wetlands Emphasis**
(Plate B-4)

Acres of Wetlands Acquired: ___ acres
Mitigation at @ 2:1 Replacement Ratio: ___ acres
Quality of Wetlands Acquired: ___
Impacts to Buffer Areas in Segment B: ___
Impacts to Water Quality in Segment B: ___
Impacts to Upland Forests in Segment B: ___

**Contamination Sites**
(Plate B-6)

Hazardous Waste Sites within ROW: ___ sites
Potential Hazardous Waste Sites: ___ sites
Alternative 4 (Segment B) - Two Lane Upgrade
(Yellow Line - see Plate B-1)

Through Segment B, this alternate provides for a two lane upgrade along existing Routes 670 & 47. Horizontal and vertical alignment deficiencies along the existing routes will be upgraded to maintain a posted speed of 50 mph. Total length of Segment: approximately 9 miles.

Design Parameters

- Typical Section: One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction
- Design Speed: 55 mph
- Superelevation: 6% (maximum)
- Existing ROW: ___
- Proposed ROW: ___ feet
- Total Acres Req’d: ___ acres
- Design Year: 2005

Serviceability

- Existing/Proposed Level of Service (Average Day): ___/___
- Existing/Proposed Level of Service (Tourism Season): ___/___

Interchanges & Intersections

The following locations are geometrically substandard and will require additional right-of-way acquisition for implementation:

1. County Route 670, commencing approx. 1,500’ west of Belleplain Road (County Route 550) heading east, 5.0 miles of reconstruction requiring 18 to 84’ of additional right-of-way. Included within this segment of roadway is the realignment of Hands Mill Road (County Route 550), which must also be addressed.

2. Route 47 from the County Route 670 intersection in Cape May County, 1.3 miles of profiling within the existing right-of-way.
Alternative 4 (Segment B) - cont.

Environmental Impacts

Cultural Resources
(Plate B-2)

- Potentially Historic Bridges (50+ years) replaced/repaired
- Historic Buildings (acquired)
- Historic Buildings (disrupted setting)
- Historic Districts Encroached by ROW
- Known Historic Archaeological Sites Disrupted by ROW
- Known Prehistoric Archaeological Sites Disrupted by ROW
- Areas with High Potential for Archaeological Resources

Endangered Species
(Plates B-3 & B-4)

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

Socioeconomic, Land Use, Visual
(Plates B-5 & B-6)

General Impact on Social Constraints:
- Residences Displaced by Alternate: ___ residences
- Impact to Communities Disrupted by ROW: ___

General Impact on Economic Constraints:
- Businesses Displaced by Alternate: ___ businesses
- Affect to Businesses Bypassed by Alternate: ___

General Impact on Land Use Constraints:
- Consistent with Pineland Policies: ___
- Consistent with CAFRA Policies: ___
- Potential Secondary Development: ___
- Acquired Agricultural Development Areas: ___ acres
- Parks Disrupted by ROW, Acres Acquired: ___ acres
- State Forests Disrupted, Acres Acquired: ___ acres
- Wildlife Refuges Disrupted, Acres Acquired: ___ acres

General Impact on Visual Constraints:
- Number of Scenic Corridors Impacted: ___ scenic corridor

Wetlands Emphasis
(Plate B-4)

Acres of Wetlands Acquired: ___ acres
Mitigation at @ 2:1 Replacement Ratio: ___ acres
Quality of Wetlands Acquired: ___
Impacts to Buffer Areas in Segment B: ___
Impacts to Water Quality in Segment B: ___
Impacts to Upland Forests in Segment B: ___

Contamination Sites
(Plate B-6)

Hazardous Waste Sites within ROW: ___ sites
Potential Hazardous Waste Sites: ___ sites
Alternative 5 (Segment B) - Four Lane Upgrade
(Yellow Line - see Plate B-1)

Through Segment B, this alternate provides for a four lane upgrade along existing Routes 670 & 47. Horizontal and vertical alignment deficiencies along the existing routes will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a concrete barrier curb. Total length of Segment: approximately 9 miles.

Design Parameters

<table>
<thead>
<tr>
<th>Typical Section:</th>
<th>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb</th>
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</thead>
<tbody>
<tr>
<td>Design Speed:</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation:</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW:</td>
<td>66 feet</td>
</tr>
<tr>
<td>Proposed ROW:</td>
<td>130 feet</td>
</tr>
<tr>
<td>Total Acres Req’d:</td>
<td>104.6 acres</td>
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<tr>
<td>Design Year:</td>
<td>2005</td>
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Serviceability

<table>
<thead>
<tr>
<th>Existing/Proposed Level of Service (Average Day):</th>
<th>C/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing/Proposed Level of Service (Tourism Season):</td>
<td>E/D</td>
</tr>
</tbody>
</table>

Interchanges & Intersections

No significant intersection improvements or interchanges will be necessary for this alternate within the limits of Segment B.
**Environmental Impacts**

**Cultural Resources**
*(Plate B-2)*
- 0 Potentially Historic Bridges (50+ years) replaced/repai red
- 4 Historic Buildings (acquired)
- 1 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by Rowe
- 3 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 11 Areas with High Potential for Archaeological Resources

**Endangered Species**
*(Plates B-3 & B-4)*
- This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic,**
**Land Use, Visual**
*(Plates B-5 & B-6)*
- General Impact on Social Constraints: Adverse
- Residences Displaced by Alternate: 39 residences
- Impact to Communities Disrupted by ROW: Adverse
- General Impact on Economic Constraints: Moderate
- Businesses Displaced by Alternate: 6 businesses
- Affect to Businesses Bypassed by Alternate: NA
- General Impact on Land Use Constraints: Adverse
- Consistent with Pineland Policies: No
- Consistent with CAFRA Policies: No
- Potential Secondary Development: Yes (high)
- Acquired Agricultural Development Areas: 4.7 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 12.2 acres
- Wildlife Refuges Disrupted, Acres Acquired: 0 acres
- General Impact on Visual Constraints: Adverse
- Number of Scenic Corridors Impacted: 0 scenic corridors

**Wetlands Emphasis**
*(Plate B-4)*
- Acres of Wetlands Acquired: 8.9 acres
- Mitigation at @ 2:1 Replacement Ratio: 17.8 acres
- Quality of Wetlands Acquired: Medium to High
- Impacts to Buffer Areas in Segment B: Yes
- Impacts to Water Quality in Segment B: Adverse
- Impacts to Upland Forests in Segment B: Minor

**Contamination Sites**
*(Plate B-6)*
- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
**Alternative 5A (Segment B) - Four Lane Upgrade**  
(Yellow Line - see Plate B-1)

Through Segment B, this alternate provides for a four lane upgrade along existing Routes 670 & 47. Horizontal and vertical alignment deficiencies along the existing routes will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a concrete barrier curb. Total length of Segment: approximately 9 miles.

### Design Parameters

| Typical Section: | Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb |
| Design Speed: | 60 mph |
| Superelevation: | 6% (maximum) |
| Existing ROW: | 66 feet |
| Proposed ROW: | 130 feet |
| Total Acres Req’d: | 104.6 acres |
| Design Year: | 2005 |

### Serviceability

- Existing/Proposed Level of Service (Average Day): C/A
- Existing/Proposed Level of Service (Tourism Season): E/D

### Interchanges & Intersections

No significant intersection improvements or interchanges will be necessary for this alternate within the limits of Segment B.
Environmental Impacts

**Cultural Resources (Plate B-2)**

- 0 Potentially Historic Bridges (50+ years) replaced/repaird
- 4 Historic Buildings (acquired)
- 1 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 3 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 11 Areas with High Potential for Archaeological Resources

**Endangered Species (Plates B-3 & B-4)**

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual (Plates B-5 & B-6)**

- General Impact on Social Constraints: Adverse
  - Residences Displaced by Alternate: 39 residences
  - Impact to Communities Disrupted by ROW: Adverse

- General Impact on Economic Constraints: Moderate
  - Businesses Displaced by Alternate: 6 businesses
  - Affect to Businesses Bypassed by Alternate: NA

- General Impact on Land Use Constraints: Adverse
  - Consistent with Pineland Policies: No
  - Consistent with CAFRA Policies: No
  - Potential Secondary Development: Yes (high)
  - Acquired Agricultural Development Areas: 4.7 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 12.2 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 0 acres

- General Impact on Visual Constraints: Adverse
  - Number of Scenic Corridors Impacted: 0 scenic corridors

**Wetlands Emphasis (Plate B-4)**

- Acres of Wetlands Acquired: 8.9 acres
- Mitigation at @ 2:1 Replacement Ratio: 17.8 acres
- Quality of Wetlands Acquired: Medium to High
- Impacts to Buffer Areas in Segment B: Yes
- Impacts to Water Quality in Segment B: Adverse
- Impacts to Upland Forests in Segment B: Minor

**Contamination Sites (Plate B-6)**

- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
**Alternative 6 (Segment B) - Four Lane Upgrade**

(Yellow Line - see Plate B-1)

Through Segment B, this alternate provides for a four lane upgrade along existing Routes 670 & 47. Horizontal and vertical alignment deficiencies along the existing routes will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a 10’ wide grass median. Total length of Segment: approximately 9 miles.

**Design Parameters**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section:</td>
<td>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median</td>
</tr>
<tr>
<td>Design Speed:</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation:</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW:</td>
<td>66 feet</td>
</tr>
<tr>
<td>Proposed ROW:</td>
<td>148 feet</td>
</tr>
<tr>
<td>Total Acres Req’d:</td>
<td>123.9 acres</td>
</tr>
<tr>
<td>Design Year:</td>
<td>2005</td>
</tr>
</tbody>
</table>

**Serviceability**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing/Proposed Level of Service (Average Day)</td>
<td>C/A</td>
</tr>
<tr>
<td>Existing/Proposed Level of Service (Tourism Season)</td>
<td>E/D</td>
</tr>
</tbody>
</table>

**Interchanges & Intersections**

No significant intersection improvements or interchanges will be necessary for this alternate within the limits of Segment B.
Environmental Impacts

*Cultural Resources* *(Plate B-2)*

- 0 Potentially Historic Bridges (50+ years) replaced/repaired
- 4 Historic Buildings (acquired)
- 1 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 3 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 11 Areas with High Potential for Archaeological Resources

*Endangered Species* *(Plates B-3 & B-4)*

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

*Socioeconomic, Land Use, Visual* *(Plates B-5 & B-6)*

**General Impact on Social Constraints:**
- Residences Displaced by Alternate: 39 residences
- Impact to Communities Disrupted by ROW: Adverse

**General Impact on Economic Constraints:**
- Businesses Displaced by Alternate: 6 businesses
- Affect to Businesses Bypassed by Alternate: NA

**General Impact on Land Use Constraints:**
- Consistent with Pineland Policies: No
- Consistent with CAFRA Policies: No
- Potential Secondary Development: Yes (high)
- Acquired Agricultural Development Areas: 5.6 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 14.5 acres
- Wildlife Refuges Disrupted, Acres Acquired: 0 acres

**General Impact on Visual Constraints:**
- Number of Scenic Corridors Impacted: 0 scenic corridors

*Wetlands Emphasis* *(Plate B-4)*

**Acres of Wetlands Acquired:** 10.7 acres
**Mitigation at @ 2:1 Replacement Ratio:** 17.8 acres
**Quality of Wetlands Acquired:** Medium to High
**Impacts to Buffer Areas in Segment B:** Yes
**Impacts to Water Quality in Segment B:** Adverse
**Impacts to Upland Forests in Segment B:** Moderate

*Contamination Sites* *(Plate B-6)*

**Hazardous Waste Sites within ROW:** 0 sites
**Potential Hazardous Waste Sites:** 0 sites
Alternative 6A (Segment B) - Four Lane Upgrade  
(Yellow Line - see Plate B-1)

Through Segment B, this alternate provides for a four lane upgrade along existing Routes 670 & 47. Horizontal and vertical alignment deficiencies along the existing routes will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a 10’ wide grass median. Total length of Segment: approximately 9 miles.

**Design Parameters**

- Typical Section: Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median
- Speed: 60 mph
- Superelevation: 6% (maximum)
- Existing ROW: 66 feet
- Proposed ROW: 148 feet
- Total Acres Req’d: 123.9 acres
- Design Year: 2005

**Serviceability**

- Existing/Proposed Level of Service (Average Day): C/A
- Existing/Proposed Level of Service (Tourism Season): E/D

**Interchanges & Intersections**

No significant intersection improvements or interchanges will be necessary for this alternate within the limits of Segment B.
Alternative 6A (Segment B) - cont.

Environmental Impacts

**Cultural Resources**  
*(Plate B-2)*
- 1 Potentially Historic Bridges (50+ years) replaced/repairsd
- 4 Historic Buildings (acquired)
- 1 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 3 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 11 Areas with High Potential for Archaeological Resources

**Endangered Species**  
*(Plates B-3 & B-4)*
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**  
*(Plates B-5 & B-6)*
- General Impact on Social Constraints:  
  - Residences Displaced by Alternate: 39 residences
  - Impact to Communities Disrupted by ROW: Adverse

- General Impact on Economic Constraints:  
  - Businesses Displaced by Alternate: 6 businesses
  - Affect to Businesses Bypassed by Alternate: NA

- General Impact on Land Use Constraints:  
  - Consistent with Pineland Policies: No
  - Consistent with CAFRA Policies: No
  - Potential Secondary Development: Yes (high)
  - Acquired Agricultural Development Areas: 5.6 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 14.5 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 0 acres

- General Impact on Visual Constraints:  
  - Number of Scenic Corridors Impacted: 0 scenic corridors

**Wetlands Emphasis**  
*(Plate B-4)*
- Acres of Wetlands Acquired: 10.7 acres
- Mitigation at @ 2:1 Replacement Ratio: 17.8 acres
- Quality of Wetlands Acquired: Medium to High
- Impacts to Buffer Areas in Segment B: Yes
- Impacts to Water Quality in Segment B: Adverse
- Impacts to Upland Forests in Segment B: Moderate

**Contamination Sites**  
*(Plate B-6)*
- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
LAND SERVICE ALTERNATES

Route 47/670/83 Corridor: Study Segment C
# Table C-1: Alternate Configurations

<table>
<thead>
<tr>
<th>Rt. 55 Freeway Alternates*</th>
<th>Rt. 47 / 670 / 83 Land Service Alternates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt. 1</td>
<td>Alt. 3</td>
</tr>
<tr>
<td>4 Lanes w/ Barrier Curb</td>
<td>NA</td>
</tr>
<tr>
<td>&amp; Shoulder</td>
<td></td>
</tr>
<tr>
<td>4 Lanes w/ Grass Median</td>
<td></td>
</tr>
<tr>
<td>&amp; Shoulder</td>
<td></td>
</tr>
<tr>
<td>Freeway Alignment</td>
<td>West Bypass of</td>
</tr>
<tr>
<td>(Orange Line)</td>
<td>Dennisville</td>
</tr>
<tr>
<td></td>
<td>(Yellow Dash</td>
</tr>
<tr>
<td></td>
<td>Line)</td>
</tr>
<tr>
<td></td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Rt. 47</td>
<td>To Remain</td>
</tr>
<tr>
<td>(Yellow Line)</td>
<td>As Is</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 1: Freeway Alignments
Alternative 3 (Segment C) - Two Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate C-1)

Through Segment C, this alternate provides for a westerly bypass around Dennisville in order to minimize impacts to the relatively undisturbed nature of the land surrounding this town. This westerly two (2) lane undivided bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150’ in length. The alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. Total length of Segment: approximately 2 miles.

Design Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section</td>
<td>One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction</td>
</tr>
<tr>
<td>Design Speed</td>
<td>55 mph</td>
</tr>
<tr>
<td>Superelevation</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW</td>
<td>NA</td>
</tr>
<tr>
<td>Proposed ROW</td>
<td>120 feet</td>
</tr>
<tr>
<td>Total Acres Req’d</td>
<td>22.4 acres</td>
</tr>
<tr>
<td>Design Year</td>
<td>2005</td>
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</tbody>
</table>

Serviceability

<table>
<thead>
<tr>
<th>Level of Service (Average Day)</th>
<th>Existing/Proposed Level of Service (Average Day):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong><strong>/</strong></strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Service (Tourism Season)</th>
<th>Existing/Proposed Level of Service (Tourism Season):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong><strong>/</strong></strong></td>
</tr>
</tbody>
</table>

Interchanges & Intersections

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 1,200’ ± connector was assumed extending County Route 611 from it’s present terminus at Route 47 to a point along the two lane westerly bypass of Dennisville.</td>
</tr>
</tbody>
</table>
**Environmental Impacts**

**Cultural Resources**  
*(Plate C-2)*
- 1 Potentially Historic Bridges (50+ years) replaced/repaired
- 0 Historic Buildings (acquired)
- 0 Historic Buildings (disrupted setting)
- 1 Historic Districts Encroached by ROW
- 0 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 2 Areas with High Potential for Archaeological Resources

**Endangered Species**  
*(Plates C-3 & C-4)*
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**  
*(Plates C-5 & C-6)*
- General Impact on Social Constraints: Adverse
  - Residences Displaced by Alternate: 6 residences
  - Impact to Communities Disrupted by ROW: Adverse
- General Impact on Economic Constraints: Minor
  - Businesses Displaced by Alternate: 2 businesses
  - Affect to Businesses Bypassed by Alternate: Minor
- General Impact on Land Use Constraints: Adverse
  - Consistent with Pineland Policies: No
  - Consistent with CAFRA Policies: NA
  - Potential Secondary Development: No
  - Acquired Agricultural Development Areas: 0 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 0 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 0 acres
- General Impact on Visual Constraints: Adverse
  - Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis**  
*(Plate C-4)*
- Acres of Wetlands Acquired: 11.8 acres
- Mitigation at @ 2:1 Replacement Ratio: 23.6 acres
- Quality of Wetlands Acquired: High
- Impacts to Buffer Areas in Segment C: Yes
- Impacts to Water Quality in Segment C: Adverse
- Impacts to Upland Forests in Segment C: Adverse

**Contamination Sites**  
*(Plate C-6)*
- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
Alternative 4 (Segment C) - Two Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate C-1)

Through Segment C, this alternate provides for a westerly bypass around Dennisville in order to minimize impacts to the relatively undisturbed nature of the land surrounding this town. This westerly two (2) lane undivided bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150' in length. The alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. Total length of Segment: approximately 2 miles.

**Design Parameters**

- **Typical Section:** One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction
- **Design Speed:** 55 mph
- **Superelevation:** 6% (maximum)
- **Existing ROW:** NA
- **Proposed ROW:** 120 feet
- **Total Acres Req'd:** 22.4 acres
- **Design Year:** 2005

**Serviceability**

- **Existing/Proposed Level of Service (Average Day):** 
- **Existing/Proposed Level of Service (Tourism Season):** 

**Interchanges & Intersections**

A 1,200' ± connector was assumed extending County Route 611 from it's present terminus at Route 47 to a point along the two lane westerly bypass of Dennisville.
**Environmental Impacts**

**Cultural Resources**  
*(Plate C-2)*

1 Potentially Historic Bridges (50+ years) replaced/repaird  
0 Historic Buildings (acquired)  
0 Historic Buildings (disrupted setting)  
1 Historic Districts Encroached by ROW  
0 Known Historic Archaeological Sites Disrupted by ROW  
0 Known Prehistoric Archaeological Sites Disrupted by ROW  
2 Areas with High Potential for Archaeological Resources

**Endangered Species**  
*(Plates C-3 & C-4)*

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic,**  
**Land Use,**  
**Visual**  
*(Plates C-5 & C-6)*

General Impact on Social Constraints: **Adverse**  
- Residences Displaced by Alternate: **6 residences**  
- Impact to Communities Disrupted by ROW: **Adverse**  

General Impact on Economic Constraints: **Minor**  
- Businesses Displaced by Alternate: **2 businesses**  
- Affect to Businesses Bypassed by Alternate: **Minor**

General Impact on Land Use Constraints: **Adverse**  
- Consistent with Pineland Policies: **No**  
- Consistent with CAFRA Policies: **NA**  
- Potential Secondary Development: **No**  
- Acquired Agricultural Development Areas: **0 acres**  
- Parks Disrupted by ROW, Acres Acquired: **0 acres**  
- State Forests Disrupted, Acres Acquired: **0 acres**  
- Wildlife Refuges Disrupted, Acres Acquired: **0 acres**

General Impact on Visual Constraints: **Adverse**  
- Number of Scenic Corridors Impacted: **1 scenic corridor**

**Wetlands Emphasis**  
*(Plate C-4)*

Acres of Wetlands Acquired: **11.8 acres**  
Mitigation at @ 2:1 Replacement Ratio: **23.6 acres**  
Quality of Wetlands Acquired: **High**  
Impacts to Buffer Areas in Segment C: **Yes**  
Impacts to Water Quality in Segment C: **Adverse**  
Impacts to Upland Forests in Segment C: **Adverse**

**Contamination Sites**  
*(Plate C-6)*

Hazardous Waste Sites within ROW: **0 sites**  
Potential Hazardous Waste Sites: **0 sites**
Alternative 5 (Segment C) - Four Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate C-1)

Through Segment C, this alternate provides for a westerly bypass around Dennisville in order to minimize impacts to the relatively undisturbed nature of the land surrounding this town. This westerly four (4) lane bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150’ in length. The alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. Total length of Segment: approximately 2 miles.

Design Parameters

<table>
<thead>
<tr>
<th>Typical Section:</th>
<th>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Speed:</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation:</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW:</td>
<td>NA</td>
</tr>
<tr>
<td>Proposed ROW:</td>
<td>130 feet</td>
</tr>
<tr>
<td>Total Acres Req’d:</td>
<td>35.9 acres</td>
</tr>
<tr>
<td>Design Year:</td>
<td>2005</td>
</tr>
</tbody>
</table>

Serviceability

Existing/Proposed Level of Service (Average Day): D/A
Existing/Proposed Level of Service (Tourism Season): E/E

Interchanges & Intersections

A 1,200’ ± connector was assumed extending County Route 611 from its present terminus at Route 47 to a point along the four lane westerly bypass of Dennisville.

This alternate also provides for a grade separated condition at the Route 47/Route 83 intersection with Route 47 passing under the Route 55 land service corridor.
Environmental Impacts

**Cultural Resources (Plate C-2)**
1 Potentially Historic Bridges (50+ years) replaced/repaired
0 Historic Buildings (acquired)
1 Historic Buildings (disrupted setting)
1 Historic Districts Encroached by ROW
0 Known Historic Archaeological Sites Disrupted by ROW
0 Known Prehistoric Archaeological Sites Disrupted by ROW
2 Areas with High Potential for Archaeological Resources

**Endangered Species (Plates C-3 & C-4)**
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual (Plates C-5 & C-6)**
General Impact on Social Constraints: Adverse
- Residences Displaced by Alternate: 6 residences
- Impact to Communities Disrupted by ROW: Adverse

General Impact on Economic Constraints: Minor
- Businesses Displaced by Alternate: 2 businesses
- Affect to Businesses Bypassed by Alternate: Minor

General Impact on Land Use Constraints: Adverse
- Consistent with Pineland Policies: No
- Consistent with CAFRA Policies: NA
- Potential Secondary Development: No
- Acquired Agricultural Development Areas: 0 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 0 acres
- Wildlife Refuges Disrupted, Acres Acquired: 0 acres

General Impact on Visual Constraints: Adverse
- Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis (Plate C-4)**
Acres of Wetlands Acquired: 27.8 acres
Mitigation at @ 2:1 Replacement Ratio: 55.6 acres
Quality of Wetlands Acquired: High
Impacts to Buffer Areas in Segment C: Yes
Impacts to Water Quality in Segment C: Adverse
Impacts to Upland Forests in Segment C: Adverse

**Contamination Sites (Plate C-6)**
Hazardous Waste Sites within ROW: 0 sites
Potential Hazardous Waste Sites: 0 sites
Alternative 5A (Segment C) - Four Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate C-1)

Through Segment C, this alternate provides for a westerly bypass around Dennisville in order to minimize impacts to the relatively undisturbed nature of the land surrounding this town. This westerly four (4) lane bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150’ in length. The alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. Total length of Segment: approximately 2 miles.

Design Parameters

- Typical Section: Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb
- Design Speed: 60 mph
- Superelevation: 6% (maximum)
- Existing ROW: NA
- Proposed ROW: 130 feet
- Total Acres Req’d: 35.9 acres
- Design Year: 2005

Serviceability

- Existing/Proposed Level of Service (Average Day): D/A
- Existing/Proposed Level of Service (Tourism Season): E/E

Interchanges & Intersections

A 1,200’ ± connector was assumed extending County Route 611 from it’s present terminus at Route 47 to a point along the four lane westerly bypass of Dennisville.

This alternate also provides for a grade separated condition at the Route 47/Route 83 intersection with Route 47 passing under the Route 55 land service corridor.
### Environmental Impacts

**Cultural Resources**

- 1 Potentially Historic Bridges (50+ years) replaced/repaired
- 0 Historic Buildings (acquired)
- 1 Historic Buildings (disrupted setting)
- 1 Historic Districts Encroached by ROW
- 0 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 2 Areas with High Potential for Archaeological Resources

**Endangered Species**

(Plates C-3 & C-4)

- This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**

(Plates C-5 & C-6)

- General Impact on Social Constraints: Adverse
  - Residences Displaced by Alternate: 6 residences
  - Impact to Communities Disrupted by ROW: Adverse

- General Impact on Economic Constraints: Minor
  - Businesses Displaced by Alternate: 2 businesses
  - Affect to Businesses Bypassed by Alternate: Minor

- General Impact on Land Use Constraints: Adverse
  - Consistent with Pineland Policies: No
  - Consistent with CAFRA Policies: NA
  - Potential Secondary Development: No
  - Acquired Agricultural Development Areas: 0 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 0 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 0 acres

- General Impact on Visual Constraints: Adverse
  - Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis**

(Plate C-4)

- Acres of Wetlands Acquired: 27.8 acres
- Mitigation at @ 2:1 Replacement Ratio: 55.6 acres
- Quality of Wetlands Acquired: High
- Impacts to Buffer Areas in Segment C: Yes
- Impacts to Water Quality in Segment C: Adverse
- Impacts to Upland Forests in Segment C: Adverse

**Contamination Sites**

(Plate C-6)

- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
Alternative 6 (Segment C) - Four Lane Upgrade  
(Yellow and Yellow Dashed Lines - see Plate C-1)

Through Segment C, this alternate provides for a westerly bypass around Dennisville in order to minimize impacts to the relatively undisturbed nature of the land surrounding this town. This westerly four (4) lane bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150’ in length. The alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. Total length of Segment: approximately 2 miles.

### Design Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section</td>
<td>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median</td>
</tr>
<tr>
<td>Design Speed</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW</td>
<td>NA</td>
</tr>
<tr>
<td>Proposed ROW</td>
<td>148 feet</td>
</tr>
<tr>
<td>Total Acres Req’d</td>
<td>37.4 acres</td>
</tr>
<tr>
<td>Design Year</td>
<td>2005</td>
</tr>
</tbody>
</table>

### Serviceability

- Existing/Proposed Level of Service (Average Day): D/A
- Existing/Proposed Level of Service (Tourism Season): E/E

### Interchanges & Intersections

A 1,200’ ± connector was assumed extending County Route 611 from it’s present terminus at Route 47 to a point along the four lane westerly bypass of Dennisville.

This alternate also provides for a grade separated condition at the Route 47/Route 83 intersection with Route 47 passing under the Route 55 land service corridor.
### Environmental Impacts

**Cultural Resources**  
*Plate C-2*  
1. Potentially Historic Bridges (50+ years) replaced/repaiired  
0. Historic Buildings (acquired)  
1. Historic Buildings (disrupted setting)  
1. Historic Districts Encroached by ROW  
0. Known Historic Archaeological Sites Disrupted by ROW  
0. Known Prehistoric Archaeological Sites Disrupted by ROW  
2. Areas with High Potential for Archaeological Resources

**Endangered Species**  
*Plates C-3 & C-4*  
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**  
*Plates C-5 & C-6*  
- General Impact on Social Constraints:  
  - Residences Displaced by Alternate: 6 residences  
  - Impact to Communities Disrupted by ROW: Adverse

- General Impact on Economic Constraints:  
  - Businesses Displaced by Alternate: 2 businesses  
  - Affect to Businesses Bypassed by Alternate: Minor

- General Impact on Land Use Constraints:  
  - Consistent with Pineland Policies: No  
  - Consistent with CAFRA Policies: NA  
  - Potential Secondary Development: No  
  - Acquired Agricultural Development Areas: 0 acres  
  - Parks Disrupted by ROW, Acres Acquired: 0 acres  
  - State Forests Disrupted, Acres Acquired: 0 acres  
  - Wildlife Refuges Disrupted, Acres Acquired: 0 acres

- General Impact on Visual Constraints:  
  - Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis**  
*Plate C-4*  
- Acres of Wetlands Acquired: 28.5 acres  
- Mitigation at @ 2:1 Replacement Ratio: 57.0 acres  
- Quality of Wetlands Acquired: High  
- Impacts to Buffer Areas in Segment C: Yes  
- Impacts to Water Quality in Segment C: Adverse  
- Impacts to Upland Forests in Segment C: Adverse

**Contamination Sites**  
*Plate C-6*  
- Hazardous Waste Sites within ROW: 0 sites  
- Potential Hazardous Waste Sites: 0 sites
Alternative 6A (Segment C) - Four Lane Upgrade
(Yellow and Yellow Dashed Lines - see Plate C-1)

Through Segment C, this alternate provides for a westerly bypass around Dennisville in order to minimize impacts to the relatively undisturbed nature of the land surrounding this town. This westerly four (4) lane bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150’ in length. The alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. Total length of Segment: approximately 2 miles.

**Design Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section</td>
<td>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median</td>
</tr>
<tr>
<td>Speed</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW</td>
<td>NA</td>
</tr>
<tr>
<td>Proposed ROW</td>
<td>148 feet</td>
</tr>
<tr>
<td>Total Acres Req’d</td>
<td>37.4 acres</td>
</tr>
<tr>
<td>Design Year</td>
<td>2005</td>
</tr>
</tbody>
</table>

**Serviceability**

- Existing/Proposed Level of Service (Average Day): D/A
- Existing/Proposed Level of Service (Tourism Season): E/E

**Interchanges & Intersections**

A 1,200’ ± connector was assumed extending County Route 611 from it’s present terminus at Route 47 to a point along the four lane westerly bypass of Dennisville.

This alternate also provides for a grade separated condition at the Route 47/Route 83 intersection with Route 47 passing under the Route 55 land service corridor.
**Environmental Impacts**

**Cultural Resources**
(Plate C-2)

- 1 Potentially Historic Bridges (50+ years) replaced/repaird
- 0 Historic Buildings (acquired)
- 1 Historic Buildings (disrupted setting)
- 1 Historic Districts Encroached by ROW
- 0 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 2 Areas with High Potential for Archaeological Resources

**Endangered Species**
(Plates C-3 & C-4)

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**
(Plates C-5 & C-6)

- General Impact on Social Constraints: Adverse
  - Residences Displaced by Alternate: 6 residences
  - Impact to Communities Disrupted by ROW: Adverse

- General Impact on Economic Constraints: Minor
  - Businesses Displaced by Alternate: 2 businesses
  - Affect to Businesses Bypassed by Alternate: Minor

- General Impact on Land Use Constraints: Adverse
  - Consistent with Pineland Policies: No
  - Consistent with CAFRA Policies: NA
  - Potential Secondary Development: No
  - Acquired Agricultural Development Areas: 0 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 0 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 0 acres

- General Impact on Visual Constraints: Adverse
  - Number of Scenic Corridors Impacted: 1 scenic corridor

**Wetlands Emphasis**
(Plate C-4)

- Acres of Wetlands Acquired: 28.5 acres
- Mitigation at @ 2:1 Replacement Ratio: 57.0 acres
- Quality of Wetlands Acquired: High
- Impacts to Buffer Areas in Segment C: Yes
- Impacts to Water Quality in Segment C: Adverse
- Impacts to Upland Forests in Segment C: Adverse

**Contamination Sites**
(Plate C-6)

- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
LAND SERVICE ALTERNATES

Route 47/670/83 Corridor: Study Segment D
## Table D-1: Alternate Configurations

<table>
<thead>
<tr>
<th>Rt. 55 Freeway Alternates*</th>
<th>Rt. 47 / 670 / 83 Land Service Alternates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt. 1</td>
<td>Alt. 3</td>
</tr>
<tr>
<td>Alt. 2</td>
<td>Alt. 4</td>
</tr>
<tr>
<td>Alt. 5</td>
<td>Alt. 5A</td>
</tr>
<tr>
<td>Alt. 6</td>
<td>Alt. 6A</td>
</tr>
<tr>
<td><strong>Existing Rt. 83 (Orange &amp; Yellow Lines)</strong></td>
<td></td>
</tr>
<tr>
<td>4 Lanes (Upgraded) w/ Barrier Curb &amp; Shoulders</td>
<td>2 Lanes (Upgraded) w/ Shoulder</td>
</tr>
<tr>
<td>4 Lanes (Upgraded) w/ Grass Median &amp; Shoulders</td>
<td>2 Lanes (Upgraded) w/ Shoulder</td>
</tr>
</tbody>
</table>

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 1: Freeway Alignments*
**Alternative 3 (Segment D) - Two Lane Upgrade**

(Yellow Line - see Plate D-1)

Through Segment D, this alternate provides for a two lane upgrade along existing Route 83. Route 83 would be extended from it’s current terminus at Route 9 to connect with the Garden State Parkway, providing a full trumpet interchange with in the vicinity of G.S.P. M.P. 15.0. Horizontal and vertical alignment deficiencies along the existing route will be upgraded to maintain a posted speed of 50 mph. Total length of Segment: approximately 4 miles.

**Design Parameters**

- **Typical Section:** One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction
- **Design Speed:** 55 mph
- **Superelevation:** 6% (maximum)
- **Existing ROW:** __
- **Proposed ROW:** ___ feet
- **Total Acres Req’d:** --- acres
- **Design Year:** 2005

**Serviceability**

- **Existing/Proposed Level of Service (Average Day):** __/___
- **Existing/Proposed Level of Service (Tourism Season):** __/___

**Interchanges & Intersections**

This alternate provides for an extension of the existing Route 83 alignment to tie the new improvements into the Garden State Parkway. A full trumpet interchange would be provided near G.S.P. M.P. 15.0.

In addition, the following crossings will require the construction of a two lane bridge:

1. Route 55 over Pennsylvania/Reading Seashore Line
2. County Route 626 over Route 55
3. Route 55 over Route 9
4. Route 55 over the Garden State Parkway (northbound and southbound)
Alternative 3 (Segment D) - cont.

Environmental Impacts

**Cultural Resources**
(Plate D-2)

- Potentially Historic Bridges (50+ years) replaced/repairs
- Historic Buildings (acquired)
- Historic Buildings (disrupted setting)
- Historic Districts Encroached by ROW
- Known Historic Archaeological Sites Disrupted by ROW
- Known Prehistoric Archaeological Sites Disrupted by ROW
- Areas with High Potential for Archaeological Resources

**Endangered Species**
(Plates D-3 & D-4)

The potential affects on threatened or endangered species through this segment are high since roadway passes through well-documented habitats. See appendix for species affected.

**Socioeconomic, Land Use, Visual**
(Plates D-5 & D-6)

**General Impact on Social Constraints:**
- Residences Displaced by Alternate: ___ residences
- Impact to Communities Disrupted by ROW: ___

**General Impact on Economic Constraints:**
- Businesses Displaced by Alternate: ___ businesses
- Affect to Businesses Bypassed by Alternate: ___

**General Impact on Land Use Constraints:**
- Consistent with Pineland Policies: ___
- Consistent with CAFRA Policies: ___
- Potential Secondary Development: ___
- Acquired Agricultural Development Areas: ___ acres
- Parks Disrupted by ROW, Acres Acquired: ___ acres
- State Forests Disrupted, Acres Acquired: ___ acres
- Wildlife Refuges Disrupted, Acres Acquired: ___ acres

**General Impact on Visual Constraints:**
- Number of Scenic Corridors Impacted: ___ scenic corridor

**Wetlands Emphasis**
(Plate D-4)

Acres of Wetlands Acquired: ___ acres
Mitigation at @ 2:1 Replacement Ratio: ___ acres
Quality of Wetlands Acquired: Medium
Impacts to Buffer Areas in Segment D: ___
Impacts to Water Quality in Segment D: ___
Impacts to Upland Forests in Segment D: ___

**Contamination Sites**
(Plate D-6)

Hazardous Waste Sites within ROW: ___ sites
Potential Hazardous Waste Sites: ___ sites
Alternative 4 (Segment D) - Two Lane Upgrade
(Yellow Line - see Plate D-1)

Through Segment D, this alternate provides for a two lane upgrade along existing Route 83. Route 83 would be extended from it’s current terminus at Route 9 to connect with the Garden State Parkway, providing a full trumpet interchange with in the vicinity of G.S.P. M.P. 15.0. Horizontal and vertical alignment deficiencies along the existing route will be upgraded to maintain a posted speed of 50 mph. Total length of Segment: approximately 4 miles.

**Design Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section</td>
<td>One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction</td>
</tr>
<tr>
<td>Design Speed</td>
<td>55 mph</td>
</tr>
<tr>
<td>Superelevation</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW</td>
<td>___</td>
</tr>
<tr>
<td>Proposed ROW</td>
<td>___ feet</td>
</tr>
<tr>
<td>Total Acres Req’d</td>
<td>___ acres</td>
</tr>
<tr>
<td>Design Year</td>
<td>2005</td>
</tr>
</tbody>
</table>

**Serviceability**

Existing/Proposed Level of Service (Average Day): ___/___

Existing/Proposed Level of Service (Tourism Season): ___/___

**Interchanges & Intersections**

This alternate provides for an extension of the existing Route 83 alignment to tie the new improvements into the Garden State Parkway. A full trumpet interchange would be provided near G.S.P. M.P. 15.0.

In addition, the following crossings will require the construction of a two lane bridge:

1. Route 55 over Pennsylvania/Reading Seashore Line
2. County Route 626 over Route 55
3. Route 55 over Route 9
4. Route 55 over the Garden State Parkway (northbound and southbound)
### Environmental Impacts

#### Cultural Resources (Plate D-2)
- Potentially Historic Bridges (50+ years) replaced/repairs
- Historic Buildings (acquired)
- Historic Buildings (disrupted setting)
- Historic Districts Encroached by ROW
- Known Historic Archaeological Sites Disrupted by ROW
- Known Prehistoric Archaeological Sites Disrupted by ROW
- Areas with High Potential for Archaeological Resources

#### Endangered Species (Plates D-3 & D-4)
The potential affects on threatened or endangered species through this segment are high since roadway passes through well-documented habitats. See appendix for species affected.

#### Socioeconomic, Land Use, Visual (Plates D-5 & D-6)
- General Impact on Social Constraints:
  - Residences Displaced by Alternate: ___ residences
  - Impact to Communities Disrupted by ROW: ___

- General Impact on Economic Constraints:
  - Businesses Displaced by Alternate: ___ business
  - Affect to Businesses Bypassed by Alternate: ___

- General Impact on Land Use Constraints:
  - Consistent with Pineland Policies: ___
  - Consistent with CAFRA Policies: ___
  - Potential Secondary Development: ___
  - Acquired Agricultural Development Areas: ___ acres
  - Parks Disrupted by ROW, Acres Acquired: ___ acres
  - State Forests Disrupted, Acres Acquired: ___ acres
  - Wildlife Refuges Disrupted, Acres Acquired: ___ acres

- General Impact on Visual Constraints:
  - Number of Scenic Corridors Impacted: ___ scenic corridor

#### Wetlands Emphasis (Plate D-4)
- Acres of Wetlands Acquired: ___ acres
- Mitigation at @ 2:1 Replacement Ratio: ___ acres
- Quality of Wetlands Acquired: Medium
- Impacts to Buffer Areas in Segment D: ___
- Impacts to Water Quality in Segment D: ___
- Impacts to Upland Forests in Segment D: ___

#### Contamination Sites (Plate D-6)
- Hazardous Waste Sites within ROW: ___ sites
- Potential Hazardous Waste Sites: ___ sites
**Alternative 5 (Segment D) - Four Lane Upgrade**  
(Yellow Line - see Plate D-1)

Through Segment D, this alternate provides for a four lane upgrade along existing Route 83. Route 83 would be extended from its current terminus at Route 9 to connect with the Garden State Parkway, providing a full trumpet interchange with in the vicinity of G.S.P. M.P. 15.0. Horizontal and vertical alignment deficiencies along the existing route will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a concrete barrier curb. Total length of Segment: approximately 4 miles.

### Design Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section</td>
<td>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb</td>
</tr>
<tr>
<td>Design Speed</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW</td>
<td>Varies</td>
</tr>
<tr>
<td>Proposed ROW</td>
<td>130 feet</td>
</tr>
<tr>
<td>Total Acres Req’d</td>
<td>52.1 acres</td>
</tr>
<tr>
<td>Design Year</td>
<td>2005</td>
</tr>
</tbody>
</table>

### Serviceability

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing/Proposed Level of Service (Average Day)</td>
<td></td>
</tr>
<tr>
<td>Existing/Proposed Level of Service (Tourism Season)</td>
<td></td>
</tr>
</tbody>
</table>

### Interchanges & Intersections

This alternate provides for an extension of the existing Route 83 alignment to tie the new improvements into the Garden State Parkway. A full trumpet interchange would be provided near G.S.P. M.P. 15.0.

In addition, the following crossings will require the construction of a four lane bridge:

1. Route 55 over Pennsylvania/Reading Seashore Line

2. County Route 626 over Route 55

3. Route 55 over Route 9

4. Route 55 over the Garden State Parkway (northbound and southbound)
### Environmental Impacts

**Cultural Resources**  
*(Plate D-2)*  
- 0 Potentially Historic Bridges (50+ years) replaced/repairsd  
- 5 Historic Buildings (acquired)  
- 7 Historic Buildings (disrupted setting)  
- 0 Historic Districts Encroached by ROW  
- 3 Known Historic Archaeological Sites Disrupted by ROW  
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW  
- 6 Areas with High Potential for Archaeological Resources

**Endangered Species**  
*(Plates D-3 & D-4)*  
The potential affects on threatened or endangered species through this segment are high since roadway passes through well-documented habitats. See appendix for species affected.

**Socioeconomic, Land Use, Visual**  
*(Plates D-5 & D-6)*  
- General Impact on Social Constraints: Adverse  
  - Residences Displaced by Alternate: 33 residences  
  - Impact to Communities Disrupted by ROW: Adverse  
- General Impact on Economic Constraints: Minor  
  - Businesses Displaced by Alternate: 4 businesses  
  - Affect to Businesses Bypassed by Alternate: NA  
- General Impact on Land Use Constraints: Adverse  
  - Consistent with Pineland Policies: NA  
  - Consistent with CAFRA Policies: Possible  
  - Potential Secondary Development: Yes  
  - Acquired Agricultural Development Areas: 0 acres  
  - Parks Disrupted by ROW, Acres Acquired: 0 acres  
  - State Forests Disrupted, Acres Acquired: 0 acres  
  - Wildlife Refuges Disrupted, Acres Acquired: 2.3 acres  
- General Impact on Visual Constraints: Moderate  
  - Number of Scenic Corridors Impacted: 0 scenic corridors

**Wetlands Emphasis**  
*(Plate D-4)*  
- Acres of Wetlands Acquired: 0.3 acres  
- Mitigation at @ 2:1 Replacement Ratio: 0.6 acres  
- Quality of Wetlands Acquired: Medium  
- Impacts to Buffer Areas in Segment D: No  
- Impacts to Water Quality in Segment D: Adverse  
- Impacts to Upland Forests in Segment D: Adverse

**Contamination Sites**  
*(Plate D-6)*  
- Hazardous Waste Sites within ROW: 0 sites  
- Potential Hazardous Waste Sites: 0 sites
Alternative 5A (Segment D) - Four Lane Upgrade
(Yellow Line - see Plate D-1)

Through Segment D, this alternate provides for a four lane upgrade along existing Route 83. Route 83 would be extended from it's current terminus at Route 9 to connect with the Garden State Parkway, providing a full trumpet interchange with in the vicinity of G.S.P. M.P. 15.0. Horizontal and vertical alignment deficiencies along the existing route will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a concrete barrier curb. Total length of Segment: approximately 4 miles.

Design Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section</td>
<td>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb</td>
</tr>
<tr>
<td>Design Speed</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation</td>
<td>6% (maximum)</td>
</tr>
<tr>
<td>Existing ROW</td>
<td>Varies</td>
</tr>
<tr>
<td>Proposed ROW</td>
<td>130 feet</td>
</tr>
<tr>
<td>Total Acres Req'd</td>
<td>52.1 acres</td>
</tr>
<tr>
<td>Design Year</td>
<td>2005</td>
</tr>
</tbody>
</table>

Serviceability

Existing/Proposed Level of Service (Average Day): ____/____
Existing/Proposed Level of Service (Tourism Season): ____/____

Interchanges & Intersections

This alternate provides for an extension of the existing Route 83 alignment to tie the new improvements into the Garden State Parkway. A full trumpet interchange would be provided near G.S.P. M.P. 15.0.

In addition, the following crossings will require the construction of a four lane bridge:

1. Route 55 over Pennsylvania/Reading Seashore Line
2. County Route 626 over Route 55
3. Route 55 over Route 9
4. Route 55 over the Garden State Parkway (northbound and southbound)
### Environmental Impacts

#### Cultural Resources
*(Plate D-2)*

- 0 Potentially Historic Bridges (50+ years) replaced/repaird
- 5 Historic Buildings (acquired)
- 7 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 3 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 6 Areas with High Potential for Archaeological Resources

#### Endangered Species
*(Plates D-3 & D-4)*

The potential affects on threatened or endangered species through this segment are high since roadway passes through well-documented habitats. See appendix for species affected.

#### Socioeconomic, Land Use, Visual
*(Plates D-5 & D-6)*

- General Impact on Social Constraints: Adverse
  - Residences Displaced by Alternate: 33 residences
  - Impact to Communities Disrupted by ROW: Adverse

- General Impact on Economic Constraints: Minor
  - Businesses Displaced by Alternate: 4 businesses
  - Affect to Businesses Bypassed by Alternate: NA

- General Impact on Land Use Constraints: Adverse
  - Consistent with Pineland Policies: NA
  - Consistent with CAFRA Policies: Possible
  - Potential Secondary Development: Yes
  - Acquired Agricultural Development Areas: 0 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 0 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 2.3 acres

- General Impact on Visual Constraints: Moderate
  - Number of Scenic Corridors Impacted: 0 scenic corridors

#### Wetlands Emphasis
*(Plate D-4)*

- Acres of Wetlands Acquired: 0.3 acres
- Mitigation at @ 2:1 Replacement Ratio: 0.6 acres
- Quality of Wetlands Acquired: Medium
- Impacts to Buffer Areas in Segment D: No
- Impacts to Water Quality in Segment D: Adverse
- Impacts to Upland Forests in Segment D: Adverse

#### Contamination Sites
*(Plate D-6)*

- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
Alternative 6 (Segment D) - Four Lane Upgrade  
(Yellow Line - see Plate D-1)

Through Segment D, this alternate provides for a four lane upgrade along existing Route 83. Route 83 would be extended from it’s current terminus at Route 9 to connect with the Garden State Parkway, providing a full trumpet interchange with in the vicinity of G.S.P. M.P. 15.0. Horizontal and vertical alignment deficiencies along the existing route will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a 10’ wide grass median. Total length of Segment: approximately 4 miles.

<table>
<thead>
<tr>
<th>Design Parameters</th>
<th>Typical Section:</th>
<th>Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Speed:</td>
<td>60 mph</td>
<td></td>
</tr>
<tr>
<td>Superelevation:</td>
<td>6% (maximum)</td>
<td></td>
</tr>
<tr>
<td>Existing ROW:</td>
<td>Varies</td>
<td></td>
</tr>
<tr>
<td>Proposed ROW:</td>
<td>148 feet</td>
<td></td>
</tr>
<tr>
<td>Total Acres Req’d:</td>
<td>59.5 acres</td>
<td></td>
</tr>
<tr>
<td>Design Year:</td>
<td>2005</td>
<td></td>
</tr>
</tbody>
</table>

Serviceability

Existing/Proposed Level of Service (Average Day): _____/___
Existing/Proposed Level of Service (Tourism Season): _____/___

Interchanges & Intersections

This alternate provides for an extension of the existing Route 83 alignment to tie the new improvements into the Garden State Parkway. A full trumpet interchange would be provided near G.S.P. M.P. 15.0.

In addition, the following crossings will require the construction of a four lane bridge:

1. Route 55 over Pennsylvania/Reading Seashore Line
2. County Route 626 over Route 55
3. Route 55 over Route 9
4. Route 55 over the Garden State Parkway (northbound and southbound)
Environmental Impacts

Cultural Resources
(Plate D-2)

0 Potentially Historic Bridges (50+ years) replaced/repaired
5 Historic Buildings (acquired)
7 Historic Buildings (disrupted setting)
0 Historic Districts Encroached by ROW
3 Known Historic Archaeological Sites Disrupted by ROW
0 Known Prehistoric Archaeological Sites Disrupted by ROW
6 Areas with High Potential for Archaeological Resources

Endangered Species
(Plates D-3 & D-4)

The potential affects on threatened or endangered species through this segment are high since roadway passes through well-documented habitats. See appendix for species affected.

Socioeconomic,
Land Use, Visual
(Plates D-5 & D-6)

General Impact on Social Constraints: Adverse
- Residences Displaced by Alternate: 33 residences
- Impact to Communities Disrupted by ROW: Adverse

General Impact on Economic Constraints: Minor
- Businesses Displaced by Alternate: 4 businesses
- Affect to Businesses Bypassed by Alternate: NA

General Impact on Land Use Constraints: Adverse
- Consistent with Pineland Policies: NA
- Consistent with CAFRA Policies: Possible
- Potential Secondary Development: Yes
- Acquired Agricultural Development Areas: 0 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 0 acres
- Wildlife Refuges Disrupted, Acres Acquired: 2.6 acres

General Impact on Visual Constraints: Moderate
- Number of Scenic Corridors Impacted: 0 scenic corridors

Wetlands Emphasis
(Plate D-4)

Acres of Wetlands Acquired: 0.3 acres
Mitigation at @ 2:1 Replacement Ratio: 0.6 acres
Quality of Wetlands Acquired: Medium
Impacts to Buffer Areas in Segment D: No
Impacts to Water Quality in Segment D: Adverse
Impacts to Upland Forests in Segment D: Adverse

Contamination Sites
(Plate D-6)

Hazardous Waste Sites within ROW: 0 sites
Potential Hazardous Waste Sites: 0 sites
Alternative 6A (Segment D) - Four Lane Upgrade
(Yellow Line - see Plate D-1)

Through Segment D, this alternate provides for a four lane upgrade along existing Route 83. Route 83 would be extended from its current terminus at Route 9 to connect with the Garden State Parkway, providing a full trumpet interchange with in the vicinity of G.S.P. M.P. 15.0. Horizontal and vertical alignment deficiencies along the existing route will be upgraded to accommodate a design speed of 60 mph. The roadway is divided by a 10’ wide grass median. Total length of Segment: approximately 4 miles.

Design Parameters

- Typical Section: Two 12 ft. wide travel lanes with 10 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 10’ wide grass median
- Speed: 60 mph
- Superelevation: 6% (maximum)
- Existing ROW: Varies
- Proposed ROW: 148 feet
- Total Acres Req’d: 59.5 acres
- Design Year: 2005

Serviceability

- Existing/Proposed Level of Service (Average Day): ___/___
- Existing/Proposed Level of Service (Tourism Season): ___/___

Interchanges & Intersections

This alternate provides for an extension of the existing Route 83 alignment to tie the new improvements into the Garden State Parkway. A full trumpet interchange would be provided near G.S.P. M.P. 15.0.

In addition, the following crossings will require the construction of a four lane bridge:

1. Route 55 over Pennsvylania/Reading Seashore Line
2. County Route 626 over Route 55
3. Route 55 over Route 9
4. Route 55 over the Garden State Parkway (northbound and southbound)
### Environmental Impacts

#### Cultural Resources
(Plate D-2)
- 0 Potentially Historic Bridges (50+ years) replaced/repairsed
- 5 Historic Buildings (acquired)
- 7 Historic Buildings (disrupted setting)
- 0 Historic Districts Encroached by ROW
- 3 Known Historic Archaeological Sites Disrupted by ROW
- 0 Known Prehistoric Archaeological Sites Disrupted by ROW
- 6 Areas with High Potential for Archaeological Resources

#### Endangered Species
(Plates D-3 & D-4)
The potential affects on threatened or endangered species through this segment are high since roadway passes through well-documented habitats. See appendix for species affected.

#### Socioeconomic, Land Use, Visual
(Plates D-5 & D-6)
- General Impact on Social Constraints: Adverse
  - Residences Displaced by Alternate: 33 residences
  - Impact to Communities Disrupted by ROW: Adverse
- General Impact on Economic Constraints: Minor
  - Businesses Displaced by Alternate: 4 businesses
  - Affect to Businesses Bypassed by Alternate: NA
- General Impact on Land Use Constraints: Adverse
  - Consistent with Pineland Policies: NA
  - Consistent with CAFRA Policies: Possible
  - Potential Secondary Development: Yes
  - Acquired Agricultural Development Areas: 0 acres
  - Parks Disrupted by ROW, Acres Acquired: 0 acres
  - State Forests Disrupted, Acres Acquired: 0 acres
  - Wildlife Refuges Disrupted, Acres Acquired: 2.6 acres
- General Impact on Visual Constraints: Moderate
  - Number of Scenic Corridors Impacted: 0 scenic corridors

#### Wetlands Emphasis
(Plate D-4)
- Acres of Wetlands Acquired: 0.3 acres
- Mitigation at @ 2:1 Replacement Ratio: 0.6 acres
- Quality of Wetlands Acquired: Medium
- Impacts to Buffer Areas in Segment D: No
- Impacts to Water Quality in Segment D: Adverse
- Impacts to Upland Forests in Segment D: Adverse

#### Contamination Sites
(Plate D-6)
- Hazardous Waste Sites within ROW: 0 sites
- Potential Hazardous Waste Sites: 0 sites
LAND SERVICE ALTERNATES

Route 47/670/83 Corridor: Preliminary Design Study
LAND SERVICE ROADWAY
(ALTERNATES 5 & 6)

DESIGN SPEED 60 M.P.H.
LAND SERVICE ROADWAY (ALTERNATES 5 & 6)

DESIGN SPEED 60 M.P.H.
LAND SERVICE ROADWAY
(ALTERNATES 5 & 6)
DESIGN SPEED 60 M.P.H.
FREEWAY
(ALTERNATES 1 & 2)
DESIGN SPEED 70 M.P.H.

LAND SERVICE ROADWAY
(ALTERNATES 5 & 6)
DESIGN SPEED 60 M.P.H.
PROPOSED MATERIALS

1. Multi Layer Asphalt Pavement
2. White Concrete Barrier Curb
3. Topsoiling, Fertilizing, Seeding and Mulching

EXISTING MATERIALS

A. Multi-Layer Asphalt Pavement
B. R-10 Steel Beam Rail, Width 1-3, 0-774 & Var.
C. Self Aggregate Base Course
D. Reinforced Concrete Pavement, 187704
ALTERNATE 5+4 LANES WITH SHOULDER WITH BARRIER MEDIAN

DESIGN SPEED 60 MPH

ALTERNATE 6+4 LANES WITH SHOULDER WITH GRASS MEDIAN

DESIGN SPEED 60 MPH

PROPOSED MATERIALS
1. MULTI LAYER ASPHALT PAVEMENT
2. WHITE CONCRETE BARRIER CURB
3. TOPSOILING, FERTILIZING, SEEDING AND MULCHING

EXISTING MATERIALS
1. Multi-Layer Asphalt Pavement
3. Soil Aggregate Base Course
4. Multifibre Concrete Pavement, 8" Thk
HORIZONTAL ALIGNMENT PLAN
SCALE 1" = 1000'

LOCATION OF PROPOSED TRAFFIC SIGNAL

DETAIL 0
LOCALIZED INTERSECTION IMPROVEMENTS
STATE ROUTE 55 AND STATE ROUTE 47
NOT TO SCALE

EMERGENCY BREAKDOWN AREA DETAIL
NOT TO SCALE
DETAIL R
LOCALIZED INTERSECTION IMPROVEMENTS
2nd STREET AND STATE ROUTE 47

NOT TO SCALE
HORIZONTAL ALIGNMENT PLAN
SCALE 1" = 1000'

SECTION W-W

DETAIL V
LOCALIZED INTERSECTION IMPROVEMENTS
COUNTY ROUTE 657 AND STATE ROUTE 47
NOT TO SCALE
SECTION N-N
TYPICAL HALF SECTION
ROUTE 55 FREeway CONNECTION WITH ROUTE 47

**SB SIMILAR
DESIGN SPEED 50 MPH**

EXISTING
A 8'Reinf. Concrete Pav't.
B Bituminous Conc. Pav't., Var. Th. 2'-7'
C Bituminous Conc. Pav't., 9-1/2' Th. & Varies
D Soil Aggregate Base Course, 6'Th. & Varies
E Subbase, 8' Th.
F Subbase, 16' Th.

PROPOSED
1 BITUMINOUS CONC. SURFACE COURSE, 2' TH. & VARIES
2 BITUMINOUS STAB. BASE COURSE, 4' TH. & VARIES
3 SOIL AGGREGATE BASE COURSE, 6' TH.
4 TOPSOILING, FERTILIZING, & SEEDING

NOTE: LIMITS SHOWN FOR SHOULDER RECONSTRUCTION REQUIRES FURTHER INVESTIGATION.
SECTION P-P
TYPICAL TANGENT SECTION (NORTHERN AND SOUTHERN CORRIDOR)

DESIGN SPEED VARIES
45 MPH TO 50 MPH

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE 55
MANAGED TRANSPORTATION CORRIDOR

TYPICAL SECTIONS
DANNEK FLEMING, INC.
SCALE 1" = 5'
CHERRY HILL, NEW JERSEY
DATED MARCH 1992
SECTION T-T
TYPICAL SUPERELEVATION SECTION (SOUTHERN CORRIDOR)

* MAX. ROLLOVER 7%
DESIGN SPEED 50 MPH
LAND SERVICE ROADWAY
(ALTERNATES 5 & 6)
DESIGN SPEED 60 M.P.H.
LAND SERVICE ROADWAY
(ALTERNATES 5 & 6)

DESIGN SPEED 60 M.P.H.
ALTERNATE 5: ROUTE 55 OVER ROUTE U.S. 9
DESIGN SPEED 60 M.P.H.

ALTERNATE 6: ROUTE 55 OVER ROUTE U.S. 9
DESIGN SPEED 60 M.P.H.

ROUTE U.S. 9
(COOKING NORTH)

* NO ROADWAY IMPROVEMENTS HAVE BEEN SHOWN.
LAND SERVICE ROADWAY  
(ALTERNATES 5 & 6)  
DESIGN SPEED 60 M.P.H.
ALT. 5: ROUTE 55 VIADUCT OVER HIGH QUALITY WETLANDS

DESIGN SPEED 60 M.P.H.

ALT. 6: ROUTE 55 VIADUCT OVER HIGH QUALITY WETLANDS

DESIGN SPEED 60 M.P.H.
ALTERNATE 5: ROUTE 55 VIADUCT OVER HIGH QUALITY WETLANDS AND MANUMUSKIN RIVER

DESIGN SPEED 60 M.P.H.

ALTERNATE 6: ROUTE 55 VIADUCT OVER HIGH QUALITY WETLANDS AND MANUMUSKIN RIVER

DESIGN SPEED 60 M.P.H.

ELEVATION VIEW (LOOKING EAST)

SEGMENT A M.P. 18.87
LAND SERVICE ROADWAY
(ALTERNATES 5 & 6)
DESIGN SPEED 60 M.P.H.
ALTERNATE 5: ROUTE 55 N.B./S.B. OVER ROUTE 47
(LOOKING NORTH)

DESIGN SPEED 60 M.P.H.

ALTERNATE 6: ROUTE 55 N.B./S.B. OVER ROUTE 47
(LOOKING NORTH)

DESIGN SPEED 60 M.P.H.
LAND SERVICE ALTERNATES

Route 49/50 Corridor
Alternative 7 - 49/50 Corridor (At-grade Rt.50/Rt.9 Intersection)
(Blue and Blue Dashed Lines - see Plate E-1)

This alternate provides for a two (2) lane upgrade for the Route 49/Route 50 corridor in lieu of a new freeway alignment or land service improvements to the 47/670/83 corridor. Improvements to existing horizontal and vertical alignments were necessary to facilitate a design speed of 60 mph. Specific locations were also examined for modifications, including the Route 55 interchange with Route 49 and a bypass around the town of Tuckahoe. Additionally, an at grade intersection of Route 50 with Route 9 was examined near the town of Seaville. Total length of alternate: approximately ____ miles.

Note: An asterisks (*) following the data indicates that the impacts vary for the two main features of this alternate. Feature 1 (preceding the slash) pertains to the impacts of upgrading the existing Route 49/50 corridor; feature 2 (following the slash) pertains to the impacts of the Tuckahoe Bypass.

### Design Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Section</td>
<td>One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction</td>
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<tr>
<td>Design Speed</td>
<td>60 mph</td>
</tr>
<tr>
<td>Superelevation</td>
<td>6% (maximum)</td>
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<tr>
<td>Existing ROW</td>
<td>Varies/NA*</td>
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<tr>
<td>Proposed ROW</td>
<td>Varies/120*</td>
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<tr>
<td>Total Acres Req’d</td>
<td>17.1/96.1 acres*</td>
</tr>
<tr>
<td>Design Year</td>
<td>2005</td>
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</table>

### Serviceability

**Existing/Proposed Level of Service (Average Day):** C/A

**Existing/Proposed Level of Service (Tourism Season):** E/C

### Interchanges & Intersections

**Route 55/Route 49 Interchange:** The design objective at this interchange was to provide a direct connecting ramp from Route 55 southbound to Route 49 eastbound to facilitate the use of the Route 49/50 alternative route. This will require the removal and/or relocation of several existing ramps.

**Route 50/Route 9 "At Grade" Intersection:** This alternate provides for at grade intersection improvements which would orientate Route 50 toward the Garden State Parkway and eliminate the existing "cut off" currently present at the southwest quadrant of the existing intersection. Two (2) lanes are provided in each direction of both Routes 50 and 9 with opposing left turns slots.

**Typical Intersection Improvements:** Typical improvement are assumed to consist of signalization and widening of the shoulders to 15' for use as auxiliary lanes. Intersections with County Routes 671, 646, 644, 548, 617, 631, 610, 616, and Mays Landing Road would require these improvements.
### Environmental Impacts

**Cultural Resources**  
(Plate E-2)  
- Potentially Historic Bridges (50+ years) replaced/repaired  
- Historic Buildings (acquired)  
- Historic Buildings (disrupted setting)  
- Historic Districts Encroached by ROW  
- Known Historic Archaeological Sites Disrupted by ROW  
- Known Prehistoric Arch. Sites Disrupted by ROW  
- Areas with High Potential for Archaeological Resources  

**Endangered Species**  
(Plates E-3 & E-4)  
This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

**Socioeconomic, Land Use, Visual**  
(Plates E-5 & E-6)  
- General Impact on Social Constraints: Adverse/Adverse*  
  - Residences Displaced by Alternate: 25/16 residences*  
  - Impact to Communities Disrupted by ROW: Adverse/Adverse*  
- General Impact on Economic Constraints: Minor/Moderate*  
  - Businesses Displaced by Alternate: 2/1 businesses*  
  - Affect to Businesses Bypassed by Alternate: Minor/Moderate*  
- General Impact on Land Use Constraints: None/Adverse*  
  - Consistent with Pineland Policies: NA/No*  
  - Consistent with CAFRA Policies: Yes/NA*  
  - Potential Secondary Development: No/Yes*  
  - Acquired Agricultural Development Areas: 1.6/66.5 acres*  
  - Parks Disrupted by ROW, Acres Acquired: 0/3 acres*  
  - State Forests Disrupted, Acres Acquired: 0/0 acres*  
  - Wildlife Refuges Disrupted, Acres Acquired: 0/0 acres*  
- General Impact on Visual Constraints: Minor/Adverse*  
  - Number of Scenic Corridors Impacted: 0 scenic corridors

**Wetlands Emphasis**  
(Plate E-4)  
- Acres of Wetlands Acquired: _/___ acres*  
- Mitigation at @ 2:1 Replacement Ratio: _/___ acres*  
- Quality of Wetlands Acquired: _/___  
- Impacts to Buffer Areas: _/___  
- Impacts to Water Quality: _/___  
- Impacts to Upland Forests: _/___

**Contamination Sites**  
(Plate E-6)  
- Hazardous Waste Sites within ROW: _/___ sites*  
- Potential Hazardous Waste Sites: _/___ sites*
Alternative 7A - 49/50 Corridor (Grade-separated Rt.50/Rt.9 Intersection)
(Blue and Blue Dashed Lines - see Plate E-1)

This alternate provides for a two (2) lane upgrade for the Route 49/Route 50 corridor in lieu of a new freeway alignment or land service improvements to the 47/670/83 corridor. Improvements to existing horizontal and vertical alignments were necessary to facilitate a design speed of 60 mph. Specific locations were also examined for modifications, including the Route 55 interchange with Route 49 and a bypass around the town of Tuckahoe. Additionally, a grade separated intersection of Route 50 with Route 9 was examined near the town of Seaville. Total length of alternate: approximately _____ miles.

Note: An asterisks (*) following the data indicates that the impacts vary for the two main features of this alternate. Feature 1 (preceding the slash) pertains to the impacts of upgrading the existing Route 49/50 corridor; feature 2 (following the slash) pertains to the impacts of the Tuckahoe Bypass.

Design Parameters

- Typical Section: One 12 ft. wide travel lane with 10 ft. wide outside shoulder, each direction
- Design Speed: 60 mph
- Superelevation: 6% (maximum)
- Existing ROW: Varies/NA*
- Proposed ROW: Varies/120’*
- Total Acres Req’d: 29.8/96.1 acres*
- Design Year: 2005

Serviceability

- Existing/Proposed Level of Service (Average Day): C/A
- Existing/Proposed Level of Service (Tourism Season): E/C

Interchanges & Intersections

Route 55/Route 49 Interchange: The design objective at this interchange was to provide a direct connecting ramp from Route 55 southbound to Route 49 eastbound to facilitate the use of the Route 49/50 alternative route. This will require the removal and/or relocation of several existing ramps.

Route 50/Route 9 "Grade Separated" Intersection: This alternate provides for grade separated intersection improvements which would orientate Route 50 toward the Garden State Parkway and eliminate the existing "cut off" currently present at the southwest quadrant of the existing intersection. All ramps are assumed to be on the west side of Route 9 to provide sufficient room for acceleration and deceleration lanes along Route 50.

Typical Intersection Improvements: Typical improvement are assumed to consist of signalization and widening of the shoulders to 15’ for use as auxiliary lanes. Intersections with County Routes 671, 646, 644, 548, 617, 631, 610, 616, and Mays Landing Road would require these improvements.
Environmental Impacts

Cultural Resources
(Plate E-2)

* Potentially Historic Bridges (50+ years) replaced/repaired
* Historic Buildings (acquired)
* Historic Buildings (disrupted setting)
* Historic Districts Encroached by ROW
* Known Historic Archaeological Sites Disrupted by ROW
* Known Prehistoric Arch. Sites Disrupted by ROW
* Areas with High Potential for Archaeological Resources

Endangered Species
(Plates E-3 & E-4)

This alternate will encroach upon areas of high quality wetlands which have a very high potential for containing threatened or endangered species. See appendix for species affected.

Socioeconomic,
Land Use, Visual
(Plates E-5 & E-6)

General Impact on Social Constraints: Adverse/Adverse*
- Residences Displaced by Alternate: 33/16 residences*
- Impact to Communities Disrupted by ROW: Adverse/Adverse*

General Impact on Economic Constraints: Minor/Moderate*
- Businesses Displaced by Alternate: 3/1 businesses*
- Affect to Businesses Bypassed by Alternate: NA/Moderate*

General Impact on Land Use Constraints: Mod./Adverse*
- Consistent with Pineland Policies: NA/No*
- Consistent with CAFRA Policies: Yes/NA*
- Potential Secondary Development: Yes/Yes*
- Acquired Agricultural Development Areas: 1.6/66.5 acres*
- Parks Disrupted by ROW, Acres Acquired: 0/3 acres*
- State Forests Disrupted, Acres Acquired: 0/0 acres*
- Wildlife Refuges Disrupted, Acres Acquired: 0/0 acres*

General Impact on Visual Constraints: Minor/Adverse*
- Number of Scenic Corridors Impacted: 0 scenic corridors

Wetlands Emphasis
(Plate E-4)

Acres of Wetlands Acquired: acres*
Mitigation at @ 2:1 Replacement Ratio: acres*
Quality of Wetlands Acquired: *
Impacts to Buffer Areas: *
Impacts to Water Quality: *
Impacts to Upland Forests: *

Contamination Sites
(Plate E-6)

Hazardous Waste Sites within ROW: sites*
Potential Hazardous Waste Sites: sites*
ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY
Technical Memorandum No. 2
LAND SERVICE IMPROVEMENTS
AND BYPASSES
Plate E-2
Historic Architecture
49/50 Corridor
LAND SERVICE ALTERNATES

Route 49/50 Corridor: Preliminary Design Study
REQUIRED R.O.W. = 0 ACRES

PROPOSED PAVEMENT

NEW JERSEY DEPARTMENT OF TRANSPORTATION

SITE B
ROUTE 47   SECTION 3A
ROUTE 49  M.P. 48.2

SCALE: 1" = 50'

PREPARED BY:
TAYLOR WISDEN & TAYLOR
328 FELLOWSHIP ROAD
MOUNT LAUREL, NEW JERSEY 08054
REQUIRED R.O.W. = 0.4 ACRES

PROPOSED R.O.W. LINE

PROPOSED PAVEMENT

NEW JERSEY DEPARTMENT OF TRANSPORTATION

SITE F
ROUTE 14 SECTION 10
ROUTE 50 M.P. 0.77

SCALE: 1" = 50'

PREPARED BY:
TAYLOR WISDOM & TAYLOR
306 FELLOWSHIP ROAD
MOUNT LAUREL, NEW JERSEY 08054
Typical Section: Routes 49 & 50
TYPICAL SECTION: ROUTES 49 & 50
(IN CURVED ALIGNMENTS WHERE EXISTING RADIUS IS TO BE SUPERELEVATED)
TYPICAL SECTION - TUCKAHOE BYPASS
(TANGENT ALIGNMENT)
TYPICAL RAMP SECTIONS
TYPICAL SECTION

ELEVATION

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE 55 EXTENSION FEASIBILITY STUDY
TUCKAHOE BY-PASS OVER COUNTY RD.
TUCKAHOE BY-PASS

PREPARED BY:
TAYLOR, PERRY & HUBBARD
364 FELLOWSHIP ROAD
MOUNT LAKEVILLE, NEW JERSEY 08044
TYPICAL SECTION

ELEVATION

* FOR FUTURE DUALIZATION
APPENDIX A

Cost Estimate
## Cost Summary
(data represent millions of 1991 dollars)

<table>
<thead>
<tr>
<th></th>
<th>Rt. 55 Freeway Alternates*</th>
<th>Rt. 47 / 670 / 83 Land Service Alternates</th>
<th>Rt. 49 / 50 Land Service Alternates</th>
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<td></td>
<td>Alt. 1</td>
<td>Alt. 2</td>
<td>Alt. 3</td>
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<td>Roadway Costs</td>
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<td>196.6</td>
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<td>Structure Costs</td>
<td>153.2</td>
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<td>Utility Costs</td>
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<td>Total Construction</td>
<td>368.1</td>
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<td>R.O.W. Costs</td>
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<td>Wetland Mitigation @ 2:1 Ratio</td>
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<td>Project Costs</td>
<td>$423.4</td>
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*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 1: Freeway Alignments
APPENDIX B

Environmental Constraints
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<th>MILLVILLE</th>
<th>FIVE POINTS</th>
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<td>PORT ELIZABETH</td>
<td>TUCKAHOE</td>
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<td>SEAISLE CITY</td>
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<td>STONE HARBOR</td>
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EXPLANATION OF CODES
For Tables 3 - 12

1. FEDERAL STATUS CODES (F)

U.S. Fish and Wildlife categories of endangered and threatened plants and animals.

3C = More widespread than previously thought or is not subject to threat.
C2 = Possible listing as endangered or threatened, but not enough information to support immediate preparation of rules.
LE = Listed Endangered
E(S/A) = Endangered (similarity of appearance species)
LT = Listed threatened
CI = Enough information on file to support the appropriateness of proposing to list as endangered or threatened.

2. STATE STATUS CODES (S)

E = Endangered nongame species
T = Threatened nongame species
D = Declining nongame species

3. REGIONAL STATUS CODES (RS)

LP = Pinelands

4. NATURAL HERITAGE PRIORITY ELEMENT RANKING SYSTEM

The Nature Conservancy has developed a rarity ranking system for identifying rare species. Each species is ranked according to its rarity both in the state and globally.

Global Element Ranks

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences) or few sites.
G2 = Imperiled globally because of rarity (6 to 20 occurrences) or few sites.
G3 = Rare and local within its range or found locally in a restricted range.
G4 = Apparently secure globally, though it may be quite rare in the parts of its range, especially at the periphery.
G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G? = Species has not yet been ranked.

State Element Ranks

S1 = Critically imperiled. Few remaining individuals or sites.
S2 = Imperiled in state due to habitat destruction.
S3 = Rare in state or widely distributed in the state but with small populations/acreages or with restricted distribution, but locally abundant.
S4 = Apparently secure in state.
S5 = Demonstrably secure in state.
SH = Considered possibly extant.
SU = Believed to be in peril but status uncertain.
5. HABITAT CODES

PO = Pine-oak forest
OP = Oak-pine forest
PP = Pitch pine lowlands
CS = Cedar swamp
HS = Hardwood swamp
W = Water
PE = Palustrine emergent wetland
E = Estuarine
B = Borrow pit
NF = Non-forested
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<th>Vertebrates</th>
<th>PO</th>
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<th>PP</th>
<th>CS</th>
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<th>W</th>
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Dioscorea hirticaulis
Hairy-stemmed wild yam

Eupatorium resinum
Pine barren boneset

Myriophyllum pinnatum
Cut-leaved water-milfoil

Nuphar luteum
Small yellow pond lily

Plantago pusilla
Slender plantain

Spiranthes odora
Fragrant ladies'-tresses

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THE NEW JERSEY NATURAL HERITAGE DATABASE

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## FIVE POINTS USGS QUADRANGLE

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40 Records Processed
APPENDIX C

Letters of Public Opinion
March 5, 1991
Mr. William Cochran
Area Coordinator
Office of Community Involvement
1035 Parkway Ave., CN600
Trenton, NJ 08625

Dear Mr. Cochran

The Cape May County Chamber of Commerce has for the past 20 years endorsed and supported the need for the completion of Route 55 into Cape May County and connecting with the Garden State Parkway.

We have testified and appeared at several meetings and public hearings over these many years supporting Route 55 completion. It is a priority project and goal of our Transportation Committee, Board of Directors and membership.

Route 55 will become the West to East artery for traffic to the Southern Shore Region. It will do for us economically what the Parkway did many years ago, open up the Southern Shore Region to motorists, visitors and vacationers with a safe, limited access, high speed roadway to reach our shores.

Route 55 will bring in traffic flow from Western Pennsylvania, Baltimore/Washington, D.C., West Virginia and other areas who presently do not have direct and safe access to our region.

With the changing trends in tourism and travel that have severely affected our resort economy these past several years we are in more urgent need of a new transportation artery to help our resort industry continue and return to prosperity.

We strongly urge the completion of Route 55 to the Garden State Parkway in Cape May County, New Jersey.

Thank you for your consideration.

Very Truly Yours

Robert C. Patterson Jr.
Executive Director
RCP/sg
PC: Bill August
Dear Sir,

Assemblyman Ed Salmon cut off the environmental vote by announcing funds to study extending Rte 55 thru Cape May County.

May I please have details? Who is on the study group? What alternatives will they study? Mass transit? Fixing existing Rte 47? Endangered habitats and biological diversity?

Over 600 native US species and many living in our own backyards are now threatened or endangered. Extinction is forever.

The primary cause of extinctions today? Habitat destruction and fragmentation — development and roads.

Will funds be given so communities can hire to investigate environmental impact? "Those statements can say whatever you want," as humbling Republican Cape May County Freeholder Jim Smith, descriptively assets.

Why not investigate designating one lane each way of existing Rte 55 to "Buses and car pools only," encourage mass transit? Even the auto vehicle manufacturers association concede that
Society in the coming decades will have no choice but seek alternatives to the auto. If drivers paid the true cost of driving — pollution, noise, and ambulance costs — a whole range of mass transit options would become welcome. Reducing energy use and global warming at the same time. Aguing would appreciate all info on R+55.

Would encourage ALTERNATIVES.

A moratorium on all road-building should be implemented immediately. All remaining wild, natural spaces should be saved now, from development — particularly from roads.

Phase in $1.50 per gallon gas/carbon tax to promote conservation, efficiency, as per Nobel laureate in economics. Peace.

Thank you.
NJ Department of Transportation  
1035 Parkway Avenue  
CN 601, Trenton, NJ  08625

Dear Thomas Downs,

Several southern New Jersey legislators and politicians have either officially proposed and/or support the extension of Route 55 into Cape May County. I, like most county residents, am completely opposed to the Route 55 extension. There are many environmental, social, and aesthetic reasons why Route 55 should not be extended. The NJ DOT should permanently abandon the proposal to extend Route 55.

Cape May County does not need Route 55. There are plenty of access routes. The only reason why a select few support extending Route 55 is tourism. Extension supporters want to make commuting to and from the county convenient for tourists. They want to reduce the driving time for tourists. Tourism does not justify the environmental damage that an extension would cause. Tourists have somehow managed to enter and exit the county safely all these years without Route 55. There is certainly no lack of access to the county. There is certainly no shortage of tourists on any sunny summer day in the county. Extending Route 55 is absolutely unnecessary. The NJ DOT should not try to fix what does not need fixing. Route 9, Route 47, and the Parkway provide more than enough easy, safe access. Route 55 would actually make the county less accessible. Route 55 would worsen existing traffic problems and lead to further overcrowding in the summer. Tourism
is fine, but it can be overdone. There is such a thing as excessive tourism. The only ones who support the extension of Route 55 are those who own and/or operate a tourism-related business. An extension of Route 55 would be a complete waste of money.

An extension of Route 55 would cause great, irreversible environmental and aesthetic damage. Route 55 would accelerate overdevelopment in the county. An extension would cut through the county's only national wildlife refuge. An extension would cut through the Great Cedar Swamp, a division of the refuge, and ruin the scenery and beauty of the swamp. Route 55 would disturb or destroy endangered plant and animal species in the swamp. The swamp consists of fresh and brackish wetlands, pineland, and wooded swamp. An extension would clearly violate many state and federal wetland and pineland protection laws, as well as endangered species laws. The swamp is the largest remaining unfragmented wilderness area in the county. The county's environment and habitats have taken enough abuse from rampant overdevelopment and pollution. The last thing the county needs now is some superhighway. The Route 55 extension project proposal should be abandoned forever.

Another disturbing aspect of the Route 55 extension proposal that is unacceptable is the use of of condemnation, "imminent domain". It is not right for the state to force people off their own property and relocate them elsewhere, even if they are given fair market value for their property. I thought "Big Brother" was fictional. The use of condemnation is not justified, at least
not for the extension of Route 55. I am sure private property owners will not be pleased to know that their property is being condemned so tourists can conveniently and quickly commute to shore resorts. It must be frustrating to realize the state is going to forcibly take your property so the state can complete a highway project that you do not even support. An extension of Route 55 would result in large scale condemnation of private property.

In summary, extending Route 55 into Cape May County is not necessary. Route 55 would not solve traffic problems. It would worsen existing traffic problems and create new ones as well. Route 55 would be an eyesore. Route 55 would cause great environmental damage. Route 55 would destroy large amounts of wildlife habitat. Also, Route 55 would further degrade the quality of life for county residents. The extension of Route 55 would be a mistake. Route 55 should never be extended into Cape May County. Route 55 is an example of the so called "progress" that the county can do without.

Sincerely,

Bill Doan, III
City of North Wildwood
P.O. Box 499 North Wildwood, New Jersey 08260
Cape May County New Jersey

Office Of The Mayor

Lewis G. Vinci, Mayor

April 4, 1991

William Cochran, Area Coordinator
State of New Jersey
Department of Transportation
1035 Parkway Avenue
CN - 600
Trenton, New Jersey 08625

Refer: Route 55 - Southern Extension

Dear Mr. Cochran:

I am again calling for the New Jersey Department of Transportation to consider the southern extension of Route 55 by using the abandoned railroad bed from Port Elizabeth to Ocean View in Dennis Township. This would link Route 55 with the Garden State Parkway. This is the most favorable, best environmental, and most direct route.

The completion of this portion of Route 55 has been an annual Trenton "political road show," and it is time to once and for all GET THIS "SHOW UNDERWAY!" I am sick and tired of spending MORE money for MORE studies and MORE consultants. Each year the delay causes the cost of construction to escalate.

Cape May County has been short-changed for over 20 years on this project. Let's get the extension built from Port Elizabeth to Ocean View NOW! This extension will help Cape May County's life-line and eliminate major traffic tie-ups which hinder our tourism and our economic survival. It will also give relief to residents by getting traffic off their local roads.

I urge the N.J.D.O.T. to act favorably on my opinion.

Very truly yours,

Lewis G. Vinci
Mayor

LGV/dmh
JUL 12 1991

Mr. F. Howard Zahn, Director
Division of Project Development
State of New Jersey
Department of Transportation
1035 Parkway Avenue
CN 600
Trenton, New Jersey 08625

Dear Mr. Zahn:

The Environmental Protection Agency (EPA) has reviewed the May 30, 1991 letter requesting information on environmental issues that may pertain to the proposed Route 55 Freeway extension through Cumberland and Cape May Counties, New Jersey.

We understand that the New Jersey Department of Transportation (NJDOT) is currently analyzing a corridor for the extension, but a particular alignment or alternative has not yet been developed. The primary transportation need in the corridor stems from a seasonal variation in traffic conditions in the study area resulting in sharp increases in summer peaking traffic volumes from Friday evenings through Sunday evenings, May until September.

While the letter does not provide a specific alignment for the freeway extension, the location of the study corridor indicates that the project could potentially impact southern New Jersey's coastal zone and/or Pinelands areas. Accordingly, any environmental documentation resulting from the NJDOT analysis should provide mitigation measures of the freeway extension impacts to these sensitive resources. With this in mind, we advise that the NJDOT include in their analysis the following information.

- A discussion of the purpose and need for the proposed project.
- A thorough evaluation of alternatives to the proposed project including reasonable alternatives not within the jurisdiction to the lead agency (pursuant to 40 CFR 1502.14[c]).
A comprehensive evaluation of cumulative, indirect, and secondary impacts. The cumulative impacts analysis should consider the environmental impacts of the project as a whole, and, if any, as one of a number of the other proposed and/or approved projects in the area. The indirect and secondary impacts analysis should address the potential for unplanned growth and subsequent development in the project area.

Descriptions of the aquatic and terrestrial environments to be impacted by each alternative. These descriptions should include appropriate water quality data, sediment quality data, the identification and the delineation of all wetlands. We recommend that the wetlands delineation be based on the "Federal Manual for Identifying and Delineating Jurisdictional Wetlands." Additionally, we request that a wetlands evaluation technique (WET) analysis be performed on all wetlands associated with the project, to assess the functional values of the wetlands which may be affected.

An evaluation of the potential environmental impacts associated with the construction and operation of the proposed project. This should include: analyses of impacts to wetlands, ground water, air and water quality, noise, endangered species, floodplains, coastal zones, cultural resources, and other significant aspects of the man-made environment. Please be advised that the proposed freeway extension is located in the New Jersey Coastal Plain Sole Source Aquifer. Accordingly, your analysis should include the location of any municipal water supply wells, so that an appropriate ground water assessment may be performed pursuant to Section 1424 (e) of the Safe Drinking Water Act (SDWA).

If the analysis determines that adverse impacts to any significant environmental resources are unavoidable, measures to mitigate these impacts must be explored. More importantly, the analysis should be used to determine whether preparation of an environmental assessment or other documentation pursuant to the National Environmental Policy Act (NEPA), is necessary.

The analysis should consider all potential permits that may be required for this project.
Thank you for the opportunity to comment. Should you have any questions concerning this letter, please contact Joe Bergstein of my staff at (212) 264-6677.

Sincerely yours,

John Filippelli, Chief
Federal Activities Section
Environmental Impacts Branch
The Pinelands Commission
P.O. Box 7, New Lisbon, N.J. 08064 (609) 894-9342

July 26, 1991

F. Howard Zahn
Division of Project Development
N.J. Department of Transportation
1035 Parkway Avenue
CN 600
Trenton, NJ 08625

Re: Route 55 Freeway Extension, Cumberland
and Cape May Counties

Dear Mr. Zahn:

I am writing in response to your inquiry, received on
June 6, 1991, concerning the study corridors of Routes 49 and 50
and Route 47. I hope that the following brief discussion of some
of the relevant issues proves to be of assistance.

Land Use Policies

Both of these study corridors pass through Pinelands "Forest
Areas" (see N.J.A.C. 7:50-5.23), a management area that permits
only low intensity development as these areas are characteristic
of the Pinelands ecosystems. Typically, Forest Areas are zoned
for residential development at a density of only 1 dwelling unit
per 20-30 acres and/or very limited types of commercial develop-
ment at an intensity of approximately 800 square feet per acre.
Sewer service is not permitted. Major highway improvements tend
to induce much more intensive growth; thus, the land use stan-
dards for public service infrastructure (e.g. highways) are very
limiting. Any proposal which can not clearly demonstrate that it
is intended to primarily serve the needs of the Pinelands could
not be approved unless the Commission was to grant a "waiver of
strict compliance." N.J.A.C. 7:50-4.61 et seq. sets forth the
standards under which waivers may be granted.

Acquisition of Important Lands

It should be noted that due to the environmental sensitivity
of this region, approximately 18,000 acres of land is targeted
for acquisition in an effort known as the Southern Forest Area
Project. This project represents a joint endeavor between
various state agencies, the US Dept. of the Interior, and the New
Jersey Pinelands Commission to complement existing state owned
lands (including Peaslee and Belleplain) in the vicinity. The acquisition of these lands will, in combination with adjacent state lands, create an important ecological preserve for many typical Pinelands plant and animal species as well as for endangered and threatened species. As is evident from the enclosed environmental assessment, proposals which will directly or indirectly impact upon these areas must be considered with extreme caution.

Site Specific Impacts

In addition to the broader land use policies, construction projects, if otherwise permitted, must also adhere to specific development standards. I refer you particularly to N.J.A.C. 7:50-4.51 et seq. and 7:50 Subchapter 5, especially the wetlands (7:50-6.1 et seq.) and fish and wildlife (7:50-6.31 et seq.) standards. The wetlands standards are particularly relevant as the routes go through substantial wetlands and must pass the public improvement standards in 7:50-6.13, which include an alternative analysis. Given the presence of substantial wetlands, endangered species, and major existing and proposed public land holdings, it will be difficult to avoid a finding of substantial impairment to the resources of the Pinelands from some or all of the possible alternatives. Such a finding would preclude development of that alternative.

Feasibility Study

The land use and environmental issues attendant to the extension of Route 55 are both multifaceted and compelling. For these reasons, we encourage the Department to initiate more extensive consultations with the Pinelands Commission so that the issues which we have briefly outlined here can be explored more fully. It may then be possible to better judge the impacts of various alternatives and to identify other alternatives which might be more compatible with the land use and environmental policies of the Pinelands Comprehensive Management Plan.

If you should have any questions or need further information, feel free to call me.

Sincerely,

[Signature]

John C. Stokes
Assistant Director

JCS/LL/km/SP14
Enclosure
cc: Terrence D. Moore
    William F. Harrison
    Larry Liggett
    Susan Uibel
Mr. F. Howard Zahn, Director
Division of Project Development
New Jersey Department of Transportation
1035 Parkway Avenue, CN 600
Trenton, NJ 08625

Dear Mr. Zahn:

We have reviewed your study of the feasibility of extending Route 55 (from Route 47 to the vicinity of the Garden State Parkway), as presented in your letter of 6 June 1991. The Coast Guard, and this office in particular, would be very interested in the proposal since the proposed route crosses several waterways for which we exercise jurisdiction. Route 55 as we understand the proposal, would be four lanes wide throughout.

As you are aware, a present bridge permit application is being processed for replacement of the Route 47 Bridge over Bidwell Creek and it appears that width allowances may have been incorporated into its design for the Route 55 project. This was informally alluded to by others during our investigation of the Bidwell Creek project.

The Coast Guard is concerned that adequate environmental documentation be prepared to address pertinent impact of such a project (Route 55) and each affected bridge. Also we would discourage segmentation, i.e., building separate sections as if each action is unrelated to the whole.

Though you did not specify, it is assumed that the Route 55 project would be funded by the Federal Highway Administration. If so, we would desire to be including in scoping and other planning required by the National Environmental Policy Act.

Please contact me at the number above if you desire to discuss this matter or clarify my comments.

Sincerely,

[Signature]

Gary Keesee
Environ. Impact Analysis Specialist

RECEIVED

BEA

ENVIRONMENTAL ANALYSIS

JUL 26 1991
June 11, 1991

Thomas M. Downs, Commissioner
NJ Department of Transportation
1035 Parkway Avenue, CN 600
Trenton, NJ 08625

Dear Commissioner Downs:

I appreciate your recent letter regarding the Department of Transportation's study of the feasibility of extending Route 55 from its current terminus at Route 47 to the vicinity of the Garden State Parkway in Cape May County.

Cumberland and Cape May Counties would be most affected should such an extension occur. I have taken the liberty of providing Mr. Jonathan Savage and Mr. Stephen Scheftz, Economic Development Directors of these counties, with a copy of the material, and have asked them to provide to you directly the input you are seeking. I am certain they will do so in a timely manner to accommodate scheduling needs for this study.

Sincerely,

George R. Zoffinger
April 9, 1991

Mr. William Cochran
Area Coordinator
Office of Community Involvement
New Jersey DOT - CN 600
1035 Parkway Avenue
Trenton, New Jersey 08625

Dear Mr. Cochran:

The Cape May County Planning Board offers the following comments regarding Route 55.

1. A Route 55 alignment that would better serve many users whose destination is the Southern Cape.

2. Special attention must be given to Dennisville, Route 83-47 Junction, Route 9 - 83 Junction, and the Parkway Intersection.

3. Minimize environmental impacts and wetlands.

Sincerely,

[Signature]

Elwood R. Jarmer
Director

ERJ:nl

cc: Board of Chosen Freeholders
Planning Board

cape may court house, new jersey 08210 • 609-465-1080
January 28, 1991

Bruce Hawkinson
Department of Transportation
2 Dixmont Ave.
Ewing, NJ 08618

Dear Bruce:

Recently, we became aware that the Department of Transportation was reviewing a proposal to extend Route 55 into Cape May County. We understand that this proposal would necessitate the crossing of the Manumuskin River as well as Belleplain State Forest and Great Cedar Swamp. I am writing to you now to alert you to the critical ecological nature of these areas and specifically to address The Nature Conservancy's interests in the Manumuskin drainage.

As you know, The Nature Conservancy is an international conservation organization devoted to the identification, protection, and management of unique or exemplary ecosystems and habitat for endangered species.

The Conservancy has protected almost 4,000,000 acres in all 50 states during its 39 year existence. This work is supported by over 550,000 members nationwide, including over 17,000 New Jerseyans.

Through studies we have sponsored by Rutgers University and the New Jersey Natural Heritage Program—an ecological database—maintained in cooperation with the N.J. Department of Environmental Protection, we have collected extensive information on the ecological significance of the Manumuskin River watershed, and neighboring watersheds, like the Menantico and Maurice Rivers. Any Extension of Route 55 would involve all three watersheds.

The Manumuskin River has the best water quality of any stream of its size in New Jersey. It drains a land area of approximately 35 square miles, only 2% of which has been developed. Less than 7% of the watershed has been cleared for agriculture. The remaining land is forested.

The Manumuskin River is one of only two streams out of 80 sampled in the one million acre Pinelands National Reserve found to have pristine water quality. The East bank of the River is in the Pinelands National Reserve. The area West of the River was the subject of special mention in the Pinelands Commission's Comprehensive Management plan as an area of special ecological concern.
The Manumuskin River contains the best example of a freshwater intertidal marsh in the state. Two hundred twenty-eight species of birds have been sighted, 86 of which nest locally. The area is also well-documented as critical habitat for nesting and wintering bald eagles. One of the state's largest wild rice wetlands occurs in the basin, and consequently, the area hosts the second largest wintering waterfowl population in the state. The unfragmented forest areas are critical for migrating and nesting songbirds and warblers.

A remarkable diversity of flora and fauna occur in the watershed area of the Manumuskin, Maurice and Menantico Rivers, including over 30 state or globally rare plants and 46 species of amphibians and reptiles. 34 species of fish inhabit the waters.

The rarest plant in the Manumuskin River is the sensitive joint vetch (Aeschynomene virginica). By checking herbarium specimens in museums throughout the East, we know that historically the sensitive joint vetch was reported from a total of 29 locations in 5 states in the Mid-Atlantic Region. Today, after careful field work, only 7 naturally occurring locations are known. Many of these are small and threatened.

The largest and most viable population left in the world grows on the banks of the Manumuskin River, and as of 1990 this is the only population left in the state. The Manumuskin River population represents approximately 1/3 of the total naturally occurring global population.

From the data it is clear that the sensitive joint vetch was never common. Its habitat is the fresh to brackish zone of the upper reaches of our Mid-Atlantic tidal rivers. Within that zone it is restricted to the raised levee adjacent to the river channel. It is globally imperilled today because of the destruction of freshwater tidal marsh along our Mid-Atlantic River systems.

Because of its pristine water quality, exemplary tidal marsh community and undeveloped drainage basin, The Nature Conservancy has identified the Manumuskin River as the best opportunity to protect the sensitive joint vetch in the world today. To that end the Conservancy has targeted this area as one of its highest priorities in the country and has expended considerable financial resources to date.

Through acquisition of fee simple interests, development rights and management agreements, the Conservancy currently manages over 2,000 acres as a nature preserve for the sensitive joint vetch and 11 other rare plants on the Manumuskin River. The Conservancy has also acquired 90 acres along the Menantico River as part of a plan to protect rare plants in this watershed.
The Manumuskin River is also recognized as being ecologically unique by other authorities including Dr. Wayne R. Ferren, Jr. in a report on New Jersey Endangered and Threatened Plants and Animals, and Dr. David E. Fairbrothers and Nicholas Caiazzo in a report to the Pineland Commission. A portion of the Manumuskin River has been included in the State's register of Natural Areas in recognition of its special ecological qualities.

In conclusion, the Manumuskin River is our last chance to protect the sensitive joint vetch in New Jersey. There is no other site with its qualities that can be set aside or manipulated to support this globally endangered plant. Further, protection of the sensitive joint vetch habitat will result in the protection of the surprising array of other biological diversity found in this area.

Belleplain State Forest and the Great Cedar Swamp also support a number of sensitive plant and animal species. Currently, The Nature Conservancy is working closely with the US Fish and Wildlife Service to protect the critical habitats within the Cape May National Wildlife Refuge. In addition to protecting properties in the Delaware Bay Division, in the past six months, we have purchased almost 500 acres in Great Cedar Swamp.

The swamp contains large undisturbed stands of Atlantic White Cedar with considerable sized old growth oaks, blackgums and sweetgums. It is also an important area for many state and federally rare, threatened and endangered plant species, notably swamp pink (Mertensia oblongata), glade spurge (Euphorbia purpurea), and Boykin's lobelia (Lobelia boykinii) to name a few.

Every effort needs to be made to maintain the current condition of the these areas. Forest fragmentation, water quality, habitat quality, and air quality are all issues of great concern. Given the extreme ecological sensitivity of these sites, and especially of the Manumuskin River, we would strongly recommend careful consideration before decisions regarding the extension of Route 55 are made.

If you would like to discuss any of these areas in more detail, or require any additional information, please let me know.

Sincerely,

Elizabeth Johnson
Elizabeth A. Johnson
Acting Director
New Jersey Field Office
June 28, 1991

L76(NEJE)

F. Howard Zahn, Director
Division of Project Development
Department of Transportation
CN 600
Trenton, NJ 08625

Dear Mr. Zahn:

A copy of your letter to the US Fish & Wildlife Service concerning the possible further extension of Route 55 Freeway through Cumberland County and into Cape May County was referred to me for comment. The NJ Coastal Heritage Trail, a vehicular trail includes the area from Cape May along the Delaware Bay Estuary into Deepwater and will include a southern anchor in the Delaware Bay area. We hope to use the many potential scenic byways in New Jersey's coastal region.

While I appreciate the traffic problems you are attempting to address, I am concerned about the potential impacts this may have on the special resources we have discovered in this unique area. During the initial resource reconnaissance surveys of this area we identified it as having potential for national significance. While still in the planning stages, we will be starting a Special Resource Study of the Delaware Bay area as the possible southern trail "anchor" to assess the extent of its vast natural and cultural resources and to determine its eligibility for further national designation. This area is important not only as the largest of 5 spring staging areas on the Atlantic Flyway but for its extensive wetlands and the cultural landscape of many small historic towns and cities which dot its shores. This is especially true in much of the area you are considering. I am enclosing copies of our initial study and preliminary inventory for your information.

I thank you for the opportunity to make our project known to you. I would be pleased to discuss this in greater depth at your convenience. I can be reached at (609) 785-0676.

Janet C. Wolf
Project Director
Mr. F. Howard Zahn, Director  
Division of Project Development  
State of New Jersey  
Department of Transportation  
1035 Parkway Avenue  
CN 600  
Trenton, New Jersey  08625

Dear Mr. Zahn:

The National Marine Fisheries Service (NMFS) has reviewed your letter dated May 30, 1991, concerning the proposed Route 55 Freeway Extension through Cumberland and Cape May Counties, New Jersey. Your proposal needs more information for a proper response.

Both Cumberland and Cape May Counties have considerable tidal waters that provide spawning, nursery, and feeding habitat for fish and invertebrates of concern to NMFS. Productive wetlands, also important habitat to these resources, are usually found adjacent to the waters. As a general rule, NMFS recommends that roadway planners look for alignments that will result in the least amount of habitat destruction as possible, and that they compensate for any important habitat that must be destroyed. In addition, NMFS recommends that construction work and dredging in waterways known to support fishery resources be prohibited at certain times of the year so as to avoid disruption of spawning, and to avoid annihilation of sensitive fish eggs and larvae.

Unfortunately, your letter gives little indication of the types or amount of habitat to be affected by the alignment, nor does it give a detailed map of the alignment alternatives. Should you wish any technical assistance or recommendations beyond a general caution to avoid destruction of aquatic habitats, please provide a more detailed analysis of the project proposal. You may contact me at the above address.

Sincerely yours,

Stanley W. Gorski  
Assistant Program Coordinator
January 14, 1991

Mr. Kenneth Afferton
Assistant Commissioner
Department of Transportation
CN600
1035 Parkway Avenue
Trenton, New Jersey 08625

Dear Mr. Afferton:

Our organization is interested in any planning that DOT may be doing about the extension of Route 55 from Port Elizabeth in Cumberland County south and east through Cape May County.

A cursory look at maps indicates that such a highway extension will probably impact on fragile areas, including both tidal and freshwater wetlands, and the open space contemplated in the Cape May Refuge. At the same time, it will have secondary impacts on development in Cape May County.

We would like to be alerted to any planning now going on and be kept informed as the process continues. In particular, we would like to be allowed to participate in the public hearings and reviews as early as possible in the proceedings.

Could you please put me on your list as an interested party. Thank you.

Sincerely,

D. W. Bennett
Executive Director
United States Department of the Interior

FISH AND WILDLIFE SERVICE
DIVISION OF ECOLOGICAL SERVICES
1825 VIRGINIA STREET
ANNAPOLIS, MARYLAND 21401

August 12, 1991

Mr. Bruce Hawkinson
Department of Transportation
2 Dixmont Ave.
Ewing, NJ 08618

Dear Mr. Hawkinson:

The Endangered Species Act of 1973 as amended (16 U.S.C. 1531 et seq.) requires the Secretary of the Interior to monitor the status of wild populations of certain flora and fauna and to identify those which appear to be in danger of extinction (endangered species) or likely to become so in the foreseeable future (threatened species). The U. S. Fish and Wildlife Service has been charged with this responsibility.

After reviewing the information on hand, we are of the opinion that a plant in the legume family known as the sensitive joint vetch (Aeshynomene virginica) should be determined to be a threatened species. Recently, we published in the Federal Register a proposal to take such an action. Critical habitat is not being proposed for this species. A copy of the proposal is enclosed. The proposed action, if made final, would implement the full protection provided by the Endangered Species Act of 1973, as amended, for Aeshynomene virginica. Proposed species are offered limited protection under Section 9(a)(3) of the Endangered Species Act, which requires Federal agencies to confer with the Service on any actions that are likely to jeopardize proposed species.

We welcome your comments on this proposal. These should be mailed to Field Supervisor, U. S. Fish and Wildlife Service, 1825 Virginia Street, Annapolis, Maryland 21401. Questions can be directed to Ms. Judy Jacobs at the same address or by telephone, at (301) 269-5448. Comment periods and types of information sought are detailed in the proposal.

Sincerely,

[Signature]

John P. Wolflin
Supervisor
Annapolis Field Office

Enclosure
Mr. F. Howard Zahn  
Director, Division of Project Development  
New Jersey Department of Transportation  
1035 Parkway Avenue  
CN 600  
Trenton, New Jersey 08625

Dear Mr. Zahn:

This letter is in response to your letter of May 30, 1991, in which you requested information regarding the Corps position on environmental issues which may be encountered during the extension of the Route 55 Freeway.

Under current Federal regulations, a department of the Army permit is required for work or structures in navigable waters of the United States and the discharge of dredged or fill material into waters of the United States including adjacent and isolated wetlands. In this regard, we offer the following comments:

a. If it appears that any impact to wetlands or other bodies of water may occur, a Department of the Army permit will be required. It will be necessary to define the type and exact quantity of wetlands and resources which may be impacted.

b. The area of Federal jurisdiction in the project area must be determined and verified by the New Jersey Department of Environmental Protection (NJDEP), under an agreement that the Philadelphia District, Corps of Engineers has with the NJDEP. The NJDEP will issue a Letter of Interpretation (LOI) verifying the wetland line.

Other environmental factors which should be taken into consideration when developing your recommendation include the impacts which may occur to endangered species and cultural resources, as well as water quality and general living conditions which exist within the study area.

If you have any questions concerning jurisdictional or permit application procedures, please contact the Regulatory Branch at (215) 597-4722. Any other questions can be directed to Beth Brandreth of the Environmental Resources Branch at (215) 597-4833.

Sincerely,

Robert L. Callegari  
Chief, Planning Division
August 13, 1991

Mr. F. Howard Zahn
Director
Division of Project Planning & Development
NJ Department of Transportation
CN 600
Trenton, NJ 08625-0600

RE: Route 55 Extension

Dear Mr. Zahn:

The Office of Program Coordination is forwarding, for your review, additional comments regarding potential impacts to the water resources of southern New Jersey should Route 55 be extended.

Groundwater Recharge Areas

Identification of geologic units affected will be necessary to evaluate the potential impacts on groundwater recharge. Addition of impervious surface may reduce infiltration, depending on the size of the project and the runoff characteristics of the underlaying soils and geologic formations. Change in volume and rate of recharge can be calculated once the site conditions are identified. Net change in recharge will also be affected by the method used to manage roadway runoff. Our Department's New Jersey Geological Survey Element can assist the NJDOT addressing anticipated changes in recharge rates.

Groundwater Quality

Roadway runoff is a concern relative to groundwater quality. The potential impacts to groundwater quality will partly be a function of the stormwater management methods used. Will roadway runoff be discharges directly to surface water? This raises concerns for surface water quality. Will detention basins be designed for groundwater recharge? Will basins be designed to mitigate groundwater contaminants?
Impacts On Wells

The potential impacts on wells will be a function of the route selected and the method of roadway construction. The principal concerns would relate to potential impacts on shallow wells, including contamination by road surface pollutants, and impacts on well productivity through lowering of the water table. The roadway could cause water table lowering through paving of recharge areas or by underdraining associated with roadcuts and storm sewering. An inventory of wells and their construction along the alignment would be necessary to address these concerns.

Secondary Impacts

The issue of secondary impacts associated with increased traffic, needs to be addressed. Is the expansion of the roadway likely to lead to increased settlement of Cape May County, or increased summer visitation? The County is currently experiencing serious salt water intrusion problems (the southern Cape May County shallow aquifer have been already encroached and our Department is currently investigating various water supply alternatives). Will the project lead to increased water demand in the region? Has an increase in demand potentially associated with the roadway been considered by the Cape May County water supply advisory committee in developing alternatives to the current supply problems?

We offer these additional comments for your consideration. Please contact me if you have any questions.

Sincerely,

Lawrence Schmidt
Director
Office of Program Coordination