

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 #1**

**Freeway
Alignments**



in association with

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

December 1993

**State of New Jersey
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HOW TO USE THIS MANUAL

This Manual is the first 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 1, 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

Consideration of the extension of the Route 55 Freeway from its current terminus at Route 47 in Millville, Cumberland County, southeast to the Garden State Parkway (G.S.P.) in Cape May County is the subject of Technical Memorandum No. 1: Freeway Alignments. The extension of Route 55 would provide a freeway for seashore traffic with an improved level of service and would lessen traffic congestions during the summer tourist months. Although many alternates to the freeway concept were examined (as presented in Technical Memorandum No. 2: Land Service Improvements and Bypasses), this report addresses the extension of Route 55 as a controlled limited access freeway ultimately connecting to the Garden State Parkway, in Dennis Township, approximately 1.7 miles north of Exit 13.

To ease comparison and make the corridor manageable, the alignment for the freeway was broken down into Study Segments A, B, C, and D (see Plates A-1, B-1, C-1, and D-1 in Section II) and will extend a distance of approximately 20 miles. The freeway extension is oriented southeastward on a new alignment from Route 47 near Port Elizabeth to Ludlams Pond in Dennisville then follows the existing Route 83 alignment to Route 9 and the Garden State Parkway.

Typical Sections

Both of the alternates presented in this memorandum provide for two (2) lanes in each direction in a freeway capacity consistent with the existing Route 55 Freeway. Alternate 1 limits the footprint of disturbance of the highway by providing a minimum width cross-section utilizing median barrier curb. Alternate 2 provides a grassed median typical section with a width of 26 ft., which provides for 36 ft. of clear zone between opposing travel lanes. Embankment slopes of 4 horizontal to 1 vertical were utilized to conservatively estimate impacts.

Horizontal Alignment

Geometric controls for horizontal alignment were based upon the stated design speed, typical for freeway design speeds of 70 miles per hour. A conservative minimum baseline radius of 6,000 ft. was selected in order to avoid horizontal sight distance restrictions with a median barrier curb. The level of study did not warrant development of different alignments for the two (2) alternate typical sections.

The horizontal alignment development was principally controlled by avoidance of wetlands areas, potential endangered species habitats, historical/archaeological sensitive areas, existing developed properties, relationship to the existing highway network and minimizing construction costs. Due to the large expanses of wetlands within the study limits, avoidance and minimizing of impact to these areas were of primary significance in route selection. In general, the new alignment where practical closely parallels existing highway alignments in order to follow existing developed and therefore man-disturbed paths. These alignments are also typically more upland and therefore less wetland.

Vertical Alignment

Design parameters for vertical alignment were based upon desirable criteria for a design speed of 70 miles per hour. A minimum profile grade of 0.5 percent was used throughout to ensure adequate roadway drainage.

The profile grade of the Freeway was maintained a minimum of 7 ft. above existing stream crossing inverts to provide for the stream opening and longitudinal roadway drainage. Minimum vertical clearance of 15.5 ft. and 25 ft. were held where the Freeway crosses over existing roadways and railroad tracks respectively. Highway crossings over the Freeway held a minimum vertical clearance of 16.5 ft.

Generally it is more cost effective to bridge a cross road over a mainline freeway, as the width of the cross road is usually less and the design speed of the cross road for profile design is also less, thereby reducing the earthwork (fill) required. The avoidance alignment of the Freeway required locating the roadway in many cases parallel to and minimally offset from Route 47 and County Route 670. In order to avoid significant reconstruction of these parallel routes due to reconstruction of cross roads if bridged over the Freeway, the Freeway was bridged over the cross roads. The net effect is to increase construction costs in order to avoid (minimize) disturbance of environmentally sensitive areas.

Route Selection

Beginning at the existing southerly end of the Route 55 Freeway, the Freeway alignment from Schooner Landing Road to Hunter's Mill Road was held to the east of Route 47 to avoid significant impacts to wetlands of high potential as endangered species habitats (High Quality) and to provide a by-pass around Port Elizabeth which may contain many archaeological and historic sites (see Photos 1 & 2). From Hunter's Mill Road to the vicinity of Ludlams Pond, the Freeway alignment basically follows Cape Road (County Route 670) to the east to minimize the impacts to High Quality wetlands and reduce the number of grade separated crossings (bridges). The alignment crosses over to the west side of County Route 670 at County Route 550 Spur. The alignment continues to closely parallel County Route 670 and Route 47 to reduce wetland, historical and archaeological impacts (see Photo 3).

From the vicinity of Ludlams Pond to Route 47 south of Dennisville, the alignment consists of a by-pass around Dennisville to minimize impacts to existing Route 47, the town of Dennisville, archaeological and historic sites. This alignment required the Freeway to cross Dennis Creek and the surrounding High Quality wetlands. To reduce the impacts to the wetlands a 3,150 ft. long viaduct was assumed (see Photos 4 & 5).

From Route 47 south of Dennisville, the freeway alignment basically follows the existing alignment of Route 83 through to Route 9 then extend to tie into the Garden State Parkway (see Photo 6). The existing horizontal alignment of Route 83 would be slightly modified to meet freeway standards. Adjacent land use along this section is wooded with few residential homes and businesses except in the vicinity of Route 9.



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.

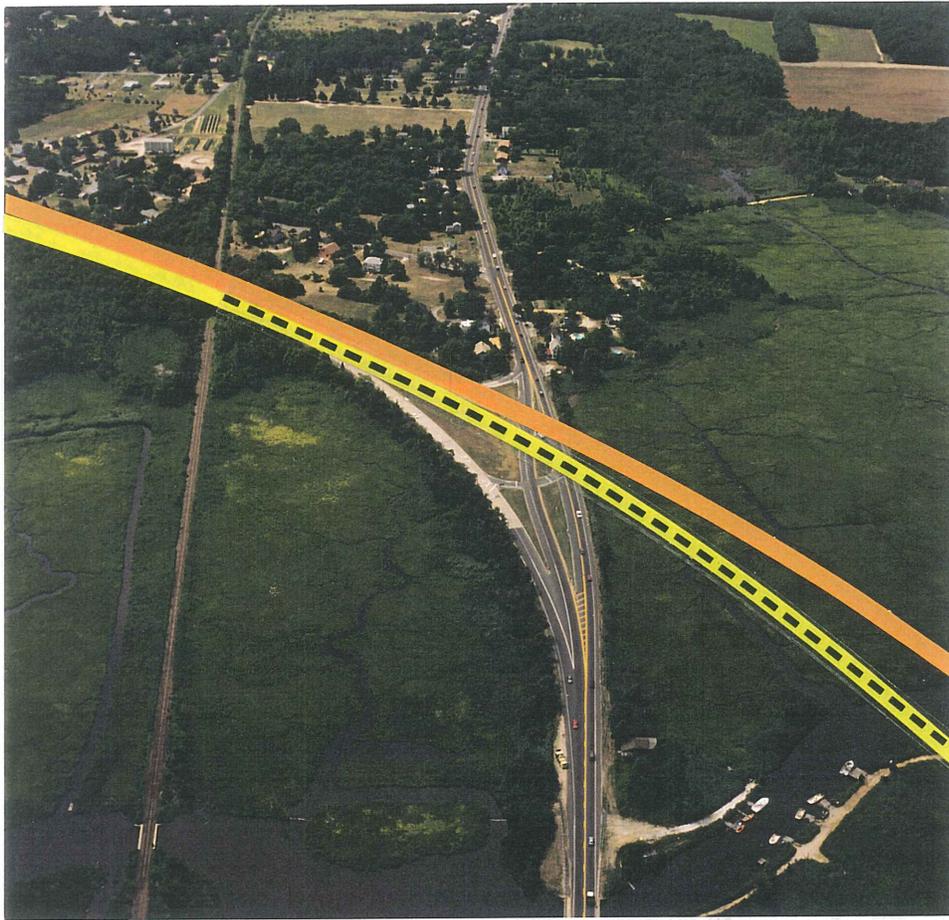


Photo 5:

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.

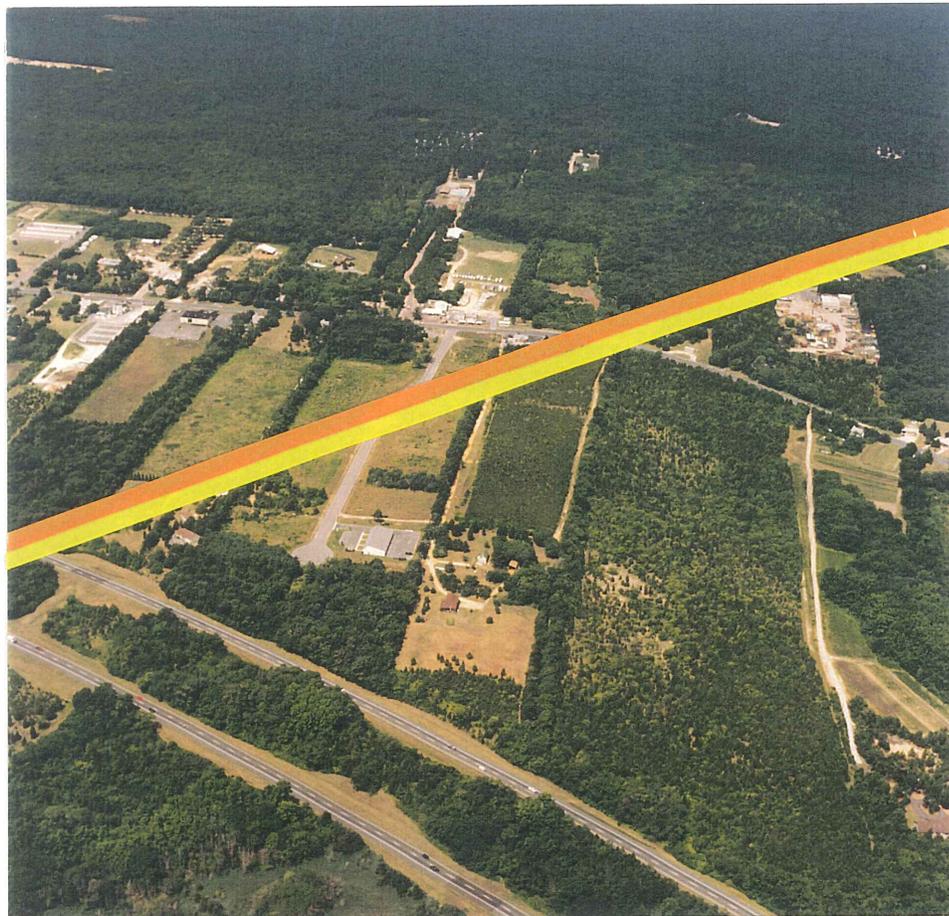


Photo 6:

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).

Interchanges

Interchanges to the Route 55 Freeway were assumed at Route 47 (just south of Schooner Landing Road), at North Dennis-Marshallville Road (C.R. 557), at Route 9 and the G.S.P.

The interchange at Route 47 would 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 studied 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 connector exit.

Just north of Dennisville, at County Route 557, an interchange is provided to allow access for the residents of the Dennisville area. This interchange would be designed as a "trumpet" interchange, to align directly opposite the existing intersection of County Route 557 with Route 47.

Local commuters in this area use Route 83 to access Route 9 just north of the Exit 13 of the G.S.P. As part of the Freeway extension, existing Route 83 would become part of the Freeway. The Route 9 interchange would maintain existing access, as previously enjoyed by local commuters, to recreational facilities and to the towns of Seaville to the north and Cape May Courthouse to the south.

An interchange to the G.S.P. (a north/south corridor route) would allow access to various shore points along the Cape May shore line from Cape May to Ocean City. Full ramp connections to and from the Parkway are provided.

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.

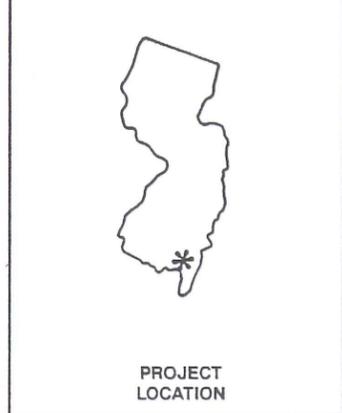
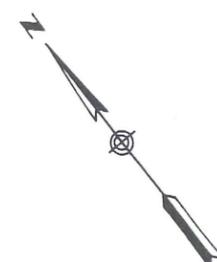
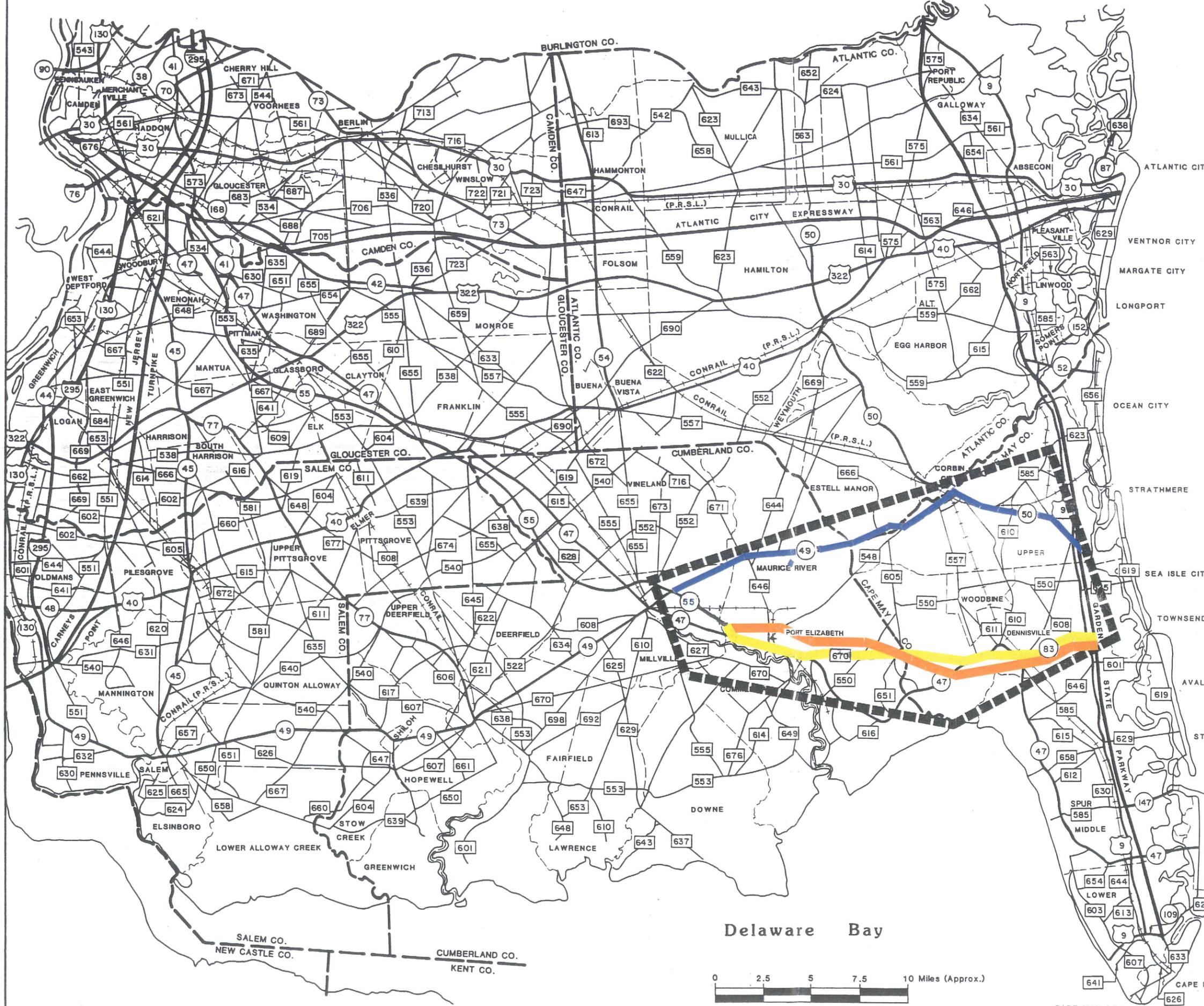
Endangered Species - Serious consideration had to be made towards each alternate's affect on endangered and threatened species and their habitats.

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 would have on parks, forests, gamelands, and wildlife refuges. Finally, the visual impact each alternate would 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.



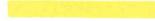
-  PROJECT STUDY LIMITS
-  EXISTING RTS. 49/50 STUDIED
-  EXISTING RTS. 47/670 STUDIED
-  ROUTE 55 FREEWAY EXTENSION
-  INTERSTATE HIGHWAYS
-  U.S. HIGHWAYS
-  NEW JERSEY HIGHWAYS
-  COUNTY HIGHWAYS

PLATE 1

ROUTE 55 EXTENSION
FEASIBILITY STUDY

PROJECT LOCATION MAP

NEW JERSEY
DEPARTMENT OF
TRANSPORTATION

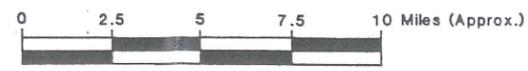


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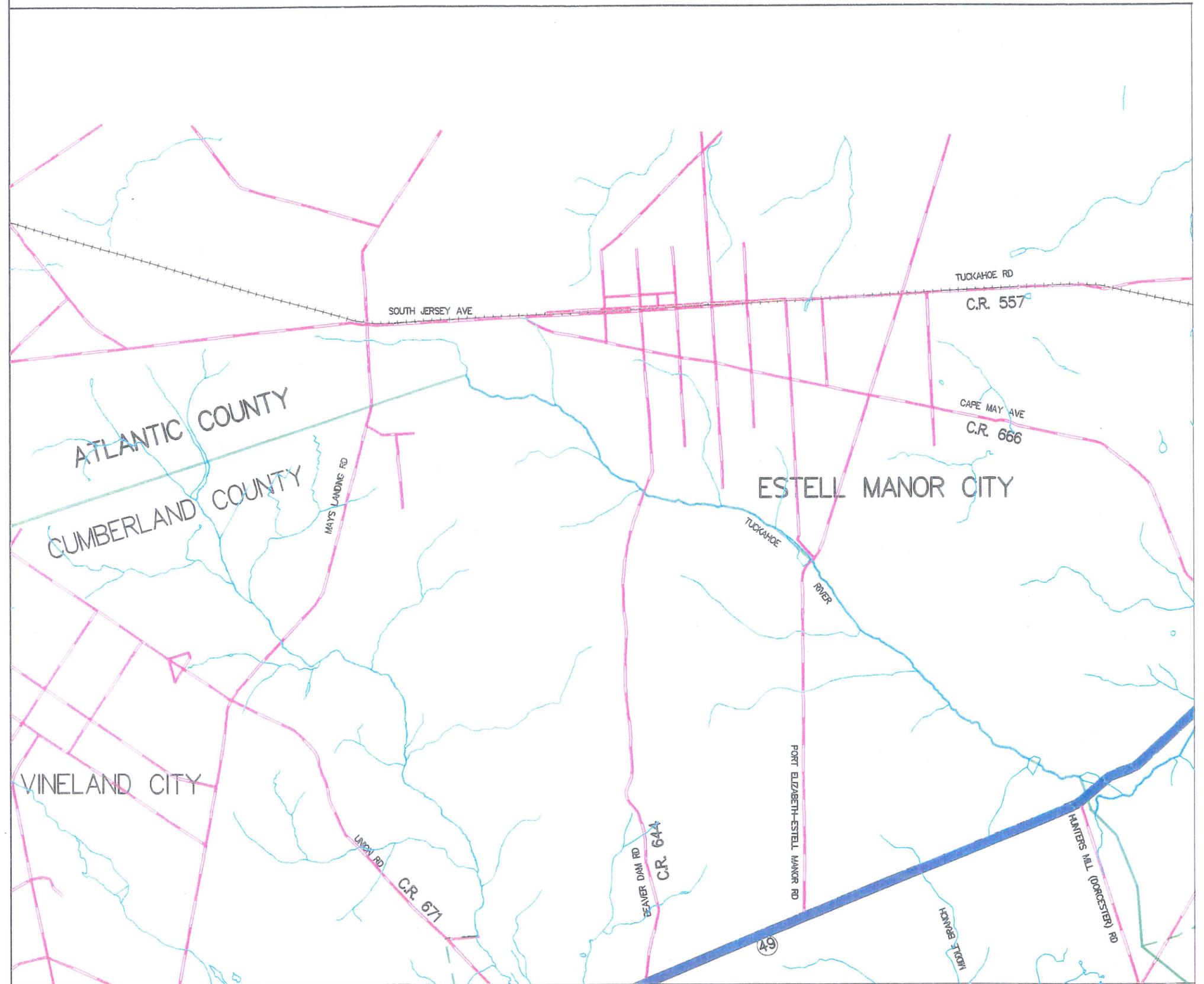
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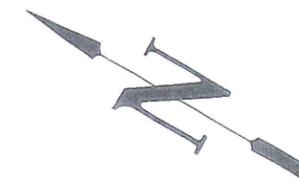


BASE MAP

-  County Boundary
-  City and/or Township Boundary
-  Primary Roads
-  Primary Roads Under Consideration for Route Alternatives
-  Streams, Lakes, Ponds
-  Railroad
-  Old Railroad Grade
-  Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)
-  Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)
-  Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)
-  Indicates Photo Location, Direction, and Number

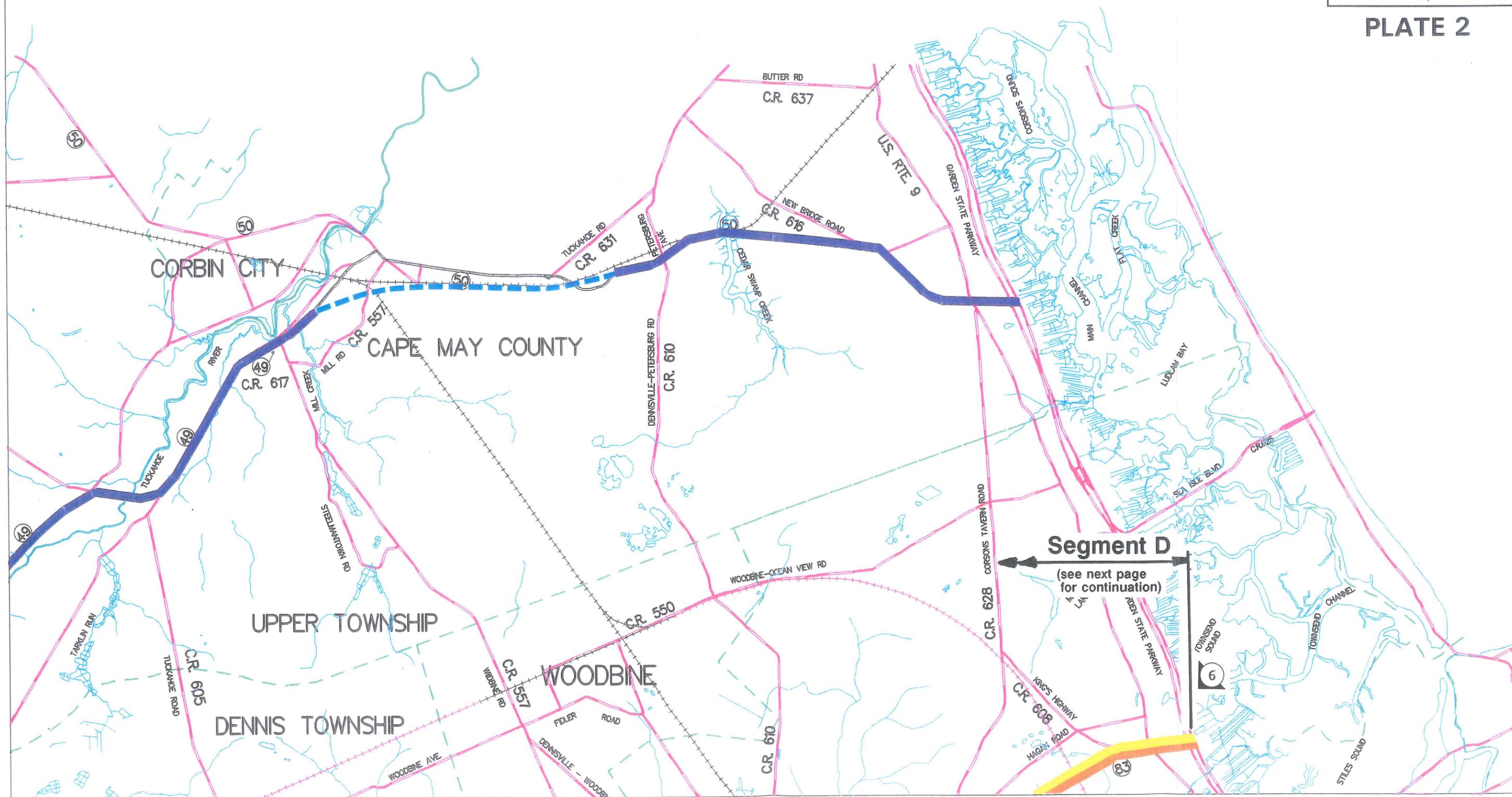


ROUTE 55 EXTENSION STUDY



Scale 1:63360 / 1" = 1 mile

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.

FREEWAY ALIGNMENTS

Route 47/670/83 Corridor: Study Segment A

CUMBERLAND COUNTY



Segment A

E CITY

MAURICE RIVER TOWNSHIP

PORT ELIZABETH

East Bypass of Port Elizabeth

Freeway Alignment

Land Service Improvements (47/670/83 Corridor)

West Bypass of Port Elizabeth

KEY

- County Boundary
- City and/or Township Boundary
- Primary Roads
- Primary Roads Under Consideration for Route Alternatives
- Streams, Lakes, Ponds
- Railroad
- Old Railroad Grade



Scale: 1" = 1/2 Mile

ROUTE 55 FREEWAY EXTENSION FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate A-1
Study Limits for Segment A
47/670/83 Corridor: Segment A

A₁

A₂

A₃

47

47

55

C.R. 670

C.R. 670

C.R. 646

PORT ELIZABETH-CUMBERLAND ROAD

HUNTERS MILL RD

C.R. 646

CROWDER RUN

STATION RD

BUCKSHUTEM RD

SCHOONER LANDING RD

MANANTICO

TIGER POND

DR

RD

LEI

Table A-1: Alternate Configurations

	Rt. 55 Freeway Alternates		Rt. 47 / 670 / 83 Land Service Alternates*					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 5A	Alt. 6	Alt. 6A
	Freeway Alignment (Orange & Orange Dash Lines)	4 Lanes w/ Barrier Curb & Shoulders	4 Lanes w/ Grass Median & Shoulders	NA	NA	NA	NA	NA
East Bypass of Port Elizabeth (Orange Dash Line)	NA	NA	2 Lanes w/ Shoulders	NA	NA	4 Lanes w/ Barrier Curb & Shoulders	NA	4 Lanes w/ Grass Median & Shoulders
West Bypass of Port Elizabeth (Yellow Dash Line)	NA	NA	NA	2 Lanes w/ Shoulders	4 Lanes w/ Barrier Curb & Shoulders	NA	4 Lanes w/ Grass Median & Shoulders	NA
Existing Rt. 47 (Yellow Line)	To Remain As Is	To Remain As Is	To Remain As Is	2 Lanes (Upgraded) w/ Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	To Remain As Is	4 Lanes (Upgraded) w/ Grass Median & Shoulders	To Remain As Is
Existing Rt. 670 (Yellow Line)	To Remain As Is	To Remain As Is	To Remain As Is	2 Lanes (Upgraded) w/ Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	To Remain As Is	4 Lanes (Upgraded) w/ Grass Median & Shoulders	To Remain As Is

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 2: Land Service Improvements and Bypasses

Alternative 1 (Segment A) - New Freeway Alignment

(Orange and Orange Dashed Lines - see Plate A-1)

This alternate provides for a Route 55 freeway extension to be constructed along an improved alignment. Through this segment, the new alignment begins at the southern terminus of the existing Route 55 freeway and extends southeast to end at the easternmost limit of Segment A. The freeway extension will consist of two lanes in each direction separated by a concrete median barrier curb. Total length of Segment: approximately 5 miles.

Design Parameters

Typical Section:	Two 12 ft. wide travel lanes with 12 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb
Design Speed:	70 mph
Superelevation:	6% (maximum)
Existing ROW:	NA
Proposed ROW:	200 feet
Total Acres Req'd:	206 acres
Design Year:	2005

Serviceability

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

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.

Alternative 1 (Segment A) - cont.

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: 12.0 acres
Mitigation at @ 2:1 Replacement Ratio: 24.0 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 2 (Segment A) - New Freeway Alignment

(Orange and Orange Dashed Lines - see Plate A-1)

This alternate provides for a Route 55 freeway extension to be constructed along an improved alignment. Through this segment, the new alignment begins at the southern terminus of the existing Route 55 freeway and extends southeast to end at the easternmost limit of Segment A. The freeway extension consists of two lanes in each direction separated by a 26' wide grass median. Total length of Segment: approximately 5 miles.

Design Parameters

Typical Section:	Two 12 ft. wide travel lanes with 12 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 26' wide grass median
Design Speed:	70 mph
Superelevation:	6% (maximum)
Existing ROW:	NA
Proposed ROW:	250 feet
Total Acres Req'd:	231 acres
Design Year:	2005

Serviceability

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

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.

Alternative 2 (Segment A) - cont.

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

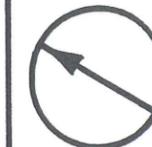
Wetlands Emphasis
(Plate A-4)

Acres of Wetlands Acquired: 13.2 acres
Mitigation at @ 2:1 Replacement Ratio: 26.4 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

CUMBERLAND COUNTY



NORTH

Segment A

LE CITY

MAURICE RIVER TOWNSHIP

PORT ELIZABETH

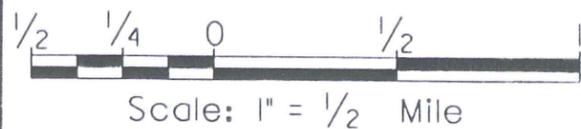
Freeway Alignment

Land Service Improvements (47/670/83 Corridor)

West Bypass of Port Elizabeth

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

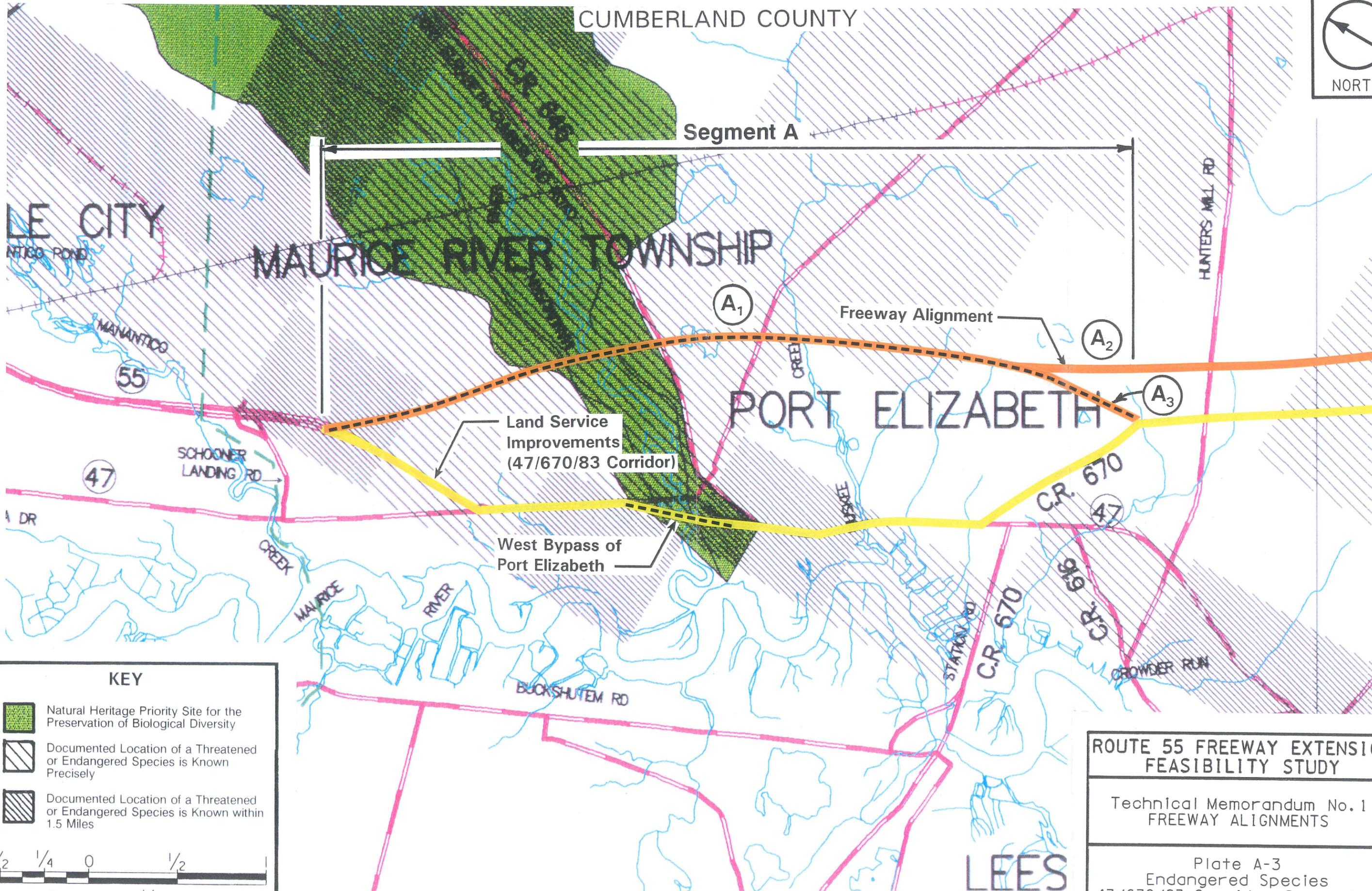


ROUTE 55 FREEWAY EXTENSION FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

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

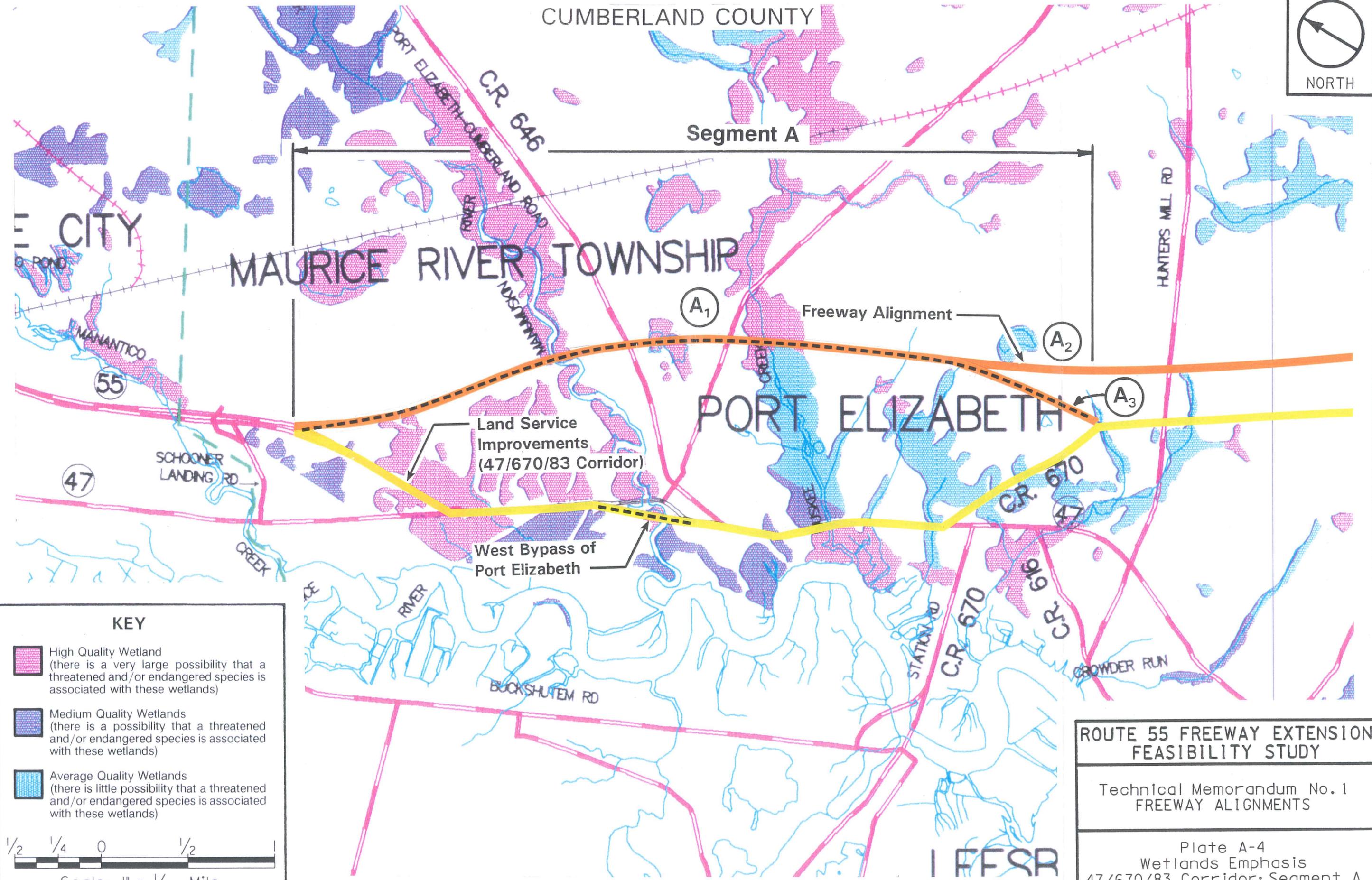
LEES



CUMBERLAND COUNTY



Segment A

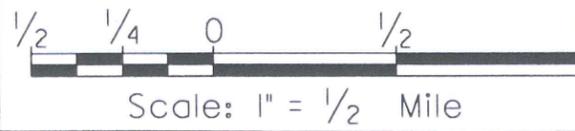


MAURICE RIVER TOWNSHIP

PORT ELIZABETH

KEY

-  High Quality Wetland
(there is a very large possibility that a threatened and/or endangered species is associated with these wetlands)
-  Medium Quality Wetlands
(there is a possibility that a threatened and/or endangered species is associated with these wetlands)
-  Average Quality Wetlands
(there is little possibility that a threatened and/or endangered species is associated with these wetlands)



ROUTE 55 FREEWAY EXTENSION FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate A-4
Wetlands Emphasis
47/670/83 Corridor: Segment A

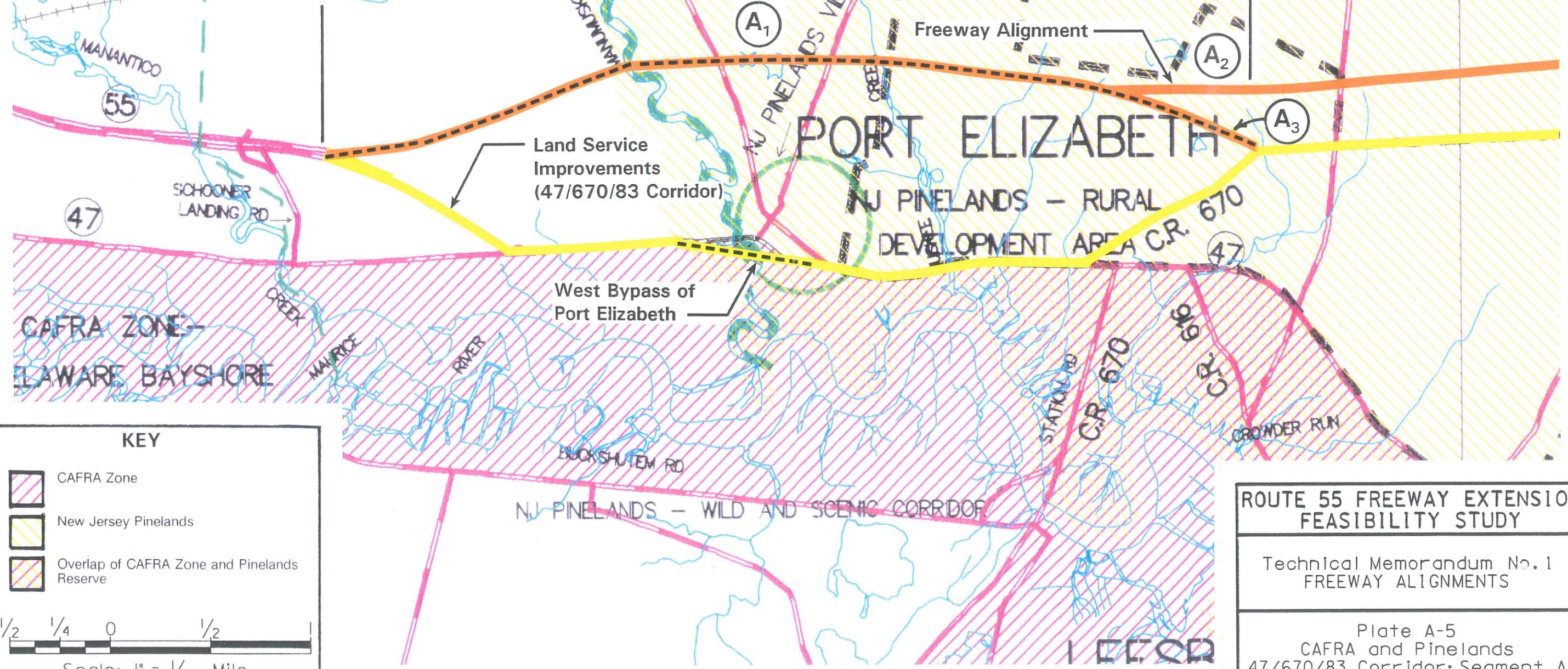
FFSR

CUMBERLAND COUNTY



Segment A

E CITY PINELANDS LIMIT MAURICE RIVER TOWNSHIP



KEY

-  CAFRA Zone
-  New Jersey Pinelands
-  Overlap of CAFRA Zone and Pinelands Reserve



Scale: 1" = 1/2 Mile

**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate A-5
CAFRA and Pinelands
47/670/83 Corridor: Segment A

CUMBERLAND COUNTY



MANANTICO PONDS
(STATE GAME & WILDLIFE)

BELLEPLAIN STATE FOREST

Segment A

CITY

MAURICE RIVER TOWNSHIP

A₁

Freeway Alignment

A₂

PORT ELIZABETH

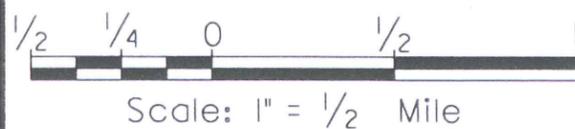
A₃

Land Service
Improvements
(47/670/83 Corridor)

West Bypass of
Port Elizabeth

KEY

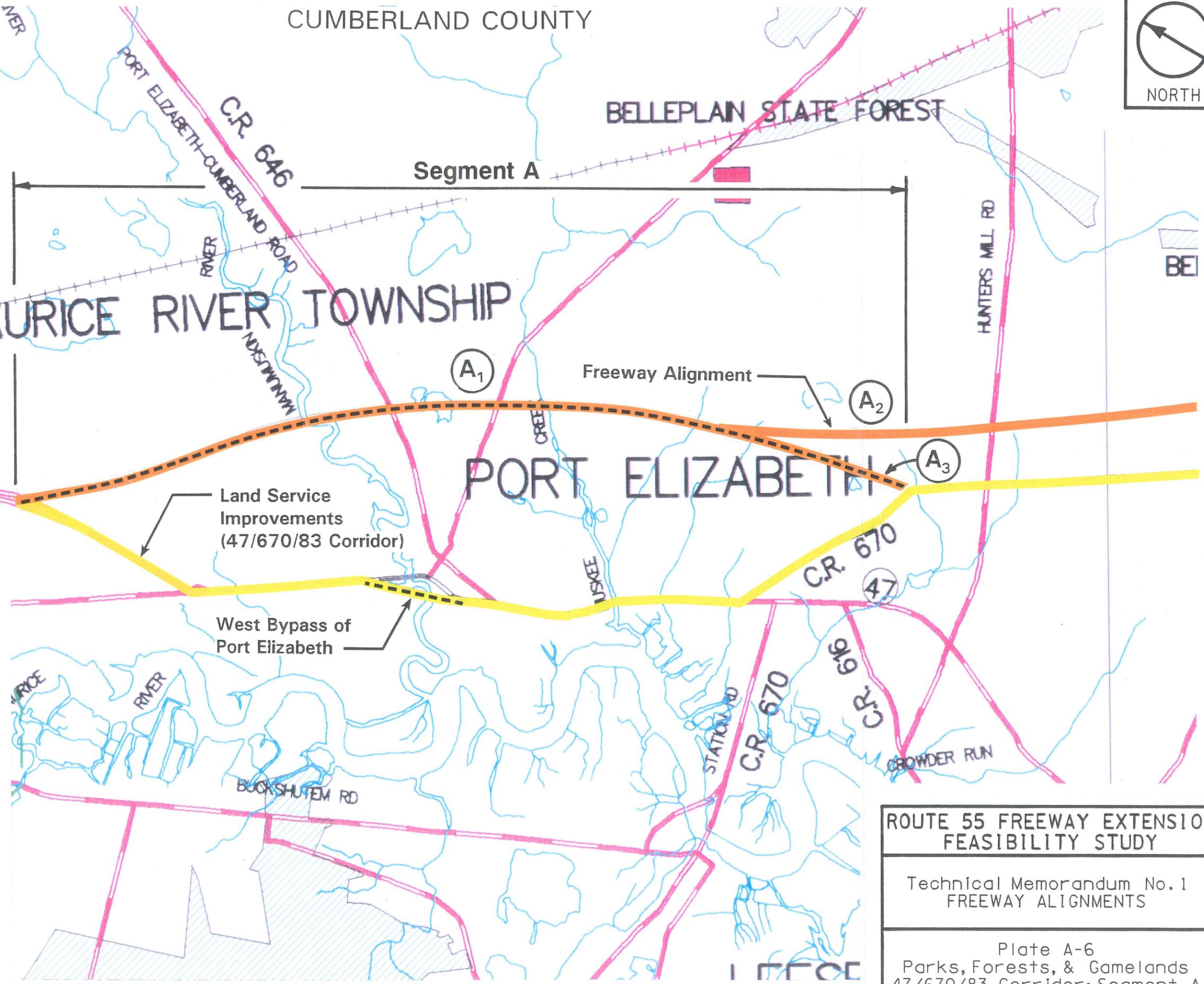
-  County Agriculture Development Areas (ADA's)
-  Parks, Forests, Gamelands
-  Proposed Development of Single Family Units
-  Farmsteads Enrolled in 8 Year Preservation Program
-  Areas Designated as High for Potential Contamination
-  Parks, Forests, Gamelands and Proposed Development of Single Family Homes
-  Parks, Forests, Gamelands and County Agriculture Development Areas



ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate A-6
Parks, Forests, & Gamelands
47/670/83 Corridor: Segment A



CUMBERLAND COUNTY

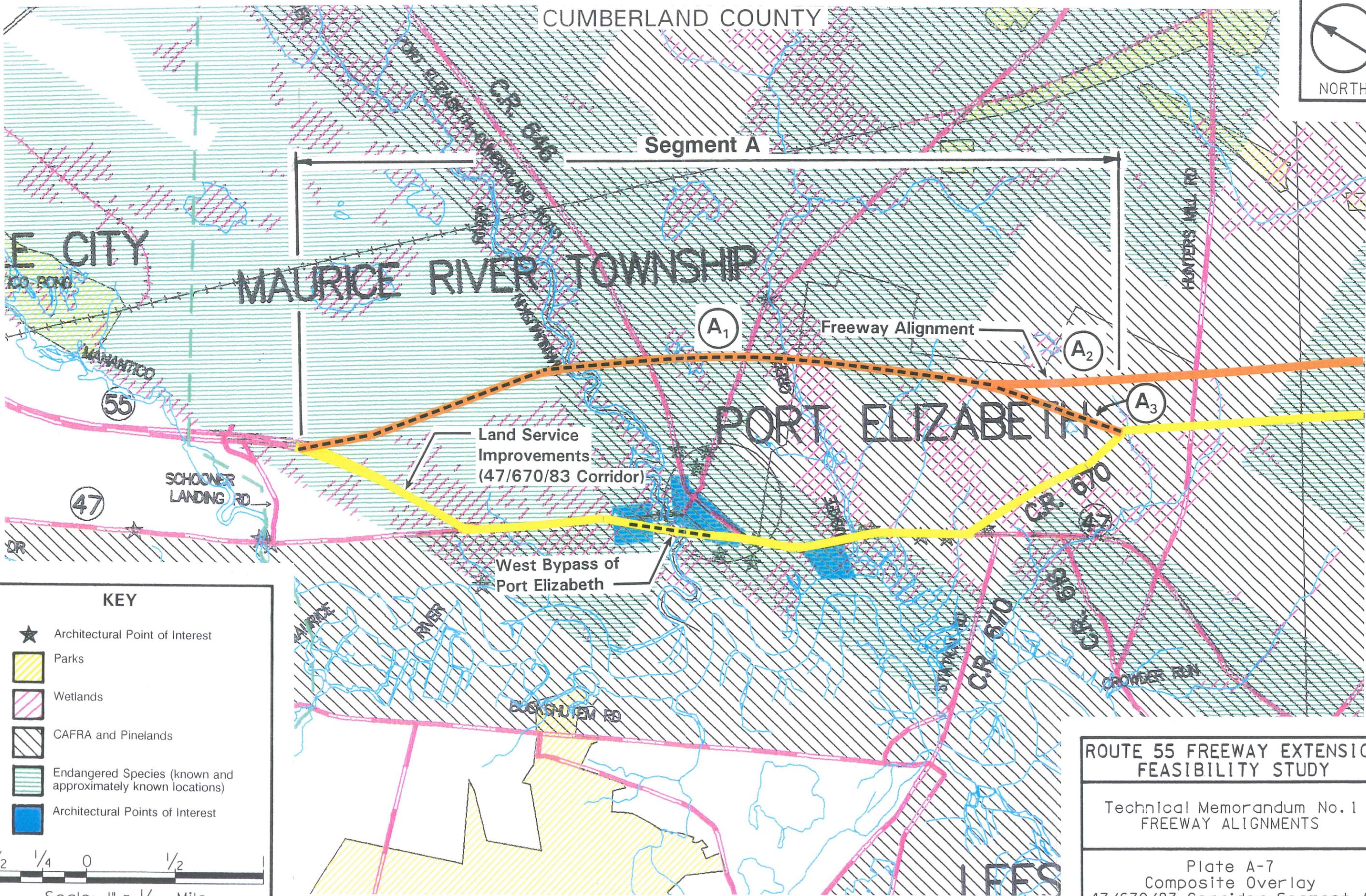


Segment A

MAURICE RIVER TOWNSHIP

PORT ELIZABETH

E CITY



KEY

- ★ Architectural Point of Interest
- Parks
- Wetlands
- CAFRA and Pinelands
- Endangered Species (known and approximately known locations)
- Architectural Points of Interest

1/2 1/4 0 1/2
Scale: 1" = 1/2 Mile

**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate A-7
Composite Overlay
47/670/83 Corridor: Segment A

FREEWAY ALIGNMENTS

Route 47/670/83 Corridor: Study Segment B

Table B-1: Alternate Configurations

Table B-1: Alternate Configurations									
Rt. 55 Freeway Alternates			Rt. 47 / 670 / 83 Land Service Alternates*						
		Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 5A	Alt. 6	Alt. 6A
Freeway Alignment (Orange Line)	4 Lanes w/ Barrier Curb & Shoulders	4 Lanes w/ Grass Median & Shoulders	NA	NA	NA	NA	NA	NA	NA
Existing Rt. 670 (Yellow Line)	To Remain As Is	To Remain As Is	2 Lanes (Upgraded) w/ Shoulders	2 Lanes (Upgraded) w/ Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders
Existing Rt. 47 (Yellow Line)	To Remain As Is	To Remain As Is	2 Lanes (Upgraded) w/ Shoulders	2 Lanes (Upgraded) w/ Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 2: Land Service Improvements and Bypasses

Alternative 1 (Segment B) - New Freeway Alignment

(Orange Line - see Plate B-1)

The horizontal alignment of this alternate through Segment B was principally controlled by avoidance of wetlands areas, potential endangered species habitats, historical and archaeological sensitive areas, existing developed properties, relationship to the existing highway network, and minimizing construction costs. In general, the freeway alignment where practical closely paralleled existing highway alignments in order to follow existing developed and therefore man-disturbed paths. Total length of Segment: approximately 9 miles.

Design Parameters

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

Design Speed: 70 mph

Superelevation: 6% (maximum)

Existing ROW: NA

Proposed ROW: 200 feet

Total Acres Req'd: 265 acres

Design Year: 2005

Serviceability

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

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

Interchanges & Intersections

For this alternate, an interchange at County Route 557, just north of Dennisville, is provided to allow access for the residents of the Dennisville area. This interchange is designed as a "trumpet" interchange, to align directly opposite the existing intersection of County Route 557 with Route 47.

Also, although it is generally more cost effective to bridge a cross road over a mainline freeway, the avoidance alignment of the freeway required locating the roadway in many cases parallel to and minimally offset from Routes 47 and 670. In order to avoid significant reconstruction of these parallel routes due to reconstruction of cross roads if bridged over the freeway, the freeway was bridged over the cross roads. The net effect is to increase construction costs in order to avoid (minimize) disturbance of environmentally sensitive areas.

Alternative 1 (Segment B) - cont.

Environmental Impacts

Cultural Resources
(Plate B-2)

0 Potentially Historic Bridges (50+ years) replaced/repaired
0 Historic Buildings (acquired)
1 Historic Buildings (disrupted setting)
0 Historic Districts Encroached by ROW
4 Known Historic Archaeological Sites Disrupted by ROW
0 Known Prehistoric Archaeological Sites Disrupted by ROW
12 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: Minor
- Residences Displaced by Alternate: 6 residences
- Impact to Communities Disrupted by ROW: NA

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: Adverse
- Consistent with Pineland Policies: No
- Consistent with CAFRA Policies: NA
- Potential Secondary Development: Yes
- Acquired Agricultural Development Areas: 21.1 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 92.9 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: 22.1 acres
Mitigation at @ 2:1 Replacement Ratio: 44.2 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: Adverse

Contamination Sites
(Plate B-6)

Hazardous Waste Sites within ROW: 0 sites
Potential Hazardous Waste Sites: 0 sites

Alternative 2 (Segment B) - New Freeway Alignment

(Orange Line - see Plate B-1)

The horizontal alignment of this alternate through Segment B was principally controlled by avoidance of wetlands areas, potential endangered species habitats, historical and archaeological sensitive areas, existing developed properties, relationship to the existing highway network, and minimizing construction costs. In general, the freeway alignment where practical closely paralleled existing highway alignments in order to follow existing developed and therefore man-disturbed paths. Total length of Segment: approximately 9 miles.

Design Parameters

Typical Section:	Two 12 ft. wide travel lanes with 12 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 26' wide grass median
Design Speed:	70 mph
Superelevation:	6% (maximum)
Existing ROW:	NA
Proposed ROW:	250 feet
Total Acres Req'd:	308 acres
Design Year:	2005

Serviceability

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

Interchanges & Intersections

For this alternate, an interchange at County Route 557, just north of Dennisville, is provided to allow access for the residents of the Dennisville area. This interchange was assumed to be a "trumpet" interchange, to align directly opposite the existing intersection of County Route 557 with Route 47.

Also, although it is generally more cost effective to bridge a cross road over a mainline freeway, the avoidance alignment of the freeway required locating the roadway in many cases parallel to and minimally offset from Routes 47 and 670. In order to avoid significant reconstruction of these parallel routes due to reconstruction of cross roads if bridged over the freeway, the freeway was bridged over the cross roads. The net effect is to increase construction costs in order to avoid (minimize) disturbance of environmentally sensitive areas.

Alternative 2 (Segment B) - cont.

Environmental Impacts

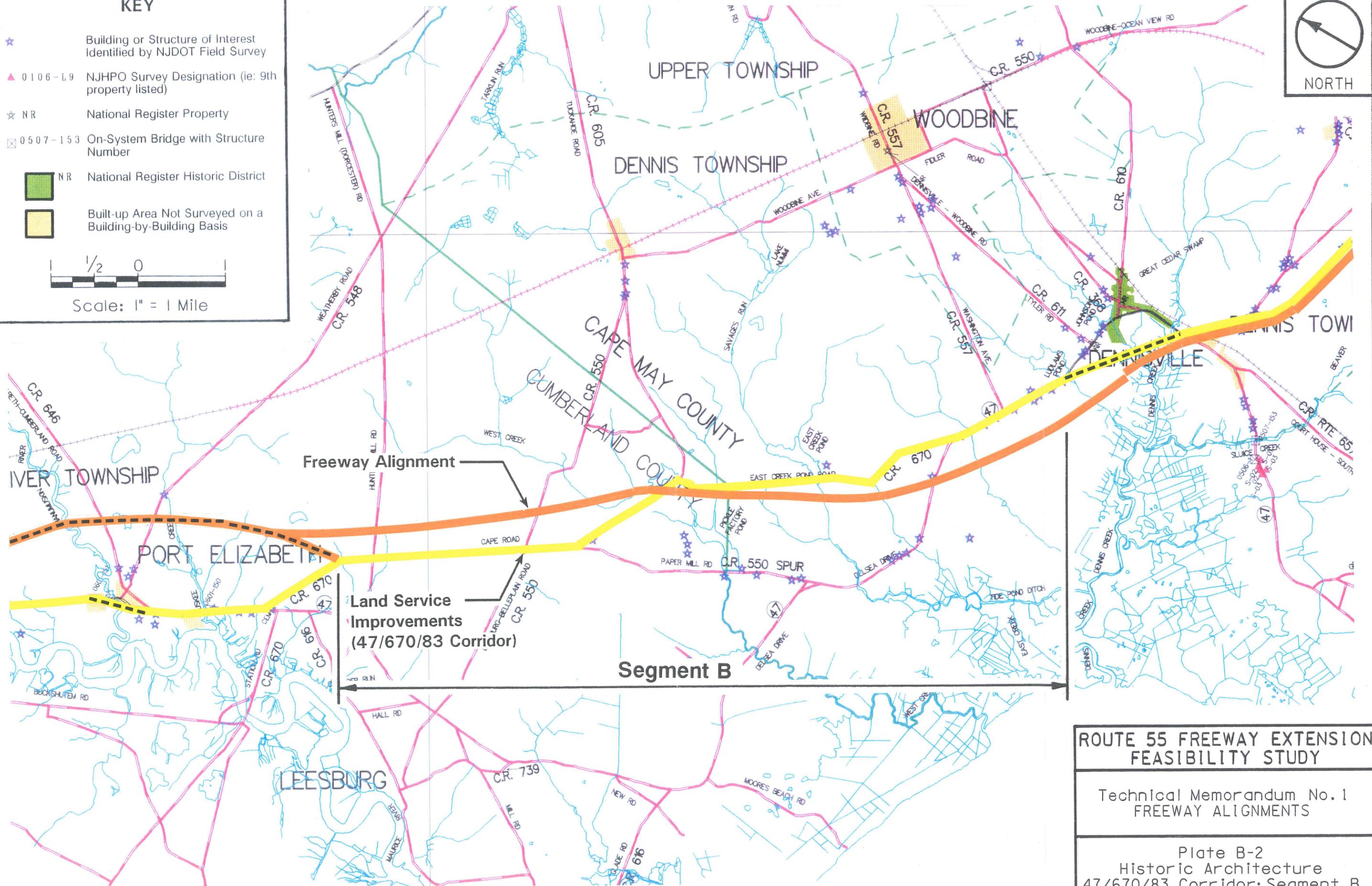
<i>Cultural Resources</i> <i>(Plate B-2)</i>	<p>0 Potentially Historic Bridges (50+ years) replaced/repaired 0 Historic Buildings (acquired) 1 Historic Buildings (disrupted setting) 0 Historic Districts Encroached by ROW 4 Known Historic Archaeological Sites Disrupted by ROW 0 Known Prehistoric Archaeological Sites Disrupted by ROW 12 Areas with High Potential for Archaeological Resources</p>																																						
<i>Endangered Species</i> <i>(Plates B-3 & B-4)</i>	<p>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.</p>																																						
<i>Socioeconomic, Land Use, Visual</i> <i>(Plates B-5 & B-6)</i>	<table border="0"> <tr> <td>General Impact on Social Constraints:</td> <td>Minor</td> </tr> <tr> <td>- Residences Displaced by Alternate:</td> <td>6 residences</td> </tr> <tr> <td>- Impact to Communities Disrupted by ROW:</td> <td>NA</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>General Impact on Economic Constraints:</td> <td>Minor</td> </tr> <tr> <td>- Businesses Displaced by Alternate:</td> <td>1 business</td> </tr> <tr> <td>- Affect to Businesses Bypassed by Alternate:</td> <td>Minor</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>General Impact on Land Use Constraints:</td> <td>Adverse</td> </tr> <tr> <td>- Consistent with Pineland Policies:</td> <td>No</td> </tr> <tr> <td>- Consistent with CAFRA Policies:</td> <td>NA</td> </tr> <tr> <td>- Potential Secondary Development:</td> <td>Yes</td> </tr> <tr> <td>- Acquired Agricultural Development Areas:</td> <td>26.4 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>105.3 acres</td> </tr> <tr> <td>- Wildlife Refuges Disrupted, Acres Acquired:</td> <td>0 acres</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>General Impact on Visual Constraints:</td> <td>Adverse</td> </tr> <tr> <td>- Number of Scenic Corridors Impacted:</td> <td>0 scenic corridors</td> </tr> </table>	General Impact on Social Constraints:	Minor	- Residences Displaced by Alternate:	6 residences	- Impact to Communities Disrupted by ROW:	NA			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:	Adverse	- Consistent with Pineland Policies:	No	- Consistent with CAFRA Policies:	NA	- Potential Secondary Development:	Yes	- Acquired Agricultural Development Areas:	26.4 acres	- Parks Disrupted by ROW, Acres Acquired:	0 acres	- State Forests Disrupted, Acres Acquired:	105.3 acres	- Wildlife Refuges Disrupted, Acres Acquired:	0 acres			General Impact on Visual Constraints:	Adverse	- Number of Scenic Corridors Impacted:	0 scenic corridors
General Impact on Social Constraints:	Minor																																						
- Residences Displaced by Alternate:	6 residences																																						
- Impact to Communities Disrupted by ROW:	NA																																						
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:	Adverse																																						
- Consistent with Pineland Policies:	No																																						
- Consistent with CAFRA Policies:	NA																																						
- Potential Secondary Development:	Yes																																						
- Acquired Agricultural Development Areas:	26.4 acres																																						
- Parks Disrupted by ROW, Acres Acquired:	0 acres																																						
- State Forests Disrupted, Acres Acquired:	105.3 acres																																						
- Wildlife Refuges Disrupted, Acres Acquired:	0 acres																																						
General Impact on Visual Constraints:	Adverse																																						
- Number of Scenic Corridors Impacted:	0 scenic corridors																																						
<i>Wetlands Emphasis</i> <i>(Plate B-4)</i>	<table border="0"> <tr> <td>Acres of Wetlands Acquired:</td> <td>22.1 acres</td> </tr> <tr> <td>Mitigation at @ 2:1 Replacement Ratio:</td> <td>44.2 acres</td> </tr> <tr> <td>Quality of Wetlands Acquired:</td> <td>Medium to High</td> </tr> <tr> <td>Impacts to Buffer Areas in Segment B:</td> <td>Yes</td> </tr> <tr> <td>Impacts to Water Quality in Segment B:</td> <td>Adverse</td> </tr> <tr> <td>Impacts to Upland Forests in Segment B:</td> <td>Adverse</td> </tr> </table>	Acres of Wetlands Acquired:	22.1 acres	Mitigation at @ 2:1 Replacement Ratio:	44.2 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:	Adverse																										
Acres of Wetlands Acquired:	22.1 acres																																						
Mitigation at @ 2:1 Replacement Ratio:	44.2 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:	Adverse																																						
<i>Contamination Sites</i> <i>(Plate B-6)</i>	<table border="0"> <tr> <td>Hazardous Waste Sites within ROW:</td> <td>0 sites</td> </tr> <tr> <td>Potential Hazardous Waste Sites:</td> <td>0 sites</td> </tr> </table>	Hazardous Waste Sites within ROW:	0 sites	Potential Hazardous Waste Sites:	0 sites																																		
Hazardous Waste Sites within ROW:	0 sites																																						
Potential Hazardous Waste Sites:	0 sites																																						

KEY

- ★ Building or Structure of Interest Identified by NJDOT Field Survey
- ▲ 0106-19 NJHPO Survey Designation (ie: 9th property listed)
- ☆ NR National Register Property
- ☒ 0507-153 On-System Bridge with Structure Number
- NR National Register Historic District
- Built-up Area Not Surveyed on a Building-by-Building Basis



Scale: 1" = 1 Mile



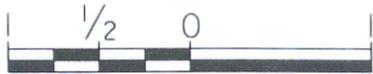
**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

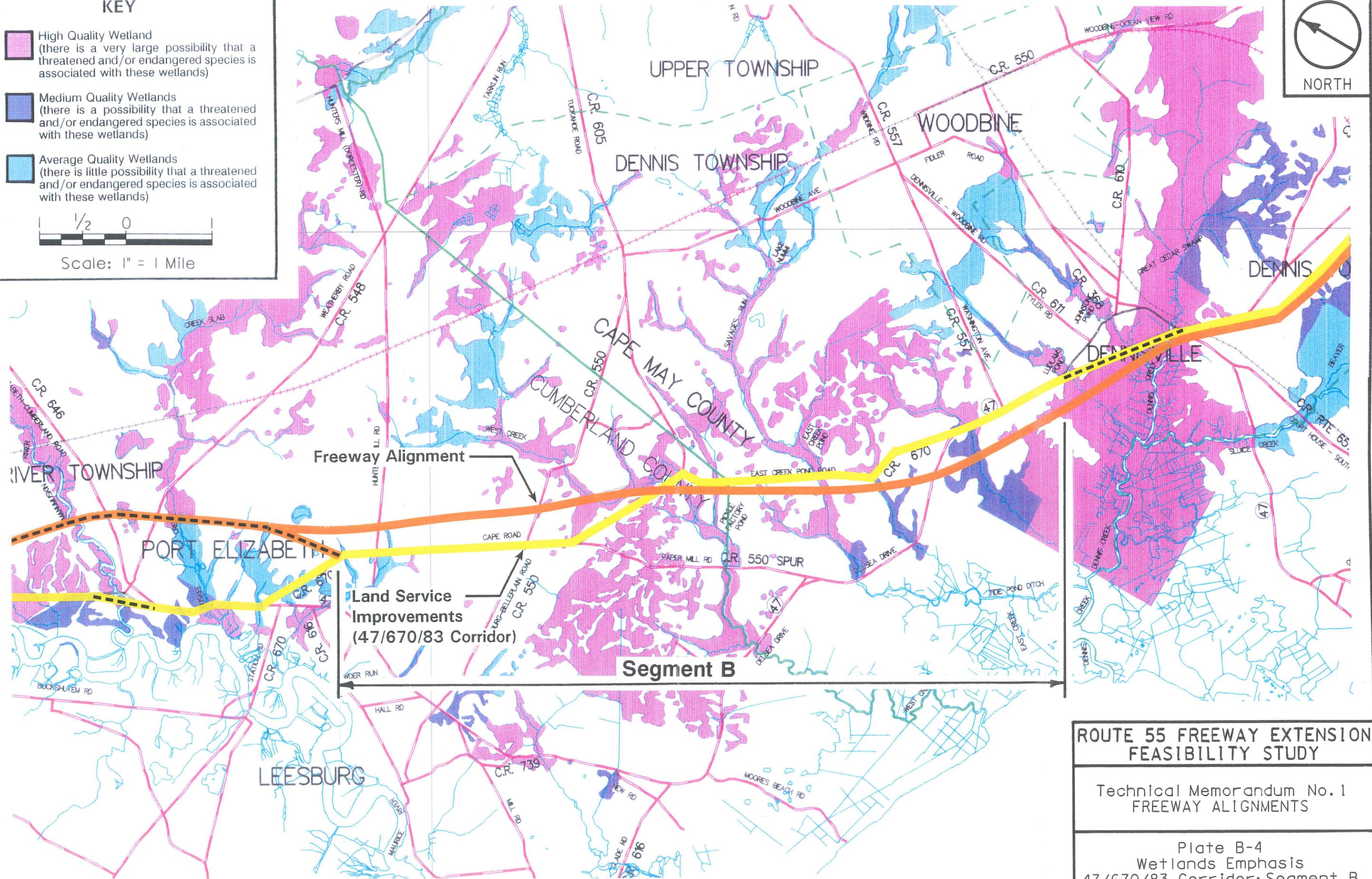
Plate B-2
Historic Architecture
47/670/83 Corridor: Segment B

KEY

- High Quality Wetland
(there is a very large possibility that a threatened and/or endangered species is associated with these wetlands)
- Medium Quality Wetlands
(there is a possibility that a threatened and/or endangered species is associated with these wetlands)
- Average Quality Wetlands
(there is little possibility that a threatened and/or endangered species is associated with these wetlands)



Scale: 1" = 1 Mile



**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

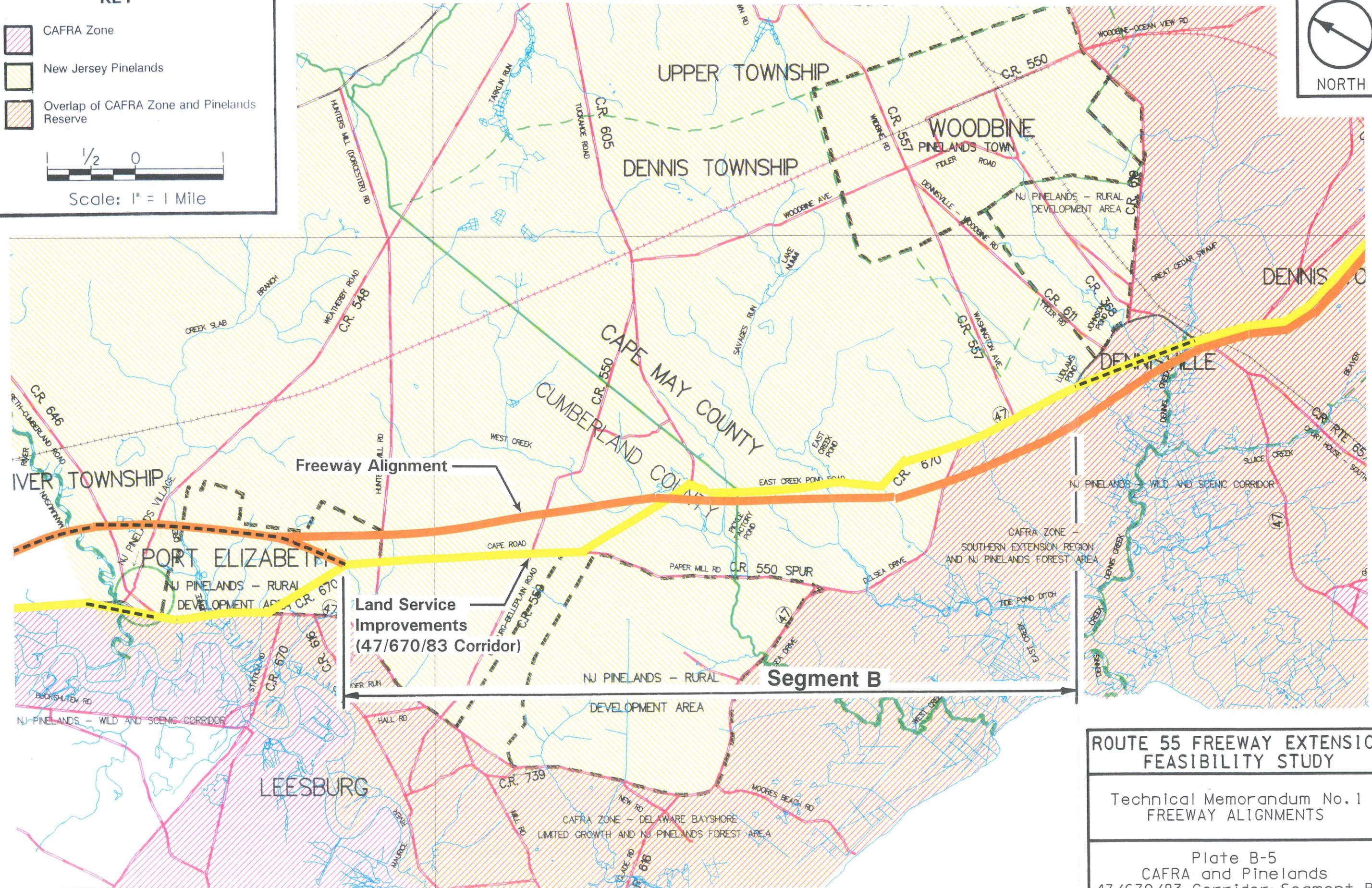
Plate B-4
Wetlands Emphasis
47/670/83 Corridor: Segment B

KEY

-  CAFRA Zone
-  New Jersey Pinelands
-  Overlap of CAFRA Zone and Pinelands Reserve



Scale: 1" = 1 Mile



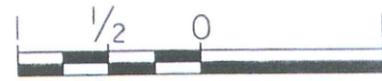
**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

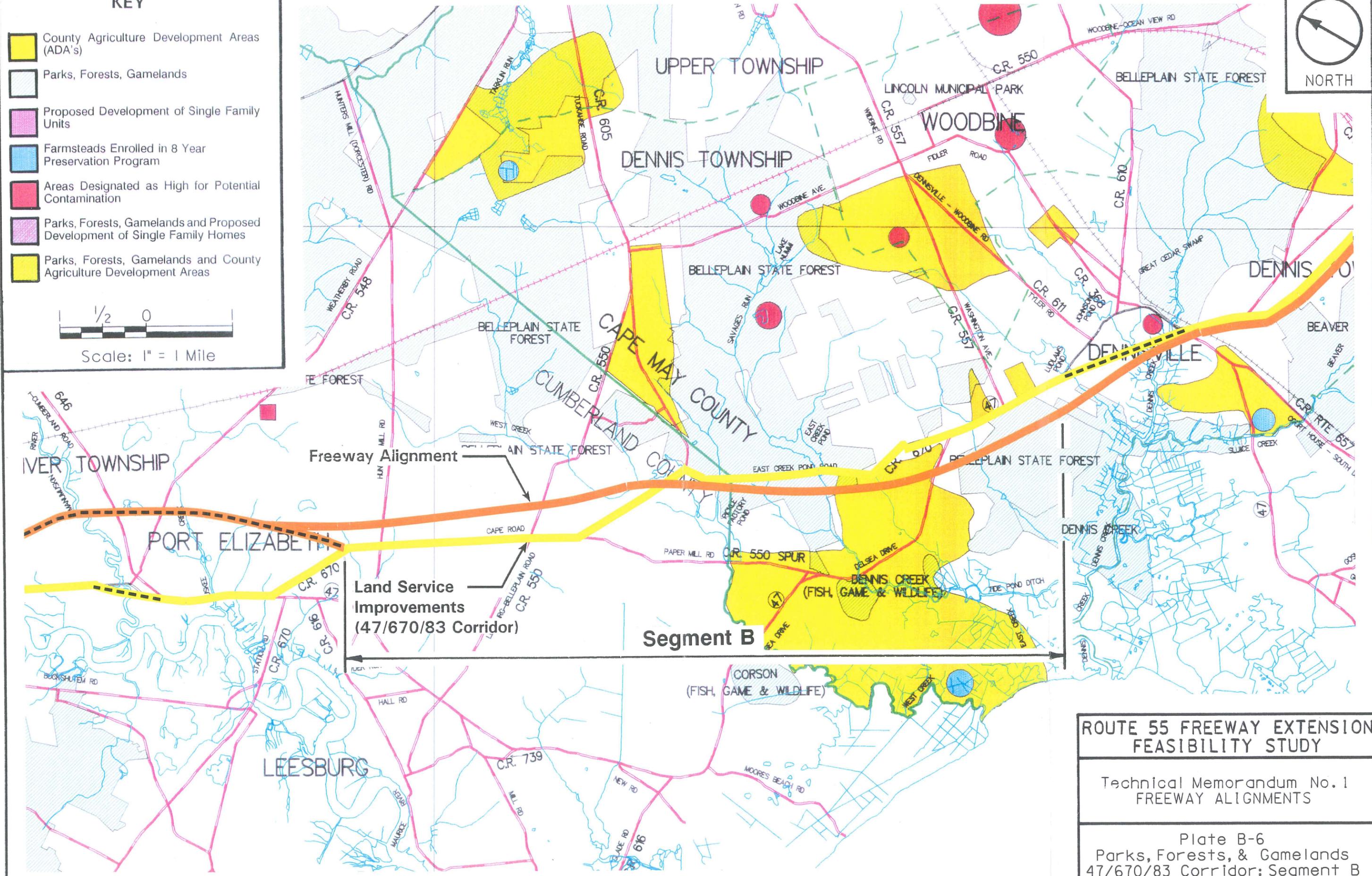
Plate B-5
CAFRA and Pinelands
47/670/83 Corridor: Segment B

KEY

-  County Agriculture Development Areas (ADA's)
-  Parks, Forests, Gamelands
-  Proposed Development of Single Family Units
-  Farmsteads Enrolled in 8 Year Preservation Program
-  Areas Designated as High for Potential Contamination
-  Parks, Forests, Gamelands and Proposed Development of Single Family Homes
-  Parks, Forests, Gamelands and County Agriculture Development Areas



Scale: 1" = 1 Mile



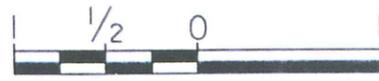
**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

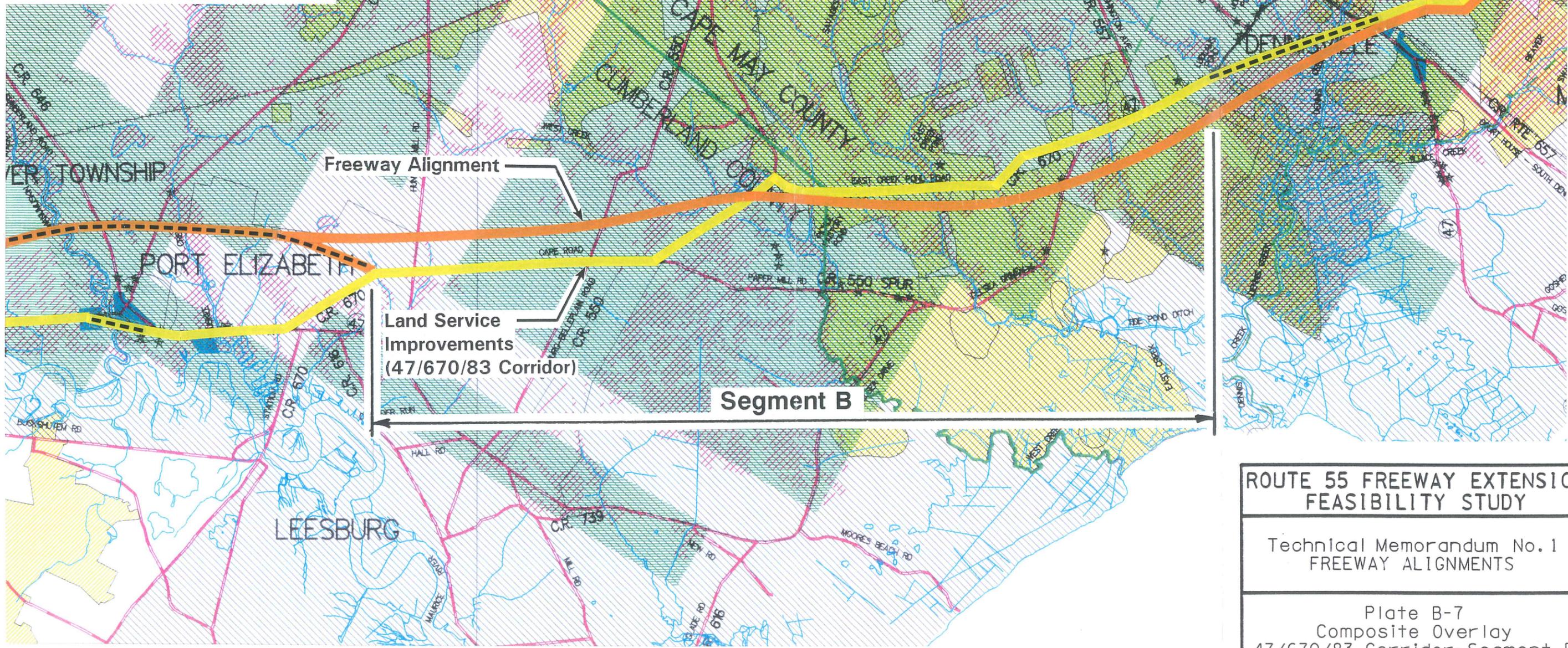
Plate B-6
Parks, Forests, & Gamelands
47/670/83 Corridor: Segment B

KEY

- ★ Architectural Point of Interest
-  Parks
-  Wetlands
-  CAFRA and Pinelands
-  Endangered Species (known and approximately known locations)
-  Architectural Points of Interest



Scale: 1" = 1 Mile



**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

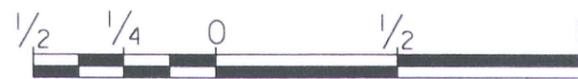
Plate B-7
Composite Overlay
47/670/83 Corridor: Segment B

FREEWAY ALIGNMENTS

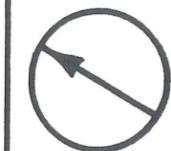
Route 47/670/83 Corridor: Study Segment C

KEY

-  County Boundary
-  City and/or Township Boundary
-  Primary Roads
-  Primary Roads Under Consideration for Route Alternatives
-  Streams, Lakes, Ponds
-  Railroad
-  Old Railroad Grade

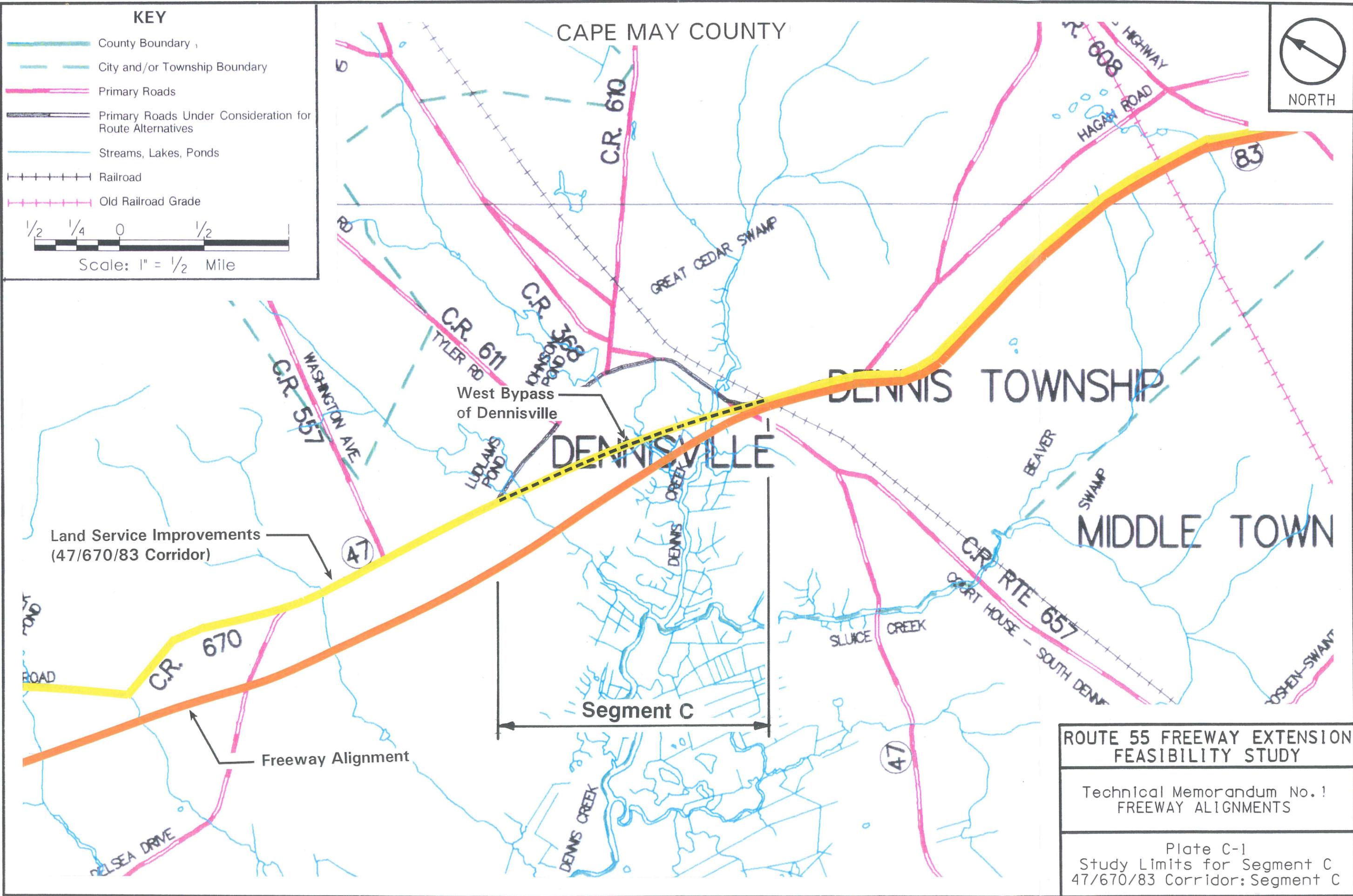


Scale: 1" = 1/2 Mile



NORTH

CAPE MAY COUNTY



DENNIS TOWNSHIP

MIDDLE TOWN

DENNISVILLE

Segment C

Land Service Improvements
(47/670/83 Corridor)

Freeway Alignment

ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate C-1
Study Limits for Segment C
47/670/83 Corridor: Segment C

Table C-1: Alternate Configurations

	Rt. 55 Freeway Alternates		Rt. 47 / 670 / 83 Land Service Alternates*					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 5A	Alt. 6	Alt. 6A
	Freeway Alignment (Orange Line)	4 Lanes w/ Barrier Curb & Shoulders	4 Lanes w/ Grass Median & Shoulders	NA	NA	NA	NA	NA
West Bypass of Dennisville (Yellow Dash Line)	NA	NA	2 Lanes (Upgraded) w/ Shoulders	2 Lanes (Upgraded) w/ Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders
Existing Rt. 47 (Yellow Line)	To Remain As Is	To Remain As Is	To Remain As Is	To Remain As Is	To Remain As Is	To Remain As Is	To Remain As Is	To Remain As Is

***Note:** Data for alternates in shaded region is detailed in Technical Memorandum No. 2: Land Service Improvements and Bypasses

Alternative 1 (Segment C) - New Freeway Alignment
(Orange Line - see Plate C-1)

This segment provides a smooth horizontal transition from the southerly terminus of Segment B to the northerly terminus of Route 83 just south of Dennisville. From the vicinity of Ludlams Pond to Route 47 south of Dennisville, the alignment consists of a by-pass around Dennisville to minimize impacts to existing Route 47, the town of Dennisville, archaeological and historical sites. This alignment required the freeway to cross Dennis Creek and the surrounding high quality wetlands. To reduce the impacts to the wetlands, a 3,150' ± long viaduct was assumed. Total length of Segment: approximately 2 miles.

Design Parameters

Typical Section:	Two 12 ft. wide travel lanes with 12 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb
Design Speed:	70 mph
Superelevation:	6% (maximum)
Existing ROW:	NA
Proposed ROW:	200 feet
Total Acres Req'd:	_____ acres
Design Year:	2005

Serviceability

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

Interchanges & Intersections

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

Alternative 1 (Segment C) - cont.

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: 36.6 acres
Mitigation at @ 2:1 Replacement Ratio: 73.2 acres
Quality of Wetlands Acquired: Medium to 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 2 (Segment C) - New Freeway Alignment

(Orange Line - see Plate C-1)

This segment provides a smooth horizontal transition from the southerly terminus of Segment B to the northerly terminus of Route 83 just south of Dennisville. From the vicinity of Ludlams Pond to Route 47 south of Dennisville, the alignment consists of a by-pass around Dennisville to minimize impacts to existing Route 47, the town of Dennisville, archaeological and historical sites. This alignment required the freeway to cross Dennis Creek and the surrounding high quality wetlands. To reduce the impacts to the wetlands, a 3,150' ± long viaduct was assumed. Total length of Segment: approximately 2 miles.

Design Parameters

Typical Section:	Two 12 ft. wide travel lanes with 12 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 26' wide grass median
Design Speed:	70 mph
Superelevation:	6% (maximum)
Existing ROW:	NA
Proposed ROW:	250 feet
Total Acres Req'd:	_____ acres
Design Year:	2005

Serviceability

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

Interchanges & Intersections

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

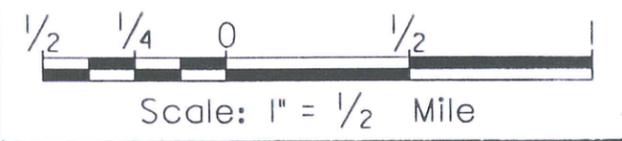
Alternative 2 (Segment C) - cont.

Environmental Impacts

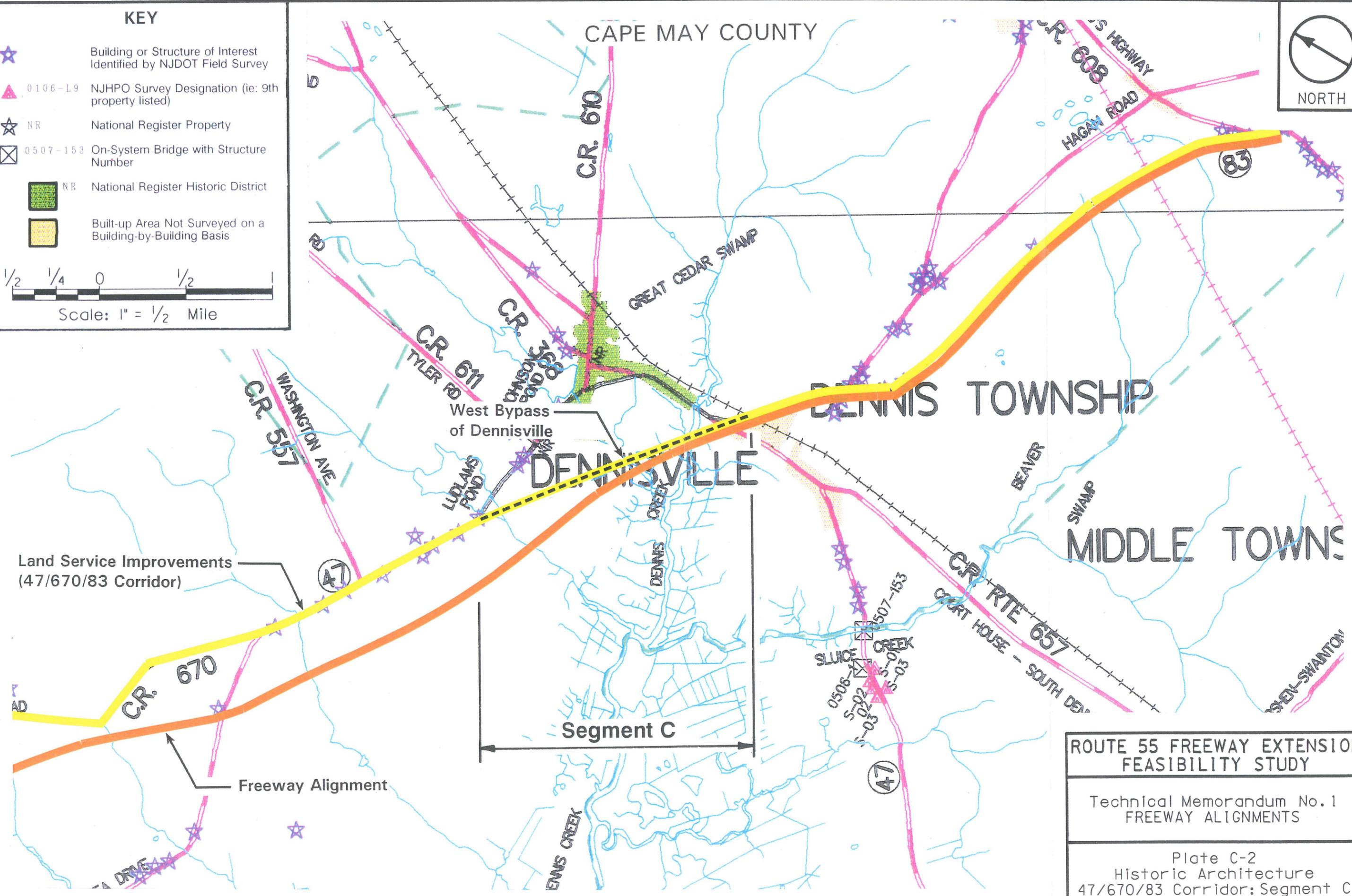
<i>Cultural Resources</i> (Plate C-2)	1 Potentially Historic Bridges (50+ years) replaced/repaired 0 Historic Buildings (acquired) 0 Historic Buildings (disrupted setting) 1 Historic Districts Encroached by ROW 0 Known Historic Archaeological Sites Disrupted by ROW 0 Known Prehistoric Archaeological Sites Disrupted by ROW 2 Areas with High Potential for Archaeological Resources
<i>Endangered Species</i> (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.
<i>Socioeconomic, Land Use, Visual</i> (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
<i>Wetlands Emphasis</i> (Plate C-4)	Acres of Wetlands Acquired: 40.4 acres Mitigation at @ 2:1 Replacement Ratio: 80.8 acres Quality of Wetlands Acquired: Medium to 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
<i>Contamination Sites</i> (Plate C-6)	Hazardous Waste Sites within ROW: 0 sites Potential Hazardous Waste Sites: 0 sites

KEY

-  Building or Structure of Interest Identified by NJDOT Field Survey
-  0106-L9 NJHPO Survey Designation (ie: 9th property listed)
-  NR National Register Property
-  0507-153 On-System Bridge with Structure Number
-  NR National Register Historic District
-  Built-up Area Not Surveyed on a Building-by-Building Basis



CAPE MAY COUNTY



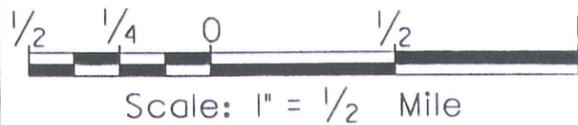
**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate C-2
Historic Architecture
47/670/83 Corridor: Segment C

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



CAPE MAY COUNTY

DENNIS TOWNSHIP

MIDDLE TOWN

DENNISVILLE

West Bypass of Dennisville

Segment C

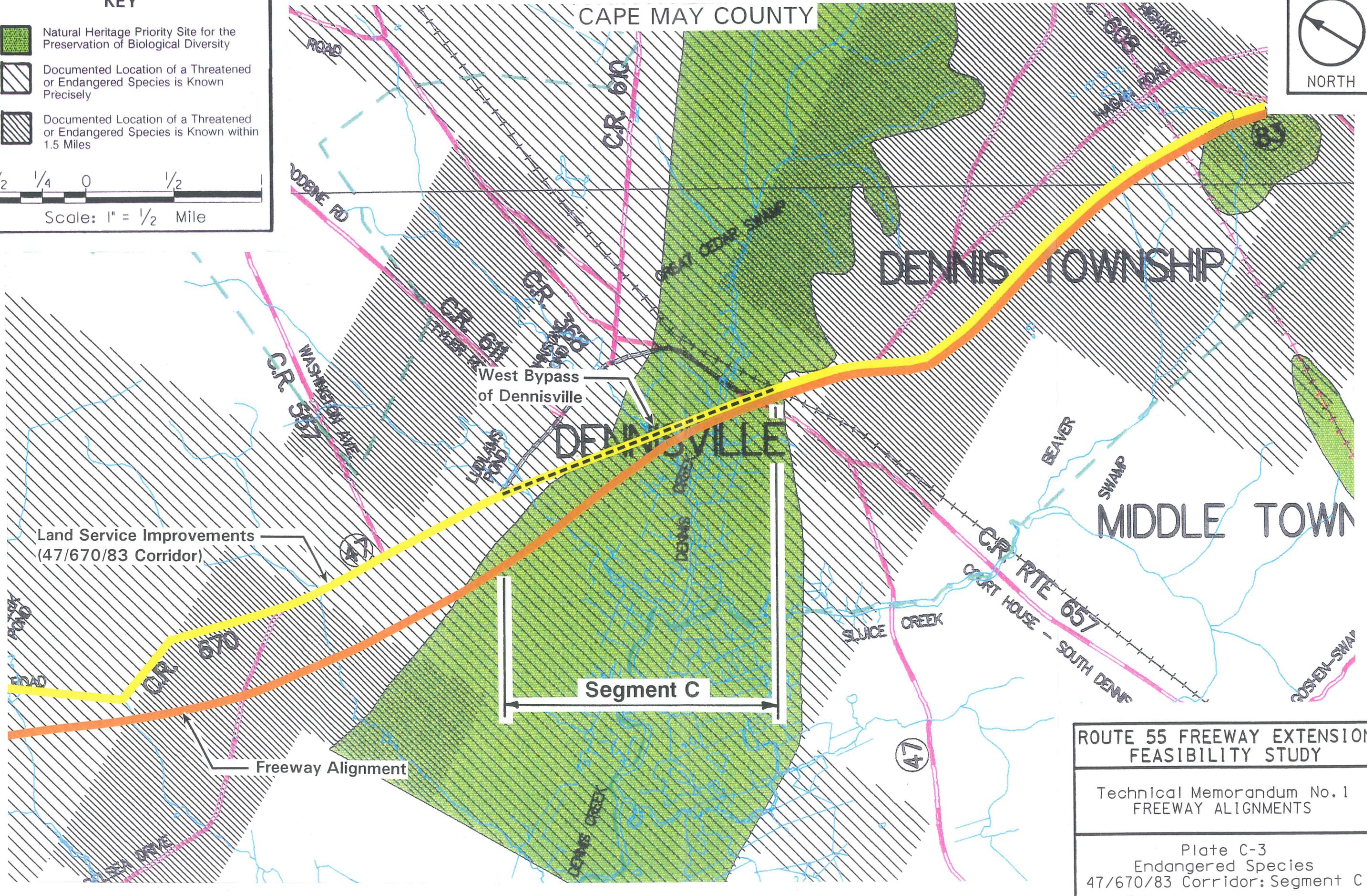
Freeway Alignment

Land Service Improvements (47/670/83 Corridor)

ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

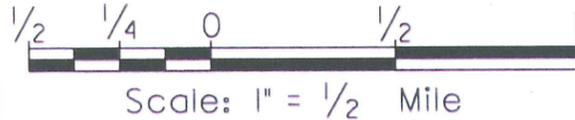
Technical Memorandum No. 1
FREEWAY ALIGNMENTS

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



KEY

-  High Quality Wetland
(there is a very large possibility that a threatened and/or endangered species is associated with these wetlands)
-  Medium Quality Wetlands
(there is a possibility that a threatened and/or endangered species is associated with these wetlands)
-  Average Quality Wetlands
(there is little possibility that a threatened and/or endangered species is associated with these wetlands)



CAPE MAY COUNTY

DENNIS TOWNSHIP

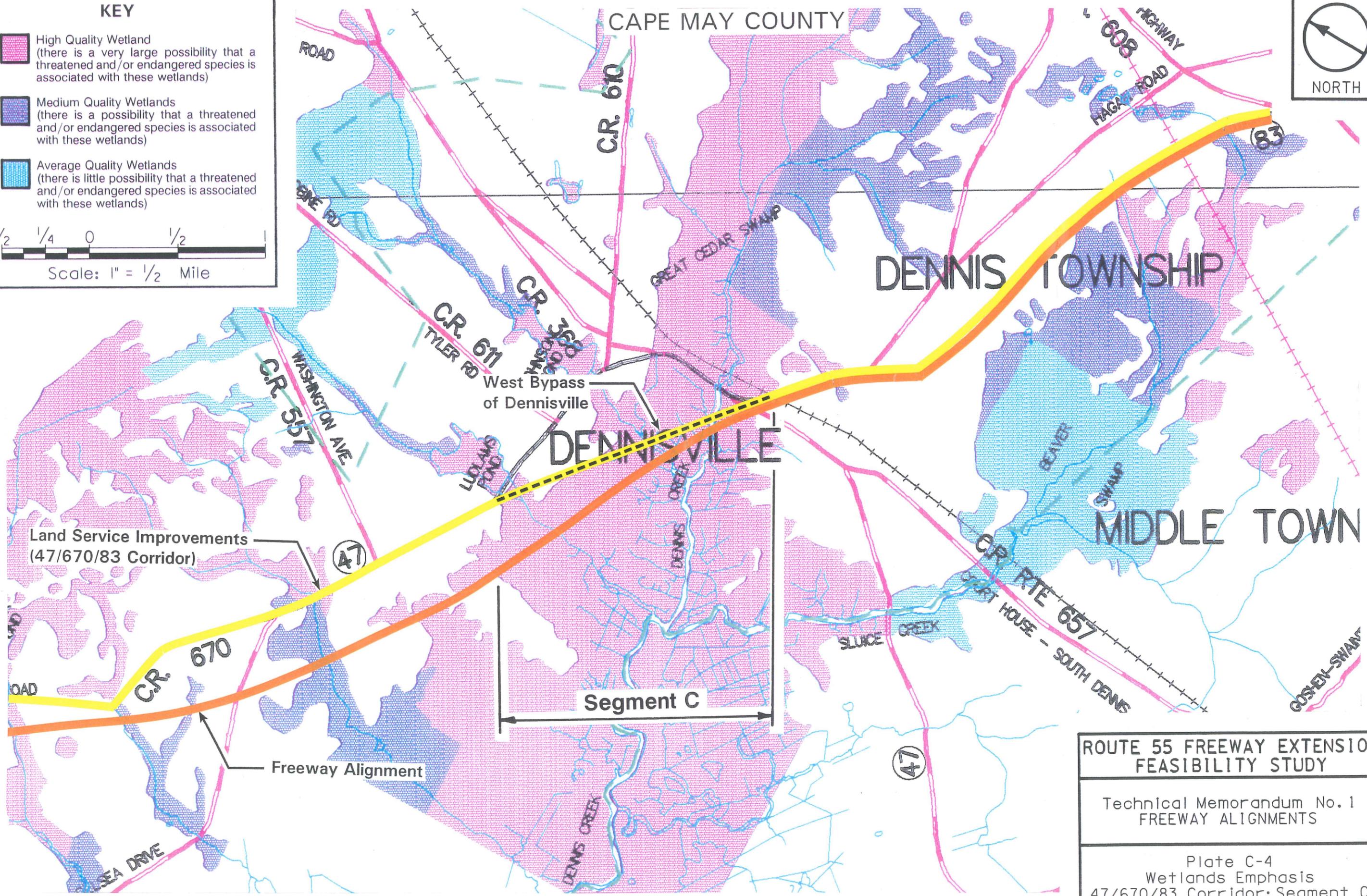
MIDDLE TOWN

DENNISVILLE

Segment C

Freeway Alignment

Land Service Improvements
(47/670/83 Corridor)



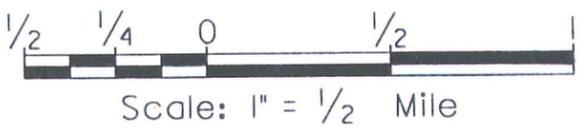
ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

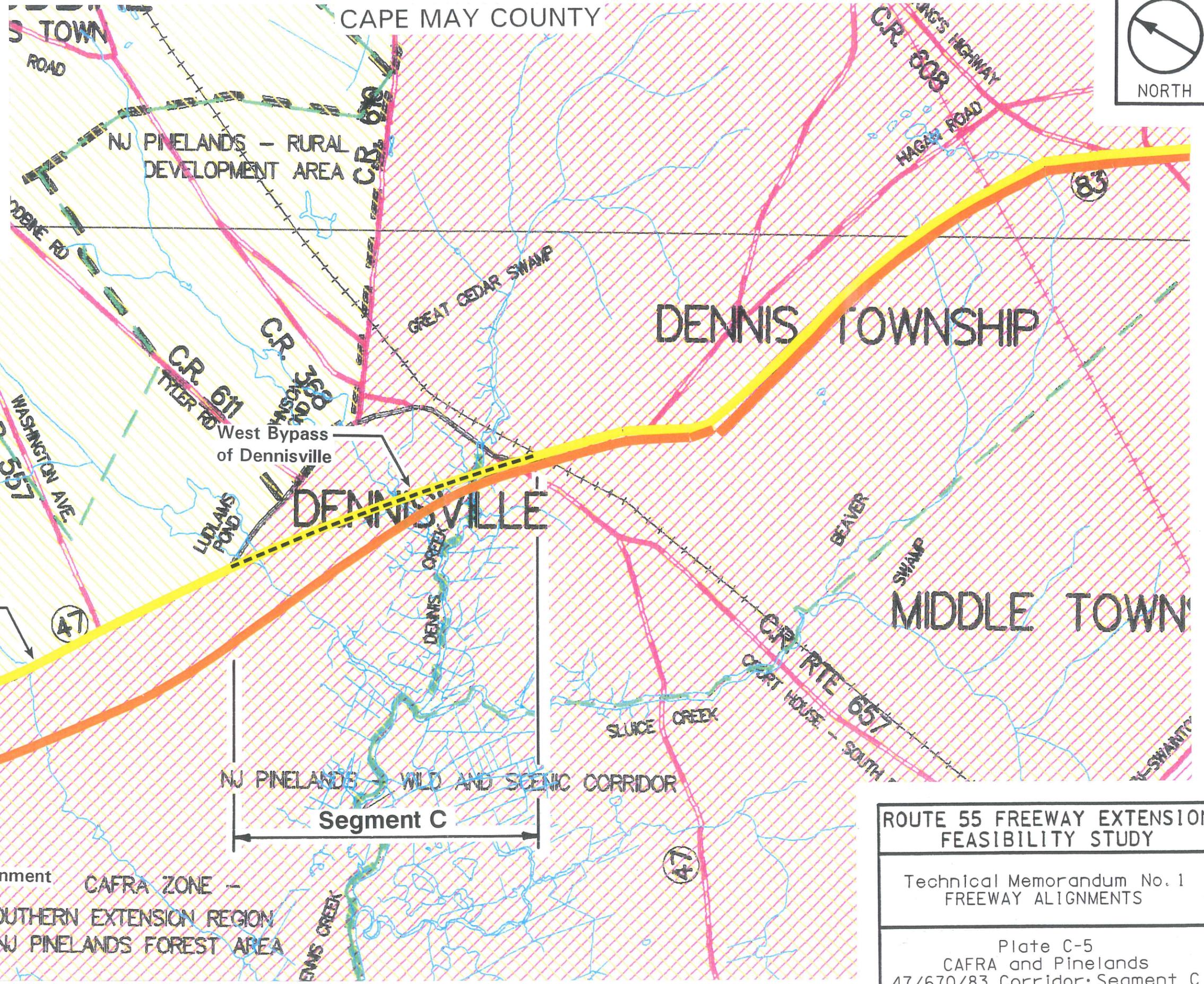
Plate C-4
Wetlands Emphasis
47/670/83 Corridor: Segment C

KEY

-  CAFRA Zone
-  New Jersey Pinelands
-  Overlap of CAFRA Zone and Pinelands Reserve



CAPE MAY COUNTY



Land Service Improvements
(47/670/83 Corridor)

Freeway Alignment

CAFRA ZONE -
SOUTHERN EXTENSION REGION
AND NJ PINELANDS FOREST AREA

NJ PINELANDS - WILD AND SCENIC CORRIDOR

Segment C

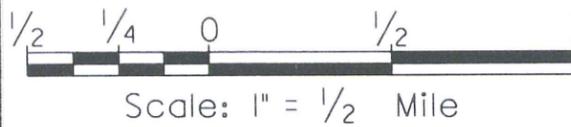
ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate C-5
CAFRA and Pinelands
47/670/83 Corridor: Segment C

KEY

-  County Agriculture Development Areas (ADA's)
-  Parks, Forests, Gamelands
-  Proposed Development of Single Family Units
-  Farmsteads Enrolled in 8 Year Preservation Program
-  Areas Designated as High for Potential Contamination
-  Parks, Forests, Gamelands and Proposed Development of Single Family Homes
-  Parks, Forests, Gamelands and County Agriculture Development Areas



CAPE MAY COUNTY

DENNIS TOWNSHIP

MIDDLE TOWN

DENNISVILLE

BELLEPLAIN STATE FOREST

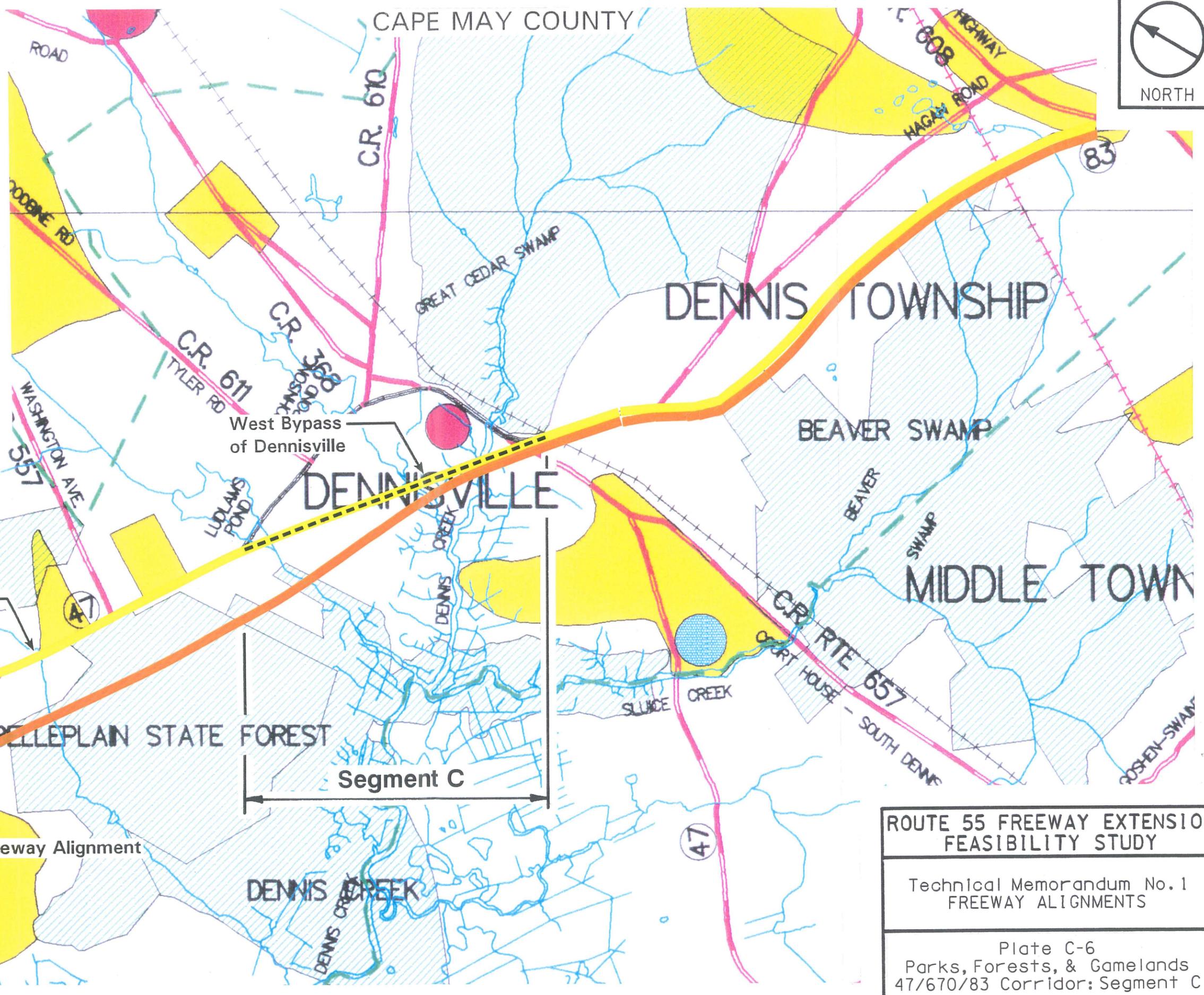
Segment C

DENNIS CREEK

ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate C-6
Parks, Forests, & Gamelands
47/670/83 Corridor: Segment C



Land Service Improvements
(47/670/83 Corridor)

Freeway Alignment

CR 670

CR RTE 657

DELSEA DRIVE

West Bypass
of Dennisville

DENNISVILLE

Segment C

DENNIS CREEK

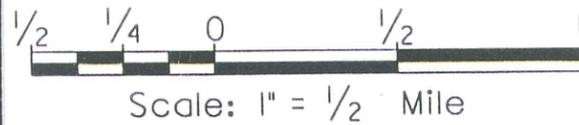
ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate C-6
Parks, Forests, & Gamelands
47/670/83 Corridor: Segment C

KEY

- ★ Architectural Point of Interest
-  Parks
-  Wetlands
-  CAFRA and Pinelands
-  Endangered Species (known and approximately known locations)
-  Architectural Points of Interest



CAPE MAY COUNTY

DENNIS TOWNSHIP

MIDDLE TOWN

West Bypass of Dennisville

DENNISVILLE

Land Service Improvements (47/670/83 Corridor)

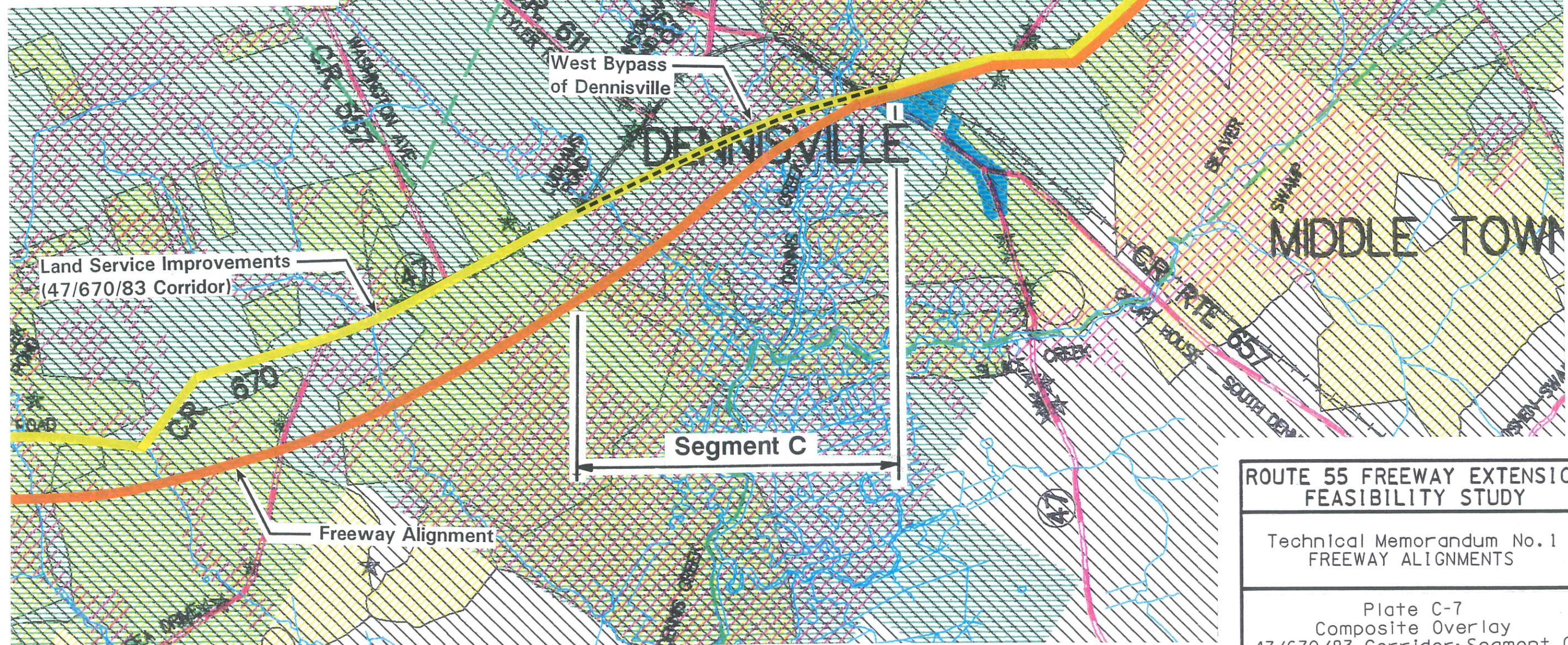
Segment C

Freeway Alignment

**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate C-7
Composite Overlay
47/670/83 Corridor: Segment C



FREEWAY ALIGNMENTS

Route 47/670/83 Corridor: Study Segment D

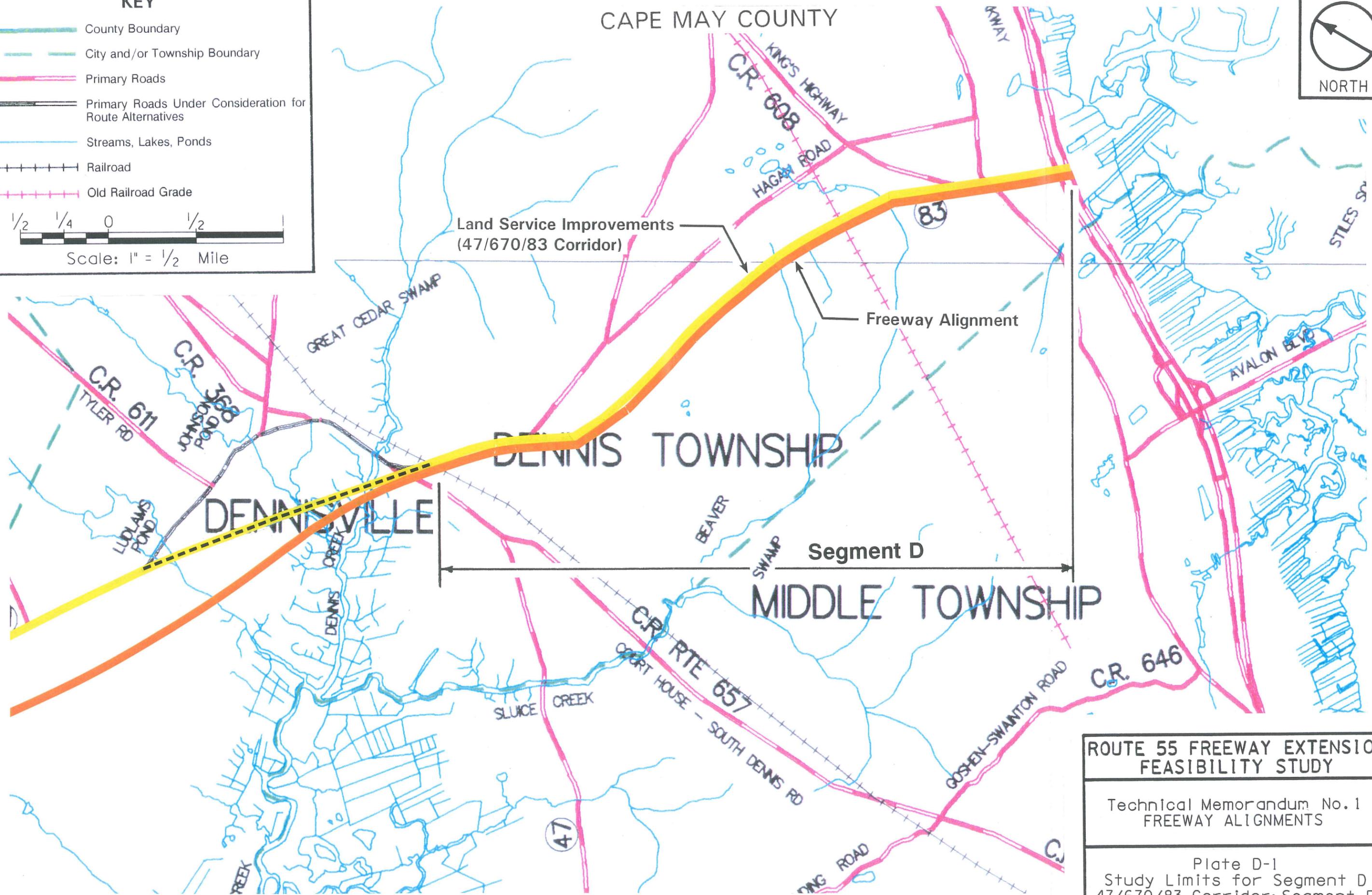
KEY

- County Boundary
- City and/or Township Boundary
- Primary Roads
- Primary Roads Under Consideration for Route Alternatives
- Streams, Lakes, Ponds
- Railroad
- Old Railroad Grade



Scale: 1" = 1/2 Mile

CAPE MAY COUNTY



Land Service Improvements
(47/670/83 Corridor)

Freeway Alignment

Segment D

**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate D-1
Study Limits for Segment D
47/670/83 Corridor: Segment D

Table D-1: Alternate Configurations

Table D-1: Alternate Configurations								
Rt. 55 Freeway Alternates			Rt. 47 / 670 / 83 Land Service Alternates*					
Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 5A	Alt. 6	Alt. 6A	
Existing Rt. 83 (Orange & Yellow Lines)	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders	2 Lanes (Upgraded) w/ Shoulders	2 Lanes (Upgraded) w/ Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Barrier Curb & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders	4 Lanes (Upgraded) w/ Grass Median & Shoulders

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 2: Land Service Improvements and Bypasses

Alternative 1 (Segment D) - New Freeway Alignment

(Orange Line - see Plate D-1)

From Route 47 south of Dennisville, Segment D of this alternate provides for a freeway alignment that basically follows the existing alignment of Route 83 through to Route 9. From there it would be extended to provide access to the Garden State Parkway. The existing horizontal alignment of Route 83 would be slightly modified to meet freeway standards. Adjacent land use along this section is wooded with few residential homes and businesses except in the vicinity of Route 9. Total length of Segment: approximately 4 miles.

Design Parameters

Typical Section:	Two 12 ft. wide travel lanes with 12 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by median barrier curb
Design Speed:	70 mph
Superelevation:	6% (maximum)
Existing ROW:	Varies
Proposed ROW:	200 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

Local commuters in this area use Route 83 to access Route 9 just north of Exit 13 of the G.S.P. This alternate will upgrade existing Route 83 to meet freeway standards. The Route 9 interchange will maintain existing access, as previously enjoyed by local commuters, to recreational facilities and to the towns of Seaville to the north and Cape May Courthouse to the south.

An interchange to the Garden State Parkway (a north/south corridor route) will allow access to various shore points along the Cape May County shore line from Cape May to Ocean City. Full ramp connections to and from the Parkway are provided.

Alternative 1 (Segment D) - cont.

Environmental Impacts

Cultural Resources
(Plate D-2)

0 Potentially Historic Bridges (50+ years) replaced/repaired
7 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: No
- Consistent with CAFRA Policies: Possible
- Potential Secondary Development: Yes
- Acquired Agricultural Development Areas: 6.6 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 0 acres
- Wildlife Refuges Disrupted, Acres Acquired: 3.5 acres

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

Wetlands Emphasis
(Plate D-4)

Acres of Wetlands Acquired: 1.0 acres
Mitigation at @ 2:1 Replacement Ratio: 2.0 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 2 (Segment D) - New Freeway Alignment
(Orange Line - see Plate D-1)

From Route 47 south of Dennisville, Segment D of this alternate provides for a freeway alignment that basically follows the existing alignment of Route 83 through to Route 9. From there it would be extended to provide access to the Garden State Parkway. The existing horizontal alignment of Route 83 would be slightly modified to meet freeway standards. Adjacent land use along this section is wooded with few residential homes and businesses except in the vicinity of Route 9. Total length of Segment: approximately 4 miles.

Design Parameters

Typical Section:	Two 12 ft. wide travel lanes with 12 ft. wide outside and 5 ft. wide inside shoulders, each direction, separated by 26' wide grass median
Design Speed:	70 mph
Superelevation:	6% (maximum)
Existing ROW:	Varies
Proposed ROW:	250 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

Local commuters in this area use Route 83 to access Route 9 just north of Exit 13 of the G.S.P. This alternate will upgrade existing Route 83 to meet freeway standards. The Route 9 interchange will maintain existing access, as previously enjoyed by local commuters, to recreational facilities and to the towns of Seaville to the north and Cape May Courthouse to the south.

An interchange to the Garden State Parkway (a north/south corridor route) will allow access to various shore points along the Cape May County shore line from Cape May to Ocean City. Full ramp connections to and from the Parkway are provided.

Alternative 2 (Segment D) - cont.

Environmental Impacts

Cultural Resources
(Plate D-2)

0 Potentially Historic Bridges (50+ years) replaced/repaired
7 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: No
- Consistent with CAFRA Policies: Possible
- Potential Secondary Development: Yes
- Acquired Agricultural Development Areas: 8.3 acres
- Parks Disrupted by ROW, Acres Acquired: 0 acres
- State Forests Disrupted, Acres Acquired: 0 acres
- Wildlife Refuges Disrupted, Acres Acquired: 4.4 acres

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

Wetlands Emphasis
(Plate D-4)

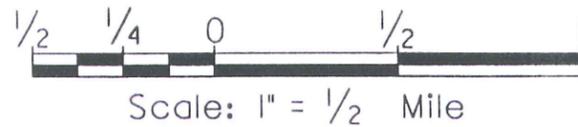
Acres of Wetlands Acquired: 1.1 acres
Mitigation at @ 2:1 Replacement Ratio: 2.2 acres
Quality of Wetlands Acquired: Medium
Impacts to Buffer Areas in Segment D: No
Impacts to Water Quality in Segment D: Adverse
Impacts to Upland Forests in Segment D: Adverse

Contamination Sites
(Plate D-6)

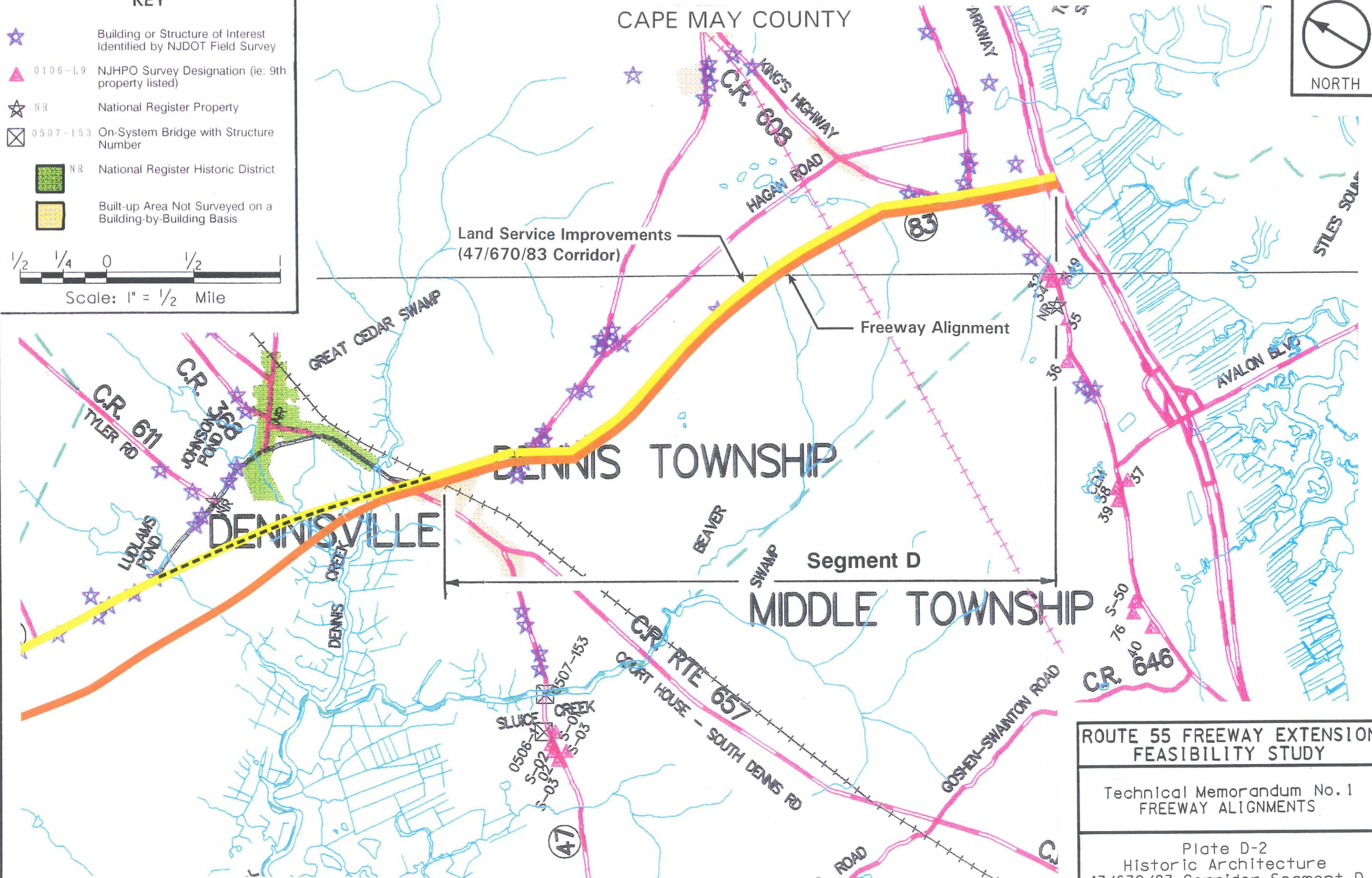
Hazardous Waste Sites within ROW: 0 sites
Potential Hazardous Waste Sites: 0 sites

KEY

- ★ Building or Structure of Interest Identified by NJDOT Field Survey
- ▲ 0106-L9 NJHPO Survey Designation (ie: 9th property listed)
- ☆ NR National Register Property
- ⊠ 0507-153 On-System Bridge with Structure Number
- NR National Register Historic District
- Built-up Area Not Surveyed on a Building-by-Building Basis



CAPE MAY COUNTY



Land Service Improvements
(47/670/83 Corridor)

Freeway Alignment

Segment D

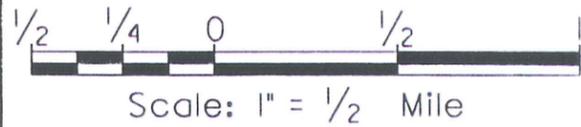
**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate D-2
Historic Architecture
47/670/83 Corridor: Segment D

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



CAPE MAY COUNTY

Land Service Improvements
(47/670/83 Corridor)

Freeway Alignment

DENNIS TOWNSHIP

DENNISVILLE

BEAVER SWAMP

Segment D

MIDDLE TOWNSHIP

STILES SOUND

AVALON BLVD

CR. 646

CR. RTE 657
COURT HOUSE - SOUTH DENNIS RD

GOSHEN-SWANTON ROAD

SLUCE CREEK

47

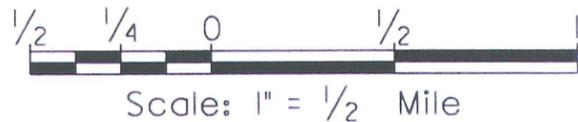
ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

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

KEY

-  High Quality Wetland
(there is a very large possibility that a threatened and/or endangered species is associated with these wetlands)
-  Medium Quality Wetlands
(there is a possibility that a threatened and/or endangered species is associated with these wetlands)
-  Average Quality Wetlands
(there is little possibility that a threatened and/or endangered species is associated with these wetlands)



CAPE MAY COUNTY

DENNIS TOWNSHIP

MIDDLE TOWNSHIP

Land Service Improvements
(47/670/83 Corridor)

Freeway Alignment

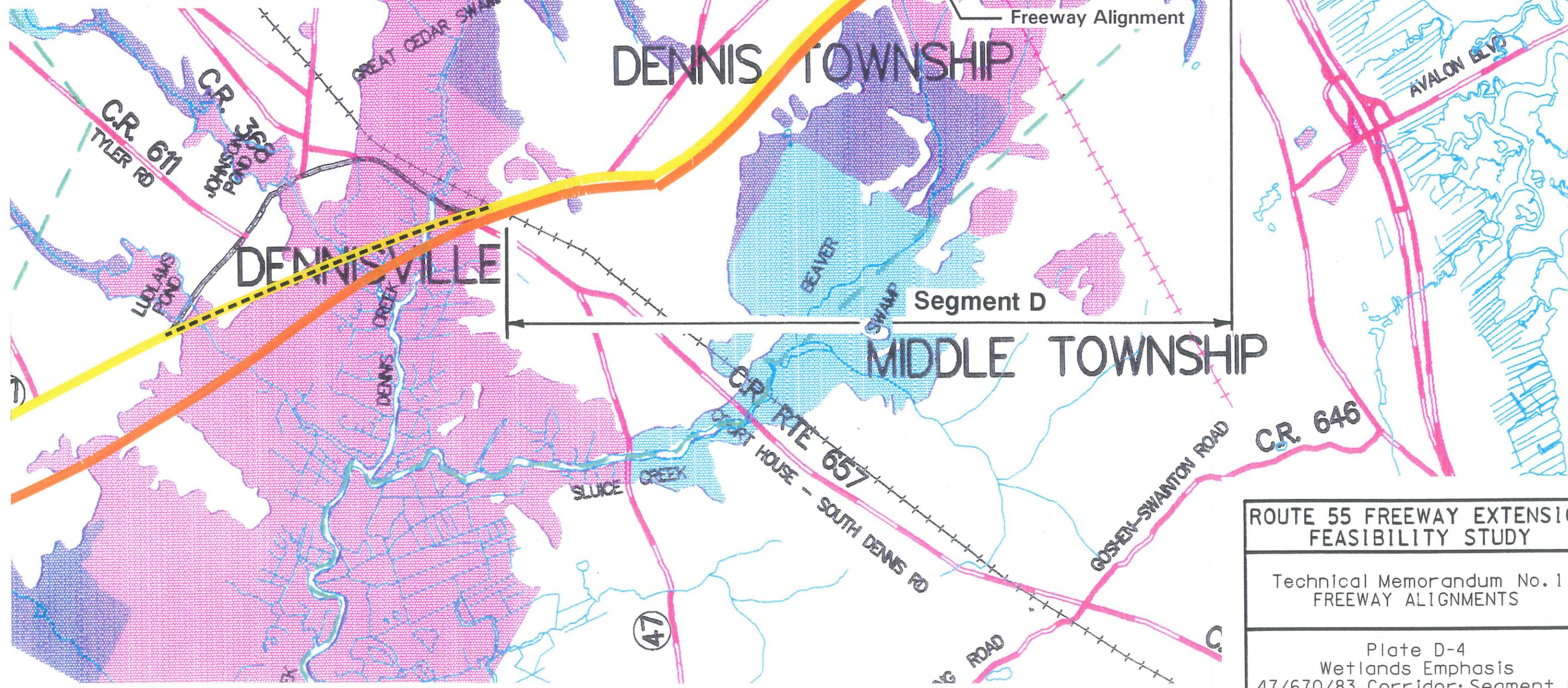
Segment D

DENNISVILLE

ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY

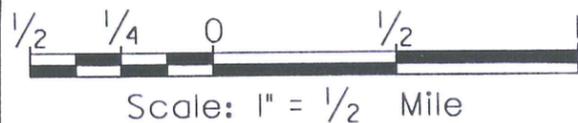
Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate D-4
Wetlands Emphasis
47/670/83 Corridor: Segment D

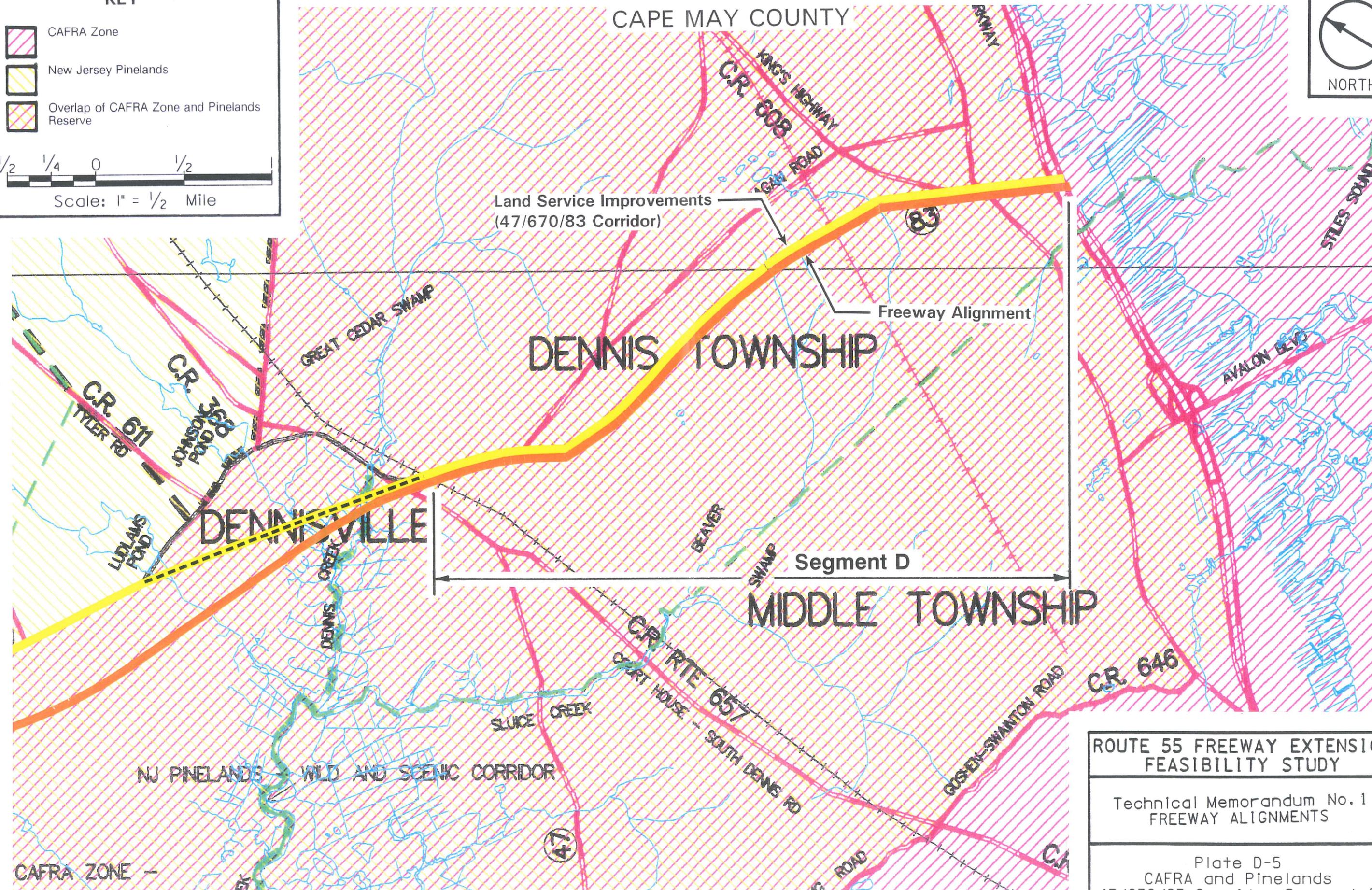


KEY

-  CAFRA Zone
-  New Jersey Pinelands
-  Overlap of CAFRA Zone and Pinelands Reserve



CAPE MAY COUNTY



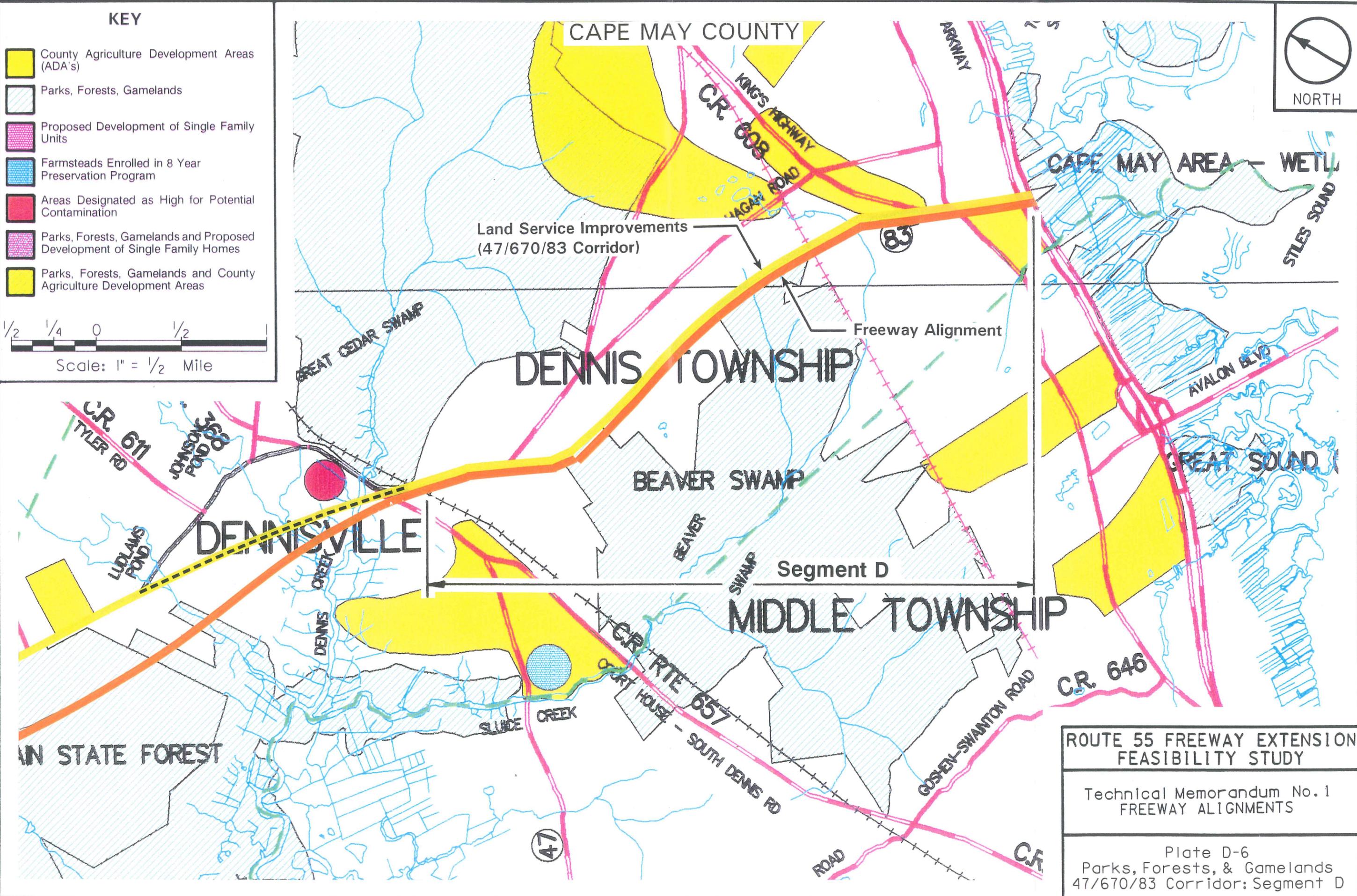
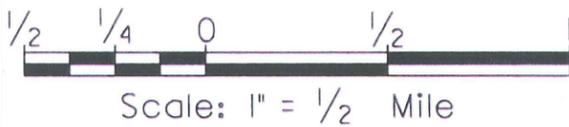
**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate D-5
CAFRA and Pinelands
47/670/83 Corridor: Segment D

KEY

-  County Agriculture Development Areas (ADA's)
-  Parks, Forests, Gamelands
-  Proposed Development of Single Family Units
-  Farmsteads Enrolled in 8 Year Preservation Program
-  Areas Designated as High for Potential Contamination
-  Parks, Forests, Gamelands and Proposed Development of Single Family Homes
-  Parks, Forests, Gamelands and County Agriculture Development Areas



**ROUTE 55 FREEWAY EXTENSION
FEASIBILITY STUDY**

Technical Memorandum No. 1
FREEWAY ALIGNMENTS

Plate D-6
Parks, Forests, & Gamelands
47/670/83 Corridor: Segment D

APPENDIX A

Cost Estimate

Cost Summary

(data represent millions of 1991 dollars)

	Rt. 55 Freeway Alternates		Rt. 47 / 670 / 83 Land Service Alternates*						Rt. 49 / 50 Land Service Alternates*	
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 5A	Alt. 6	Alt. 6A	Alt. 7	Alt. 7A
Roadway Costs	184.5	196.6	88.5	73.3	126.6	144.7	124.9	145.5	_____	_____
Structure Costs	153.2	193.6	58.5	44.2	67.1	87.5	80.8	108.1	_____	_____
Utility Costs	30.4	35.1	13.2	10.6	17.5	20.9	18.5	22.8	_____	_____
Total Construction	368.1	425.3	160.2	128.0	211.2	253.1	224.2	276.4	_____	_____
R.O.W. Costs	19.4	19.6	4.4	1.6	17.9	17.9	18.0	18.0	_____	_____
Wetland Mitigation @ 2:1 Ratio	35.9	38.4	12.1	8.5	24.2	25.3	26.0	26.4	_____	_____
Project Costs	\$423.4	\$483.3	\$176.6	\$138.1	\$253.2	\$296.2	\$268.2	\$320.8	\$ _____	\$ _____

*Note: Data for alternates in shaded region is detailed in Technical Memorandum No. 2: Land Service Improvements and Bypasses

APPENDIX B

Environmental Constraints

RT55 FREEWAY STUDY AREA

USGS QUAD SHEET INDEX

MILLVILLE 1	FIVE POINTS 2		
DIVIDING CREEK 3	PORT ELIZABETH 4	TUCKAHOE 5	MARMORA 6
	HEISLERVILLE 7	WOODBINE 8	SEAISLE CITY 9
		STONE HARBOR 10	

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

TABLE 4

Vascular Plants	Habitat								
	PO	OP	PP	CS	HS	W	PE	E	NF
Barratt's Sedge								*	
Beaked Sedge						*	*		
Boltonia								*	
Boykin's Lobelia						*	*		
Black-Fruited Spikerush						*	*		
Bristling Panic Grass									*
Bur-Marigold						*	*		
Butterfly Pea									*
Clustered Bluet									*
Coast Bedstraw	*	*							
Curly Grass Fern				*					
Cut-Leaved Water Milfoil						*	*		
Dragon Mouth						*	*		
Elliptical Rushfoil									*
Featherfoil						*	*		
Floating Heart						*	*		
Fragrant Ladies'-Tresses								*	
Hairy-Stemmed Wild Yam						*	*		
Heller's Everlasting	*	*							
Longbeaked Baldrush						*			
Long's Bulrush						*	*		
Minute Duckweed						*			
New Jersey Rush				*	*	*	*		
Pale Beak Rush			*		*	*	*		
Parker's Pipewort								*	
Pine Barren Boneset				*	*	*			
Pine Barren Gentain	*	*	*						
Pine Barren Reedgrass						*	*		
Pine Barren Smoke Grass			*		*	*	*		
Pineland Tick-Trefoil	*	*							
Pink Milkwort									*
Pink Tickseed					*	*	*		
Rare Flowing Beaked Rush							*		
Reversed Bladderwort						*	*		
Richards Yellow Eyed-Grass									
Riparian Pencil Flower	*	*							
Rough Cottongrass						*	*		
Sensitive Joint-Vetch						*		*	
Short-Beaked Baldrush						*	*		
Slender Arrow Head						*	*		
Slender Plantain									*
Small-Headed Beaked Rush			*		*	*	*		
Small-Yellow Pond Lily							*	*	
Smooth Beard Tongue					*	*	*		
Smooth Tick-Trefoil	*	*							*
Southern Arrow Head						*	*		
Southern Twayblade				*	*	*	*		
Stout Smartweed			*	*	*	*			
Swamp Pink						*	*	*	

TABLE 4 (cont'd)

Vascular Plants	Habitat								
	PO	OP	PP	CS	HS	W	PE	E	NF
Tall Bush-Clover									*
Thread-leaved Beaked Rush			*		*	*	*		
Twisted Spikerush					*	*	*		
Velvety Tick-Trefoil *		*							*
Virginia False-Gromwell*		*							
Virginia Thistle			*	*	*	*	*		
Walter's St. John's Wart					*				
Whorled Nut Rush						*	*		
Whorled Water-Milfoil						*	*		
Wright's Panic Grass						*	*		
Yellow-Fringed Orchid				*	*	*	*		
Yellow-Fringless Orchid			*	*	*	*	*		

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Table 5

MILLVILLE USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E		G5	S2	1939-??-??	Y
CROTALUS HORRIDUS	TIMBER RATTLESNAKE		E		G5	S2	1967-SUMMR	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1975-??-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1980-07-26	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1989-10-10	Y
*** Vascular plants								
ARETHUSA BULBOSA	DRAGON MOUTH				G4	S2	1988-05-29	Y
BIDENS BIDENTOIDES	BUR-MARIGOLD	3C			G3	S2	1979-10-06	Y
CAREX BARRATTII	BARRATT'S SEDGE	3C		LP	G3	S3	1938-05-01	Y
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2	1935-08-13	Y
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2	1960-09-25	Y
DESMODIUM STRICTUM	PINELAND TICK-TREFOIL			LP	G3G4	S2	1917-10-13	Y
ELEOCHARIS TORTILIS	TWISTED SPIKERUSH		E		G5	SH	1923-08-12	Y
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1909-10-07	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1985-09-18	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1946-08-25	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1870-05-??	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1891-04-23	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1988-05-29	Y
JUNCUS CAESARIENSIS	NEW JERSEY RUSH	C2	E	LP	G2	S2	1985-07-??	Y
ONOSMODIUM VIRGINIANUM	VIRGINIA FALSE-GROMWELL		E		G4	S1	1871-06-22	Y
PENSTEMON LAEVIGATUS	SMOOTH BEARD TONGUE				G5	S1	1934-06-17	Y
POLYGALA INCARNATA	PINK MILKWORT		E		G5	SH	1934-08-29	Y
RHYNCHOSPORA MICROCEPHALA	SMALL-HEADED BEAKED RUSH		E		G?	S1	1940-09-22	Y
SCHIZAEA PUSILLA	CURLY GRASS FERN	C2		LP	G3	S3	1875-??-??	Y
SCHIZAEA PUSILLA	CURLY GRASS FERN	C2		LP	G3	S3	1923-08-12	Y
STYLOSANTHES RIPARIA	RIPARIAN PENCIL FLOWER		E		G?	SH	1934-08-29	Y

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Table 6

PORT ELIZABETH USGS QUADRANGLE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E		G5	S2	1975-??-??	Y
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E		G5	S2	1985-03-??	Y
ELAPHE GUTTATA	CORN SNAKE		E		G5	S1	1972-05-30	Y
ELAPHE GUTTATA	CORN SNAKE		E		G5	S1	1979-??-??	Y
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LE	E		G3	S1	1954-??-??	Y
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LE	E		G3	S1	1955-??-??	Y
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LE	E		G3	S1	1954-??-??	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1975-07-25	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1982-05-06	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1979-08-22	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1981-05-28	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1986-06-12	Y
MELANERPES ERYTHROCEPHALUS	RED-HEADED WOODPECKER		T		G5	S3	1987-05-26	
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1980-07-20	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1979-08-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1986-09-20	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1978-05-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1956-SUMMR	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1954-SUMMR	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1954-04-04	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1982-SUMMR	
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1986-05-30	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1984-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1984-??-??	Y

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Table 6 (cont.)

PORT ELIZABETH USGS QUADRANGLE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Ecosystems								
BRACKISH TIDAL MARSH COMPLEX	BRACKISH TIDAL MARSH COMPLEX				G5	S2?	198?-??-??	?
COASTAL PLAIN INTERMITTANT POND	VERNAL POND				G3?	S2S3?	1985-08-09	Y
COASTAL PLAIN INTERMITTANT POND	VERNAL POND				G3?	S2S3?	1985-08-09	Y
COASTAL PLAIN INTERMITTANT POND	VERNAL POND				G3?	S2S3?	1985-08-09	Y
COASTAL PLAIN INTERMITTANT POND	VERNAL POND				G3?	S2S3?	1985-08-09	Y
FRESHWATER TIDAL MARSH COMPLEX	FRESHWATER TIDAL MARSH COMPLEX				G4?	S3?	1985-??-??	Y
*** Other types								
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1986-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1982-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1986-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1987-01-??	Y
*** Vascular plants								
AESCHYNOMENE VIRGINICA	SENSITIVE JOINT-VETCH	C2	E	LP	G2	S1	1974-06-29	Y
AESCHYNOMENE VIRGINICA	SENSITIVE JOINT-VETCH	C2	E	LP	G2	S1	1984-09-09	Y
CAREX BARRATTII	BARRATT'S SEDGE	3C		LP	G3	S3	1985-05-18	Y
CAREX ROSTRATA	BEAKED SEDGE				G5	S2	1963-06-21	?
CLITORIA MARIANA	BUTTERFLY PEA		E		G5	S1	1987-08-08	Y
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2	1934-08-15	Y
DESMODIUM STRICTUM	PINELAND TICK-TREFOIL			LP	G3G4	S2	1987-08-10	Y
DESMODIUM STRICTUM	PINELAND TICK-TREFOIL			LP	G3G4	S2	1988-10-07	Y
DESMODIUM STRICTUM	PINELAND TICK-TREFOIL			LP	G3G4	S2	1937-06-20	Y
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1937-06-20	Y
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1980-08-19	Y
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1936-11-08	Y

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Tabel 6 (cont.)

PORT ELIZABETH USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1932-09-18	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1934-08-15	Y
GENTIANA AUTUMNALIS	PINE BARREN GENTIAN	3C		LP	G3	S3	1924-09-11	Y
LESPEDeza STUEVEI	TALL BUSH-CLOVER				G4?	S2	1985-??-??	Y
MUHLENBERGIA TORREYANA	PINE BARREN SMOKE GRASS	C1		LP	G3	S3	1985-08-09	Y
MUHLENBERGIA TORREYANA	PINE BARREN SMOKE GRASS	C1		LP	G3	S3	1985-08-09	Y
NUPHAR MICROPHYLLUM	SMALL YELLOW POND LILY		E		G5	SH	1932-09-18	Y
PANICUM WRIGHTIANUM	WRIGHT'S PANIC GRASS				G4	S2	1985-08-09	Y
PANICUM WRIGHTIANUM	WRIGHT'S PANIC GRASS				G4	S2	1985-08-09	Y

61 Records Processed

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Table 7

HEISLERVILLE USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL GRANK STATUS	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates							
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E	G5	S2	1974-??-??	Y
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E	G5	S2	1986-06-05	Y
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E	G5	S2	1970-??-??	Y
AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW		E	G4	S1	1970-??-??	Y
CIRCUS CYANEUS	NORTHERN HARRIER		E	G5	S2	1986-07-??	Y
CIRCUS CYANEUS	NORTHERN HARRIER		E	G5	S2	1979-07-??	Y
FALCO PEREGRINUS	PEREGRINE FALCON	E/SA	E	G3	S1	1986-SUMMR	Y
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LE	E	G3	S1	1990-06-07	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E	G4	S3	????-??-??	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E	G4	S3	1979-??-??	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E	G5	S2	????-??-??	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E	G5	S2	1975-??-??	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E	G5	S2	1979-05-03	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T	G5	S3	1977-06-??	
STRIX VARIA	BARRED OWL		T	G5	S3	1987-SUMMR	Y
*** Other types							
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1985-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1985-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1984-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1984-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1985-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1980-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1982-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1980-01-??	Y
MIGRATORY SHOREBIRD	MIGRATORY SHOREBIRD			G?	S?	1988-??-??	Y
CONCENTRATION SITE	CONCENTRATION SITE						
MIGRATORY SHOREBIRD	MIGRATORY SHOREBIRD			G?	S?	1988-??-??	Y
CONCENTRATION SITE	CONCENTRATION SITE						
MIGRATORY SHOREBIRD	MIGRATORY SHOREBIRD			G?	S?	1988-??-??	Y

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WOODBINE USGS QUADRANGLE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL GRANK STATUS	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates							
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E	G5	S2	1990-02-22	Y
AMMODRAMUS SAVANNARUM	GRASSHOPPER SPARROW		T/D	G4	S2	1989-05-??	Y
BARTRAMIA LONGICAUDA	UPLAND SANDPIPER		E	G5	S1	1977-??-??	Y
BUTEO LINEATUS	RED-SHOULDERED HAWK		T	G5	S2	1989-06-21	
BUTEO LINEATUS	RED-SHOULDERED HAWK		T	G5	S2	1989-06-??	Y
CIRCUS CYANEUS	NORTHERN HARRIER		E	G5	S2	1986-07-??	Y
CROTALUS HORRIDUS	TIMBER RATTLESNAKE		E	G5	S2	1900-??-??	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E	G4	S3	1980-05-24	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E	G4	S3	1975-06-23	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E	G4	S3	1974-06-23	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E	G4	S3	1988-06-20	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E	G4	S3	1989-05-19	
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E	G5	S2	1974-??-??	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E	G5	S2	1975-06-23	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E	G5	S2	1978-06-24	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E	G5	S2	1975-??-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T	G5	S3	????-??-??	Y
STRIX VARIA	BARRED OWL		T	G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T	G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T	G5	S3	1984-??-??	Y
STRIX VARIA	BARRED OWL		T	G5	S3	1989-02-08	Y
*** Ecosystems							
COASTAL PLAIN INTERMITTANT POND	VERNAL POND			G3?	S2S3?	1985-08-09	Y
*** Other types							
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1985-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1980-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE			G?	S?	1985-01-??	Y

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Table 8 (cont.)

WOODBINE USGS QUADRANGLE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1984-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1984-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1986-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1986-01-??	Y
*** Vascular plants								
CALAMOVILFA BREVIPILIS	PINE BARREN REEDGRASS	3C		LP	G3	S3	1936-07-22	Y
CLITORIA MARIANA	BUTTERFLY PEA		E		G5	S1	1925-08-16	Y
DESMODIUM STRICTUM	PINELAND TICK-TREFOIL			LP	G3G4	S2	1919-08-19	Y
ELEOCHARIS TORTILIS	TWISTED SPIKERUSH		E		G5	SH	19??-??-??	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1920-09-25	Y
GALIUM HISPIDULUM	COAST BEDSTRAW		E		G5	S1	1930-09-20	Y
GENTIANA AUTUMNALIS	PINE BARREN GENTIAN	3C		LP	G3	S3	1983-??-??	Y
GENTIANA AUTUMNALIS	PINE BARREN GENTIAN	3C		LP	G3	S3	1924-09-24	Y
GENTIANA AUTUMNALIS	PINE BARREN GENTIAN	3C		LP	G3	S3	1934-09-18	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1985-04-24	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1990-06-01	Y
HOTTONIA INFLATA	FEATHERFOIL		E		G3G4	S1	1945-06-05	Y
HOTTONIA INFLATA	FEATHERFOIL		E		G3G4	S1	1983-07-??	Y
LISTERA AUSTRALIS	SOUTHERN TWAYBLADE			LP	G4	S2	1950-05-15	Y
LISTERA AUSTRALIS	SOUTHERN TWAYBLADE			LP	G4	S2	1958-05-18	Y
LOBELIA BOYKINII	BOYKIN'S LOBELIA	C2	E	LP	G2	S1	1962-07-29	Y
LOBELIA BOYKINII	BOYKIN'S LOBELIA	C2	E	LP	G2	S1	1916-08-05	Y
MUHLENBERGIA TORREYANA	PINE BARREN SMOKE GRASS	C1		LP	G3	S3	1985-08-09	Y
NUPHAR MICROPHYLLUM	SMALL YELLOW POND LILY		E		G5	SH	1907-07-07	Y
PANICUM ACICULARE	BRISTLING PANIC GRASS	C2	E		G4G5	SH	1916-06-04	Y
PLANTAGO PUSILLA	SLENDER PLANTAIN		E		G5	SH	1916-06-04	Y
PLATANThERA INTEGRa	YELLOW FRINGELESS ORCHID	3C	E	LP	G3G4	S1	1932-08-20	Y
POLYGONUM DENSIFLORUM	STOUT SMARTWEED		E		G?	S1	1940-08-06	Y
RHYNCHOSPORA FILIFOLIA	THREAD-LEAVED BEAKED RUSH		E		G5	S1	1924-09-20	Y
RHYNCHOSPORA PALLIDA	PALE BEAK RUSH				G3?	S3	1934-09-22	Y
RHYNCHOSPORA PALLIDA	PALE BEAK RUSH				G3?	S3	1934-07-23	Y

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Table 8 (cont.)

WOODBINE USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
RHYNCHOSPORA PALLIDA	PALE BEAK RUSH				G3?	S3	1936-08-06	Y
RHYNCHOSPORA RARIFLORA	RARE-FLOWERING BEAKED RUSH		E		G5	S1	1924-08-17	Y
SAGITTARIA AUSTRALIS	SOUTHERN ARROW HEAD		E		G5	S1	1940-07-23	Y
SAGITTARIA TERES	SLENDER ARROW HEAD		E		G3	S1	1921-09-10	Y
SCIRPUS LONGII	LONG'S BULRUSH	C2	E	LP	G2	S2	1919-07-01	Y
SPIRANTHES ODORATA	FRAGRANT LADIES'-TRESSES				G5	S2	1936-09-21	Y
TRIADENUM WALTERI	WALTER'S ST. JOHN'S-WORT		E		G5	S1	1987-08-07	Y
UTRICULARIA RESUPINATA	REVERSED BLADDERWORT		E	LP	G4	S1	1925-07-03	Y
XYRIS JUPICAI	RICHARDS YELLOW EYED-GRASS				G5	SU	1940-08-24	Y

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Table 4

SEA ISLE CITY USGS QUADRANGLE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E		G5	S2	1927-??-??	Y
ARDEA HERODIAS	GREAT BLUE HERON		T		G5	S2	1984-??-??	Y
BUTEO LINEATUS	RED-SHOULDERED HAWK		T		G5	S2	1989-06-??	Y
CHARADRIUS MELODUS	PIPING PLOVER	LT	E		G3	S1	1980-??-??	Y
CHARADRIUS MELODUS	PIPING PLOVER	LT	E		G3	S1	1987-07-??	Y
CHARADRIUS MELODUS	PIPING PLOVER	LT	E		G3	S1	1987-07-??	Y
CHARADRIUS MELODUS	PIPING PLOVER	LT	E		G3	S1	1987-07-??	Y
CHARADRIUS MELODUS	PIPING PLOVER	LT	E		G3	S1	1987-07-??	Y
CHARADRIUS MELODUS	PIPING PLOVER	LT	E		G3	S1	1987-07-??	Y
CLEMMYS MUHLENBERGII	BOG TURTLE	C2	E		G4	S2	1906-04-15	Y
FALCO PEREGRINUS	PEREGRINE FALCON	E/SA	E		G3	S1	1986-SUMMR	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
RYNCHOPS NIGER	BLACK SKIMMER		E		G5	S2	1986-SUMMR	Y
RYNCHOPS NIGER	BLACK SKIMMER		E		G5	S2	1985-06-??	Y
RYNCHOPS NIGER	BLACK SKIMMER		E		G5	S2	1986-SUMMR	Y
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1986-SUMMR	Y

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SEA ISLE CITY USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1986-SUMMR	Y
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1981-??-??	Y
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1986-SUMMR	Y
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1979-??-??	Y
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1979-??-??	Y
STERNA FORSTERI	FORSTER'S TERN		IN		G5	S3	1985-06-??	Y
STERNA FORSTERI	FORSTER'S TERN		IN		G5	S3	1985-06-??	Y
STERNA FORSTERI	FORSTER'S TERN		IN		G5	S3	1985-06-??	Y
STERNA FORSTERI	FORSTER'S TERN		IN		G5	S3	1985-06-??	Y
STERNA FORSTERI	FORSTER'S TERN		IN		G5	S3	1985-06-??	Y
STERNA FORSTERI	FORSTER'S TERN		IN		G5	S3	1983-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1985-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1985-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1985-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1985-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1983-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1983-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1985-06-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1979-??-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1979-??-??	Y
STERNA HIRUNDO	COMMON TERN		D		G5	S3	1979-??-??	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
*** Other types								
COASTAL HERON ROOKERY	COASTAL HERON ROOKERY				GU	S3	1985-06-??	Y
COASTAL HERON ROOKERY	COASTAL HERON ROOKERY				GU	S3	1985-06-??	Y
COASTAL HERON ROOKERY	COASTAL HERON ROOKERY				GU	S3	1983-06-??	Y
COASTAL HERON ROOKERY	COASTAL HERON ROOKERY				GU	S3	1983-06-??	Y
*** Vascular plants								
AMARANTHUS PUMILUS	SEA-BEACH PIGWEED	C2			G2	SH	1882-08-18	Y
AMARANTHUS PUMILUS	SEA-BEACH PIGWEED	C2			G2	SH	1876-08-??	Y

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Table 7.10

SEA ISLE CITY USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
ELEOCHARIS MELANOCARPA	BLACK-FRUITED SPIKERUSH		E		G4	S1	1921-09-29	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1990-06-01	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1990-03-27	Y
LEMNA PERPUSILLA	MINUTE DUCKWEED				G5	SU	1937-09-01	Y
POLYGONUM DENSIFLORUM	STOUT SMARTWEED		E		G?	S1	1919-10-11	Y
POLYGONUM GLAUCUM	SEA-BEACH KNOTWEED		E		G3	S1	1912-07-25	Y
RHYNCHOSPORA GLOMERATA	CLUSTERED BEAKED RUSH		E		G5	SH	1915-10-25	Y
SCLERIA VERTICILLATA	WHORLED NUT RUSH		E		G4?	S1	1915-10-25	Y
SCLERIA VERTICILLATA	WHORLED NUT RUSH		E		G4?	S1	1916-10-07	Y
UTRICULARIA RESUPINATA	REVERSED BLADDERWORT		E	LP	G4	S1	1921-09-29	Y

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Table 10

FIVE POINTS USGS QUADRANGLE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E		G5	S2	1970-??-??	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1981-06-04	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1975-??-??	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1974-??-??	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1975-??-??	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1975-??-??	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	????-??-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1957-06-02	
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1954-04-04	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
*** Vascular plants								
BOLTONIA ASTEROIDES VAR GLASTIFOLIA	BOLTONIA		E		G5T?	S1	1935-09-15	?
CAREX BARRATTII	BARRATT'S SEDGE	3C		LP	G3	S3	1985-06-14	Y
CAREX BARRATTII	BARRATT'S SEDGE	3C		LP	G3	S3	1985-06-14	Y
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2	1932-10-02	Y
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2	1935-07-25	Y
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2	1938-09-25	Y
COREOPSIS ROSEA	PINK TICKSEED			LP	G3	S2	1987-08-08	Y
DESMODIUM LAEVIGATUM	SMOOTH TICK-TREFOIL				G5	S2	1987-06-08	Y
DESMODIUM VIRIDIFLORUM	VELVETY TICK-TREFOIL				G5?	S2	1987-08-10	Y
ERIPHORUM TENELLUM	ROUGH COTTONGRASS		E		G5	S1	1936-05-31	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1935-07-23	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1935-08-01	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1987-08-08	Y
MUHLENBERGIA TORREYANA	PINE BARREN SMOKE GRASS	C1		LP	G3	S3	1932-10-02	Y
MUHLENBERGIA TORREYANA	PINE BARREN SMOKE GRASS	C1		LP	G3	S3	1962-10-14	Y
MYRIOPHYLLUM VERTICILLATUM	WHORLED WATER-MILFOIL		E		G5	SH	1935-10-06	Y

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Table 10 (cont.)

FIVE POINTS USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
PLATANThERA CILIARIS	YELLOW-FRINGED ORCHID			LP	G5	S2	1987-08-08	Y
PSILOcARYA NITENS	SHORT-BEAKED BALDRUSH				G3	S2	1962-09-30	Y
PSILOcARYA SCIRPOIDES	LONGBEAKED BALDRUSH				G4	S2	1977-09-27	Y
RHYNcHOSPORA PALLIDA	PALE BEAK RUSH				G3?	S3	1935-07-23	Y
SCHIZAEa PUSILLA	CURLY GRASS FERN	C2		LP	G3	S3	1933-03-05	Y
STYLOSANTHES RIPARIA	RIPARIAN PENCIL FLOWER		E		G?	SH	1932-10-02	Y

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Table 11

TUCKAHOE USGS QUADRANGLE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1975-??-??	Y
MELANERPES ERYTHROCEPHALUS	RED-HEADED WOODPECKER		T		G5	S3	1980-06-14	
MELANERPES ERYTHROCEPHALUS	RED-HEADED WOODPECKER		T		G5	S3	1989-05-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1978-07-??	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	1981-07-03	Y
PITUOPHIS MELANOLEUCUS	PINE SNAKE		T		G5	S3	19??-??-??	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
SYNAPTOMYS COOPERI	SOUTHERN BOG LEMMING		U		G5	S2	1982-??-??	Y
SYNAPTOMYS COOPERI	SOUTHERN BOG LEMMING		U		G5	S2	1982-??-??	Y
SYNAPTOMYS COOPERI	SOUTHERN BOG LEMMING		U		G5	S2	1897-04-06	Y
*** Ecosystems								
COASTAL PLAIN INTERMITTANT POND	VERNAL POND				G3?	S2S3?	1985-08-09	Y
FRESHWATER TIDAL MARSH COMPLEX	FRESHWATER TIDAL MARSH COMPLEX				G4?	S3?	1972-10-04	
*** Invertebrates								
CATOCALA PRETIOSA	THE PRECIOUS UNDERWING	C2			G1G2	S1S2	1987-05-19	Y
CATOCALA PRETIOSA	THE PRECIOUS UNDERWING	C2			G1G2	S1S2	1987-05-22	Y
*** Vascular plants								
CAREX BARRATTII	BARRATT'S SEDGE	3C		LP	G3	S3	1985-05-18	Y
CIRSIUM VIRGINIANUM	VIRGINIA THISTLE		E		G3G4	S1	1936-09-05	Y
CLITORIA MARIANA	BUTTERFLY PEA		E		G5	S1	1935-08-13	Y
CROTONOPSIS ELLIPTICA	ELLIPTICAL RUSHFOIL			LP	G5	S2	1989-07-02	Y
DESMODIUM STRICTUM	PINELAND TICK-TREFOIL			LP	G3G4	S2	1937-08-08	Y
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1972-10-04	Y
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1972-10-04	Y
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1972-10-04	Y

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Table 11 (cont.)

TUCKAHOE USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
ERIOCAULON PARKERI	PARKER'S PIPEWORT	C2			G3	S2	1972-10-04	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1984-08-20	Y
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1984-08-19	Y
JUNCUS CAESARIENSIS	NEW JERSEY RUSH	C2	E	LP	G2	S2	1906-07-19	Y
NYMPHOIDES CORDATA	FLOATING HEART			LP	G5	S3	1985-08-09	Y
PSILOCARYA NITENS	SHORT-BEAKED BALDRUSH				G3	S2	1985-08-09	Y
RHYNCHOSPORA FILIFOLIA	THREAD-LEAVED BEAKED RUSH		E		G5	S1	1960-09-04	Y
RHYNCHOSPORA PALLIDA	PALE BEAK RUSH				G3?	S3	1935-08-13	Y
SAGITTARIA TERES	SLENDER ARROW HEAD		E		G3	S1	1984-08-19	Y
STYLOSANTHES RIPARIA	RIPARIAN PENCIL FLOWER		E		G?	SH	1901-08-25	Y

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table 12

MARMORA USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
ACCIPITER COOPERII	COOPER'S HAWK		E		G4	S2	1989-06-22	Y
AMBYSTOMA TIGRINUM	TIGER SALAMANDER		E		G5	S2	1907-??-??	Y
CIRCUS CYANEUS	NORTHERN HARRIER		E		G5	S2	1986-07-15	Y
CLEMMYS MUHLENBERGII	BOG TURTLE	C2	E		G4	S2	1975-10-08	Y
CLEMMYS MUHLENBERGII	BOG TURTLE	C2	E		G4	S2	????-??-??	Y
CLEMMYS MUHLENBERGII	BOG TURTLE	C2	E		G4	S2	1985-??-??	Y
FALCO PEREGRINUS	PEREGRINE FALCON	E/SA	E		G3	S1	1986-SUMMR	Y
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LE	E		G3	S1	1963-??-??	Y
HYLA ANDERSONII	PINE BARRENS TREEFROG	3C	E		G4	S3	1989-06-03	Y
HYLA CHRYSOSCELIS	COPE'S GRAY TREEFROG		E		G5	S2	1980-06-07	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1987-??-??	Y
PANDION HALIAETUS	OSPREY		T		G5	S3	1989-SUMMER	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1987-SUMMR	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1984-??-??	Y
STRIX VARIA	BARRED OWL		T		G5	S3	198?-??-??	Y
STRIX VARIA	BARRED OWL		T		G5	S3	1989-06-??	Y
*** Invertebrates								
CATOCALA PRETIOSA	THE PRECIOUS UNDERWING	C2			G1G2	S1S2	1987-05-21	Y

23 JAN 1991

Table 12 (cont.)

MARMORA USGS QUADRANGLE
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Other types								
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1986-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1983-01-??	Y
BALD EAGLE WINTERING SITE	BALD EAGLE WINTERING SITE				G?	S?	1985-01-??	Y
*** Vascular plants								
EUPATORIUM RESINOSUM	PINE BARREN BONESET	C2	E	LP	G2	S2	1921-10-13	Y
GNAPHALIUM HELLERI	HELLER'S EVERLASTING				G4G5	SH	1921-10-13	Y
HEDYOTIS UNIFLORA	CLUSTERED BLUET				G5	S3	1988-08-25	Y
HELONIAS BULLATA	SWAMP-PINK	LT	E	LP	G2	S2	1980-04-??	Y
LISTERA AUSTRALIS	SOUTHERN TWAYBLADE			LP	G4	S2	1985-05-04	Y
RHYNCHOSPORA MICROCEPHALA	SMALL-HEADED BEAKED RUSH		E		G?	S1	1988-08-25	Y
SCHIZAEA PUSILLA	CURLY GRASS FERN	C2		LP	G3	S3	1955-10-16	Y
SCLERIA VERTICILLATA	WHORLED NUT RUSH		E		G4?	S1	1916-10-07	
SCLERIA VERTICILLATA	WHORLED NUT RUSH		E		G4?	S1	1907-09-14	Y
SPIRANTHES ODORATA	FRAGRANT LADIES'-TRESSES				G5	S2	1889-09-??	Y

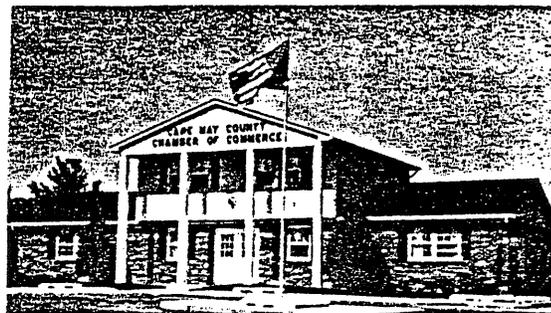
40 Records Processed

APPENDIX C

Letters of Public Opinion

CAPE MAY COUNTY
Chamber of Commerce

115



P.O. Box 74

Phone: (609) 465-7181
FAX: (609) 465-5017

Exit 11 Garden State Parkway
Cape May Court House, New Jersey 08210-0074

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.

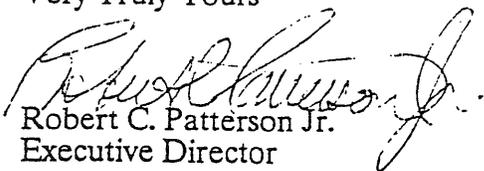
Route 55 will bring in traffic flow from Western Pennsylvania, Baltimore/Washington, D.C., West Virginia and other areas who presently do not have direct and safe access to our region.

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

RECEIVED

MAR 7 1991



390-7998

David A. ...
Box 502
MARINERS, NJ
09223

Transportation Commissioner
Tom Downs,

11/7/90

Dear Sir,

Assemblyman Ed Salmon betrayed the environmental vote by announcing funds to study extending Rt. 55 thru Cape May County.

May I please have details: Who is on study group? What alternatives will they study? Mass transport? Fixing existing Rt. 47? Endangered habitats and biological diversity?

Over 6000 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 bumbling Republican Cape May County Freeholder Wm. Sturm egotistically asserts.

Why not investigate designating one lane each way of existing Rt. 55 for Buses and carpools only? Encourage mass transport! Even the Motor Vehicle Manufacturers Association concedes that

Society in the coming decades will have no choice but seek alternatives to the auto.

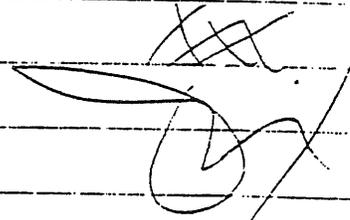
If drivers paid the true cost of driving - pollution, police and ambulance, roads - a whole range of mass transit options would become welcome. Reducing energy use and global warming at the same time.

Again, would appreciate all info. on Rt. 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,



26 Colonial Avenue
Cape May Court House
New Jersey 08210

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 too accessible. Route 55 would worsen existing traffic problems and lead to further overcrowding in the summer. Tourism

is fine, but it can be over done. 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

Bill Doan, III



OFFICE OF THE MAYOR

179

CITY OF NORTH WILDWOOD
P.O. BOX 499 NORTH WILDWOOD, NEW JERSEY 08260
CAPE MAY COUNTY NEW JERSEY

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

RECEIVED

APR 5 1991

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



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

JACOB K. JAVITS FEDERAL BUILDING

NEW YORK, NEW YORK 10278

JUL 13 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]).

#627
JUL 24 1991

° 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.

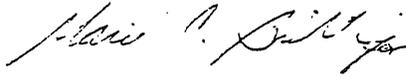
° An evaluation of the potential environmental impacts associated with the construction and operation of the proposed project. This should include: analyses of impacts to wetlands, ground water, air and water quality, noise, endangered species, floodplains, coastal zones, cultural resources, and other 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.

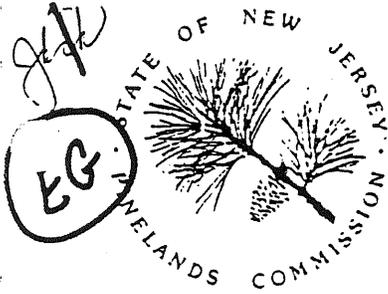
° The analysis should consider all potential permits that may be required for this project.

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

RECEIVED
TECHNICAL

AUG 9 1991

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

ENVIRONMENTAL ANALYSIS
NJDOT

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 development 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 standards 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

AUG 6 1991

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The Pinelands - Our Country's First National Reserve

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

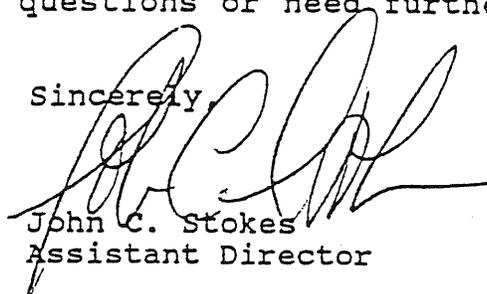
In addition to the broader land use policies, construction projects, if otherwise permitted, must also adhere to specific development standards. I refer you particularly to N.J.A.C. 7:50-4.51 et seq. and 7:50 Subchapter 6, especially the wetlands (7:50-6.1 et seq.) and fish and wildlife (7:50-6.31 et 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,



John C. Stokes
Assistant Director

JCS/LL/km/SP14

Enclosure

cc: Terrence D. Moore
William F. Harrison
Larry Liggett
Susan Uibel

AF

200

MAILING ADDRESS:

U.S. Department of Transportation

United States Coast Guard



Commander (obr)
First Coast Guard District
Bldg. 135A

Governors Island
New York, NY 10004
TEL: (212)668-7994
FAX: (212)668-7967

16590

JUL 22 1991

EG

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,
Gary Kasset

GARY KASSET
Senior Project Management Specialist
First Coast Guard District
in the direction of the District Commander

RECEIVED

JUL 15 1991

RECEIVED
TECHNICAL

BEA

ENVIRONMENTAL ANALYSIS

655
JUL 26 1991

2



STATE OF NEW JERSEY
DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT
MARY G. ROEBLING BUILDING
CN 820
TRENTON, NEW JERSEY 08625-0820

809325

GEORGE R. ZOFFINGER
COMMISSIONER
(609) 292-2444

June 11, 1991

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

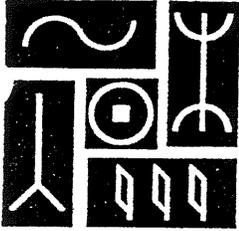
Dear Commissioner Downs: *for*

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. *2/10*

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,

[Signature]
George R. Zoffinger



APR 12 1991

192

CAPE MAY COUNTY PLANNING BOARD

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,

Elwood R. Jarmer
Director

ERJ:nl

cc: Board of Chosen Freeholders
Planning Board



P.O. Box 181
17 Fairmount Road
Ponersville, NJ 07979-0181

New Jersey Field Office

(908) 439-3007
Fax No. (908) 439-3545

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 Caiazza 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 (Helonias bullata), 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 A. Johnson
Acting Director
New Jersey Field Office



United States Department of the Interior

NATIONAL PARK SERVICE

North Atlantic Region
Office of Planning & Design

IN REPLY REFER TO:

New Jersey Coastal Heritage Trail
P. O. Box 118
Mauricetown, New Jersey 08329

June 28, 1991

L76 (NEJE)

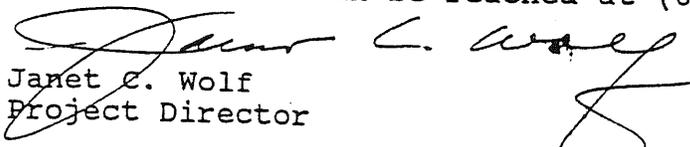
F. Howard Zahn, Director
Division of Project Development
Department of Transportation
CN 600
Trenton, NJ 08625

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

copy of AT 7 dist. 7/13

no attachments 492

#551
JUL 03 1991



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Habitat and Protected
Resources Division
Sandy Hook Laboratory
Highlands, New Jersey 07732

July 9, 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 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.

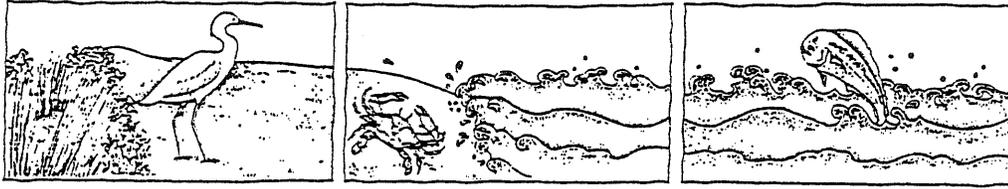
Both Cumberland and Cape May Counties have considerable tidal waters that provide spawning, nursery, and feeding habitat for fish and invertebrates of concern to NMFS. Productive wetlands, also important habitat to these resources, are usually found adjacent to the waters. As a general rule, NMFS recommends 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





1-28-1/A

AMERICAN LITTORAL SOCIETY

SANDY HOOK • HIGHLANDS, NEW JERSEY 07732 • 201-291-0055

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

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JAN 28 1991

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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 (Aeschynomene 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 Aeschynomene 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,

John P. Wolflin
Supervisor
Annapolis Field Office

Enclosure



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE-2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106-2991

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4/11/91
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JUN 28 1991

Environmental Resources Branch

RT. 55 F

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

RECEIVED
TECHNICAL

Dear Mr. Zahn:

OCT 2 1991

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. ENVIRONMENTAL ANALYSIS
DOT

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,

RECEIVED

JUL 10 1991

for *John A. Bumer*
Robert L. Callegari
Chief, Planning Division

#565

BEA

OCT 23 1991

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STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

LAWRENCE SCHMIDT

Director

Office of Program Coordination

CN 402

Trenton, NJ 08625 0402

(609) 292 2662

Fax (609) 292 0988

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 underlying 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 discharged 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

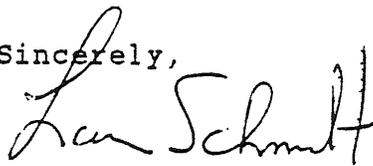
The potential impacts on wells will be a function of the route selected and the method of roadway construction. The principal concerns would relate to potential impacts on shallow wells, including contamination by road surface pollutants, and impacts on well productivity through lowering of the water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