

Chapter 6.0

Section 4(f) Evaluation

6.0 Section 4(f) Evaluation

6.1 Introduction

The New Jersey Department of Transportation (NJDOT), in cooperation with the Federal Highway Administration, has prepared this Section 4(f) evaluation to fulfill the requirements of Section 4(f) of the 1966 USDOT Act (49 USC 303, 23 USC 138, and 23 CFR 771.135). Section 4(f) of the Department of Transportation Act (1966) requires that the following conditions be shown for any project using any public park, recreation area, wildlife and waterfowl refuge, or any historic property listed in or eligible for inclusion in the National Register of Historic Places: 1) there is no feasible or prudent alternative to the use of land from a Section 4(f) property; and, 2) the project includes all possible planning to avoid or minimize harm to the Section 4(f) properties resulting from such use.

The purpose of the project is to address traffic congestion, mobility constraints, and safety concerns on Route U.S. 1 and east-west cross streets in the Penns Neck area of West Windsor Township, Mercer County, New Jersey, and its environs.

6.2 Description of Section 4(f) Properties

The following Section 4(f) properties are located within the study area:

Aqueduct Mills Historic District (SHPO Opinion 12/20/88). Aqueduct Mills is a nineteenth century crossroads hamlet consisting of four houses and a dry stone wall, located north of the Millstone River and west of Route 1.

Aqueduct Mills Historic District Extension (SHPO Opinion 07/08/98). The Extension consists of a group of nineteenth century residential properties that are related to the Historic District settlement to the north.

Covenhoven-Logan-Silvers House (SHPO Opinion 03/10/97). The Covenhoven-Logan-Silvers House is a two-story wood framed Dutch farmhouse, the oldest portions date to ca. 1836.

David S. Voorhees House (SHPO Opinion Pending). The David S. Voorhees House is a two-story, wood-framed residence, typical of vernacular Italianate farmhouse architecture.

Delaware and Raritan Canal State Park and Historic District (National Register Listed: 5/11/75). The Delaware and Raritan Canal is a historically significant engineering work associated with the broad pattern of commerce and transportation in the United States.

Lake Carnegie Historic District (National Register Listed: 6/28/90). The manmade lake was constructed to facilitate crew racing at Princeton University.

Penns Neck Cemetery (SHPO Opinion 03/10/97). Penns Neck Cemetery is the oldest in West Windsor Township, dating from the 1730s.

Pennsylvania Railroad Historic District (SHPO Opinion Pending). The former Philadelphia-to-New York Main Line (NEC), and the Princeton Branch (Dinky), was recommended eligible by the Pennsylvania Historical and Museum Commission.

Princeton Baptist Church at Penns Neck (National Register Listed: 12/28/98). The church complex consists of the original nineteenth century meeting house, a nineteenth century tavern, and an associated church cemetery.

Princeton Branch, D&R Canal Bridge (SHPO Opinion 07/08/98). The nineteenth century swing bridge conveys the Princeton Branch (Dinky) over the D&R Canal.

Princeton Operating Station (SHPO Opinion 07/08/98). The Princeton Operating Station is associated with the early twentieth century development of the East Coast long-distance telephone network.

Sarnoff Corporation (SHPO Opinion 01/03). The research facility participated in the development of the all-electronic compatible color television system, pioneering work in liquid crystal technology, development of Metal Oxide Semiconductor (MOS) transistors, and early development of music synthesizer and facsimile technology.

Washington Road Elm Allee (National Register Listed: 01/18/99). An allée of American elms lines Washington Road between Route 1 and the D&R Canal. The allée is an example of early twentieth century trends in landscape design.

Archaeological Site 28 ME 2 (SHPO Opinion 9/13/76). Site 28ME2 contains both historic and prehistoric components.

Archaeological Site 28 ME 23 (SHPO Opinion 3/10/97). Site 28ME23 is dated to the Late Archaic and Late Woodland periods.

Archaeological Site 28 ME 86 (SHPO Opinion Pending). Site 28ME23 dates to the Late Archaic and late Woodland periods.

Archaeological Site 28 ME 291 (SHPO Opinion Pending). Site 28ME291 is a small prehistoric site.

The reader is referred to Sections 3.4 and 3.5 of this EIS for more detailed discussion of these properties, as well as the *Penns Neck Area EIS Historic Architectural Survey, Volumes 1 and 2*, prepared by John Milner Associates in 2002. Section 106 consultation was re-initiated at the beginning of the EIS process and is currently ongoing.

6.3 Section 4(f) Property Impacts

This DEIS portion of this DEIS/Section 4(f) Evaluation document presents an analysis of potential environmental impacts from nineteen Action Alternatives and the No-Action Alternative. This Section 4(f) Evaluation describes the impacts to Section 4(f) properties for each Action and No-Action alternative.

The Action Alternatives have the potential to impact up to thirteen of the Section 4(f) properties found within the APE depending on the alternative considered. Properties within the APE that would not be impacted by any Action Alternative include the Lake Carnegie Historic District, the Penns Neck Cemetery, and the Princeton Branch D&R Canal Bridge.

Tables 6-1 and 6-2 present matrix summaries of the potential impacts to Section 4(f) properties from each of the Action Alternatives. More detailed information on the Section 106 effects evaluation is presented in Section 4.5 of this document and the Penns Neck Area EIS Cultural Resources Effects Document (JMA, 2002). Following is a comparative discussion of potential impacts by Section 4(f) property.

Aqueduct Mills Historic District

The No-Action Alternative would not physically impact District property. All Action Alternatives would impact the District by widening Route 1 to the west and removing a stone wall that is a contributing element to the District. However, all Action Alternatives would improve traffic flow on Route 1, thereby having a positive effect on the District.

Aqueduct Mills Historic District Extension

The No-Action and Action Alternatives, would not physically impact District property. The A, B, E, and F Alternatives, as well as Alternatives D and D.2, would reduce traffic volumes on Harrison Street, thereby having positive noise and visual effects on the District.

Covenhoven-Logan-Silvers House

The No-Action Alternative, and the C and G alternatives would not physically impact the property. The D, E and F alternatives would introduce traffic noise from WSC roads, thereby having adverse noise and visual effects on the property. The A and B alternatives would have a physical impact on the property, necessitating building demolition or relocation. Archaeological investigation would also be required, and possibly data recovery, if an A or B alternative is selected.

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Table 6-1

Summary of Section 4(f) Impacts - Historic Properties and Parks

| Alternative | Penns Neck Baptist Church | D&R Canal Historic District | Princeton Branch Bridge | Lake Carnegie Historic District | Washington Road Elm Allee | Covenhoven-Logan-Silvers House | Princeton Operating Station | Sarnoff Corporation | Aqueduct Mills Historic District | Aqueduct Mills Historic District Extension | David Voorhees House | Pennsylvania R.R. Historic District |
|-------------|---|---|-------------------------|---------------------------------|--|--------------------------------|---|-----------------------|---|---|---|--|
| A | No physical impact; noise level reduction. (P) | No physical impact; visual impact at Harrison St. due to increased traffic; improved sight distance at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | No physical impact: reduced traffic on Washington Road. (P) | Building demolition. (N) | Eliminate access; possible building demolition. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact VDC 3. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |
| A.1 | No physical impact; noise level reduction. (P) | No physical impact; visual impact at Harrison St. due to increased traffic; improved sight distance at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | No physical impact: reduced traffic on Washington Road. (P) | Building demolition. (N) | Eliminate access; possible building demolition. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact VDC 3. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |
| A.2 | No physical impact; noise level reduction. (P) | No physical impact; visual impact at Harrison St. due to increased traffic; improved sight distance at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | No physical impact: reduced traffic on Washington Road. (P) | Building demolition. (N) | Eliminate access; possible building demolition. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact VDC 3. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |
| A.3 | No physical impact; noise level reduction. (P) | No physical impact; visual impact at Harrison St. due to increased traffic; improved sight distance at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | No physical impact: reduced traffic on Washington Road. (P) | Building demolition. (N) | Visual impact; possible demolition of building. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact VDC 3. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |
| A.4 | No physical impact; noise level reduction. (P) | No physical impact; visual impact at Harrison St. due to increased traffic; improved sight distance at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | No physical impact: reduced traffic on Washington Road. (P) | Building demolition. (N) | Visual impact; possible demolition of building. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact VDC 3. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |
| B | No physical impact; no new noise or visual impacts. (P) | No physical impact; improved sight distance at Harrison St.; increased traffic at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | Reduced traffic on Washington Road; remove 3 trees. (N) | Building demolition. (N) | Eliminate access; possible building demolition. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | No physical impact. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |
| B.1 | No physical impact; no new noise or visual impacts. (P) | No physical impact; improved sight distance at Harrison St.; increased traffic at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | Reduced traffic on Washington Road; remove 3 trees. (N) | Building demolition. (N) | Eliminate access; possible building demolition. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact VDC 3. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |
| B.2 | No physical impact; no new noise or visual impacts. (P) | No physical impact; improved sight distance at Harrison St.; increased traffic at Harrison St.; reduced traffic at Washington & Alexander Roads. (P) | No physical impact. (P) | No physical impact. (P) | Reduced traffic on Washington Road; interrupt Allee continuity & remove 4 trees. (N) | Building demolition. (N) | Eliminate access; possible building demolition. (N) | Land acquisition. (N) | Remove stone wall; improve traffic flow. (P) | No physical impact; reduced traffic. (P) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact VDC 3. (P) | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. |
| C | No physical impact; no new noise or visual impacts. (P) | No physical impact; visual impact at Harrison St. & Alexander Road due to increased traffic; reduced traffic at Washington. (P) | No physical impact. (P) | No physical impact. (P) | Remove 2 trees; reduced traffic on Washington Road. (P) | No physical impact. (P) | Visual impact; possible building demolition. (N) | Land acquisition. (N) | Removal stone wall; improve traffic flow. (P) | No physical impact; increased traffic, visual & noise impact. (N) | Possible land acquisition and visual impact, VDC 1 or 2. (N) No physical impact | CR 571 bridge rehabilitation; possible demolition of Princeton Junction Hotel. (N) |

| Alternative | Penns Neck Baptist Church | D&R Canal Historic District | Princeton Branch Bridge | Lake Carnegie Historic District | Elm Allee Washington Road | Logan-Silver-House | Visual Station | Sarnoff Corporation | Agnew Mill Historic District | Agnew Mill Historic District Extension | David Boone Pennsylvania R.R. Historic District |
|-------------|--|-----------------------------|-------------------------|---------------------------------|---------------------------|--------------------|--------------------|---------------------|---|---|---|
| C.1 | No physical impact; noise or new to increase traffic; reduced traffic at Harrison St. & Alexander Road due to increased traffic; Washington, (P) | No physical impact; noise | No physical impact | No physical impact | No physical impact | No physical impact | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| D | No physical impact; noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | None | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| D.1 | No physical impact; noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| D.2 | No physical impact; noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| E | No physical impact; noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| F | No physical impact; noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| F.1 | No physical impact; noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| G | No physical impact; noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |
| G.1 | Route 1 in-a-cut and shift to west reduces noise | No physical impact; noise | No physical impact | No physical impact | No physical impact | Visual & noise | No physical impact | Land acquisition | Remove stone wall; improve traffic flow; visual & noise | No physical impact; increased traffic; visual & noise | Possible land acquisition and rehabilitation; possible demolition of Princeton Junction Hotel (N) |

Table 6-1
Summary of Section 4(f) Impacts - Historic Properties and Parks

| Alternative | Penns Neck Baptist Church | D&R Canal Historic District | Princeton Branch Bridge | Lake Carnegie Historic District | Washington Road Elm Allee | Covenhoven-Logan-Silvers House | Princeton Operating Station | Sarnoff Corporation | Aqueduct Mills Historic District | Aqueduct Mills Historic District Extension | David Voorhees House | Pennsylvania R.R. Historic District |
|-------------|---|--|-------------------------|---------------------------------|--|--------------------------------|---|-------------------------|---|---|-------------------------|--|
| G.2 | No physical impact; visual & noise impacts. (N) | No physical impact; reduced traffic at Washington Road; increased traffic at Harrison Street & Alexander Road. (N) | No physical impact. (P) | No physical impact. (P) | No physical impact; reduced traffic on Washington Road. (P) | No physical impact. (P) | No physical impact. (P) | No physical impact. (P) | Remove stone wall; improve traffic flow. (P) | No physical impact; increased traffic, visual & noise impact. (N) | No physical impact. (P) | No physical impact. (P) |
| No Action | No physical impact; visual & noise impacts. (N) | No physical impact; increased traffic at all crossings; visual & noise impacts. (N) | No physical impact. (P) | No physical impact. (P) | No physical impact; increased traffic; visual & noise impacts. (N) | No physical impact. (P) | Increased traffic; visual & noise impacts on Route 1. (N) | No physical impact. (P) | Increased traffic; visual & noise impacts on Route 1. (N) | No physical impact; increased traffic, visual & noise impact. (N) | No physical impact. (P) | Increased traffic; visual & noise impacts. (N) |

Notes: (P) -Positive.
(N) - Negative Impact.

Table 6-2
Summary of Section 4(f) Impacts – Archaeological Resources

| Alternative | Site 28ME2 | Site 28ME23 | Site 28ME86 | 28 ME 291 |
|-------------|----------------------------------|-------------|-------------|---------------|
| A | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| A.1 | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| A.2 | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| A.3 | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| A.4 | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| B | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| B.1 | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| B.2 | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | No. |
| C | Yes-Interchange at Route 1. | No. | No. | Yes-If VDC 3. |
| C.1 | Yes-Interchange at Route 1. | No. | No. | Yes-If VDC 3. |
| D | Yes-ESC. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| D.1 | Yes-ESC. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| D.2 | Yes-ESC. | No. | No. | Yes-If VDC 3. |
| E | No. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| F | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| F.1 | Yes-ESC; Interchange at Route 1. | Yes-ESC. | Yes-ESC. | Yes-If VDC 3. |
| G | No. | No. | No. | Yes-If VDC 3. |
| G.1 | No. | No. | No. | Yes-If VDC 3. |
| G.2 | No. | No. | No. | No. |
| No-Action | No. | No. | No. | No. |

David S. Voorhees House

The No-Action Alternative would not physically impact the property. If VDC 1 or 2 is selected to accompany an Action Alternative, some property acquisition may be required. However, the structure would not be physically impacted by any of the Action Alternatives.

Delaware and Raritan Canal State Park and Historic District

The No-Action Alternative, as well as the A, B, C, D, D.1, D.2, E, F, and G Alternatives would result in no physical impacts to the District. The A, B, and F Alternatives and the D and D.2 alternatives would result in improved sight distance for motorists and Park users at Harrison Street due to the realignment of Harrison Street near the canal crossing. The A, B, C, D, E, F, and G alternatives would increase traffic volumes on Harrison Street, while reducing traffic at the Washington and Alexander Road crossings. The No-Action alternative would result in increased traffic volumes at all three crossings.

Lake Carnegie Historic District

The Action and No-Action Alternatives would result in no physical impacts on the District.

Pennsylvania Railroad Historic District

The No-Action Alternative would result in no physical impacts to the District. All Action Alternatives would impact the District by replacing the Route 571 bridge over

the District. The VDC 1 alignment may have an adverse effect on the Princeton Junction Hotel, which is a contributing element to the District.

Princeton Baptist Church at Penns Neck

The No-Action and Action Alternatives would result in no physical impacts to the Church complex. All Alternatives but G and G.1 would eliminate the traffic signals, thereby reducing congestion on Route 1 at the church. The C Alternatives, as well as G and G.1 would shift Route 1 away from the church, thereby benefiting the church by increased separation from Route 1. The A, D, E, and F alternatives would also shift Route 1 to the west, but would place Route 1 in-a-cut, thereby having a positive effect on the church and its complex.

Princeton Branch (Dinky), D&R Canal Bridge

The Action and No-Action Alternatives would result in no physical impacts on the property.

Princeton Operating Station

The No-Action Alternative would not physically impact the Station property. The D, E, and G alternatives would have no physical impact on the property. All Alternatives but G and G.1 would reduce traffic congestion by eliminating the signals in the study area. The A, B, C, and F Alternatives would physically impact the property, likely requiring the demolition or relocation of the structure.

Washington Road Elm Allee

The No-Action Alternative would not physically impact the allee property. All Action Alternatives would reduce traffic volumes on Washington Road, resulting in a benefit to the allee. Alternative B and B.1 would physically impact approximately three allee trees. Alternative B.2 would physically impact approximately four allee trees. Alternative G.1 would impact approximately three allee trees.

Archaeological Site 28 ME 2

The No-Action Alternative, as well as the E and G Alternatives would not physically impact the site. The A, B, C, D, and F Alternatives would physically impact the site.

Archaeological Site 28 ME 23

The No-Action Alternative, as well as the C and G Alternatives would not physically impact the site. The A, B, E, and F Alternatives, and D and D.1, would physically impact the site.

Archaeological Site 28 ME 86

The No-Action Alternative, as well as the C and G Alternatives would not physically impact the site. The A, B, E, and F Alternatives, and D and D.1, would physically impact the site.

Archaeological Site 28 ME 291

The VDC 3 alignment would impact this site. The No-Action Alternative, VDC 1, VDC 2, as well as any Action Alternatives that do not include VDC 3, would not impact this site.

6.4 Alternatives to the Use of Section 4(f) Property

An examination was made of alternatives that could avoid or minimize impacts on Section 4(f) properties. The regulations governing Section 4(f) stipulate that the following three alternatives be explored: No-Action; improve the facility without using the protected 4(f) property; and improve the facility at a new location without using the protected 4(f) property.

6.4.1 No-Action

As described in Section 6.3 above, the No-Action Alternative would have no physical impact on Section 4(f) properties. However, in a No-Action Alternative traffic volumes would increase, causing greater congestion in the study area. As a "do nothing alternative," the No-Action Alternative would not meet the project purpose and need as taking no action would not address current or design year traffic congestion, mobility constraints, and safety concerns on Route 1 and east-west cross streets. With respect to the goals and objectives, the No-Action Alternative would not impact natural and cultural resources, but will degrade noise levels, air quality conditions, community access, neighborhood integrity, and would be inconsistent with state and local master plans. The No-Action Alternative would have a neutral impact on business and institutional communities, land use patterns, and pedestrian and bicycle access. Overall, the No-Action Alternative does not meet the project purpose and need as well as its goals and objectives.

6.4.2 Improve the Facility Without Using the Protected 4(f) Property

The 19 Action Alternatives would physically impact between one and nine Section 4(f) properties, depending on the alternative considered. None of the Action Alternatives can avoid impacts to Section 4(f) properties. An examination of the improvements that could be undertaken without impacting Section 4(f) properties was undertaken. Traffic signals could be eliminated at the Route 1 intersections with Washington Road, Fisher Place, and Harrison Street. Route 1 could be widened, shifted to the west, and constructed in-a-cut south of the Millstone River without impacting Section 4(f) properties. Widening Route 1 north of the Millstone River to unify the roadway section, however, could not be done without an impact to the Aqueduct Mills Historic District.

Eliminating the traffic signals on Route 1 would necessitate providing alternative east-west crossing route(s). Routing traffic to Alexander Road would not physically impact Section 4(f) properties. However, traffic impacts on neighborhoods in Princeton Junction and Princeton would be significantly adverse. Washington Road

and Harrison Street would handle substantially reduced traffic volumes compared to their current proportions. Alternatives G and G.1 exemplify that traffic pattern.

An east-side connector could not be constructed without impacting Section 4(f) properties. The west-side connectors and their interchanges that could be constructed would not impact Section 4(f) properties include D, D.2, and E.

Based on this evaluation, Action Alternatives C.1 with VDC 2 or 3, and D.2 with VDC 2 or 3 would have the least physical impacts on Section 4(f) properties. C.1 or D.2 would have unavoidable impacts on the Aqueduct Mills Historic District, 28ME2, and either the David S. Voorhees House (land acquisition only) or 28ME291.

As stated, eliminating the Aqueduct Mills District impact would involve retaining the existing, inconsistent roadway section of Route 1 north of the Millstone River. Maintaining the current section would perpetuate capacity and safety limitations and would be contrary to the purpose and need and associated goals and objectives for Route 1 mobility, access, and safety.

Eliminating impacts to 28ME2 would necessitate maintaining the existing Route 1 alignment and eliminating the frontage roads. The analyses results presented in the DEIS demonstrate that, in the absence of an east-side connector, frontage roads are needed to process the traffic demand at an acceptable level of service. In the absence of frontage roads, the C.1 and D.2 alternatives cannot provide acceptable east-west access and mobility across Route 1 as mandated by the purpose and need.

Eliminating the impacts of the Vaughn Drive connector would involve selecting VDC 2 and shifting the alignment to avoid acquisition of Voorhees House property. Shifting the alignment would result in acquisition of commercial property and possibly building impacts and business relocations.

The result of this examination is a hybrid alternative that would not meet the purpose and need due to the lack of several key components and it will be eliminated from further consideration.

6.4.3 Build a New Facility at a New Location Without Affecting the Section 4(f) Property

As discussed in the foregoing section, unifying the Route 1 section, removing signals, and providing alternative east-west routing across Route 1 cannot be undertaken without impacting Section 4(f) properties. The 19 Action Alternatives were developed with an understanding of the purpose and need, goals and objectives, and existing natural and built environment conditions in the study area and larger region. As such, these alternatives were conceived in the context of the many capabilities and constraints that are endemic to the study area. Each alternative contains some components that seek to improve conditions on existing roadways and some components that would constitute new roadways in new locations. Considering

alternative alignments or solutions outside the study area was determined to be inappropriate as the traffic problems are localized in nature and the natural and built environmental constraints located peripherally to the study area are many and significant. Thus, the ability to build a new facility at a new location without affecting Section 4(f) resources was determined to be infeasible.

6.5 Measures to Minimize Harm

The Action Alternatives have been conceptually designed to avoid, or at least minimize natural and built environmental impacts, including those to Section 4(f) properties. However, the design phase of a selected alternative would provide an opportunity to take a detailed look at ways to further avoid and/or minimize possible adverse impacts to Section 4(f) and other resources.

Historic Properties

All Section 4(f) properties identified in this Evaluation are historic or archaeological properties. Prior to design, formal Section 106 consultation on the preferred alternative will result in a set of commitments to closely examine means to avoid and minimize adverse impacts, and specific mitigation strategies to overcome adverse impacts. Mitigation for unavoidable impacts to cultural resources would be identified in Environmental Commitments to be developed between the NJDOT, the FHWA, the SHPO, and Advisory Council on Historic Preservation. As the Section 106 and NEPA processes are merged for this project, a comprehensive set of Environmental Commitments for natural and built environment impacts, including Section 4(f) properties, will result. Thus, there are numerous opportunities during and after the NEPA process to refine a selected alternative so as to have the least adverse impacts as reasonably possible.

D&R Canal Park

The D&R Canal Park is not only an historic property but also a public parkland. Unavoidable impacts of an Action Alternative to the D&R Canal Park would be subject to approval by the Delaware and Raritan Canal Commission. The Commission will take an interest in physical impacts as well as drainage and water quality, natural ecosystems, and the aesthetics of the Park. The reader is referred to the *Natural Ecosystems Technical Environmental Study for the Penns Neck Area EIS* for discussion of impact issues and mitigation concepts associated with drainage, water quality, and natural ecosystems issues.

6.6 Summary of Section 4(f) Coordination

The public agencies having jurisdiction over the Section 4(f) properties include the SHPO, the D&R Canal Commission, and representatives of West Windsor and Plainsboro Townships. As part of an extensive agency, organization, and public outreach program implemented as part of this project, representatives of these public agencies participated in the Penns Neck Area EIS Roundtable Advisory Group. The Roundtable was responsible for drafting the project Goals and Objectives, and for

developing the 18 Action Alternatives examined in this EIS. The reader is referred also to Section 7.0 of this EIS for greater discussion of the outreach program.

In compliance with Section 106 of the National Historic Preservation Act, consultation was re-initiated for this project with the SHPO and Consulting Parties. The latter includes but is not limited to the SHPO, the D&R Canal Commission, and representatives of West Windsor and Plainsboro Townships, who have jurisdiction over the Section 4(f) properties. The reader is referred also to Section 4.5 of this EIS for greater discussion of the Section 106 process. This draft Section 4(f) evaluation will be subject to agency and public comment as part of the public hearing process for the DEIS.

6.7 Conclusion

An examination was made of alternatives that could avoid or minimize impacts on Section 4(f) properties to fulfill the requirements of Section 4(f) of the 1966 USDOT Act (49 USC 303, 23 USC 138, and 23 CFR 771.135). The findings of the analysis are listed below:

- No-Action - The No-Action Alternative does not meet the project purpose and need as well as its goals and objectives.
- Improve the facility without using the protected 4(f) property - A hybrid of the Action Alternatives was considered, but it would not meet the purpose and need due to the lack of several key components and it will be eliminated from further consideration.
- Improve the facility at a new location without using the protected 4(f) property - The ability to build a new facility at a new location without affecting Section 4(f) resources was determined to be infeasible.

The public agencies having jurisdiction over the Section 4(f) properties include the SHPO, the D&R Canal Commission, and representatives of West Windsor and Plainsboro Townships. Representatives of these public agencies participated in the Penns Neck Area EIS Roundtable Advisory Group which was responsible for drafting the project Goals and Objectives, and for developing the Action Alternatives examined in this EIS.

Prior to design, formal Section 106 consultation on the preferred alternative will result in a set of commitments to closely examine means to avoid and minimize adverse impacts, and specific mitigation strategies to overcome adverse impacts. Mitigation for unavoidable impacts to cultural resources would be identified in Environmental Commitments to be developed between the NJDOT, the FHWA, the SHPO, and Advisory Council on Historic Preservation.

Chapter 7.0

Agency and Public Outreach and Coordination

7.0 Agency and Public Outreach, and Coordination

7.1 Introduction and Purpose

The agency coordination and public involvement program for the Penns Neck Area EIS was established to ensure that the examination of multi-modal options to address traffic and mobility problems on U.S. Route 1 and east-west streets in the Penns Neck area and its environs would be supported by a comprehensive and extensive program of public outreach and involvement activities. The program, which was implemented throughout the 24-month scoping and EIS processes, was developed in full compliance with federal public involvement regulations and significantly exceeded NEPA requirements for preparation of an EIS. It was specifically designed as an open and ongoing process aimed at establishing and maintaining effective dialogue between interested and involved constituencies, stakeholders, and public agencies.

The program's principal objective was to facilitate open lines of communication and information-sharing, active engagement, and maximum participation of the public throughout the scoping, strategy screening, alternatives evaluation, and impact analysis phases of the EIS process. This was achieved through a multi-faceted cooperative approach that involved municipal, state, regional, and federal agencies, as well as a broad spectrum of interested publics.

Interaction and informational components of the program included large public forums, small group meetings and presentations, regular meetings of a project advisory committee known as the Partners' Roundtable, continual updating of a project website and informational repositories, and distribution of project mailings to over 400 groups and individuals. By implementing these and other activities to involve the public in all stages of EIS development, the program aimed at building consensus for advancement of an alternative that would meet the transportation, environmental, recreational, open space, development and community needs of the diverse stakeholders and constituencies it was designed to serve. Significant elements of the program are described below. Materials referenced in this chapter are found in a separate document entitled *Penns Neck Area EIS: Documentation of Public Involvement Activities*, which is available for review at the six document repository locations listed in Appendix E. The contents of this document are listed in section 7.4.

7.2 Program Elements – Interaction

7.2.1 Interviews

The public scoping process began in May 2001, with a series of interviews conducted by the project team to identify the purpose and need, the range of alternatives, and significant issues to be addressed in the EIS. Interview participants included 92 individuals, representing 45 constituencies, including elected officials; state, municipal, county, and regional agencies; institutional and other stakeholder bodies; civic and public interest groups; transportation, environmental, planning, historic preservation, and business organizations; residents and members of neighborhood

groups; and other individuals reflecting a diverse range of views and interests. The interviews were instrumental in identifying and documenting significant project issues, including those relating to local and regional mobility; land use; environmental, historic, cultural, and archeological resources and potential impacts; and neighborhood preservation.

7.2.2 Partners' Roundtable Advisory Committee

A project advisory body, known as the Partners' Roundtable, began meeting in June 2001 to assist in shaping the EIS process, providing input into screening and evaluating the actions and alternatives selected for detailed analysis in the Draft EIS, and achieving consensus on a wide range of topics. The Roundtable, which met approximately 35 times during preparation of the Draft EIS, was composed of community partners from the public, private, and nonprofit sectors. Its 32 members represented citizens groups, business organizations and stakeholders; the governments of West Windsor Township, Princeton Township, Princeton Borough, Plainsboro Township, Mercer County and Middlesex County; transportation advocacy groups; FHWA; DVRPC; NJDOT; and other State agencies.

List of Roundtable Members

- Chamber of Commerce of the Princeton Area
- Delaware and Raritan Canal Commission
- Delaware Valley Regional Planning Commission
- Federal Highway Administration
- Greater Mercer County Chamber of Commerce
- Greater Mercer Transportation Management Association
- Harrison Street Neighborhood Association
- Mercer County
- Middlesex County
- Millstone Bypass Alert
- New Jersey Transit
- New Jersey Department of Environmental Protection
- New Jersey Department of Transportation
- New Jersey Transportation Planning Authority
- Penns Neck Community
- Plainsboro Township
- Princeton Borough
- Princeton Junction Communities
- Princeton Shopping Center Merchants Association
- Princeton Township
- Princeton University
- Regional Planning Partnership
- Sarnoff Corporation
- Sensible Transportation Options Partnership
- Sierra Club
- Stony Brook-Millstone Watershed Association
- The Borough Merchants for Princeton
- Tri-State Transportation Campaign
- Washington Road Elms Preservation Trust
- West Windsor Citizens for Transportation Alternatives
- West Windsor Division of the Greater Mercer County Chamber of Commerce
- West Windsor Township

The Roundtable engaged in extended dialogue and document review related to all aspects of EIS development, including delineation of the project study area; preparation of a Purpose and Need Statement, Working Problem Statement, definition of project Goals and Objectives, and review of actions and alternatives that were considered for detailed analysis in the Draft EIS. Topics covered during Roundtable presentations and discussions included the following:

- Overview of the EIS Process
- Public Involvement Process Issues
- Roundtable Rules and Procedures
- EIS Purpose and Need
- Problem Statement
- Project Goals and Objectives
- Origin and Destination Survey
- Travel Demand Management (TDM) Strategies
- Overview of the Central Jersey Transportation Forum
- Transit Actions and Alternatives (Including Bus Rapid Transit Options)
- Road-Based Mobility Actions and Alternatives
- East-West Origin and Destination Study
- Skycomp Aerial Traffic Survey
- Primary Study Area Demographics and Future Year Forecasts
- Secondary Study Area Demographics and Future Year Forecasts
- Road-based Alternatives "Bundling" Approach
- Traffic Study Methodology
- Technical Environmental Study Methodologies
- Analysis of Existing Traffic Conditions
- No-Action Future Roadway Network Assumptions
- Penns Neck Area Travel Demand Forecasting
- Analysis of 2008 and 2028 No-Action Traffic Conditions
- Constructability of Route 1 In-a-Cut
- Commute Options Package
- Technical Environmental Studies – Existing Conditions
- Potential Traffic and Circulation Impacts
- Traffic Sensitivity Tests
- Potential Impacts to the Natural Environment
- Potential Impacts to the Built Environment
- Other Potential Areas of Impact
- Secondary and Cumulative Effects Analysis

The Partners' Roundtable meetings culminated with a series of Synthesis Workshops. The purpose of the synthesis workshops was to:

1. Review the project goals and objectives;
2. Discuss the findings of the traffic and technical environmental studies in the context of the project goals and objectives;
3. Identify areas of possible agreement;

4. Explore trade-offs and mitigation for areas of possible agreement; and finally
5. Determine areas of agreement relative to the alternatives considered in the EIS.

A summary report on the synthesis workshops is included in Appendix E.

7.2.3 Public Scoping Forum

The Penns Neck Area EIS project was officially introduced to the general public on December 4, 2001, from 10AM to 11PM, at a Public Scoping Forum that was held at the West Windsor Township Municipal Building. This Scoping Forum and its accompanying Open House served as an integral part of the ongoing scoping process, by providing the public with an overview of the Penns Neck Area EIS process and approach, along with an opportunity to provide input instrumental to framing the scope of work for the EIS studies. Over 200 people attended the forum, and over 160 people provided testimony, either at the session or in written statements submitted during the public comment period that ended on January 7, 2002.

The formal portion of the Scoping Forum included two presentations, followed by public comment periods to receive input from all persons who wished to testify. The morning presentation was videotaped and available for viewing throughout the day. Informal opportunities to discuss project issues with staff were available at an all-day-and-evening Open House.

The presentations, by project team members, provided a detailed review of the study, including its history; an overview of the EIS process and NEPA procedures; a detailed description of the specific EIS approach adopted for this study; a summary of the categories of potential actions and alternatives under consideration; and discussion of the public outreach program. 110 individuals provided testimony regarding the scope of the EIS during the public comment period, which was documented by audio-tape and stenographic services. Although speakers were encouraged to register in advance, all on-site requests to testify were honored. The resulting oral testimony and approximately 50 written statements forwarded subsequent to the forum provided a broad range of comments and suggestions regarding the scope of the EIS and other issues regarded as critical by local and regional constituencies. Comments fell into a number of principal, and occasionally overlapping, categories reflecting concerns about traffic congestion; the extent of the study area; travel patterns; roadway and interchange design; transit, bicycle, and pedestrian options and safety; TDM and TSM alternatives; environmental impacts; archeological and historic resources; environmental data collection and use; impacts to subsidized housing developments; and public outreach. Specific questions raised in oral and written testimony were addressed in a Response Document drafted by the project team.

In preparation for the Scoping Forum, letters of invitation, a listing of repository locations, and a Synopsis of Background Information on the Environmental Review Scoping Process were distributed to over 250 persons on the project mailing list. The

Scoping Synopsis summarized the environmental review process and the information to be presented at the Scoping Forum. The Forum was also announced through display advertisements that appeared in nine (9) local and regional newspapers; flyers that were distributed to minority churches in the study area; and an announcement on the project website (see Appendix E).

7.2.4 Agency Scoping Meeting

An Agency Scoping meeting was held on June 26, 2002 to provide public agencies with an opportunity to comment on the scope of the EIS. All relevant resource agencies were invited to attend the Agency Scoping Meeting. The meeting was attended by representatives of FHWA, NJDOT, and NJDEP. It included an overview of the study by members of the project team, along with a discussion of the overall project timeframe and need for expedited agency review of EIS-related deliverables. Questions and comments addressed at the meeting focused on issues involving land use, the environment and Section 106. No new issues were raised at this meeting.

7.2.5 Large Group Forums

The public involvement program for the Penns Neck Area EIS included two large group forums in addition to the Public Scoping Forum. An In-Progress Review was conducted on September 30, 2002, from 10AM to 10PM, in order to update the public on the status of the EIS and to provide an opportunity for informal but detailed discussion of specific aspects of the study. The forum, which took place at the New Jersey Hospital Association Conference Center, West Windsor, was organized as a highly interactive session in order to offer maximum opportunities for public review and discussion of project data, documents, and exhibits. Throughout the day and evening, members of the project team and NJDOT representatives staffed information stations that covered the actions and alternatives under consideration, traffic studies and the traffic modeling effort, the EIS and community outreach processes, and the environmental studies and Section 106 process. Extensive narrative and graphic materials, including plans and drawings of the road-based alternatives, were on display and two formal presentations provided a detailed review of project history and status. The morning presentation was videotaped and available for viewing throughout the day.

The In-Progress Review was announced through letters of invitation which were sent to over 400 individuals on the project mailing list; an announcement on the project website; and advertisements in five (5) local and regional newspapers (see Appendix E). In addition, a comprehensive project Newsletter that detailed information to be presented at the In-Progress Review was distributed to all persons on the project mailing list in advance of the Forum.

The In-Progress Review was attended by approximately 150 persons, representing a wide variety of stakeholders and constituencies, including public officials; representatives of public agencies; residents and members of neighborhood organizations; and representatives of civic, environmental, and public interest groups. Handouts, including copies of the presentation and August 2002 Project Newsletter,

as well as a comment sheet on which to document recommendations and concerns, were available for all attendees.

Documentation of the In-Progress Review was provided by means of a Summary Report that was based on the input provided on comment sheets completed at the forum or submitted during the public comment period that followed.

The Report recaps written comments compiled from 42 public comment sheets and eight (8) staff summary sheets. Its content reflects a qualitative assessment of public input, due to the informal nature of the forum and the receipt of input on individually prepared comment sheets. It is therefore primarily of value in highlighting recommendations and issues of concern and in indicating that specific issues were of particular importance because they were raised by multiple attendees. In attempting to provide a general overview of comments, it should be noted that each alternative and action under consideration received a range of support and opposition. While there was no consensus on a preferred alternative, specific features such Route 1 in-a-cut, and the Vaughn Drive Connector road received overwhelming support. Conversely, numerous people expressed concern about the quality of the environmental studies, the recently accelerated pace of the project, and the comprehensiveness and quality of the Section 106 inventory. In addition, attendees proposed several new alternatives and options or the 'mixing and matching' of pieces of the alternatives that were presented.

A second In-Progress Review was held at the New Jersey Hospital Association on March 5, 2003, from 6PM to 11PM, to update the public on the results of the technical studies that assessed impacts to traffic, the natural environment and the built environment. Once again, the forum was organized as a highly interactive session in order to offer maximum opportunities for public review and discussion of project data, documents, and exhibits. Throughout the evening, members of the project team and NJDOT representatives staffed information stations that covered the actions and alternatives under consideration and potential traffic impacts; potential impacts to the built environment, including potential impacts to cultural resources assessed under the Section 106 process; and potential impacts to the natural environment. Extensive narrative and graphic materials, including plans and drawings of the road-based alternatives, were on display and a formal presentation provided a detailed overview of potential impacts from the alternatives.

The In-Progress Review was announced through letters of invitation which were sent to over 400 individuals on the project mailing list; an announcement on the project website; and advertisements in five (5) local and regional newspapers (see Appendix E). The In-Progress Review was attended by approximately 100 persons, representing a wide variety of stakeholders and constituencies, including public officials; representatives of public agencies; residents and members of neighborhood organizations; and representatives of civic, environmental, and public interest groups. Handouts, including copies of the presentation and the In-progress Review

Newsletter, as well as a comment sheet on which to document recommendations and concerns, were available for all attendees.

Documentation of the In-Progress Review was provided by means of a Summary Report that was based on the input provided on comment sheets completed at the forum or submitted during the public comment period that followed.

7.2.6 Public Hearing

A Public Hearing is tentatively scheduled for late Spring 2003 to present the Draft EIS and receive official public testimony.

[DETAILS TO BE INCLUDED IN FINAL EIS]

7.2.7 Small Group Meetings and Presentations

Continuing opportunities for small group meetings, presentations, and workshops were provided by the project team throughout the EIS process. Discussions with public agencies, stakeholders, constituencies and other interested parties covered a broad range of issues including, but not limited to, possible road-based alternatives; opportunities for BRT in the study corridor; population and employment forecasts for the study area; potential impacts to the built and natural environments; and pedestrian and bicycle issues in the corridor. In addition, a workshop was held to discuss the unique elements of the Penns Neck Area EIS model, its development and validation procedures, and its travel demand forecasting assumptions. Finally, a series of three Consulting Parties workshops were held to discuss the Section 106 process, cultural resources inventories and the Draft Effects Assessment document.

In order to ensure widespread dissemination of information to local groups that might not previously have been fully briefed on the project, meetings were also held with communities in the Princeton Junction area and with residents of Lower Harrison Street.

Throughout development of the Draft EIS, NJDOT has maintained open communication and coordination with FHWA, NJ Transit, the SHPO, and other regulatory agencies through informal meetings and conversations, interaction at meetings of the Central Jersey Transportation Forum, and these agencies' participation in large public forums and Roundtable sessions. Monthly Steering Committee meetings at NJDOT have ensured the active ongoing participation of FHWA in project decisions, and the SHPO was involved in review and comment on all aspects of the Section 106 process.

7.3 Program Elements – Information

7.3.1 Notice of Intent

The FHWA issued a Notice of Intent in the Federal Register on January 8, 2001 to advise the public that an EIS would be prepared in cooperation with NJDOT for “changes being considered to Route 1 and intersecting roadways in the greater Penn’s Neck Area to improve transportation service.” The Notice defined the area under evaluation as generally being the section of Route 1 from the Alexander Road Interchange in West Windsor Township in Mercer County to the Scudders Mill Road Interchange in Middlesex County. It indicated that the EIS would examine No-Action and Action Alternatives to determine their potential impacts and costs and specified that the EIS was being prepared to allow broad public participation in the process and a comprehensive evaluation of alternatives and impacts (see Appendix E).

7.3.2 Project Website

A project website was established as a significant means of disseminating information about the study. The website, www.pennsneckareaeis.org, contained all key study documents and products, including those related to actions and alternatives under consideration; traffic conditions and modeling; demographics and land use; and the technical environmental studies. Other materials available on the website included Roundtable and Public Forum presentations, Roundtable minutes, meeting reports, graphics, correspondence, and a schedule of study events. A guest book encouraged visitors to leave comments and recommendations. The website was frequently updated to ensure that current study information was accessible to the widest possible audience. All information provided on the website was also available in hard copy format and at the information repositories.

7.3.3 Information Repositories

Project repositories were established at the beginning of the EIS process to provide the public with timely access to project information at convenient neighborhood facilities. Four repository sites were located in the primary study area (one each in Plainsboro Township, Princeton Borough, Princeton Township, and West Windsor Township). Additional information repositories were established at the Transportation Policy Institute of the Edward J. Bloustein School at Rutgers University in New Brunswick and at NJDOT’s headquarters in Ewing Township. All information available at the information repositories was also available in digital format on the project website. Information on document repository locations can be found in Appendix E.

7.3.4 Newsletter

An In-Progress Review newsletter was distributed in September 2002 to update the Penns Neck community on project progress since the December 4, 2001 Scoping Forum. The eight-page newsletter detailed early EIS efforts, including the development of a Working Problem Statement and Project Goals and Objectives; reported on the activities of the Partners’ Roundtable; documented the early

evaluation of transit, TDM, and road-based actions and alternatives; provided an introduction to the primary EIS categories; reviewed existing travel conditions; provided a summary of base year demographics and development forecasts; and described the Section 106 process for assessing historic properties. The major portion of the newsletter provided a comparison of the road-based alternatives, both in narrative and graphic form. The newsletter was mailed to over 450 persons and distributed at local libraries and municipal buildings. It was also available as one of the handouts at the September 30, 2002 and March 5, 2003 In-Progress Review forums.

7.4 Program Documentation

Agency coordination and public involvement activities were thoroughly documented by means of meeting reports, minutes, and correspondence. Minutes were prepared to summarize interviews, presentations, and Roundtable meetings. Meeting reports or memoranda provided highlights of public forums, small group meetings, and individual contacts. Transcripts and videotapes provided official records of the Public Scoping Forum and Draft EIS Public Hearing. Specific questions and requests received from the public were documented and related follow-up items addressed by means of correspondence, email, or telephone response. In some instances, meetings were scheduled to provide opportunities for more detailed review and discussion of a specific issue.

As referenced in section 7.1, a separate volume containing materials related to program documentation was compiled and made available at six document repositories. The following materials are included in this reference document:

- Interview Reports
- Public Scoping Forum – Synopsis of Background Information
- Public Scoping Forum – Response Document and Sign-in Sheet
- Partners' Roundtable Meeting Reports and Sign-in Sheets
- Consulting Parties Workshop Meeting Reports
- September 30, 2002 In-Progress Review – Handouts and Newsletter
- September 30, 2002 In-Progress Review – Summary Report and Sign-in Sheets
- March 5, 2003 In-Progress Review – Handout
- March 5, 2003 In-Progress Review – Summary Report and Sign-in Sheets
- Final Project Mailing List

7.5 Response to Comments on the Draft Environmental Impact Statement

7.5.1 Introduction

7.5.2 List of DEIS Commenters

7.5.2.1 Response to Comments

7.5.2.2 Project Purpose and Need

7.5.2.3 Public Hearing Comment Period and Review Procedures

7.5.2.4 Project Alternatives

7.5.2.5 Affected Environment and Environmental Consequences

7.5.2.6 Evaluation of Alternatives

7.5.2.7 Section 4(f) Evaluation

7.5.2.8 Construction Impacts

[TO BE INCLUDED IN FINAL EIS]

Chapter 8.0

Agencies, Organizations and
Individuals Sent This EIS

8.0 Agencies, Organizations, and Individuals Sent this EIS

This section includes lists of agencies, organizations, and individuals sent this EIS.

John J. Reiser, P.E.
Middlesex County Engineer's Office
333 Townsend Street
P.O. Box 1248
New Brunswick, NJ 08903

Engineers Office
West Windsor Township
271 Clarksville Road
PO Box 38
West Windsor, NJ 08550

Engineers Office
Plainsboro Township
641 Plainsboro Road
Plainsboro, NJ 08536

Engineers Office
Princeton Township
369 Witherspoon Street
Princeton, NJ 08540

Engineers Office
Princeton Borough
PO Box 390
1 Monument Drive
Princeton, NJ 08542

US Department of the Interior
Fish & Wildlife Service
927 North Main Street
Building D1
Pleasantville, NJ 08232

US Department of the Interior
National Parks Service
143 South 3rd Street
Philadelphia, PA 19106

Director, Office of Nuclear Material Safety
& Safeguards
Nuclear Regulatory Commission
Washington, DC 20555

Thomas Creamer
US Army Corps of Engineers
North Atlantic Division
Fort Hamilton Community, Bldg. 301
General Lee Avenue
Brooklyn, NY 11252

Office of Secretary
New Jersey Department of Agriculture
P.O. Box 330
Trenton, NJ 08625

Department of Commerce & Economic
Development
Division of Economic Development
P.O. Box 823
Trenton, NJ 08625

Lawrence Schmidt
Administrator, Program Coordinator
NJ Department of Environmental Protection
401 East State Street
7th Floor
P.O. Box 418
Trenton, NJ 08625-0418

New Jersey Transit
One Penn Plaza East
P.O. Box 10009
(Send by Interoffice Mail)
Newark, NJ 07105

Center for Disease Control
Center for Environmental Health & Injury
Control
Special Programs Group
Mail Stop F-29
1600 Clifton Road
Atlanta, GA 30333

James Amon
Executive Director
Delaware & Raritan Canal Commission
Prallsville Mills
P.O. Box 539
Stockton, NJ 08559-0539

John J. Coscia
Executive Director
Delaware Valley Regional Planning
Commission
The Bourse Building -8th Floor
111 So. Independence Mall-East
Philadelphia, PA 19106-2515

Donald D. Applegate
Executive Secretary
State Agriculture Development Committee
P.O. Box 300
Trenton, NJ 08625

Executive Director
Delaware River Basin Commission
25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628-0360

Director, Office of Policy & Strategic
Planning
National Oceanic and Atmospheric
Administration
US Department of Commerce, Room 5805
14th & Constitution Ave., N.W.
Washington, DC 20230

David Stem, P.E.
County of Mercer
County Engineer's Office
County Administration Building
640 Broad Street
P.O. Box 8068
Trenton, NJ 08650

Deputy Assistant
Secretary of Defense
Environment and Safety
Pentagon, Room 3B, 252
Washington, DC 20301

Regional Directory, Region II
Federal Emergency Management Agency
26 Federal Plaza, Room 1337
New York, NY 10278-0022

Regional Directory, Northeast Region
National Marine Fisheries Service
1 Blackburn Drive
Gloucester, MA 01930

Acting Coordinator, Office of the Secretary
US Department of Agriculture
Environmental Quality Activities
Washington, DC 20250

Federal Energy Regulation Commission
Environmental Evaluation Branch
825 North Capital St., N.E., Room 7102
Washington, DC 20426-0001

Federal Railroad Administration
Intermodal Freight Industry
Analysis Division (RRP-13)
400 Seventh Street, S.W.
Washington, DC 20590

Department of Energy
Division of NEPA Affairs
Room 4G 064
1000 Independence Avenue, S.W.
Washington, DC 20585-0001

Dennis L. Merida
Division Administrator
Federal Highway Administration
840 Bear Tavern Road
Suite 310
Trenton, NJ 08628

Grace Musumeci
US Environmental Protection Agency
Environmental Impacts Branch
Region II
290 Broadway, 25th Floor
New York, NY 10007-1866

Department of Health & Human Services
Room 542E, Hubert H. Humphrey Bldg.
200 Independence Avenue, S.W.
Washington, DC 20201-0001

US Department of the Interior
Office of Environmental Policy &
Compliance
Main Interior Building MS 2340
1849 C Street, N.W.
Washington, DC 20240

Director, Eastern Region
Federal Aviation Administration
Federal Building, JFK International Airport
Jamaica, NY 11430-2181

US Department of Agriculture
Natural Resource Conservation Service
1370 Hamilton Street
Somerset, NJ 08873

Director, Office of Federal Activities
US Environmental Protection Agency
NEPA Compliance Division
EIS Filing Section, Mail Code 2252-A
401 M. Street, S.W.
Washington, DC 20460

Regional Administrator, Region II
US Department of Housing & Urban
Development
Environmental Clearance Office
26 Federal Plaza
New York, NY 10278-5806

Executive Director
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Ave., N.W.
Suite 809
Washington, DC 20004-2590

General Services Administration
Public Building and Real Property
26 Federal Plaza
New York, NY 10278-0022

Mr. Anthony Carr
Regional Administrator
Federal Transit Administration
One Bowling Green, Room 429
New York, NY 10004-1415

Commander
First Coast Guard District
408 Atlantic Avenue
Boston, MA 02210-2209

Commander
First Coast Guard District
Battery Park Building
New York, NY 10004-5073

The members of the Partners' Roundtable will receive a copy of the DEIS:

- Chamber of Commerce of the Princeton Area
- Delaware and Raritan Canal Commission
- Delaware Valley Regional Planning Commission
- Federal Highway Administration
- Greater Mercer County Chamber of Commerce
- Greater Mercer Transportation Management Association
- Harrison Street Neighborhood Association
- Mercer County
- Middlesex County
- Millstone Bypass Alert
- New Jersey Transit
- New Jersey Department of Environmental Protection
- New Jersey Department of Transportation
- North Jersey Transportation Planning Authority
- Penns Neck Community
- Plainsboro Township
- Princeton Borough
- Princeton Junction Communities
- Princeton Shopping Center Merchants Association
- Princeton Township
- Princeton University
- Regional Planning Partnership
- Sarnoff Corporation
- Sensible Transportation Options Partnership
- Sierra Club
- Stony Brook-Millstone Watershed Association
- The Borough Merchants for Princeton
- Tri-State Transportation Campaign
- Washington Road Elms Preservation Trust
- West Windsor Citizens for Transportation Alternatives
- West Windsor Division of the Greater Mercer County Chamber of Commerce
- West Windsor Township

The Section 106 Consulting Parties and Tribal Contacts will receive a copy of the DEIS:

- Advisory Council on Historic Preservation
- Delaware and Raritan Canal Commission
- Delaware Nation
- Delaware Tribe of Indians
- Mercer County
- Nanticoke-Lenni Lenape Indian Center
- National Trust for Historic Preservation
- New Jersey Commission of American Indian Affairs
- New Jersey State Historic Preservation Office
- Plainsboro Township
- Princeton Borough
- Princeton Township
- Princeton University
- Sarnoff Corporation
- Sierra Club (Central Jersey)
- Stony Brook-Millstone Watershed Association
- Washington Road Elms Preservation Trust
- West Windsor Township

Legislators who will receive a copy of the DEIS:

- U.S. Congressman Rush Holt,
District 12
- NJ Senator Peter A. Inverso, District
14
- NJ Assemblywoman Linda R.
Greenstein, District 14
- NJ Assemblyman Gary L. Guear,
Sr., District 14
- NJ Senator Shirley K. Turner,
District 15
- NJ Assemblyman Reed Gusciora,
District 15
- NJ Assemblywoman Bonnie Watson
Coleman, District 15

Chapter 9.0

Glossary and List of Abbreviations

9.0 Glossary and List of Abbreviations

A-Weighted Sound Level - A method of representing the human ear's interpretations of the loudness of an equal sound level throughout the audible frequency range. The scale is normally referenced to the loudness at 1 kHz.

Air pollution - The general term alluding to the undesirable addition to the atmosphere of substances (gases, liquids, and solid particles) either that are foreign to the "natural" atmosphere or in quantities exceeding their natural concentrations.

Air Quality - The composition of air with respect to quantities of pollutants therein; used mostly frequently in connection with "standards" of maximum acceptable pollutant concentrations.

Ambient Air Quality Standards (AAQS) - Maximum allowable contaminant concentrations set by State and Federal agencies to protect public health and welfare. The standards were developed to protect those people who are especially susceptible to the effects of air pollutants. These susceptible individuals are primarily the very old, the very young, and those with cardiac insufficiencies, anemia, and/or respiratory difficulties.

APE - Area of Potential Effects, with respect to historic resources.

Aquifer - A water-bearing unit of permeable rock, sand, or gravel that yields considerable quantities of water to springs and wells.

ASTM - American Society for Testing and Materials

Average Daily Traffic (ADT) - The total volume during a given time period in whole days, greater than one day and less than one year, divided by the number of days in that time period.

Background level concentration - The concentration of a pollutant that would exist in the absence of the particular source under study.

CAAA - Clean Air Amendments of 1990

Carbon Monoxide - A colorless gas, odorless under atmospheric conditions, having molecular form CO.

Cars - Four wheeled vehicles.

CFR - Code of Federal Regulations

Cultural Resources - Districts, sites, structures, objects, and evidence of some importance to a culture a subculture, or a community for scientific, traditional, religious, and other reasons.

Cumulative Impact - The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

Decibel (dB) - a unit of measure of sound pressure level used to describe the loudness of sound. (dBA) signifies decibels on an A-weighted scale.

$$dB = 10 \log (P/P_0)^2$$

where: $P_0 = 0.00002$ microbar

P = root mean square sound pressure

0.00002 microbar is the threshold of hearing for a normal, healthy human ear.

DEIS - Draft Environmental Impact Statement

EIS - Environmental Impact Statement

Environmental Justice - A 1994 Presidential Executive Order that directed every Federal agency to identify and address the effects of all programs, policies, and activities on minority populations and low-income populations.

Estimated Time of Completion (ETC) - The year that a particular proposed project is completed and opened to utilization.

Existing Air Quality - Present day or base year air quality levels.

Existing Noise - That noise which is characteristic of an area before the construction of the proposed highway project.

FEIS - Final Environmental Impact Statement

FHWA - Federal Highway Administration

Floodplain - The area adjacent to a stream, lake, or pond, which is covered by floodwater when the waterbody overflows its banks.

FONSI - Finding of No Significant Impact

Groundwater - Naturally occurring water that moves through the ground and underlying rock at a depth of several feet to several hundred feet.

Hazardous Waste - Defined by 40 CFR (Code of Federal Regulations) Part 261, as any material that is a) a solid waste, and b) is a listed hazardous waste (Subpart D), or c) exhibits any of the characteristics of ignitability, corrosivity, reactivity, or toxicity (Subpart C).

Historic - Of, relating to, or existing in times post dating the development of written records. Historic cultural resources are all evidence of human occupations that date to recorded periods in history. These resources include documentary data (i.e. written records, archival material, photographs, maps, etc.), sites, artifacts, environmental data, and all other relevant information. Historic resources also may be considered archeological resources when archeological work is involved in their identification and interpretation.

Interchange - A grade separated intersection where ramps are provided to connect the intersecting streets.

Intersection - The at-grade crossing of two or more streets.

ISTEA - Federal Intermodal Surface Transportation Efficiency Act of 1991

L10 Noise Level - That level of noise where the A-weighted sound pressure level in decibels is exceeded ten percent of the time.

Leq Noise Level - That level of constant noise which contains the same amount of acoustic energy as time varying noise levels (e.g. traffic noise) during a given time interval.

Levels of Service - A qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level-of service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

LUST - Leaking underground storage tank

Mesoscale - A term used to describe relative size. Used in this report, mesoscale refers to an intermediate size area around and including the proposed project where vehicular traffic is expected to be significantly affected.

Meteorology - The study dealing with the phenomena of atmosphere.

Microscale - A term used to describe relative size. Used in this report, microscale refers to a relatively small area on and near the roadway within which pollutant concentrations are above background levels.

NEPA - National Environmental Policy Act. Federal regulation designed for Federal agencies requiring certain actions to be evaluated for environmental impacts, usually in the form of Environmental Impact Statements or Environmental Assessments.

NHPA - National Historic Preservation Act. Act that requires a Federal agency to take into account the effects of its projects (undertakings) on historic properties. These properties include any district, site, building, or structure, or object that is included on, or eligible for inclusion on, the National Register of Historic Places. Historic properties are more than just old buildings or well-known historic sites. Facilities such as roads, bridges, or water treatment plants may be considered historic. While the National Register is a formal list of identified historic properties, it is not complete. All states have additional properties with historic significance.

Noise - Unwanted or undesirable sound, usually characterized as being so loud as to interfere with, or be inappropriate to, normal activities such as communication, sleep, study, or recreation.

Noise Abatement Criteria - Noise levels established by FHWA in 23CFR772 for various activities. When the predicted noise level approaches or exceeds the NAC as given in Table 1 of 23CFR772, an impact exists and mitigation must be considered.

Noise Sensitive Areas or Locations - General areas of land or specific locations having activities that are affected by excessive noise levels.

Non-attainment - A condition where a pollutant exceeds the NAAQS two or more times during a year.

NRCS - National Resource Conservation Service

NRHP - National Register of Historic Places. A National list of districts, sites, buildings, structures, and objects significant in American History, architecture, archaeology, engineering, and culture. The list is maintained by the Secretary of the Interior.

Peak Hour Traffic - The highest number of vehicles found to be passing over a section of a lane or roadway during 60 consecutive minutes of a designated year.

PPM - Parts per million

Post-discharge - In regard to stormwater runoff water quality, post-discharge is the condition after which stormwater runoff has been combined with the waters of the receiving water body.

Prehistoric - Of, relating to, or existing in times antedating written history; prehistoric cultural resources are those that antedate written records of the human cultures that produced them.

Public Hearing - An advertised, open, meeting required by the NEPA process. It is normally scheduled to be held within 45 days after the distribution of the DEIS to receive public comment.

Section 4(f) - A component of the Department of Transportation Act 49 USC 1653 (f) that protects publicly owned parks, recreation areas, wildlife and waterfowl refuges, and historic sites of national, state, or local significance.

SHPO - State Historic Preservation Office

SIP - State Implementation Plan

Stability - A state in which the vertical distribution of temperature is such that an air particle will resist displacement from its level.

TEA-21 - Transportation Equity Act for the 21st Century. Federal highway legislation passed in 1998 that covers a period of six years, with increased highway and other transportation funding.

TES - Technical Environmental Study

TIP - Transportation Improvement Plan.

UST - Underground storage tanks

Watershed - A specific geographic area drained by a major stream or river.

Chapter 10.0

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10.0 Bibliography

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Chapter 11.0

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11.0 List of Preparers

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Josh Schneider, Project Coordinator

MCRP – City and Regional Planning, Rutgers, The State University of New Jersey

BA – Bowdoin College

1 year experience in transportation planning and policy analysis.

DMJM+HARRIS

Christine Tiernan, AICP – Environmental Manager

MA – Limnology/Oceanography, Western Connecticut State University, 1997

BA – Environmental Studies, SUNY, Binghamton, 1986

16 years experience in environmental impact statements, environmental assessments, wetland delineations, impacts and mitigation, site feasibility studies, master planning, threatened and endangered species investigations, wildlife mitigation plans, vegetation surveys, and environmental permitting at the local, state, and federal levels.

Leslie Roche – Principal Environmental Planner, DMJM+HARRIS

BA – Anthropology, Drew University, 1982

19 years experience in environmental assessment and analysis, environmental impact statement preparation in accordance with federal and state NEPA requirements, technical studies including wetlands, air quality, and noise, federal and multi-state environmental permitting, public involvement programs, information centers, forums, public meetings, and advisory committees.

John Kovar, P.E., Project Manager

BE - Civil Engineering, Hofstra University, 1990

13 years experience in the design of and analysis of Traffic Signal Systems, development of Maintenance and Protection of Traffic schemes, Parking Studies, Traffic Impact Reports and placement of signing and pavement markings.

Eileen Flarity-Loftus, PWS – Senior Environmental Scientist, DMJM+HARRIS
MA – Environmental Science, Montclair State University, 1997
BA – Environmental Studies, Montclair State College, 1986

16 years experience in wetland delineations, impacts and mitigation, site condition analyses, environmental impact statements, environmental assessments, environmental permitting on the local, state and federal levels, threatened and endangered species surveys and documentation, natural resource inventories, and site feasibility studies. Certified as a Professional Wetland Scientist (PWS) by the Society of Wetland Scientists, 1995.

Lance E. Comas, Environmental Planner
BS, Geology – Stockton State College, 1988

14 years experience in the identification and remediation of contaminated and hazardous materials, and hydrogeological studies.

Stacy Eastman – Environmental Scientist, DMJM+HARRIS
MS – Biology, East Stroudsburg University, 2000
BS – Natural Resources, Rutgers, The State University of New Jersey, 1996

5 years experience in wetland delineations, impacts and mitigation, site condition analyses, environmental impact statements, environmental assessments, environmental permitting on the local, state and federal levels, natural resource inventories, and site feasibility studies.

Michael J. Folli – Environmental Scientist
BS – Environmental Science, Cook College, Rutgers University, 1995

7 years experience in wetland delineations, environmental assessment/impact statements, water quality analysis, environmental permitting, soil and root profiles, vegetative restoration, ecological research, and GIS analysis.

Susan Lynch, AICP, Planner
MCP, Masters of Community Planning – University of Rhode Island, 2000
BA, Urban Affairs – University of Rhode Island, 1998

2 years of experience preparing permitting documents and analyzing environmental impacts of public and private projects.

APPENDIX A

AGENCY OUTREACH AND RESPONSES

**State of New Jersey**

James E. McGreevey
Governor

Department of Environmental Protection
Division of Fish and Wildlife
Endangered and Nongame Species Program
P.O. Box 400
Trenton, NJ 08625-0400
Phone: (609) 292-9400
Fax: (609) 984-1414
Visit: njfishandwildlife.com

Bradley M. Campbell
Commissioner

April 21, 2003

Mr. Anthony Sabidussi
New Jersey Department of Transportation
Bureau of Environmental Services
P.O. Box 600
Trenton, NJ 08625-0600

Dear Mr. Sabidussi:

This is in response to your letter of March 18, 2003 in which you requested the Division of Fish and Wildlife's position on the long-eared owl (*Asio otus*) record from the Sarnoff Property in West Windsor Township. This record has been accepted as a documented sighting and is currently being entered into the Natural Heritage Program's Biological Conservation Database.

Our preliminary assessment of the proposed bypass alternatives that are routed through the Sarnoff property is that they would essentially destroy the documented habitat of this state-threatened species. It does not appear that onsite mitigation will be possible as little additional habitat exists in the vicinity. Please be advised that this is a preliminary assessment based on incomplete information regarding the various alternatives that are being proposed. We look forward to reviewing the final EIS when available.

In addition, we would recommend that additional surveys for endangered and threatened species be conducted on the site. It should be noted that the absence of records of endangered and threatened species on a site does not confirm their absence. Many areas of the state have not yet been surveyed for the occurrence of endangered and threatened species. To properly assess the potential impacts of this project additional rare species data should be obtained.

The Endangered and Nongame Species Program can provide technical assistance with survey protocols if required. If I can be of further assistance regarding this matter please do not hesitate to contact me. •

Sincerely,

A handwritten signature in cursive script, appearing to read "Larry Niles".

Larry Niles
Chief



State of New Jersey

DEPARTMENT OF TRANSPORTATION

P.O. Box 600

TRENTON, NJ 08625-0600

JAMES E. MCGREEVEY

Governor

JOHN F. LETTIERE

Commissioner

March 18, 2003

Mr. Mike Valent
Endangered and Non-game Species Program
Natural & Historic Resources
New Jersey Department of Environmental Protection
PO Box 404
Trenton, NJ 08625-0400

RE: Long-Eared Owl (*Asio otus*) Report
Sarnoff Property, West Windsor Township, Mercer County, New Jersey
Confirmation Request for Penns Neck Area EIS

Dear Mr. Valent:

The New Jersey Department of Transportation (Department) is undertaking an Environmental Impact Statement (EIS) to identify means to improve access and mobility in the Penns Neck area of West Windsor Township, Mercer County, and its environs. Our consultant, DMJM+HARRIS, recently requested a written response as to your office's position regarding the long-eared owl sighting report. We are pleased to receive your prompt and definitive response.

In furtherance of their effort, we kindly ask your assistance in helping us to respond to inquiries we have received about the owl from our Roundtable Citizen's Advisory Group and the public. In particular, there is a strong desire to understand what it means that the study area has a roosting, State-threatened owl in terms of legal protections, habitat requirements, buffers, and project consequences. DMJM+HARRIS's review of the GIS map, in the context of the 18 roadway alternatives being considered in the EIS, indicates that a key component of some alternatives would impact the location of the owl. As we examine the positive and negative impacts of the various alternatives, the extent to which you can assist us in educating EIS readers on the protection process, your written assistance would greatly bolster the EIS.

If desired, I can provide you with concept drawings showing the location of the proposed roadways, or any other information you think would be helpful. Should you have any questions or need additional information, please do not hesitate to contact me directly at 609-530-2989. Thank you for your assistance.

Very truly yours,

Anthony Sabidussi
Section Chief
Bureau of Environmental Services

cc K. Koschek (NJDEP)
L. Roche (D+H)
J. Carnegie (VTPI)



State of New Jersey

James E. McGreevey
Governor

Department of Environmental Protection
Division of Parks & Forestry, Historic Preservation Office
PO Box 404, Trenton, NJ 08625
TEL: (609) 292-2023 FAX: (609) 984-0578
www.state.nj.us/dep/hpo

Bradley M. Campbell
Commissioner

HPO-C2003-013 PROD
March 3, 2003
Log # 03-0817-1

Mr. Jack McQuillan
Manager
Bureau of Environmental Services
New Jersey Department of Transportation
1035 Parkway Avenue
Post Office Box 600
Trenton, New Jersey 08625-0600

Dear Mr. McQuillan:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on 12 December 2000 (65 FR 77725-77739), I am providing continuing consultation comments for the following federally funded proposed undertaking:

US Route 1, Sections 2S and 3J
Penns Neck Area Environmental Impact Statement (EIS)
(previously Millstone By-Pass Environmental Assessment)
West Windsor Township, Mercer County and
Plainsboro Township, Middlesex County.

These comments are in response to your letter requesting review of and comments on the *Penns Neck Area EIS Cultural Resources Effects Document* (dated December 2002), received at the Historic Preservation Office (HPO) on January 10, 2003. The HPO has also reviewed the *Summary of Potential Impacts to the Built Environment - Cultural Resources* memorandum (dated January 23, 2003) that was distributed to the Penns Neck Area EIS Partners' Roundtable. The *Penns Neck Area EIS draft Historic Architectural Survey* (2 volumes, revised draft report, August 2002) and *Phase 1 Archaeological Survey* (2 volumes, revised draft report, August 2002) included HPO comment letter HPO-H98-1, August 5, 1998, but did not include HPO-C97-9, March 10, 1997 and HPO-B2000-72, February 16, 2000. These letters responded to the earlier effects assessment for the following historic properties: Penns Neck [Baptist] Church, Penns Neck Cemetery, Washington Road Elm Allée, Covenhoven-Silvers-Logan House (31 Logan Drive), Princeton Operating Station AT&T Building (Eden Institute), Aqueduct Mills Historic District and Historic District Extension, Delaware and Raritan Canal Historic District, Lake

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Carnegie Historic District, and three (3) archaeological sites (28 ME 2, 23, and 86).

The identification of additional historic properties (Pennsylvania Railroad Historic District [including contributing resources Princeton Junction Hotel, County Route 571 Bridge, and Nassau Interlocking Tower], Pennsylvania Railroad (NJ Transit) Bridge over the Delaware & Raritan Canal, David S. Voorhees House, David Sarnoff Research Center (3740 Brunswick Pike [US Route 1]), and 1 archaeological site [28 ME 91]) and the revised delineation of a number of alternative alignments and project components necessitate the reconsideration of the previous assessment of effects.

The HPO appreciates the graphic presentation of two (2) perspectives on adverse effects, first, adverse effects to individual historic resources by individual alternatives A through G.2 (table *Possible Adverse Effects on National Register Listed and Eligible Historic Architectural Resources*) and, second, adverse effects by proposed project component (table *Adverse Effects to National Register Eligible or Listed Properties by Major Design Components*), as well as the table *Major Design Components of the Action Alternatives*.

Alternative Alignments A through G.2

The submitted effects assessment states and the table *Effects on Historic Architectural Resources* acknowledges that modification (expansion) of Route 1 and/or the replacement of the Route 1 bridge over the Millstone River, a feature of all currently delineated alternative alignments (A – G.2), will have an adverse effect on the Aqueduct Mills Historic District / Historic District Extension. This anticipated adverse effect is the result of the proposed removal of a stone wall located along the west side of Route 1. The widening of Route 1 and the replacement of the Route 1 bridge over the Millstone River may occur even if a No Build (No Action) alternative is selected.

The submitted effects assessment states and the table *Effects on Historic Architectural Resources* acknowledges that neither the No Build (No Action) Alternative nor Alternative G.2 would cause adverse effects through the demolition or physical alteration of other historic properties. I agree with this conclusion. I also agree with the conclusions presented in the effects assessment and the table *Effects on Historic Architectural Resources* that adverse effects arising from the demolition or physical alteration of the following historic properties will be generated by the following alternatives as currently delineated:

Alternative A, A.1, A.2, A.3, A.4 (adverse effects to 7 additional historic resources)
Covenhoven-Logan-Silvers House, Princeton Operating Station, and
Pennsylvania Railroad Historic District (contributing resources) and 4
archaeological resources (28 ME 2, 23, 86, and 291)

Alternative B (adverse effects to 6 additional historic resources)
Covenhoven-Logan-Silvers House, Princeton Operating Station, and Washington
Road Elm Allee and 3 archaeological resources (28 ME 2, 23, and 86)

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Alternative B.1, B.2 (adverse effects to 8 additional historic resources)
Covenhoven-Logan-Silvers House, Princeton Operating Station, Washington
Road Elm Allee, and Pennsylvania Railroad Historic District (contributing
resources) and 4 archaeological resources (28 ME 2, 23, 86, and 291)

Alternative C (adverse effects to 5 additional historic resources)
Princeton Operating Station, Washington Road Elm Allee, and Pennsylvania
Railroad Historic District (contributing resources) and 2 archaeological resources
(28 ME 2 and 291)

Alternative C.1 (adverse effects to 4 additional historic resources)
Princeton Operating Station and Pennsylvania Railroad Historic District
(contributing resources) and 2 archaeological resources (28 ME 2 and 291)

Alternative D, D.1 (adverse effects to 5 additional historic resources)
Pennsylvania Railroad Historic District (contributing resources) and 4
archaeological resources (28 ME 2, 23, 86, and 291)

Alternative E (adverse effects to 4 additional historic resources)
Pennsylvania Railroad Historic District (contributing resources) and 3
archaeological resources (28 ME 23, 86, and 291)

Alternative F, F.1 (adverse effects to 6 additional historic resources)
Princeton Operating Station and Pennsylvania Railroad Historic District
(contributing resources) and 4 archaeological resources (28 ME 2, 23, 86, and
291)

Alternative G (adverse effects to 2 additional historic resources)
Pennsylvania Railroad Historic District (contributing resources) and 1
archaeological resource (28 ME 291)

Alternative G.1 (adverse effects to 3 additional historic resources)
Washington Road Elm Allee and Pennsylvania Railroad Historic District
(contributing resources) and 1 archaeological resource (28 ME 291)

East-Side Connector Alignments

The table *Adverse Effects by Design Components* indicates that all east-side connector alignments will have adverse effects to historic properties, primarily archaeological historic properties. I agree with this conclusion. The revised regulations implementing Section 106 of the National Historic Preservation Act, (65 FR 65 FR 77725-77739, December 12, 2000) classify the disturbance of an archaeological site as an adverse effect. This change in the regulations applies to the no adverse effect with data recovery assessment previously given to archaeological

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sites 28 Mc 2, 23, and 86 that are within the path of some proposed east-side connector road alignments.

The effect of an east-side connector road on the David Sarnoff Research Center (3740 Brunswick Pike [US Route 1]) remains to be evaluated.

West-Side Connector Alignments

I agree with the assessment that the west-side connector alignments will not adversely affect the historic character of the Lake Carnegie Historic District. Correspondingly, all three (3) west-side connector alignments (B, B.1, and B.2) would have an adverse effect upon the Washington Road Elm Allee.

Previous HPO comments respectfully disagreed with the assessment that the proposed west-side connector road would have no adverse effect upon the Delaware and Raritan Canal Historic District (D&R Canal). Currently, alternatives B, B.1, and B.2 propose a west-side connector road between Route 1 / Harrison Street and Washington Road. The west-side connector road in B and B.1 is closest to the D&R Canal and the west-side connector road in B.2 is approximately 1,000 feet east of the D&R Canal. Consistent with previously issued HPO comments, construction of a west-side connector road as delineated in both Alternatives B and B.1 would substantially change the character of physical features within a portion of the D&R Canal's setting and would introduce visual, atmospheric, and audible elements that diminish the integrity of significant historic features in this portion of the D&R Canal.

The introduction of a west-side connector roadway along alignment B or B.1 would result in a significant change in the character of the setting of the D&R Canal in the area between Washington Road and Harrison Street. The area to the east of the D&R Canal between Washington Road on the south and Harrison Street on the north has historically been undeveloped and lightly vegetated with no substantial roadway features. Currently, the land to the east of the D&R Canal is undeveloped open space used primarily for recreation and for the storage of cut wood, stone, and recycled construction material. A narrow paved driveway provides limited access to the area.

The roadway proposed by alternatives B and B.1 would introduce visual, atmospheric, and audible elements that diminish the integrity of this particular portion of the D&R Canal. The Federal Highway Administration (FHWA) noise impact criteria assist in understanding the magnitude of potential noise impacts but do not establish a decibel level threshold for determining an adverse effect pursuant to 36 CFR Part 800, Protection of Historic Properties.

Currently some noise is transmitted up and down the D&R Canal as vehicles make a perpendicular crossing of the D&R Canal at Washington Road and Harrison Street. No significant noise source abuts or parallels the D&R Canal to either the east or west between these two perpendicular roadway crossings. The introduction of a roadway, with a 40 mile per hour design speed, abutting and parallel to this section of the D&R Canal would substantially expand

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the noise paths, currently limited to the perpendicular crossings at Washington Road and Harrison Street, to the length of this section of the D&R Canal, despite the presence of some natural and possibly engineered noise attenuators.

Previous HPO comments also noted that the introduction of berms and supplemental vegetation to screen the roadway and dampen roadway noise represented one approach to mitigating adverse visual and audible effects, however, these comments also noted that the berms and supplemental vegetation would not preclude these adverse effects to this portion of the Canal Historic District. I recognize that immediately north of Washington Road a large earthen berm rises on the eastern side of the D&R Canal and would separate a segment of the proposed roadway from the Historic District. However, heading north from Washington Road the land east of the Historic District flattens and, beginning approximately 1,400 feet north of Washington Road, is level with the D&R Canal. This is also where the proposed roadway would be closest to the Historic District. Here, project plans originally called for the construction of an earthen berm and the planting of supplemental vegetation to visually screen the roadway from the D&R Canal and dampen the roadway noise. Consequently, the proposed roadway would substantially alter the physical and visual setting of this portion of the Historic District and represent the introduction of visual elements not currently or previously present. This segment of the D&R Canal has been devoid of development or transportation infrastructure since the removal of the Camden and Amboy Branch Railroad from the eastern berm in the 1860s.

Vaughn Drive Connector Road

The submitted materials indicate that of the three (3) currently delineated Vaughn Drive connector road alignments, alignment number 2 will not affect any historic properties, number 1 may possibly adversely affect 1 or 2 historic properties (Princeton Junction Hotel of the Pennsylvania Railroad Historic District and David S. Voorhees House), and number 3 may possibly adversely affect 1 archaeological history property (28 ME 291). I agree with this assessment.

Route 1 in a Cut

The submitted effects assessment states that the impacts to the Penns Neck [Baptist] Church arising from the depression of Route 1 in a cut would be temporary. I agree that, with conditions, depressing Route 1 in a cut would have no adverse effect on the Penns Neck [Baptist] Church and would, as noted in the effects assessment, result in a long term improvement to the physical environment in proximity to this historic property.

Route 1 at Grade

The submitted effects assessment states that the only effect associated with widening Route 1 at grade (as per the preliminary geometry plans included with the effects assessment) would be the removal of a stone wall within the Aqueduct Mills Historic District. I agree with this conclusion.

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Eastern Frontage Road

Although an eastern frontage road might require the acquisition of property within the David Sarnoff Research Center, I agree that the retention of a substantial landscape buffer between Route 1 and the Sarnoff Research Center buildings would permit a no adverse effect or possibly even a no effect determination.

Western Frontage Road

The submitted effects assessment states that a western frontage road would not adversely affect any historic properties. With continued access to Washington Road and an alignment that avoided disturbing the Washington Road Elm Allee, I agree that a western frontage road could avoid adversely affecting historic properties.

Loop-Type Interchange at Harrison

The submitted effects assessment states that a loop-type interchange in the vicinity of Harrison Street would adversely affect archaeological site 28 ME 2, Covenhoven-Logan-Silvers House, and Princeton Operating Station. I agree with this conclusion.

Diamond Interchange at Harrison

The submitted effects assessment states that a diamond interchange in the vicinity of Harrison Street would adversely effect archaeological site 28 ME 2 and Princeton Operating Station. I agree with this conclusion.

Archaeological Resources

Public comments, received at the HPO and expressed at the meetings of the Penns Neck Area EIS Partners' Roundtable have questioned the adequacy of the evaluation of archaeological resources. These comments have focused upon the potential for an archaeological historic district encompassing as contributing resources both the archaeological resources evaluated as individually eligible for the National Register of Historic Places (NRHP) and some of the archaeological resources evaluated as individually not eligible for inclusion in the NRHP and the archaeological sites discovered but not evaluated, (such as 28 ME 185, 284, 91, 201, 60, 283, 282, 186, 181, 55, 190 and 28 MI 129, 136). Given the large number of archaeological sites within the immediate APE and larger Study Area, the potential for an archaeological historic district that includes as contributing resources individual sites currently unevaluated or evaluated as not individually eligible for inclusion in the NRHP must be seriously explored. This consideration of an archaeological historic district is especially important for Site 28 ME 264 within the right of way of the proposed west-side connector road associated with Alternatives B, B.1, and B.2

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Additionally, recognizing both the quantity and quality of the currently identified archaeological resources (including those within the APE but outside of currently delineated alignments), cultural resources section of the pending Draft Environmental Impact Statement (DEIS) must give serious consideration to the merits of in situ preservation of NRHP eligible archaeological sites. A serious discussion of the merits of both in situ preservation and data recovery must be presented in the DEIS. Again, this is especially important for archaeological sites, located in proximity to the environmentally important Millstone River, that may be adversely affected by an east-side connector road.

Additional Comments

Section 800.5(a)(1), Assessment of Adverse Effects, defines adverse effect as altering "directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. ... Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." The Council on Environmental Quality regulations define cumulative effects as "the impact...which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions." United States Department of Transportation guidance notes that indirect, secondary, and cumulative impact assessment is especially appropriate in areas of moderate to rapid development and when the stated purpose of a transportation project is to enhance economic development.

The number, quality, and diversity of the archaeological and architectural historic properties within the EIS Area of Potential Effects (APE) makes the effort to anticipate and examine indirect, secondary, and cumulative effects particularly important.

Although the HPO looks forward to the public distribution of the DEIS as the formal opportunity to comprehensively evaluate and comment on the relationships among historic properties, environmental resources, transportation needs, and proposed project alternatives, the submitted effects assessment clearly suggests that the avoidance or minimization of adverse effects to historic architectural and archaeological properties, consistent with the goal of eliminating at grade intersections and traffic signals, substantially enhancing the capacity of Route 1, and minimizing east-west traffic volumes on Washington Road and Fisher Place in West Windsor should focus on:

- 1 Avoiding adverse effects to the Delaware and Raritan Canal Historic District and Washington Road Elm Allee by eliminating the proposed west-side connector road
- 2 Avoiding adverse effects to archaeological sites 28 ME 2, 23, and 86 by eliminating the proposed east-side connector road
- 3 Providing enhanced east-west access to Route 1 by constructing a Vaughn Drive

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connector road (possibly along the no historic properties affected alignment G.2) that permits and encourages the use of the existing multiple lane Alexander Road grade separated interchange (The application of traffic calming techniques to Washington Road and Fisher Place in conjunction with this alternative would further encourage the diversion of east-west traffic from these roads to the already multi-lane Alexander Road grade separated interchange. This alternative might also provide a viable opportunity for diverting some traffic from Alexander Road east of the Northeast Corridor (NEC) Railroad once a new Alexander Road bridge over the NEC is built.)

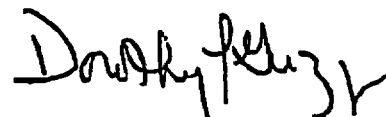
- 4 Avoiding adverse effects to historic properties in the vicinity of Harrison Street by using frontage road access to Route 1 and avoiding a loop interchange in this area.
- 5 Maintaining Washington Road access to Princeton and West Windsor and substantially improving the environment of the National Register of Historic Places listed Penns Neck [Baptist] Church (despite any temporary construction impacts associated with this project component), by depressing Route 1 in a cut, creating a grade separated Washington Road crossing, and using frontage roads for access to local streets.

Because these five (5) strategies focus on avoiding adverse effects to historic properties and satisfying all presently identified project needs, they have the added benefit of being compatible with the United States Department of Transportation Act Section 4F requirements to develop prudent and feasible alternatives that avoid the taking of historic properties.

The Washington Road Elm Allee, Penns Neck [Baptist] Church, and Aqueduct Mills Historic District are listed on the New Jersey Register of Historic Places, therefore, the effects of the preferred or chosen alignment(s) on these historic resources will, eventually, need to be assessed and reviewed in accordance with the New Jersey Register of Historic Places Act.

I look forward to continuing consultation as the EIS data is refined and the public comments are compiled and integrated into the EIS. If you have questions concerning this project review, please call HPO Transportation and Planning Coordinator Charles Scott at 609-633-2396 and/or HPO staff Mike Gregg for archaeology at 609-633-2395.

Sincerely,



Dorothy P. Guzzo
Deputy State Historic
Preservation Officer

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March 3, 2003

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Log # 03-0817-1 (00-559, 98-1263, 97-909, 97-563)
CS: c:\My Documents\NJDOTPennsNeckAreaEIS3-3-03
C: Jeanette Mar, Environmental Coordinator, FHWA
Young Kim, Area Engineer, FHWA
Marc Matsil, Assistant Commissioner, NJDEP
Consulting / Interested Parties List



Voorhees Transportation Policy Institute
Alan M. Voorhees Transportation Center
Edward J. Bloustein School of Planning and Public Policy
Rutgers, the State University of New Jersey

MEMORANDUM

TO: Penns Neck Area EIS Partners' Roundtable members and alternates
Members of the public and interested parties

FROM: Jon A. Carnegie, AICP/PP
Senior Project Manager

DATE: September 3, 2002

SUBJECT: Integration of Penns Neck Area EIS and Section 106 public involvement processes

At the August 20, 2002 Penns Neck Area EIS Partners' Roundtable meeting, the project team reiterated the intent to coordinate the Penns Neck Area EIS public involvement process with the public involvement activities required under the implementing regulations of Section 106 (36 CFR Part 800 "Protection of Historic Properties"). See (<http://www.achp.gov/regs.html#800>). The New Jersey Department of Transportation and the Federal Highway Administration, the lead agencies for the Penns Neck Area EIS, have asked the project team to clarify, in writing, how the EIS and Section 106 processes will be coordinated and which agencies and organizations have been granted "consulting party" status in accordance with Section 106 regulations.

Penns Neck Area EIS Public Involvement Program

The Penns Neck Area EIS process includes a comprehensive and extensive public involvement program, which is in full compliance with federal public involvement requirements. The program has been designed as an open and ongoing process aimed at establishing and maintaining effective communications between the public and involved public agencies. The program's specific objective is to maintain open lines of communication, active engagement, and maximum participation of the public throughout the scoping, strategy screening, alternatives evaluation, and impact analysis phases of the EIS process.

Specific elements of the program include:

- Early stakeholder interviews and small group listening sessions designed to promote early and full understanding of the issues to be potentially addressed in the EIS, including issues related to historic and archeological resources in the study area.

- Partners' Roundtable Advisory Committee made up of community partners from the public, private and nonprofit sectors. The purpose of the Roundtable is to assist in shaping an Environmental Impact Statement (EIS) for the Route 1-Penn's Neck area and to advise the EIS process as it progresses. The Roundtable has 32 members and meets approximately bi-weekly.
- Public Scoping Forum held in December 2001, to solicit input from the general public on issues related to the scope of the EIS.
- In-progress Review forum to be held on September 30, 2002 to provide the public with an opportunity to informally discuss the alternatives under consideration, as well as the traffic and environmental studies being conducted for the EIS.
- On-going dissemination of project information through direct mailings, a project website, and availability of materials at six document repositories.
- Public Hearing and comment period on the DEIS.

Section 106 Public Involvement Requirements

According to 36 CFR Part 800,

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The section 106 process seeks to accommodate historic preservation concerns with the needs of Federal undertakings through consultation among the agency official and other parties with an interest in the effects of the undertaking on historic properties, commencing at the early stages of project planning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties.

The regulations require that agencies "seek and consider the views of the public in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties, the likely interest of the public in the effects on historic properties, confidentiality concerns of private individuals and businesses, and the relationship of the Federal involvement to the undertaking." In addition, the agency must, "provide the public with information about an undertaking and its effects on historic properties and seek public comment and input." Finally, regulations provide that "members of the public may also provide views on their own initiative for the agency to consider in (the) decision-making (process)".

Coordination of public involvement processes

Since the inception of the Penns Neck Area EIS process, members of the public and Partners' Roundtable participants have provided valuable input on many EIS related issues, including those related to historic and archeological resources. Input from 92 individuals, representing 45 constituencies, including elected officials; state, municipal, county, and regional agencies; institutional and other stakeholder bodies; civic and public interest groups; transportation, environmental, planning, historic preservation, and business organizations; residents and members of neighborhood groups; and other individuals reflecting a diverse range of views and interests, has been documented as part of early stakeholder interviews and small group listening sessions. More than 110 individuals provided formal testimony as part of a public scoping forum held in December 2001; and input on historic and

archeological resources has been documented as part of many of the 22 Partners' Roundtable meetings held to date.

Opportunities for on-going public input on historic and archeological resource issues will continue throughout the remainder of the EIS process. Specific opportunities will include:

- Notification of document availability – Members of the public and Partners' Roundtable participants will receive notification of the availability of Section 106 related documents including, cultural resource survey and determination of effects reports. Documents will be made available for review at six designated document repository locations. Members of the public may provide written comments for consideration in the decision-making process.
- Future Partners' Roundtable meetings – Roundtable participants and members of the public present at the meetings will receive briefings on the findings of the cultural resource survey and determination of effects studies and have an opportunity to discuss and comment on the findings at future Roundtable meetings.
- In-progress Review Forum – Historic and archeological resource studies will be covered at one of four information stations to be set up at the September 30, 2002 In-progress Review forum to be held from 10AM to 10PM at the New Jersey Hospital Association on Alexander Road in West Windsor Township. Members of the public will have an opportunity to discuss and comment on cultural resource issues throughout the forum.
- Public Hearing on the Draft EIS – Members of the public will have an opportunity to review and comment on the cultural resource survey and determination of effects reports as part of the DEIS public hearing and public comment period tentatively scheduled for December 2002/January 2003.

Consulting Parties under Section 106

In addition to input from the public as described above, Section 106 regulations (36 CFR 800), require specific and formal consultation with a number of parties. According to the regulations, the following parties have consultative roles in the Section 106 process:

1. State Historic Preservation Officer;
2. Indian tribes and Native Hawaiian Organizations;
3. Representatives of local government with jurisdiction over the area in which the effects of an undertaking may occur; and
4. Applicants for Federal assistance, permits, licenses, and other approvals.

In addition, the regulations provide that "individuals and organizations with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties." Consulting party status must be considered and approved by the FHWA NJ Division Office in consultation with the State Historic Preservation Office.

In addition to the FHWA NJ Division Office and the NJDOT, the following parties have been approved to participate in Section 106 consultation as consulting parties:

1. NJ State Historic Preservation Office

2. Advisory Council on Historic Preservation
3. Delaware & Raritan Canal Commission
4. Mercer County
5. National Trust for Historic Preservation
6. Plainsboro Township
7. Princeton Borough
8. Princeton Township
9. Princeton University
10. Sarnoff Corporation
11. Sierra Club (Central Jersey)
12. Stony Brook-Millstone Watershed Association
13. Washington Road Elms Preservation Trust
14. West Windsor Township

Generally, it is the responsibility of consulting parties to review and comment on information and documentation pertinent to the identification of historic properties and assessment of the effects; to participate in the development/evaluation and refinement of alternatives which can be considered to avoid or minimize adverse effects; and to participate in the consideration of mitigation strategies or measures where impacts cannot be avoided. For the Penns Neck Area EIS process, approved consulting parties will receive individual copies of cultural resource survey and determination of effects reports for review and written comment.

If you have any questions regarding the coordination of Section 106 and EIS public involvement activities, please feel free to contact me at 732/932-6812 x606 or by email at carnegie@rci.rutgers.edu.

Thank you.

MEMO

To: Anthony B. Sabidussi, Section Chief
NJ DOT, Bureau of Environmental Services

C: Jon Carnegie, Senior Project Manager
The Transportation Policy Institute, Rutgers University

From: James C. Amon, Executive Director

Subject: Cultural Resources Effects Document
Penns Neck Area EIS

Date: 9 January 2003

.....

I am writing to express my *strongest* objection to an aspect of the Penns Neck Area Cultural Resources Effects Document.

On page 22 of that document there is a discussion of noise impact on the Delaware and Raritan Canal, a National Register of Historic Sites property. It reports that the NJDOT did a noise effect study on the D&R Canal. I had heard that such a study had been done and have requested a copy of it without success. At the very least it must be reported the conditions under which this study was done. What locations exactly, what time of day, what time of the year, and other details of the conditions are all relevant to my ability to accept as valid that this test produced information that is appropriate.

More important, however, I am in complete disagreement with the statement that "Because the canal does not meet the criteria for a location where serenity and quiet are of extraordinary significance, noise effects were based on the NAC standards for a recreation facility . . . " This is not a playground or an active sport area like a ball field. I refer you to the MASTER PLAN for the Delaware and Raritan Canal State Park (D&R Canal Commission, 1989) which states as a principle guiding all activity related to the Canal Park that "The Canal Park must retain a degree of serenity and separation from the man-made world." This principle, which was adopted by the Canal Commission after following all appropriate legal procedures for the adoption of a Master Plan, is part of the basis for the Canal Commission's regulatory program and more specifically is partial basis for N.J.A.C. 7:45-8.2(b) 4 which stipulates that roads proposed for construction near the Canal Park will not be approved unless the applicant can demonstrate that "The increased traffic will not have a noise impact on the Park."

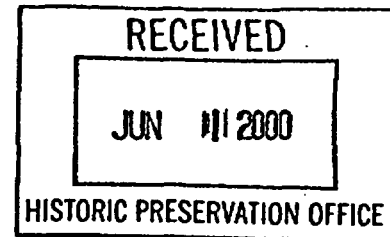
An "Objective" adopted by the Canal Commission to articulate the above-cited "Principle" states that "Vehicular intrusion, either from roads that enter the Canal Park or from those that run parallel to it, should be avoided." (p.32, MASTER PLAN)

The assumption that noise intrusion is not a significant issue for the Canal Park appears to have been made solely to satisfy the needs of this project and is not based upon any analysis of this invaluable cultural resource or an understanding of the planning work that has been accomplished for it. It must be reversed.

Once this improper assumption is reversed it will then be necessary to go to pages 14 and 15 of the Cultural Resources Effects Document and correct the text that describes the adverse impacts that would result from Alternatives B and B1. That discussion must be expanded to note that those two alternatives would produce an adverse impact on the Delaware and Raritan Canal because of the intrusive noise impact that would result if either of them were built.

I have not completed my review of this entire document so I may have other comments, but I believe that this issue of such importance that I want to send it to you immediately.

**Advisory
Council On
Historic
Preservation**



The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

MAY - 5 2000

Hon. Rodney E. Slater
Secretary of Transportation
400 Seventh Street, S.W.
Washington, DC 20590

Ref: Route 1, Section 2S and 3J
Penns Neck Improvements
Mercer and Middlesex Counties, New Jersey

Dear Secretary Slater:

Recently, the Council has been contacted by a number of organizations concerned with implementation of the process mandated by Section 106 of the National Historic Preservation Act and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800) for the referenced project. As we understand it, the proposed action has the potential to adversely affect several properties included in the National Register of Historic Places. Given the potential for impacts to multiple historic properties, the substantial public controversy arising from the project as proposed, and questions that have been raised about how the Council's regulations are being applied, we are notifying you that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations is met for the referenced project and the Council intends to participate in consultation regarding effects to historic properties and the means for resolution. We are providing this notice as required by 36 CFR §800.6(a)(1)(iii). A copy of our letter to Dennis Merida notifying him of our intent to participate in the consultation is enclosed.

Sincerely,

A handwritten signature in dark ink, appearing to read "John M. Fowler". The signature is fluid and cursive, with the first name "John" and last name "Fowler" clearly distinguishable.

John M. Fowler
Executive Director

Enclosure

DVRPC FY 2003-2005 TIP - NJ

Final Version

New Jersey - Highway Program

Mercer

DB# 02382 Trenton Revitalization Improvements

A/Q Code X

This project will provide for various infrastructure improvements to support economic development in the City of Trenton. These improvements may include, but are not limited to, sewer improvements, roadway improvements, and streetscape improvements.

This is a multi-year funded project under the provisions of Section 13 of P.L. 1995, c.108.

Prog Mgr: Mercer County Trenton City

Prog Cat. Strategic Mobility

Mileposts: N/A

TIP Program Years (\$ millions)

Out-Years

| Phase | Fund | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 |
|-------|-------|---------|---------|---------|---------|---------|
| EC | STATE | 2.000 | | | | |
| EC | STATE | | 2.000 | | | |
| EC | STATE | | | 2.000 | | |
| EC | TBD | | | | 2.000 | |
| EC | TBD | | | | | 2.000 |

Fiscal Year Total

2.000

2.000

2.000

FY 2003-2005 Total

6.000

Out-Year Cost

4.000

DB# 031 Route 1 / CR 571 Penns Neck Area EIS (a.k.a. Millstone Bypass)

Route 1 in the vicinity of Washington Road to Harrison Street, Environmental Impact Statement process for unspecified mobility enhancements

A/Q Code 2005M

This project is an Environmental Impact Statement process to develop a solution or package of solutions to address recurring congestion in the Penns Neck area of Route 1 in the vicinity of Washington Road (County Route 571) and Harrison Street in West Windsor Township, Mercer County. The process is intended to gain community input on the nature of the problem to be addressed and the range of alternatives to be investigated, and will seek consensus on a final solution or package of solutions to be implemented. The process will provide a model for future EIS processes within the framework of Department's Context Sensitive Design initiative.

Prog Mgr: Fekete West Windsor Twp.

Prog Cat. Congestion Management

Mileposts: 11.10 - 12.10

TIP Program Years (\$ millions)

Out-Years

| Phase | Fund | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 |
|-------|------|---------|---------|---------|---------|---------|
| FSD | NHS | 0.100 | | | | |

Fiscal Year Total

0.100

FY 2003-2005 Total

0.100

Out-Year Cost

DB# 144 Route 27 (1C) Harry's Brook Bridge

Bridge over Harry's Brook, replacement

A/Q Code X

This project will provide a replacement of Harry's Brook bridge with a new structure carrying two 12-foot lanes and two 8-foot shoulders. The existing structure sufficiency rating is 5.0.

Prog Mgr: Rollo Princeton Twp.

Prog Cat. Bridge Preservation

Mileposts: 2.30 - 2.40

TIP Program Years (\$ millions)

Out-Years

| Phase | Fund | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 |
|-------|-------|---------|---------|---------|---------|---------|
| CON | STATE | 2.574 | | | | |

Fiscal Year Total

2.574

FY 2003-2005 Total

2.574

Out-Year Cost

**State of New Jersey**

Department of Environmental Protection

Division of Parks & Forestry, Historic Preservation Office

PO Box 404, Trenton, NJ 08625

TEL: (609) 292-2023 FAX: (609) 984-0578

www.state.nj.us/dcp/hpo

Bradley M. Campbell
Commissioner*luc'd 12/19/02*

HPO-L2002-73

December 11, 2002

Mr. Jack McQuillan
Manager
Bureau of Environmental Services
New Jersey Department of Transportation
1035 Parkway Avenue
Post Office Box 600
Trenton, New Jersey 08625-0600

Dear Mr. McQuillan:

The Historic Preservation Office (HPO) appreciates having the opportunity to provide additional guidance regarding the evaluation of historic architectural resources as part of the *Penns Neck Area Environmental Impact Statement (EIS)*. These comments are in response to your request for additional technical review comments on 3740 Brunswick Pike (David Sarnoff Research Center).

As noted in our first technical review comments letter (HPO-J2002-6, October 2, 2002), previous HPO consultation comments did not offer a specific or overt evaluation of the National Register of Historic Places eligibility of 3740 Brunswick Pike (David Sarnoff Research Center). The formal consultation comments contained in HPO-H98-1 (August 5, 1998) expressed the belief that the evaluation of historic properties required soliciting and considering comments from individuals and organizations with an interest in or a knowledge of historic properties.

To assist the New Jersey Department of Transportation (NJDOT) in advancing the *Penns Neck Area Environmental Impact Statement (EIS)* cultural resources evaluation of the David Sarnoff Research Center, the HPO reviewed readily available historic information and the public comments submitted to the NJDOT and also participated in two meetings with NJDOT, project consulting team, and Sarnoff Research Center professional staff. The information reviewed by the HPO included the Internet sites of the Sarnoff Corporation, Institute of Electrical and Electronics Engineers (IEEE), New Jersey Institute of Technology (Inventors Hall of Fame), and American Memory Collection of the Library of Congress (photographic documentation). The HPO has also

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** TOTAL PAGE.04 **

obtained and reviewed a copy of a Radio Corporation of America publication entitled "1942-1967, Twenty-Five Years at RCA Laboratories," authored by the Radio Corporation of America and cataloged in the Jerseyana collection of the New Jersey State Library as J607.2 R129.

In the second meeting held to discuss the potential National Register of Historic Places eligibility of the David Sarnoff Research Center, HPO staff suggested that the available information supported the conclusion that the David Sarnoff Research Center possesses both historic significance and integrity. Much of the meeting discussion thereafter focused on the primarily additive changes to the original 1941 building and the establishment of an appropriate period of significance and delineation of a historically justifiable historic property boundary. The discussion was assisted by the careful review of a series of aerial photographs taken from 1941 through 1980 and obtained by the project consulting team from the New Jersey State Library.

I offer the opinion that the David Sarnoff Research Center is eligible for the National Register of Historic Places and recommend the following parameters for establishing an appropriate period of significance and delineating a historically justifiable boundary. Documentation in the historic sites survey form and in historic documentation available in print and on the Internet recognizes the evolution of research and development activities at the David Sarnoff Research Center and a change in the focus of research activities around the mid-1960s. A significant change in the focus of the research performed at the David Sarnoff Research Center during the 1960s could be used to establish a period of significance beginning with the construction of the facility and ending during the mid-1960s perhaps no later than 1968. Photographic documentation confirms that the western facade of the facility was and remains an open vista up to the eastern boundary of US Route 1. This photographic documentation also illustrates a former property line, marked by vegetation, separating the original complex from property identified as the J. A. and Hannah L. Hartpence farm to the north. The southern boundary, perhaps the actual property line, appears to be marked by landscaping and/or natural vegetation and at the eastern end of the complex an internal circulation road, parking lot, and powerhouse appear to distinguish the actively utilized acreage from the unoccupied property. These features appear to delineate a reasonable boundary that existed from 1941 through the end of a period of significance in the mid to late-1960s.

Additional Comments

The HPO looks forward to participating in public and consulting party discussions and consultation regarding the evaluation of historic properties within the Penns Neck Area EIS study area. The final revised cultural resources report should acknowledge, in accordance with the public involvement plan, the comments and/or information provided by consulting parties and individuals and organizations with a knowledge of or an interest in historic properties within the project APE. The documentation of public participation in the evaluation of historic resources and project effects will substantially enhance the quality and timeliness of the Section 106 consultation.

Should you need any further assistance in identifying or evaluating potential architectural historic resources or if you have any questions regarding these comments, please contact Charles Scott at (609) 633-2396 or Steve Hardegen at (609) 984-0141.

Sincerely,



Dorothy P. Guzzo
Deputy State Historic
Preservation Officer

C: Marc Matsil, NJDEP
Art Silber, NJDOT
Tony Sabidussi, NJDOT
Lauralee Rappleye-Marsett, NJDOT
Jeanette Mar, Environmental Coordinator, FHWA
Young Kim, Area Engineer, FHWA
Consulting / Interested Parties
Leslie Roche, DMJM+Harris
Jon Carnegie, Rutgers

CS/C/NJDOTL2002-73PennsNeckSarnoff

Delaware Nation NAGPRA Office

P.O. Box 825
Anadarko, OK 73005
405 / 247-2448
Fax: 405 / 247-9393

7 October 2002

USDOT – Federal Highway Administration
New Jersey Division
840 Bear Tavern Road, Suite 310
West Trenton, NJ 08628-1019

RE: Penns Neck Area EIS

Dear Mr. Kim:

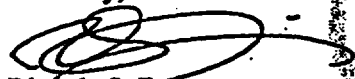
Thank you for contacting the Delaware Nation regarding the above referenced project. The Delaware Nation is committed to protecting archaeological sites that are important to tribal heritage, culture, and religion. Furthermore, the tribe is particularly concerned with archaeological sites that may contain human burial remains and associated funerary objects.

After reviewing the recently submitted Environmental Impact Statement, we concur with the findings of that report. Specifically, we find that the area of the archaeological sites identified by John Milner Associates should be avoided if at all possible, particularly those sites that are eligible for the National Register of Historic Places. If construction makes disturbance of these sites unavoidable, then Phase II archaeological investigations should be conducted.

During any of the archaeological testing or excavation or construction of this project, if human remains are uncovered, we ask that you halt all ground-disturbing activities and immediately contact the Delaware Nation. Also, the local coroner, the State Archaeologist and the State Historic Preservation Officer should be alerted to the discovery of human remains.

We ask that you continue to inform the Delaware Nation of the progress of this project. Specifically, we would like copies of all cultural resources and archaeological survey reports. We appreciate your cooperation in contacting the Delaware Nation. Should you have any questions, feel free to contact me.

Sincerely,



Rhonda S. Fair
NAGPRA Director

cc: Anthony B. Sabidussi, NJDOT

CONTACT MEMO

Date: November 5, 2002
Contacted: Mr. Don Friday
Affiliation: New Jersey Audubon Society
By: Eileen Flarity-Loftus
Regarding: Bald Eagles within the study area
cc: File

Mr. Friday advised that he has no knowledge or records of bald eagles within the Penns Neck Area EIS study area. Mr. Friday directed me to contact the NJDEP Endangered and Nongame Species Program (ENSP) and/or the New Jersey Natural Heritage Program, which we did. These two agencies also confirmed that there are no records of nesting bald eagles in the study area.

CONTACT MEMO

Date: November 4, 2002
Contacted: Mr. Russell Titus
Affiliation: Elizabethtown Water Company
By: Eileen Flarity-Loftus
Regarding: Size of Elizabethtown's Primary Service Area
cc:

Mr. Titus advised that Elizabethtown's primary service area is approximately 440 square miles (281,600 acres). This area is that which Elizabethtown is the sole provider of water utilities.

CONTACT MEMO

Date: November 1, 2002
Contacted: Ms. Larissa Smith
Affiliation: NJDEP, Endangered and Nongame Species Program
By: Eileen Flarity-Loftus
Regarding: Nesting bald eagles in the study area
cc: File

I advised Ms. Smith of a property owners sighting of a pair of bald eagles near Carnegie Lake in the Princeton Township area, and inquired as to the Endangered and Nongame Species Program's (ENSPs) records for a nesting pair in this area or in Mercer County. Ms. Smith advised that there are no known pairs of nesting bald eagles in Mercer County. The nearest nesting pair to this location occurs in Monmouth County. Due to the populated nature of the Carnegie Lake area and Mercer County in general, Ms. Smith advised that if a nesting pair did in fact occur in this vicinity, the ENSP would be aware of such an occurrence. Ms. Smith also indicated that the observed pair of bald eagles could be from anywhere.

CONTACT MEMO

Date: October 21, 2002
Contacted: Mr. Russ Titus
Affiliation: Elizabethtown Water Company
By: Eileen Flarity-Loftus
Regarding: Groundwater Extraction
cc: File

Mr. Titus advised that Elizabethtown Water Company (Elizabethtown) procured Permit #5026 from the New Jersey Department of Environmental Protection (NJDEP), Bureau of Water Allocation. This permit allows Elizabethtown the following maximum diversions from groundwater wells in its study area:

- Monthly diversion not to exceed 68.6 million gallons;
- Annual diversion not to exceed 450 million gallons; and,
- Daily diversion not to exceed 3.89 million gallons.

Average daily usage in million gallons from 1990 to the present are as follows:

- 1990 0.53 million gallons per day (mgd);
- 1991 0.55 mgd;
- 1992 0.70 mgd;
- 1993 0.56 mgd;
- 1994 0.54 mgd;
- 1995 0.57 mgd;
- 1996 0.62 mgd;
- 1997 0.58 mgd;
- 1998 0.51 mgd;
- 1999 0.70 mgd;
- 2000 0.86 mgd;
- 2001 0.82 mgd; and,
- 2002 year to date 0.60 mgd.

Mr. Titus advised that Elizabethtown is well within the allowable diversion rates of its permit.



Nelson Obus
Chair

George S. Hawkins
Executive Director

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Van Zandt Williams, Jr.

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Environmental Center

31 Titus Mill Road
Pennington, NJ 08534

609-737-3735

Fax: 609-737-3075

email:sbmwa@thewatershed.org

www.thewatershed.org

October 10, 2002

Anthony B. Sabidussi, Section Chief
Bureau of Environmental Services
New Jersey Department of Transportation
PO Box 600
Trenton NJ 08625-0600

RE: Penns Neck Area EIS Review

Dear Mr. Sabidussi:

The enclosed information was previously provided to NJDOT, but we wanted to ensure that this data is included in the on-going development of the Penns Neck Area Environmental Impact Statement.

In a recent presentation to the Roundtable by Harris Engineering in September 2002, a review of the NJDEP Natural Heritage Database identified that no threatened or endangered species were recorded in this database for the study area. However, the Millstone Bypass Issue Paper prepared by the Stony Brook Millstone Watershed Association in January 2000, provided documentation of sightings of the following species in Appendix A of the report.

| Latin Name | Common Name | Comment |
|-------------------|---------------------|--------------------|
| Ardea herodias | Great Blue Heron | Threatened species |
| Circus cyaneus | Northern Harrier | Endangered species |
| Buteo Lineatus | Red-shouldered Hawk | Threatened species |
| Pandion haliaetus | Osprey | Threatened species |
| Lutra canadensis | River Otter | |

Dr. Michael Van Clef, a trained ecologist, prepared the second report included in this submittal. His work was conducted in July and August of 2000, and he concludes that many species may not have been observed because of the seasonal variations. Dr. Van Clef provided a list of 44 rare and endangered plants that could potentially be found along the Millstone River because of the suitable habitat (Table 1). He also identified a great diversity of plant species along the Millstone River, including 157 species (Table 2) Table 3 in his report compared plant species recorded in the disturbed areas near the Rte 1 corridor to those in the more secluded undisturbed areas. Invasive and weedy species provided 80% of the site cover in area 1, within 200-300 feet from Rte 1. While

invasive and weedy species only covered 16-18% of the site in the more secluded areas. His work demonstrates that disturbing the area can impact habitat and the diversity of native plant species, allowing for invasive species to overwhelm the plant community.

Please ensure that this information is included in the Penns Neck Area EIS and the assessment of alternative road alignments and their potential impacts.

Sincerely,


Noelle MacKay, Director
Watershed Management

Copy: Millstone Bypass Roundtable
Mayor Shing-Fu Hsueh, West Windsor Township
NJDEP, Natural Heritage Database Program

APPENDIX A:

Partial List of Species In Penn's Neck Woods And Adjacent 10
Millstone River

| Latin Name | Common Name | Comments |
|------------------------------|--------------------------|-------------------------------------|
| <i>Birds</i> | | |
| <i>Accipiter cooperii</i> | Cooper's Hawk | mature ♀ & ♂; immature |
| <i>Bubo virginianus</i> | Great Horned Owl | mature ♀ & ♂ nesting; nestlings |
| <i>Asio otus</i> | Long-eared Owl | |
| <i>Otus asio</i> | Eastern Screech-Owl | |
| <i>Podilymbus podiceps</i> | Pied-billed grebe | |
| <i>Branta canadensis</i> | Canada Goose | mature ♀ & ♂ nesting; nestlings |
| <i>Anas platyrhynchos</i> | Mallard | mature ♀ & ♂ nesting |
| <i>Aix sponsa</i> | Wood Duck | mature ♀ & ♂; ♀ swimming with young |
| <i>Fulica americana</i> | American Coot | |
| <i>Charadrius vociferus</i> | Killdeer | mature ♀ & ♂ nesting; nestlings |
| <i>Actitis macularia</i> | Spotted sandpiper | |
| <i>Ardea herodias</i> | Great Blue Heron | Threatened Species |
| <i>Egretta caerulea</i> | Little Blue Heron | |
| <i>Circus cyaneus</i> | Northern Harrier | mature ♀ Endangered Species |
| <i>Buteo lineatus</i> | Red-shouldered Hawk | Threatened Species |
| <i>Buteo jamaicensis</i> | Red-tailed Hawk | |
| <i>Pandion haliaetus</i> | Osprey | Threatened Species |
| <i>Phasianus colchicus</i> | Ring-necked Pheasant | |
| <i>Meleagris gallopavo</i> | Wild Turkey | adult with young |
| <i>Zenaidura macroura</i> | Mourning Dove | |
| <i>Colaptes auratus</i> | Northern Flicker | nesting |
| <i>Melanerpes carolinus</i> | Red-bellied Woodpecker | |
| <i>Picoides pubescens</i> | Downy Woodpecker | |
| <i>Picoides villosus</i> | Hairy Woodpecker | |
| <i>Dryocopus pileatus</i> | Pileated Woodpecker | |
| <i>Myiarchus crinitus</i> | Great Crested Flycatcher | |
| <i>Hirundo rustica</i> | Barn Swallow | |
| <i>Cyanocitta cristata</i> | Blue Jay | |
| <i>Corvus brachyrhynchos</i> | American Crow | |
| <i>Ceuthia americana</i> | Brown Creeper | |
| <i>Parus bicolor</i> | Tufted Titmouse | |
| <i>Parus atricapillus</i> | Black-capped Chickadee | |
| <i>Parus carolinensis</i> | Carolina Chickadee | |

APPENDIX A:

Partial List of Species in Ferns Neck Woods and adjacent
Millstone River

| Latin Name | Common Name | Comments |
|--------------------------------|---------------------|--|
| <i>Mammals</i> | | |
| <i>Ondatra sibirica</i> | Muskrat | |
| <i>Didelphis marsupialis</i> | Opossum | |
| <i>Odocoileus virginianus</i> | White-tail deer | adult ♀ with young; adult ♂ with females |
| <i>Sylvilagus floridanus</i> | Eastern cottontail | |
| <i>Plants</i> | | |
| <i>Cypripedium acaule</i> | Pink Lady's Slipper | |
| <i>Lobelia cardinalis</i> | Cardinal flower | |
| <i>Lupinus perennis</i> | Wild lupine | |
| <i>Uvularia perfoliata</i> | Bellwort | |
| <i>Chimaphila umbellata</i> | Pipsissewa | |
| <i>Anemone quinquefolia</i> | Wood Anemone | |
| <i>Rhododendron nudiflorum</i> | Pinxter Flower | |
| <i>Hibiscus palustris</i> | Swamp rose mallow | |
| <i>Monotropa uniflora</i> | Indian pipe | |
| <i>Woodwardia areolata</i> | Netted chain fern | |
| <i>Onoclea sensibilis</i> | Sensitive fern | |

Michael Van Clef
5 Third Avenue
Monroe Township, NJ 08831
(732) 723 - 2704
mvanclef@rci.rutgers.edu

August 18, 2000

George Hawkins
Stony Brook-Millstone Watershed Association
31 Titus Mill Road
Pennington, NJ 08534

Subject: Millstone bypass

Dear George,

I would like to express my concern about the potential ecological impacts of the proposed Millstone bypass. I am a trained ecologist (Ph.D. candidate, Rutgers University) studying invasive plants in natural areas. This summer I had the pleasure of taking several canoe trips on the Millstone River as a volunteer for your organization. The river is an area of natural beauty that is an excellent example of a healthy wetland ecosystem. The diversity of our native flora and fauna on the banks of the river and adjacent wooded wetlands is impressive. The aggressive weedy species that degrade so many natural areas in New Jersey exist only as isolated individuals. They are kept in check because the system is healthy and does not allow expansive areas to be dominated by weed monocultures.

Unfortunately, the proposed bypass could have significant impact that would jeopardize this fragile system. Wetland systems are regulated by the timing, duration, and depth of flooding. Increases in impermeable surfaces resulting from road construction will lead to excessive runoff that will alter the natural hydrological regime. Sedimentation caused by high levels of runoff will also have a negative impact on the river ecosystem. Weedy species that currently exist in small numbers will thrive under such disturbances. The diverse native shrub community dominating the banks of the river may be subjected to invasion by weeds such as purple loosestrife or Phragmites. Forested wetlands could be reduced to a tangle of thorny multiflora rose plants and vines. These transformations have less aesthetic beauty for people and less ecological value than the current habitat. Rare plants and animals would be lost in such an altered ecosystem.

The Department of Transportation should consider alternatives that will be more benign to the fragile Millstone River ecosystem.

Three tables have been attached to this letter. The first table lists rare and endangered plants that may exist at the site. These species are listed as potentially being found in Mercer County by the New Jersey Natural Heritage Program and have habitat requirements that could be satisfied in the immediate areas impacted by the bypass. The second table is a preliminary list of species identified at the site. It is certainly incomplete because of the limited number of visits to the site, but gives a small example of the plant diversity in the area (157 species identified thus far). The third table shows the percent cover of various species along the riverbank. Measurements were taken from three areas at various distances from the Rt. 1 bridge near Harrison Street. The table shows the impact on vegetation caused by the disturbances related to major roadways. The table shows an increase in the cover of invasive non-native species and potentially weedy native species closer to the roadway.

Sincerely,

Michael Van Clef
Michael Van Clef

cc: Robert Tucker
Christine Altomari

Table 1. Rare and Endangered plants that may potentially be found in the Millstone Bypass construction area

| Scientific Name | Common Name | Federal Status | State Status | Global Rank | State Rank | Potential habitat near proposed road construction |
|---|-------------------------------|----------------|--------------|-------------|------------|---|
| AGASTACHE NEPETOIDES | YELLOW GIANT HYSSOP | | | G5 | S2 | upland forest |
| AGASTACHE SCROPHULARIIFOLIA | PURPLE GIANT HYSSOP | | | G4 | S2 | upland forest |
| AGRIMONIA MICROCARPA | SMALL-FRUITED GROOVEBUR | | | G5 | S2 | upland forest |
| ALOPECURUS AEQUALIS | MARSH MEADOW FOXTAIL | | | G5 | S2 | riverbank, open wetland, wet forest |
| APLECTRUM HYEMALE | PUTTYROOT | | E | G5 | S1 | wet forest |
| ASCLEPIAS VARIEGATA | WHITE MILKWEED | | | G5 | S2 | upland forest |
| CACALIA ATRIPUICIFOLIA | PALE INDIAN PLANTAIN | | E | G4G5 | S1 | upland forest |
| CACALIA SUAVEOLENS | SWEET-SCENTED INDIAN PLANTAIN | | | G3G4 | SX.1 | riverbank, open wetland |
| CALLITRICH VERNIA | SPRING WATER STARWORT | | | G5 | S2 | riverbank |
| CALYSTEGIA SPITHAMEA | ERECT BINDWEED | | E | G4G5 | S1 | upland forest, dry field |
| CAREX FRANKII | FRANK'S SEDGE | | | G5 | S3 | wet forest, open wetland |
| CAREX HAYDENII | CLOUD SEDGE | | E | G5 | S1 | wet forest, open wetland |
| CAREX HITCHCOCKIANA | HITCHCOCK'S SEDGE | | | G5 | S2 | wet forest, upland forest |
| CAREX JAMESII | NEBRASKA SEDGE | | E | G5 | S1 | upland forest |
| CAREX WILDENOWII | WILDENOW'S SEDGE | | | G5 | S2 | upland forest |
| CASTILLEJA COCCINEA | SCARLET INDIAN PAINTBRUSH | | | G5 | S2 | wet forest, open wetland |
| CERCIS CANADENSIS | REDBUD | | E | G5 | S1 | riverbank, wet forest |
| CRATAEGUS CALPODENDRON | PEAR HAWTHORN | | E | G5 | S1 | upland forest |
| CRATAEGUS CHRYSOCARPA | FIREBERRY HAWTHORN | | | G5 | S1 | upland forest |
| CUSCUTA POLYGONORUM | SMARTWEED DODDER | | | G5 | S2 | open wetlands |
| CYNOGLOSSUM VIRGINIANUM VAR VIRGINIANUM | WILD COMFREY | | | G5T5 | S2 | upland forest |
| CYPERUS LANCASTRIENSIS | LANCASTER FLATSEDGE | | | G5 | S1 | upland forest, dry field |
| CYSTOPTERIS PROTRUSA | LOWLAND BRITTLE FERN | | | G5 | S2 | wet forest |
| DICENTRA CANADENSIS | SQUIRREL-CORN | | E | G5 | S1 | upland forest |
| ELLISIA NYCTELEA | AUNT LUCY | | E | G5 | S1 | riverbank, wet forest |
| ERAGROSTIS FRANKII | FRANK'S LOVEGRASS | | | G5 | S2 | riverbank, open wetland |
| EUPHORBIA MARLANDICA | MARYLAND SPURGE | | E | G17Q | SH.1 | dry field |
| GEUM VERNUM | SPRING AVENS | | | G5 | S2 | upland forest, wet forest |
| HELONIAS BULLATA | SWAMP-PINK | LT | E | G3 | S3 | wet forest |
| HETERANTHERA MULTIFLORA | MUD PLANTAIN | | | G4 | S2 | riverbank, open wetland |
| MELANTHUM VIRGINICUM | VIRGINIA BUNCHFLOWER | | E | G5 | S1 | wet forest, open wetland |
| MIMULUS ALATUS | WINGED MONKEY FLOWER | | | G5 | S3 | riverbank |
| NUPHAR MICROPHYLLUM | SMALL YELLOW POND LILY | | E | G5 | SH | riverbank |
| PHLOX PILOSA | DOWNY PHLOX | | E | G5 | SH | upland forest |
| PLATANATHERA PERMOENA | PURPLE FRINGELESS ORCHID | | E | G5 | S1 | open wetlands |
| RANUNCULUS AMBIGENS | WATER-PLANTAIN SPEARWORT | | | G4 | S2 | riverbank, open wetland |
| RANUNCULUS PUSILLUS | LOW SPEARWORT | | | G5 | S2 | riverbank, open wetland |
| RANUNCULUS REPTANS | CREEPING BUTTERCUP | | E | G5 | SH | riverbank |
| RHYNCHOSPORA GLOBULARIS | GRASS-LIKE BEAKED RUSH | | E | G5 | S1 | riverbank, wet forest |
| SCRIPUS LONGII | LONG'S BULRUSH | | E | G2 | S2 | wet forest, open wetland |
| SCUTELLARIA NERVOSA | VEINED SKULLCAP | | | G5 | S2 | riverbank, wet forest |
| STACHYS PALUSTRIS VAR HOMOTRICHIA | MARSH HEDGE-NETTLE | | E | G5T7 | SH | riverbank, open wetland |
| TRADESCANTIA OHIENSIS | OHIO SPIDERWORT | | | G5 | S2 | upland forest |
| VERBENA SIMPLEX | NARROW-LEAVED VERVAIN | | E | G5 | S1 | upland forest, dry field |

Table 2. Preliminary Millstone Bypass Area Plant List

| Scientific Name | Common Name | Family | Origin | Growth Form | Area present at site | Area present at site | Area present at site | Weed Status |
|-----------------------------------|------------------------|-----------------|------------|-------------|----------------------|----------------------|---------------------------|-------------------|
| <i>Acer negundo</i> | Box Elder | Aceraceae | Native | tree | wet forest | | | |
| <i>Acer rubrum</i> | Red Maple | Aceraceae | Native | tree | riverbank | wet shrub thicket | | |
| <i>Achillea millefolium</i> | Common Yarrow | Asteraceae | Non-Native | herbaceous | dry field | | | |
| <i>Ailanthus altissima</i> | Tree-of-heaven | Simarubaceae | Non-Native | tree | upland forest | | | invasive species |
| <i>Alnus serrulata</i> | Smooth Alder | Betulaceae | Native | shrub | riverbank | wet shrub thicket | | |
| <i>Ambrosia artemisiifolia</i> | Common Ragweed | Asteraceae | Native | herbaceous | dry field | | | |
| <i>Aplos americana</i> | Common Ground Nut | Fabaceae | Native | vine | wet shrub thicket | | | |
| <i>Apocynum androsaemifolium</i> | Spreading Dogbane | Apocynaceae | Native | herbaceous | dry field | | | |
| <i>Artemisia vulgaris</i> | Mugwort | Asteraceae | Non-Native | herbaceous | dry field | | | |
| <i>Asclepias incarnata</i> | Swamp Milkweed | Asclepiadaceae | Native | herbaceous | riverbank | wet shrub thicket | wetland transition forest | |
| <i>Asclepias syriaca</i> | Common Milkweed | Asclepiadaceae | Native | herbaceous | dry field | | | |
| <i>Betula nigra</i> | River Birch | Betulaceae | Native | tree | riverbank | upland forest | | |
| <i>Betula populifolia</i> | Gray Birch | Betulaceae | Native | tree | upland forest | | | |
| <i>Boehmeria cylindrica</i> | False Nettle | Urticaceae | Native | herbaceous | riverbank | wet shrub thicket | | |
| <i>Botrychium multifidum</i> | Leathery Grapefern | Ophioglossaceae | Native | fern | wet forest | | | |
| <i>Caltha palustris</i> | Marsh Marigold | Ranunculaceae | Native | herbaceous | riverbank | | | |
| <i>Calystegia sepium</i> | Hedge Bindweed | Convolvulaceae | Native | herbaceous | riverbank | wet shrub thicket | | |
| <i>Carex pensylvanica</i> | Pennsylvania Sedge | Cyperaceae | Native | sedge | upland forest | | | |
| <i>Carex stricta</i> | Tussock Sedge | Cyperaceae | Native | sedge | wet shrub thicket | | | |
| <i>Carpinus caroliniana</i> | Ironwood | Betulaceae | Native | tree | riverbank | | | |
| <i>Carya glabra</i> | Pignut Hickory | Juglandaceae | Native | tree | upland forest | | | |
| <i>Carya ovata</i> | Shagbark Hickory | Juglandaceae | Native | tree | wet forest | | | |
| <i>Carya tomentosa</i> | Mockernut Hickory | Juglandaceae | Native | tree | upland forest | | | |
| <i>Castanea dentata</i> | American Chestnut | Fagaceae | Native | tree | upland forest | | | |
| <i>Celastrus orbiculatus</i> | Asian Bittersweet | Celastraceae | Non-native | vine | wet forest | | | invasive species |
| <i>Cephaenthus occidentalis</i> | Buttonbush | Rubiacae | Native | shrub | riverbank | wet shrub thicket | | |
| <i>Chimaphila maculata</i> | Striped Wintergreen | Pyrolaceae | Native | herbaceous | upland forest | | | |
| <i>Chrysanthemum leucanthemum</i> | Oxeye Daisy | Asteraceae | Non-Native | herbaceous | dry field | | | |
| <i>Circaea lutetiana</i> | Enchanter's Nightshade | Onagraceae | Native | herbaceous | wet forest | | | |
| <i>Clematis virginiana</i> | Virgin's Bower | Ranunculaceae | Native | vine | riverbank | | | |
| <i>Clethra alnifolia</i> | Sweet Pepperbush | Clethraceae | Native | shrub | riverbank | upland forest | wet shrub thicket | |
| <i>Commelina communis</i> | Asiatic Dayflower | Commelinaceae | Non-native | herbaceous | wet forest | | | |
| <i>Cornus amomum</i> | Silky Dogwood | Cornaceae | Native | shrub | riverbank | wet shrub thicket | | |
| <i>Cornus florida</i> | Flowering Dogwood | Cornaceae | Native | tree | upland forest | | | |
| <i>Coronilla varia</i> | Crown Vetch | Fabaceae | Non-Native | herbaceous | dry field | | | |
| <i>Cuscuta sp.</i> | Dodder species | Cuscutaceae | Either | herbaceous | riverbank | | | potentially weedy |
| <i>Deucus carota</i> | Queen Anne's Lace | Apiaceae | Non-Native | herbaceous | dry field | | | |
| <i>Dianthus armeria</i> | Deptford Pink | Caryophyllaceae | Non-Native | herbaceous | dry field | | | |
| <i>Diodia teres</i> | Buttonweed | Rubiacae | Native | herbaceous | dry field | | | |
| <i>Duchesnea indica</i> | Indian Strawberry | Rosaceae | Non-native | herbaceous | wet forest | | | |
| <i>Elaeagnus angustifolia</i> | Russian Olive | Elaeagnaceae | Non-Native | shrub | upland forest | | | invasive species |
| <i>Eleocharis sp.</i> | Spike Rush | Cyperaceae | Native | sedge | wet shrub thicket | | | |
| <i>Erigeron philadelphicus</i> | Philadelphica Fleabane | Asteraceae | Native | herbaceous | dry field | | | |
| <i>Fagus grandifolia</i> | American Beech | Fagaceae | Native | tree | riverbank | | | |
| <i>Fraxinus pennsylvanica</i> | Green Ash | Oleaceae | Native | tree | riverbank | | | |
| <i>Galium sp.</i> | Bedstraw | Rubiacae | Either | herbaceous | wet shrub thicket | | | |
| <i>Gaylussacia frondosa</i> | Dangleberry | Vacciniaceae | Native | shrub | upland forest | | | |
| <i>Geum canadense</i> | White Avens | Rosaceae | Native | herbaceous | wet forest | | | |
| <i>Hibiscus moscheutos</i> | Swamp Mallow | Malvaceae | Native | shrub | riverbank | | | |
| <i>Hieracium sp.</i> | Hawkweed | Asteraceae | Either | herbaceous | dry field | | | |
| <i>Hypericum mutilum</i> | Dwarf St. John's Wort | Cuscutaceae | Native | herbaceous | riverbank | | | |
| <i>Hypericum virginicum</i> | Marsh St. John's Wort | Cuscutaceae | Native | herbaceous | riverbank | | | |
| <i>Ilex opaca</i> | American Holly | Aquifoliaceae | Native | tree | wet forest | | | |
| <i>Ilex verticillata</i> | Winterberry | Aquifoliaceae | Native | shrub | riverbank | wet shrub thicket | | |
| <i>Impatiens capensis</i> | Jewelweed | Balsaminaceae | Native | herbaceous | riverbank | wet shrub thicket | | |

Table 2. Preliminary Millstone Bypass Area Plant List

| Scientific Name | Common Name | Family | Origin | Growth Form | Area present at site | Area present at site | Area present at site | Weed Status |
|------------------------------------|--------------------------|----------------|------------|-------------|----------------------|----------------------|----------------------|--------------------------|
| <i>Ipomoea pandurata</i> | Wild Potato Vine | Convolvulaceae | Native | herbaceous | dry field | | | |
| <i>Iris sp.</i> | Iris | Iridaceae | Either | herbaceous | wet shrub thicket | | | |
| <i>Juglans nigra</i> | Black Walnut | Juglandaceae | Native | tree | wet forest | | | |
| <i>Juncus effusus</i> | Common Rush | Juncaceae | Native | rush | wet shrub thicket | | | |
| <i>Juncus tenuis</i> | Path Rush | Juncaceae | Native | rush | upland forest | dry field | | |
| <i>Lechea mucronata</i> | Hairy Pinweed | Cistaceae | Native | herbaceous | dry field | | | |
| <i>Leersia oryzoides</i> | Rice Cut Grass | Poaceae | Native | grass | wet shrub thicket | | | |
| <i>Lemna sp.</i> | Duckweed species | Lemnaceae | Native | herbaceous | riverbank | | | potentially weedy native |
| <i>Lespedeza hirta</i> | Hairy Bush Clover | Fabaceae | Native | herbaceous | dry field | | | |
| <i>Lespedeza violacea</i> | Violet Bush Clover | Fabaceae | Native | herbaceous | dry field | | | |
| <i>Lespedeza virginica</i> | Slender Bush Clover | Fabaceae | Native | herbaceous | dry field | | | |
| <i>Ligustrum vulgare</i> | Common Privet | Oleaceae | Non-native | shrub | wet forest | | | invasive species |
| <i>Liquidambar styraciflua</i> | Sweet Gum | Hamamelidaceae | Native | tree | riverbank | upland forest | wet forest | |
| <i>Lobelia cardinalis</i> | Cardinal Flower | Campanulaceae | Native | herbaceous | riverbank | | | |
| <i>Lonicera japonica</i> | Japanese Honeysuckle | Caprifoliaceae | Non-Native | vine | riverbank | wet shrub thicket | | invasive species |
| <i>Lonicera maackii</i> | Lonicera maackii | Caprifoliaceae | Non-native | shrub | wet forest | | | invasive species |
| <i>Lonicera tartarica</i> | Tartarian Honeysuckle | Caprifoliaceae | Non-Native | shrub | riverbank | | | invasive species |
| <i>Ludwigia alterniflora</i> | Seedbox | Onagraceae | Native | herbaceous | riverbank | | | |
| <i>Lycopodium tristachyum</i> | Wiry Ground Cedar | Lycopodiaceae | Native | herbaceous | upland forest | | | |
| <i>Lycopus americanus</i> | Water Horehound | Lamiaceae | Native | herbaceous | wet shrub thicket | | | |
| <i>Lycopus uniflorus</i> | Northern Bugleweed | Lamiaceae | Native | herbaceous | wet forest | | | |
| <i>Lyonia ligustrina</i> | Maleberry | Ericaceae | Native | shrub | wet shrub thicket | | | |
| <i>Lythrum salicaria</i> | Purple Loosestrife | Lythraceae | Non-Native | herbaceous | riverbank | | | invasive species |
| <i>Microstegium virginicum</i> | Japanese Wiregrass | Poaceae | Non-Native | grass | riverbank | | | invasive species |
| <i>Mitchella repens</i> | Partridge Berry | Rubiaceae | Native | herbaceous | wet forest | | | |
| <i>Myosotis scorpioides</i> | True Forget-me-not | Boraginaceae | Non-Native | herbaceous | riverbank | | | |
| <i>Nuphar advena</i> | Yellow Pond Lily | Nymphaeaceae | Native | herbaceous | riverbank | wet shrub thicket | | potentially weedy native |
| <i>Nyssa sylvatica</i> | Black Tupelo | Cornaceae | Native | tree | riverbank | upland forest | | |
| <i>Oenothera biennis</i> | Common Evening Primrose | Onagraceae | Native | herbaceous | riverbank | | | |
| <i>Onoclea sensibilis</i> | Sensitive Fern | Onocleaceae | Native | fern | riverbank | wet shrub thicket | wet forest | |
| <i>Osmunda cinnamomea</i> | Cinnamon Fern | Osmundaceae | Native | fern | wet forest | | | |
| <i>Osmunda regalis</i> | Royal Fern | Osmundaceae | Native | fern | riverbank | wet shrub thicket | | |
| <i>Oxalis sp.</i> | Wood Sorrel | Oxalidaceae | Either | herbaceous | wet forest | | | |
| <i>Parthenocissus quinquefolia</i> | Virginia Creeper | Vitaceae | Native | vine | riverbank | upland forest | wet shrub thicket | |
| <i>Peltandra virginica</i> | Arrow arum | Araceae | Native | herbaceous | riverbank | wet shrub thicket | | |
| <i>Phleum pratense</i> | Timothy Grass | Poaceae | Non-Native | grass | dry field | | | |
| <i>Phragmites australis</i> | Common Reed | Poaceae | Native | grass | riverbank | | | potentially weedy native |
| <i>Phytolacca americana</i> | Pokeweed | Phytolaccaceae | Native | herbaceous | wet forest | dry field | | |
| <i>Plantago aristata</i> | Bracted Plantain | Plantaginaceae | Native | herbaceous | dry field | | | |
| <i>Plantago lanceolata</i> | English Plantain | Plantaginaceae | Non-Native | herbaceous | dry field | | | |
| <i>Plantago major</i> | Common Plantain | Plantaginaceae | Non-Native | herbaceous | dry field | | | |
| <i>Polygala nuttallii</i> | Nuttall's Milkwort | Polygalaceae | Native | herbaceous | dry field | | | |
| <i>Polygonum arifolium</i> | Halberd-leaved Tearthumb | Polygonaceae | Native | herbaceous | riverbank | wet shrub thicket | | |
| <i>Polygonum convolvulus</i> | Black Bindweed | Polygonaceae | Non-native | herbaceous | wet forest | | | |
| <i>Polygonum hydropiperoides</i> | False Water Pepper | Polygonaceae | Native | herbaceous | wet forest | | | |
| <i>Polygonum lapathifolium</i> | Nodding Smartweed | Polygonaceae | Native | herbaceous | riverbank | | | |
| <i>Polygonum persicaria</i> | Lady's Thumb | Polygonaceae | Non-native | herbaceous | wet forest | | | |
| <i>Polygonum punctatum</i> | Dotted Smartweed | Polygonaceae | Native | herbaceous | riverbank | | | |
| <i>Polygonum sagittatum</i> | Arrow-leaved Tearthumb | Polygonaceae | Native | herbaceous | riverbank | | | |
| <i>Polygonum virginianum</i> | Jumpseed | Polygonaceae | Native | herbaceous | wet forest | | | |
| <i>Polytrichum sp.</i> | Haircap Moss | — | Native | moss | upland forest | | | |
| <i>Portulaca cordata</i> | Pickernelweed | Portulacaceae | Native | herbaceous | riverbank | | | |
| <i>Potentilla norvegica</i> | Rough Cinquefoil | Rosaceae | Native | herbaceous | riverbank | | | |
| <i>Potentilla simplex</i> | Old Field Cinquefoil | Rosaceae | Native | herbaceous | dry field | | | |
| <i>Prunella vulgaris</i> | Self Heal | Lamiaceae | Native | herbaceous | dry field | | | |

Table 2. Preliminary Millstone Bypass Area Plant List

| Scientific Name | Common Name | Family | Origin | Growth Form | Area present at site | Area present at site | Area present at site | Weed Status |
|-----------------------------------|------------------------|------------------|------------|-------------|----------------------|----------------------|----------------------|--------------------------|
| <i>Prunus serotina</i> | Black Cherry | Rosaceae | Native | tree | upland forest | | | |
| <i>Pteridium aquilinum</i> | Breken Fern | Donnateaditaceae | Native | fern | upland forest | | | |
| <i>Pyrus sp.</i> | Crab apple | Rosaceae | Either | tree | wet forest | | | |
| <i>Quercus alba</i> | White Oak | Fagaceae | Native | tree | upland forest | | | |
| <i>Quercus bicolor</i> | Swamp White Oak | Fagaceae | Native | tree | riverbank | | | |
| <i>Quercus palustris</i> | Pin Oak | Fagaceae | Native | tree | riverbank | wet shrub thicket | | |
| <i>Quercus rubra</i> | Red Oak | Fagaceae | Native | tree | upland forest | | | |
| <i>Quercus velutina</i> | Black Oak | Fagaceae | Native | tree | upland forest | | | |
| <i>Rhedia virginica</i> | Meadow Beauty | Meleostomataceae | Native | herbaceous | dry field | | | |
| <i>Rhododendron viscosum</i> | Swamp Azalea | Ericaceae | Native | shrub | riverbank | wet shrub thicket | | |
| <i>Rhus copallinum</i> | Winged Sumac | Anacardiaceae | Native | shrub | dry field | | | |
| <i>Robinia pseudoacacia</i> | Black Locust | Fabaceae | Native | tree | riverbank | | | potentially weedy native |
| <i>Rosa multiflora</i> | Multiflora Rose | Rosaceae | Non-Native | shrub | upland forest | riverbank | | invasive species |
| <i>Rosa palustris</i> | Swamp Rose | Rosaceae | Native | shrub | riverbank | wet shrub thicket | | |
| <i>Rubus allegheniensis</i> | Common Blackberry | Rosaceae | Native | shrub | wet forest | | | |
| <i>Rudbeckia hirta</i> | Black Eyed Susan | Asteraceae | Native | herbaceous | dry field | | | |
| <i>Rumex crispus</i> | Curly Dock | Polygonaceae | Non-Native | herbaceous | dry field | | | |
| <i>Salix nigra</i> | Black Willow | Salicaceae | Native | tree | riverbank | | | |
| <i>Sambucus canadensis</i> | Common Elderberry | Caprifoliaceae | Native | shrub | riverbank | | | |
| <i>Sassafras albidum</i> | Sassafras | Laureaceae | Native | tree | upland forest | | | |
| <i>Schizachyrium scoparium</i> | Little Bluestem | Poaceae | Native | grass | dry field | | | |
| <i>Scirpus cyperinus</i> | Wool Grass | Cyperaceae | Native | bulrush | wet shrub thicket | | | |
| <i>Senna hebecarpa</i> | Northern Wild Senna | Fabaceae | Native | herbaceous | riverbank | | | |
| <i>Smilax glauca</i> | Glaucous Greenbrier | Smilacaceae | Native | vine | upland forest | | | |
| <i>Smilax rotundifolia</i> | Common Greenbrier | Smilacaceae | Native | vine | riverbank | upland forest | | potentially weedy native |
| <i>Solanum carolinense</i> | Horse Nettle | Solanaceae | Native | herbaceous | dry field | | | |
| <i>Solanum dulcamara</i> | Bittersweet Nightshade | Solanaceae | Non-Native | vine | riverbank | wet shrub thicket | | invasive species |
| <i>Solidago juncea</i> | Early Goldenrod | Asteraceae | Native | herbaceous | dry field | | | |
| <i>Solidago puberula</i> | Downy Goldenrod | Asteraceae | Native | herbaceous | dry field | | | |
| <i>Sperganium americanum</i> | Bur-reed | Spergeriaceae | Native | herbaceous | riverbank | | | |
| <i>Sphagnum sp.</i> | Sphagnum moss | — | Native | moss | wet shrub thicket | | | |
| <i>Spirea alba</i> | Meadowsweet | Rosaceae | Native | shrub | wet shrub thicket | | | |
| <i>Symplocarpus foetidus</i> | Skunk cabbage | Asclepiaceae | Native | herbaceous | wet shrub thicket | | | |
| <i>Thalictrum pubescens</i> | Tall Meadow Rue | Ranunculaceae | Native | herbaceous | wet forest | | | |
| <i>Thelypteris noveboracensis</i> | New York Fern | Asplenaceae | Native | fern | wet forest | | | |
| <i>Thelypteris palustris</i> | Marsh Fern | Asplenaceae | Native | fern | wet shrub thicket | | | |
| <i>Toxicodendron radicans</i> | Poison Ivy | Anacardiaceae | Native | vine | upland forest | riverbank | wet shrub thicket | |
| <i>Typha latifolia</i> | Broad-leaved Cattail | Typhaceae | Native | herbaceous | riverbank | | | potentially weedy native |
| <i>Ulmus americana</i> | American Elm | Ulmaceae | Native | tree | riverbank | | | |
| <i>Vaccinium corymbosum</i> | Highbush Blueberry | Ericaceae | Native | shrub | wet shrub thicket | | | |
| <i>Verbena hastata</i> | Blue Vervain | Verbenaceae | Native | herbaceous | riverbank | | | |
| <i>Verbena urticifolia</i> | White Vervain | Verbenaceae | Native | herbaceous | wet shrub thicket | | | |
| <i>Vernonia noveboracensis</i> | New York Ironweed | Asteraceae | Native | herbaceous | dry field | | | |
| <i>Viburnum dentatum</i> | Northern Arrowwood | Caprifoliaceae | Native | shrub | riverbank | wet shrub thicket | | |
| <i>Vitis labrusca</i> | Fox Grape | Vitaceae | Native | vine | riverbank | wet shrub thicket | | potentially weedy native |
| <i>Vitis vulpina</i> | Frost Grape | Vitaceae | Native | vine | wet forest | | | potentially weedy native |
| <i>Woodwardia areolata</i> | Netted Chain Fern | Blechnaceae | Native | fern | riverbank | | | |

Total Number of species identified: 157

Table 3. Percent cover of vegetation components at various distances from Route 1.

| Scientific Name | Common Name | Weed Status | Site 1 ^A % Cover* | Site 2 ^B % Cover* | Site 3 ^C % Cover* |
|---|--------------------|--------------------------|---------------------------------|---------------------------------|---------------------------------|
| <i>Acer rubrum</i> | Red Maple | NA | 4 | 20 | 66 |
| <i>Alnus serrulata</i> | Smooth Alder | NA | 0 | 24 | 26 |
| <i>Apios americana</i> | Common Ground Nut | NA | 0 | 4 | 0 |
| <i>Betula nigra</i> | River Birch | NA | 0 | 0 | 2 |
| <i>Boehmeria cylindrica</i> | False Nettle | NA | 2 | 4 | 4 |
| <i>Cephalanthus occidentalis</i> | Buttonbush | NA | 4 | 14 | 0 |
| <i>Clematis virginiana</i> | Virgin's Bower | NA | 0 | 6 | 0 |
| <i>Cornus amomum</i> | Silky Dogwood | NA | 0 | 50 | 36 |
| <i>Cuscuta sp.</i> | Dodder | potentially weedy native | 4 | 0 | 0 |
| <i>Hibiscus moscheutos</i> | Swamp mallow | NA | 38 | 0 | 4 |
| <i>Ilex verticillata</i> | Winterberry | NA | 0 | 0 | 20 |
| <i>Lythrum salicaria</i> | Purple Loosestrife | invasive species | 76 | 4 | 0 |
| <i>Nuphar advena</i> | Yellow Pond Lily | potentially weedy native | 0 | 0 | 6 |
| <i>Parthenocissus quinquefolia</i> | Virginia Creeper | NA | 0 | 6 | 0 |
| <i>Peltandra virginica</i> | Arrow arum | NA | 2 | 0 | 0 |
| <i>Polygonum lapathifolium</i> | Nodding Smartweed | NA | 14 | 0 | 0 |
| <i>Quercus palustris</i> | Pin Oak | NA | 0 | 0 | 56 |
| <i>Rosa multiflora</i> | Multiflora Rose | invasive species | 0 | 14 | 0 |
| <i>Rosa palustris</i> | Swamp Rose | NA | 13 | 22 | 0 |
| <i>Salix nigra</i> | Black Willow | NA | 0 | 38 | 0 |
| <i>Sambucus canadensis</i> | Common Elderberry | NA | 4 | 0 | 0 |
| <i>Smilax rotundifolia</i> | Common Greenbrier | NA | 0 | 0 | 4 |
| <i>Toxicodendron radicans</i> | Poison Ivy | NA | 0 | 0 | 20 |
| Unidentified Grass | Grass | NA | 6 | 0 | 0 |
| Unidentified Sedge | Sedge | NA | 4 | 0 | 0 |
| <i>Viburnum dentatum</i> | Northern Arrowwood | NA | 0 | 0 | 32 |
| <i>Vitis labrusca</i> | Fox Grape | potentially weedy native | 0 | 0 | 10 |
| Percent Cover of Invasive Species and Potentially Weedy Native Species | | | 80 | 18 | 16 |

^A Site 1: 200 - 300 feet from current bridge at Rt. 1

^B Site 2: 100 - 200 feet beyond mowed riverbank along FMC property

^C Site 3: Junction of Millstone River and Little Bear Brook

* Percent cover was determined using the line intercept method. A measuring tape was stretched along 100 foot transects of the river. The length of the transect covered by each species present was recorded in five 10-foot intervals separated by 10 feet along each transect. Each percent cover calculation is based on 50 feet of riverbank at each site. Note that percent cover can exceed 100% at a site because species overlap along the transect.

CONTACT MEMO

Date: October 2, 2002
Contacted: Mr. Jeannette Bauers-Altman
Affiliation: NJDEP, Division of Fish and Wildlife
By: Eileen Flarity-Loftus
Regarding: Penns Neck Area EIS – BROOK FLOATER OCCURRENCE
cc: Leslie Roche

I advised Ms. Bauers-Altman of correspondence received from the US Fish and Wildlife Service, dated January 23, 2002, indicating that there is a known occurrence of brook floater (*Alasmodonta varicose*) in the D&R Canal and the Millstone River. Ms. Bauers-Altman did not believe that this is current data, as she is unaware of such an occurrence. In addition, since this occurrence was not provided by the NJ Natural Heritage Program and the brook floater is only rare on a Statewide basis, Ms. Bauers-Altman believes that this data may be outdated. She advised that she would look into this matter and get back to me.



State of New Jersey

Department of Environmental Protection

Division of Parks & Forestry, Historic Preservation Office

PO Box 404, Trenton, NJ 08625-0404

TEL: (609) 292-2023 FAX: (609) 984-0578

www.state.nj.us/dep/hpo

Bradley M. Campbell
Commissioner

HPO-J2002-6
October 2, 2002
Log # 02-2934

Mr. Jack McQuillan
Manager
Bureau of Environmental Services
New Jersey Department of Transportation
1035 Parkway Avenue
Post Office Box 600
Trenton, New Jersey 08625-0600

Dear Mr. McQuillan:

The Historic Preservation Office (HPO) appreciates having the opportunity to provide guidance regarding the evaluation of historic architectural resources as part of the *Penns Neck Area Environmental Impact Statement (EIS)*. These comments are in response to your request for technical review comments on the submitted *Historic Architectural Survey Revised Draft Report* (2 volumes) dated August 2002. This draft report examines architectural historic properties in West Windsor Township, Mercer County and Plainsboro Township, Middlesex County. Volume 1 includes the research design and historical overview along with individual evaluations of 19 newly surveyed historic architectural resources. Volume II reproduces the previous historic architectural survey reports.

The technical review comments that follow involve four (4) newly surveyed architectural properties, two (2) previously surveyed architectural properties, and one (1) property outside of the currently delineated Area of Potential Effects (APE):

12 Washington Road (David S. Voorhees Farmhouse)
45 Station Drive (Princeton Junction Hotel)
Nassau Interlocking Tower (Pennsylvania Railroad)
536 Alexander Road (Scott Berrien House)
258 Washington Road
3740 Brunswick Pike (David Sarnoff Research Center)
137 Washington Road.

RECEIVED

OCT 7 2002
310/BES

Newly Surveyed Properties

The HPO commends the staffs of the New Jersey Department of Transportation (NJDOT) Bureau of Environmental Services (BES) and the cultural resources consultant, John Milner Associates, for providing an informative and very well organized survey of historic architectural properties. The inclusion of an APE map with each individual survey form materially assists the reviewer in understanding the location of the individual property within the study area. The delineation on the large format APE map of known historic properties, as well as newly and previously surveyed properties, is equally helpful. The HPO suggests that the following issues or concerns be addressed in the preparation of the final *Penns Neck Area EIS Historic Architectural Survey*.

12 Washington Road.

The Mercer County historic sites survey of 1988 identified a historic house at 14 Washington Road that appears to match the description of the house at 12 Washington Road. The survey form concluded that "It is one of the best preserved nineteenth century houses in Princeton Junction and is now adaptively used." A copy of the survey form is attached to this letter. The relation of the 12 and 14 Washington Road evaluations should be resolved and the significance and integrity of this property should be reconsidered.

45 Station Drive

This property is identified as 28 Station Drive in the Mercer County historic sites survey of 1988 (survey form 1113-L-71 included with Volume 1 of the current draft report). The survey form identifies the building as a part of the nineteenth century community of Princeton Junction. Although the building is in an advanced state of disrepair, additional information regarding the history and significance of the property as it relates to Princeton Junction and the Pennsylvania Railroad station should be presented. The final revised survey form should confirm the appropriate address and municipal block and lot number.

Nassau Interlocking Tower

Previous HPO correspondence to the NJDOT regarding the Alexander Road Bridge replacement project noted a potentially eligible railroad historic district within that project's APE. The Pennsylvania Historical and Museum Commission (Pennsylvania State Historic Preservation Office) identified the National Register of Historic Places (NRHP) eligible Pennsylvania Railroad New York to Philadelphia Historic District in an August 11, 1994 consultation letter to the Federal Highway Administration. The opinion of eligibility originated with the *Bucks and Philadelphia County I-95 Intermodal Mobility Project* and this railroad historic district is acknowledged as a NRHP eligible and Section 4F property in the *Pennsylvania Turnpike*

Interstate 95 Interchange Project Environmental Impact Statement and Section 4F Evaluation prepared and issued by the U.S. Department of Transportation, Federal Highway Administration (Pennsylvania Division). Because the railroad is significant for connecting New York and Philadelphia and providing an elevated (or grade separated) and electrified right of way between these two major cities, its significance, integrity, and character defining features within New Jersey should be considered comparable. Additionally, the *Camden and Amboy Railroad Historic Districts Study* (Volumes I and II, July 2001), prepared for the New Jersey Department of Transportation, also concluded that the Trenton to New Brunswick segment of the Northeast Corridor Line (former Pennsylvania Railroad) possesses historic significance and integrity.

The elements that should be considered contributing to, or part of the character and setting of, a Pennsylvania Railroad (New York to Philadelphia) Historic District include surviving historic interlocking towers, overhead and undergrade bridges, catenary and electrical system structures, and railroad stations, facilities, and branch or side tracks. The submitted draft report appropriately notes that interlocking towers are a "rare and important building type." Although the interior operating machinery has apparently been removed, the building retains its original exterior character and details. As one of only seven Pennsylvania Railroad (New York to Philadelphia) mainline interlocking towers remaining in New Jersey, Nassau interlocking tower should be considered contributing to the integrity, character, and setting of a potentially NRHP eligible Pennsylvania Railroad (New York to Philadelphia) Historic District. Information confirming the date of construction of Nassau interlocking tower should be included in the final report. The relationship of the County Route 571 Bridge (structure # 1117150) over the railroad to the potentially eligible Pennsylvania Railroad (New York to Philadelphia) Historic District should also be examined in the final report.

536 Alexander Road (Scott Berrien House)

The Historic Preservation Office has received a preliminary National Register of Historic Places nomination for Berrien City, a potential historic district located about 1,200 feet outside of the delineated APE. The relationship between the 536 Alexander Road home of Scott Berrien and the development of Berrien City should be investigated.

Previously Surveyed Properties

Previous HPO consultation did not offer specific or overt comments on the evaluations of 258 Washington Road and 3740 Brunswick Pike (David Sarnoff Research Center). The formal consultation comments contained in HPO-H98-1 (August 5, 1998) expressed the belief that the evaluation of historic properties required soliciting and considering comments from individuals and organizations with an interest in or a knowledge of historic properties. With the understanding that the Penns Neck Area EIS is actively seeking review agency and public comments on all previously and newly surveyed properties, the HPO recommends that the evaluations of 3740 Brunswick Pike

(David Sarnoff Research Center) and 258 Washington Road consider the comments of consulting parties and the public, as well as the information available on Internet sites focusing on radio, television, and electrical engineering history.

3740 Brunswick Pike (David Sarnoff Research Center)

The evaluation of the historic significance and integrity of this property requires additional consulting party and public review and discussion. Information readily available on the Internet sites of the Sarnoff Corporation, Institute of Electrical and Electronics Engineers (IEEE), New Jersey Institute of Technology (Inventors Hall of Fame), and American Memory Collection of the Library of Congress highlights the significance of the facility. A copy of some of the easily accessible information is enclosed. The New Jersey State Library also possesses a copy of a Radio Corporation of America publication entitled "1942-1967, Twenty-Five Years at RCA Laboratories," authored by the Radio Corporation of America and cataloged in the Jerseyana collection as J607.2 R129.

258 Washington Road

The Mercer County historic sites survey of 1988 identified this house as "...a good intricate example of its type. Although several small charming bungalows survive in West Windsor, primarily in this expanded Penns Neck area and in the 1920s Berrien City development, it is rather unusual to find a large bungalow in this region." A copy of the survey form for this property is enclosed for inclusion in any subsequent documentation regarding 258 Washington Road.

Property Outside of the Currently Delineated APE

137 Washington Road

Although currently outside of the APE of the cultural resources study, please note that the Mercer County survey of 1988 identified this house as "one of the most distinctive houses in the Washington Road/Penns Neck vicinity..." A copy of the survey form for this property is enclosed for inclusion in any subsequent documentation for this property.

Additional Comments

The HPO looks forward to participating in public and consulting party discussions and consultation regarding the evaluation of historic properties within the Penns Neck Area EIS study area. The final revised cultural resources report should acknowledge, in accordance with the public involvement plan, the comments and/or information provided by consulting parties and individuals and organizations with a knowledge of or an interest

in historic properties within the project APE. The documentation of public participation in the evaluation of historic resources and project effects will substantially enhance the quality and timeliness of the Section 106 consultation.

Should you need any further assistance in identifying or evaluating potential architectural historic resources or if you have any questions regarding these comments, please contact Charles Scott at (609) 633-2396 or Steve Hardegen at (609) 984-0141.

Sincerely,

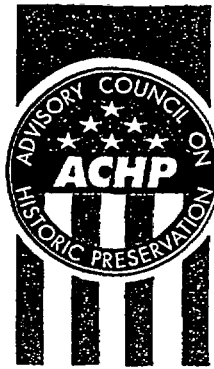


Dorothy P. Guzzo
Deputy State Historic
Preservation Officer

Attachments / Enclosures (8)

C: Marc Matsil, NJDEP
Art Silber, NJDOT
Tony Sabidussi, NJDOT
Lauralee Rappleye-Marsett, NJDOT
Environmental Coordinator, FHWA
Young Kim, Area Engineer, FHWA
Consulting / Interested Parties
Leslie Roche, DMJM+Harris
Jon Carnegie, Rutgers

CS/C/NJDOTJ2002-6PennsNeck



September 23, 2002

Young S. Kim, P.E.
Federal Highway Administration
840 Bear Tavern Road, Suite 310
West Trenton, New Jersey 08628-1019

RE: Penns Neck Area Improvements
Mercer and Middlesex Counties, New Jersey

Dear Mr. Kim:

On September 11, 2002, we received your request for our review of technical reports (prepared by John Milner Associates, August 2002) on the results of architectural and archeological resource survey for the referenced project. We will not be providing detailed substantive comments on the four volumes of technical studies. Rather, our questions and concerns directly address the status of Section 106 review for the referenced undertaking.

According to your letter dated September 10, 2002, the Federal Highway Administration (FHWA) has "*decided to coordinate*" the Section 106 and National Environmental Policy Act (NEPA) processes as provided for in 36 CFR § 800.8 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act. Pursuant to 36 CFR § 800.8(a), our regulations do encourage Federal agencies to coordinate the compliance of Section 106 and NEPA, and to consider Section 106 responsibilities as early as possible in the NEPA process. It appears, however, that FHWA does not plan to coordinate these processes, but rather intends to use the process and documentation required for the preparation of the Environmental Impact Statement (EIS) to comply with Section 106 in lieu of the procedures set forth in 36 CFR §§ 800.3 through 800.6. Please inform us if this interpretation of FHWA's intent is accurate.

You have asked that we review the four technical studies which gathered information to identify and evaluate historic properties. We note that one of these studies did include a map showing the area of potential effect (APE) "*for architectural resources*." It is not clear from this description if this map shows the geographic scope of the undertaking's potential direct and indirect effects. Accordingly, we ask that you clarify this matter so that we can participate more effectively in consultation. Since FHWA must consult with the New Jersey State Historic Preservation Office (SHPO) in determining the APE, we ask that you also provide us with any views provided by the SHPO regarding the geographic scope of identification efforts. To further facilitate our involvement, we ask that you also provide us with summary listing of the historic

ADVISORY COUNCIL ON HISTORIC PRESERVATION


1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

properties which FHWA has identified to date.

To facilitate public participation, FHWA has established a Partner's Roundtable Advisory Committee which was convened "*to consider issues pertinent to the development of the project and provide advice to FHWA,*" and others. As a result of these efforts, FHWA has developed the broad group of project alternatives which are currently under consideration. While we support the involvement of stakeholders, the project documentation which we have reviewed does not clearly identify the specific consulting parties which FHWA has identified or establish their role in the evaluation of alternatives. We are concerned about this matter because your September 10, 2002 letter does not appear to offer the opportunity for consultation between FHWA and the consulting parties regarding ways to avoid, minimize, or mitigate adverse effects. Instead, it appears that FHWA only plans for consulting parties to provide comments on the draft EIS. We encourage FHWA to provide for a more active role for consulting parties in the evaluation of alternatives and the resolution of adverse effects, especially given the scope of the undertaking and its substantial public controversy.

We look forward to working with you to resolve these matters. Should you have any questions, please contact Laura Henley Dean, Ph.D., by telephone at 202-606-8527 or by e-mail at ldean@achp.gov.

Sincerely,

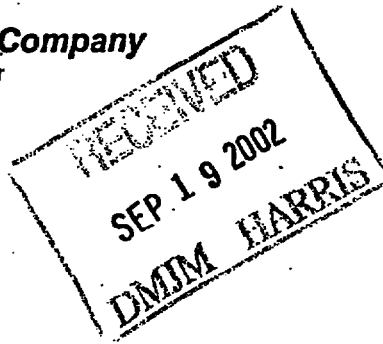


Don L. Klima
Director
Office of Planning and Review



Elizabethtown Water Company

Netherwood Operations Center
1341 North Avenue
P.O. Box 111
Plainfield, NJ 07061-0111
Phone: (908) 654-1234
www.etownwater.com



September 12, 2002

Mr. Michael Folli
DMJM Harris
Woodbridge Corporate Plaza
Office Building B
485B U.S. Route One South
Iselin, NJ 08830

Re: Penns Neck Area EIS
Request for Information

Dear Mr. Folli:

In response to your request dated September 5, 2002, I can offer the following information:

- Surface water supply is from the Spruce Run and Round Valley Reservoirs and is delivered to the treatment facilities via the Raritan River and D&R Canal.
- Treatment facilities are located in Bridgewater and Franklin Townships.
- Intakes are located adjoining the treatment facilities.
- Potable groundwater for the municipalities in question is derived from our Stoney Brook facility in Princeton Township. All other wells in the municipalities in question are not in service currently.
- Elizabethtown has no information on the handling of wastewater for this area. I can suggest you contact the various regional sewage authorities.

Enclosed is a brochure giving general details of our operations. Due to security concerns, I suggest that if there is a need for more specific information, the request can be addressed by Elizabethtown Water Company on a case by case basis. I trust this will be acceptable to NJDOT.

Sincerely,

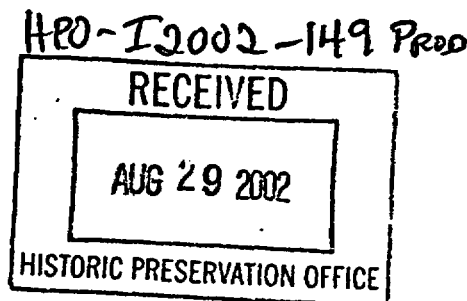
Russell G. Titus
Network Operations Technician

ene ✓



State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O.Box 600
Trenton, New Jersey 08625-0600



JAMES E. MCGREEVEY
Governor
August 28, 2002

JAMES P. FOX
Commissioner

Dorothy Guzzo, Administrator
NJ Department of Environmental Protection
Historic Preservation Office
P.O. Box 404
Trenton, NJ 08625-0404

02-2922 MG

Attention : Transportation and Planning Group

Re: Penns Neck Area EIS Study
West Windsor and Princeton Townships
Mercer County
Plainsboro Township, Middlesex County
Review of Archeological Survey Report

Dear Ms. Guzzo:

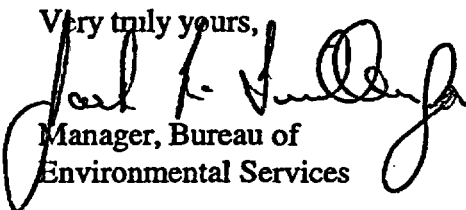
The Department is presently engaged in the preparation of the Penns Neck Area Environmental Impact Statement (EIS). The purpose of the EIS is to examine a variety of alternatives to address traffic congestion, mobility constraints and safety concerns on Route U. S. 1 and east-west cross-streets in the Penns Neck area of West Windsor Township, Mercer County. Currently under consideration are 18 project alternatives, with three additional Vaughn Drive Connector alignments. The project to be designed and eventually constructed will be defined as the result of the EIS process.

As you are aware this project has been in the project development phase for a number of years, and we have previously solicited Section 106 consultation comments from your office on earlier iterations of a Route 1, Penns Neck Interchange project. Because the Department and its partners in the Roundtable initiated an extensive scoping process for the present project, the initial study area defined for the cultural resources investigations was somewhat larger than that evaluated for previously proposed projects. The study area was subsequently refined and an area of potential effects was defined for both historic architectural and archeological surveys during a July 23, 2002 meeting among Charles Scott, representatives of John Milner Associates and DMJM+Harris, and NJDOT environmental staff.

The enclosed archeological survey report has completed identification and evaluation tasks associated with identifying National Register eligible sites within the area of potential effects for all of the alternatives currently under consideration. In order to move forward with the assessment of effects and the preparation of the EIS for the project, we need your technical review comments on the work accomplished thus far. A separate effects assessment report is currently in preparation and will be submitted to you on about October 1, 2002. We will need your comments on eligibility in advance of that time in order to ensure that all National Register listed or eligible properties are appropriately considered in that document. It is not our intention to seek formal Section 106 consultation comments at this time; Section 106 consultation will be coordinated with reviews to meet the requirements of the National Environmental Policy Act. However, in order to consider the likely effects on historic properties of any of the alternatives currently under consideration, we are seeking your advice on the National Register eligibility of all properties of sufficient age or importance within the APE for the project. Once duplicate copies of the archeological survey report have been made we will also be seeking the advice of all consulting parties and the two tribes identified by the FHWA on the same issues. Input from representatives of interested groups and the public on design, cultural resources and other environmental issues is being solicited throughout the EIS scoping process. A summary of the integrated NEPA/106 public involvement process for this project is enclosed (Carnegie to Roundtable members and alternates, 8/28/02). All comments will be considered in preparing the final cultural resources report and recommendations. That report will be included in the EIS as a technical appendix and again circulated to all consulting parties for formal comment.

Because the Department has made a commitment to completing the EIS process by April 2003, we need to move forward as soon as possible. Art Silber, in an August 9, 2002 letter to Assistant Commissioner Matsil (copy enclosed) asked for the cooperation of your staff in meeting two critical dates. While we are aware that these review periods are significantly shorter than the 30 day review normally allowed, we have scheduled a meeting for Friday, August 30 so that the consultants can brief Charles Scott and Mike Gregg on the survey work which has been conducted. Additionally, we have included a concurrence line at the conclusion of this letter to facilitate your response to this request. If we can assist you and your staff in their review in any other way, we will be happy to do so. Should you have any questions during the course of your review, please do not hesitate to contact Lauralee Rappleye-Marsett directly at 530-2990.

Very truly yours,


Manager, Bureau of
Environmental Services

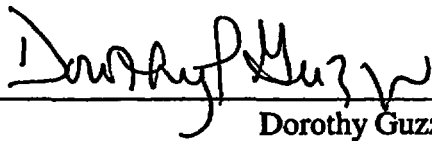
Enclosures

| | |
|----------------------------------|-----------------|
| cc: Leslie Roche, DMJM + Harris | w/o attachments |
| Jon Carnegie, Rutgers | " |
| Young Kim, FHWA | " |
| Art Silber, NJDOT | " |
| Tony Sabidussi, NJDOT | " |
| Lauralee Rappleye-Marsett, NJDOT | w/ attachments |

✓

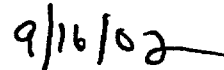
I concur with the recommendations of eligibility as summarized in the attached table and the revised draft report entitled *Phase I Archeological Survey, Penns Neck Area EIS, West Windsor and Princeton Townships, Mercer County and Plainsboro Township, Middlesex County, New Jersey*. John Milner Associates, August 2002. *

I concur with the recommendations of eligibility as presented in the report cited above with the following modifications:



Dorothy Guzzo

Deputy State Historic Preservation Officer



Date

- * As explicated with the two attached tables and one attached archaeological site location map.
- * I concur that adequate effort has been made to identify Native American and non-Native American archaeological sites and the estimated horizontal limits of those sites within the surveyed area for the 18 project alternatives. This does not include potential borrow areas outside of the surveyed area. We are prepared to consult regarding assessment of adverse effects for eligible sites within the APE of the selected alignment. Further background investigation and possibly Phase II evaluative test excavation will be needed if the APE of the selected alignment contains any of the sites in the third and/or fourth columns of the second attached table or unevaluated portions of 28-Me-86.

Penns Neck Area EIS
Summary of Archeological Findings for
All Sites in Project Study Area

| Site Number | National Register Eligibility | Source of Eligibility Opinion or Site Identification Effort |
|-------------|---|---|
| 28Me2 | Eligible | SHPO Opinion 9/13/76 |
| 28Me5 | Eligible; within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | Previous evaluation; current study |
| 28Me23 | Eligible | SHPO Opinion 3/10/97 |
| 28Me50 | Within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | Cross, 1941; Indian Site Survey; Kardas & Larrabee 1976b |
| 28Me55 | Within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | Indian Site Survey, Kardas & Larrabee (1976b) |
| 28Me60 | Archeological deposits identified during current survey which may be significant but are beyond the impacts of any of the alternatives as currently defined; a recommendation about National Register eligibility is not being offered at this time | JMA Recommendation 2002 |
| 28Me63 | Within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | NJSM Recorded Site; Kardas & Larrabee 1976a |
| 28Me86 | Portion within study area <i>Portion within study area not eligible</i> | JMA Study, 1996 |
| 28Me91 | Archeological deposits identified during current survey which may be significant but are beyond the impacts of any of the alternatives as currently defined; a recommendation about National Register eligibility is not being offered at this time | Previous studies; JMA Recommendation 2002 |

| | | |
|---------|---|--|
| 28Me181 | Eligibility undetermined; within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | NJSM Recorded Site |
| 28Me185 | Eligibility unknown; within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | Research & Archeological Management, Inc Study |
| 28Me190 | Eligibility unknown; within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | Indian Site Survey, Kardas & Larrabee 1976a |
| 28Me201 | Archeological deposits identified during current survey which may be significant but are beyond the impacts of any of the alternatives as currently defined; a recommendation about National Register eligibility is not being offered at this time | JMA Recommendation 2002 |
| 28Me264 | Not Eligible | SHPO Opinion 3/10/97 |
| 28Me280 | Archeological deposits identified during current survey which may be significant but are beyond the impacts of any of the alternatives as currently defined; a recommendation about National Register eligibility is not being offered at this time | JMA Recommendation 2002 |
| 28Me281 | Archeological deposits identified during current survey which may be significant but are beyond the impacts of any of the alternatives as currently defined; a recommendation about National Register eligibility is not being offered at this time | JMA Recommendation 2002 |
| 28Me282 | Not Eligible | JMA Recommendation 2002 |
| 28Me283 | Archeological deposits identified during current survey which may be significant but are beyond the impacts of any of the alternatives as currently defined; a recommendation about National Register eligibility is not being offered at this time | JMA Recommendation 2002 |

| | | |
|---------------|---|-------------------------|
| 28Me284 | Archeological deposits identified during current survey which may be significant but are beyond the impacts of any of the alternatives as currently defined; a recommendation about National Register eligibility is not being offered at this time | JMA Recommendation 2002 |
| Ben Boss Site | Within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | Kardas & Larrabee 1976b |
| 28Mi120 | Within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | Cross 1941 |
| 28Mi129 | Not Eligible | Previous JMA Studies |
| 28Mi136 | Eligibility undetermined; within original study area, but sufficiently distant from any alignments to preclude further consideration at this time | NJSM Recorded Site |

Data compiled by NJDOT
from JMA Penns Neck Report
8/29/02; rev. 9/4/02

**Penns Neck Area EIS
Tabular Summary of Archeological Findings for
All Sites in Project Study Area**

| National Register Eligible | Not Eligible | Eligibility Undetermined¹ | Eligibility Unknown² |
|---|---------------------|---|--|
| 28Me2 | 28Me86 ³ | 28Me60 | 28Me50 |
| 28Me5 | 28Me264 | 28Me91 | 28Me55 |
| 28Me23 | 28Me282 | 28Me181 | 28Me63 |
| | 28Mi129 | 28Me201 | 28Me185 |
| | | 28Me280 | 28Me190 |
| | | 28Me281 | Ben Boss Site |
| | | 28Me283 | |
| | | 28Me284 | |
| | | 28Mi120 | |
| | | 28Mi136 | |

¹"Eligibility Undetermined" used to Indicate that it is unlikely that there has been an assessment of National Register eligibility for the site

²"Eligibility Unknown" used to indicate those sites for which an eligibility assessment has probably been made, but the information was unavailable at the time the table was compiled

³Only that portion of the site which lies within the area previously studied has been assessed as being not eligible. Site limits extend beyond area which has been field tested.



State of New Jersey
DEPARTMENT OF STATE
TRENTON, NJ 08625

RECEIVED

APR 10 2002

JOHN MILNER
ASSOCIATES, INC.

JAMES E. MCGREEVEY
Governor

REGINA L. THOMAS
Secretary of State

Mailing address:
New Jersey State Museum
PO Box 530
Trenton, New Jersey 08625-0530

Location:
New Jersey State Museum
205 West State Street
Trenton, New Jersey 08625-0530

April 5, 2002

Peter E. Siegel, Ph.D.
Principal Archaeologist/Senior Associate
John Milner Associates, Inc.
535 North Church Street
West Chester PA 19380-2397

4/10/02
No map was enclosed
Called Greg
Send it out today

Re: Presence of Archaeological Resources
U.S. Route 1/Penns Neck Interchange
Mercer County, New Jersey
JMA Reference Code: PN-1

Dear Dr. Siegel:

We have checked our records for the above-referenced project and report the following:

Six known archaeological resources appear to be located within the boundaries of the project area. There are numerous known archaeological resources located within a 2-mile radius of the project area. A copy of your project map showing the locations of these sites and information from our files is enclosed. An archaeological survey, by a professional archaeologist, would have to be conducted in order for an accurate assessment to be made of its archaeological significance.

If we can be of further assistance, please do not hesitate to contact us.

Sincerely,

Gregory D. Lattanzi
Registrar
Archaeology/Ethnology Bureau

GDL:gg
Enclosure

CC: NJ Department of Environmental Protection, Historic Preservation Office



COUNTY OF MERCER
DIVISION OF PLANNING
McDADE ADMINISTRATION BUILDING
640 SOUTH BROAD STREET
P.O. BOX 8068
TRENTON, NEW JERSEY 08650-0068
(609) 989-6545

ROBERT D. PRUNETTI
County Executive

HARRY G. PARKIN
Chief of Staff

JOHN F. RICCI
County Administrator

DONNA M. LEWIS
Planning Director

March 26, 2002

Ms. Susan A. Lynch
DMJM+Harris
66 Long Wharf, 2nd Floor
Boston, MA 02110-3603

Dear Ms. Lynch:

In response to your inquiry, please be informed that within the area shown on the map you sent me of the U.S. Route 1/Penns Neck Area, there are no farms preserved by the County of Mercer and this area is not in a Mercer County ADA. In addition, to the best of my knowledge, there are no farms preserved in this study area by the local municipalities or the State of New Jersey; however, you may wish to confirm that with those entities.

If I can be of further assistance, please do not hesitate to call me.

Sincerely,

A handwritten signature in cursive script that reads "Daniel Pace".

Daniel Pace
Assistant Planner



In Reply Refer to:

ES-02/020

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
Ecological Services
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609/646 9310
Fax: 609/646 0352
<http://njfieldoffice.fws.gov>



January 23, 2002

Eileen Flarity-Loftus, Senior Environmental Scientist
DMJM Harris
Woodbridge Corporate Plaza, Office Building B
485B U.S. Route One South
Iselin, New Jersey 08830



Dear Ms. Flarity-Loftus:

This responds to your January 10, 2002 request to the U.S. Fish and Wildlife Service (Service) for information on the presence of federally listed endangered and threatened species within the vicinity of the Penns Neck Area located within Plainsboro Township, Middlesex County; and West Windsor Township, Mercer County, New Jersey. The Service understands that the New Jersey Department of Transportation is proposing highway improvements to alleviate vehicular traffic congestion in this area.

AUTHORITY

This response is provided pursuant to Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) to ensure the protection of federally listed endangered and threatened species. These comments do not address all Service concerns for fish and wildlife resources and do not preclude separate review and comments by the Service pursuant to the December 22, 1993 Memorandum of Agreement among the U.S. Environmental Protection Agency, New Jersey Department of Environmental Protection (NJDEP), and the Service, if project implementation requires a permit from the NJDEP pursuant to the New Jersey Freshwater Wetlands Protection Act (N.J.S.A. 13:9B *et seq.*); nor do they preclude comments on any forthcoming environmental documents pursuant to the National Environmental Policy Act of 1969 as amended (83 Stat. 852; 42 U.S.C. 4321 *et seq.*).

FEDERALLY LISTED SPECIES

Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. Therefore, no further consultation pursuant to Section 7 of the ESA is required by the Service. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

OTHER SERVICE CONCERNS

There is a known occurrence of the brook floater (*Alasmodonta varicosa*) in the Delaware and Raritan Canal and the Millstone River within the project site. This species is considered rare globally (G3) and within the State of New Jersey (S1) by the New Jersey Natural Heritage Program. The Service requests that you consult with the New Jersey Endangered and Nongame Species Program (address enclosed) to avoid adverse impacts to the brook floater as a result of the proposed project.

Current information regarding federally listed and candidate species occurring in New Jersey is enclosed, as well as addresses of State agencies that may be contacted for current site-specific information regarding federal candidate and State-listed species. The Service encourages federal agencies and other planners to consider federal candidate species in project planning. Information is also enclosed regarding permit requirements for activities in wetlands.

Please contact Lisa Solberg of my staff at (609) 646-9310, extension 47 if you have any questions about the enclosed material or require further assistance regarding federally listed endangered or threatened species.

Sincerely,

A handwritten signature in black ink, appearing to read "J.C. Staples", with a stylized flourish at the end.

John C. Staples
Assistant Supervisor

Enclosures

FEDERAL CANDIDATE AND STATE-LISTED SPECIES

Candidate species are species under consideration by the U.S. Fish and Wildlife Service (Service) for possible inclusion on the List of Endangered and Threatened Wildlife and Plants. Although these species receive no substantive or procedural protection under the Endangered Species Act, the Service encourages federal agencies and other planners to consider federal candidate species in project planning.

The New Jersey Natural Heritage Program maintains the most up-to-date information on federal candidate species and State-listed species in New Jersey and may be contacted at the following address:

Mr. Thomas Breden
Natural Heritage Program
Division of Parks and Forestry
P.O. Box 404
Trenton, New Jersey 08625
(609) 984-0097

Additionally, information on New Jersey's State-listed wildlife species may be obtained from the following office:

Dr. Larry Niles
Endangered and Nongame Species Program
Division of Fish and Wildlife
P.O. Box 400
Trenton, New Jersey 08625
(609) 292-9400

If information from either of the aforementioned sources reveals the presence of any federal candidate species within a project area, the Service should be contacted to ensure that these species are not adversely affected by project activities.



FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN NEW JERSEY



An **ENDANGERED** species is any species that is in danger of extinction throughout all or a significant portion of its range.

A **THREATENED** species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

| | COMMON NAME | SCIENTIFIC NAME | STATUS |
|-----------------|------------------------|-----------------------------------|--------|
| FISHES | Shortnose sturgeon | <i>Acipenser brevirostrum</i> | E |
| REPTILES | Bog turtle | <i>Clemmys muhlenbergii</i> | T |
| | Atlantic Ridley turtle | <i>Lepidochelys kempii</i> | E |
| | Green turtle | <i>Chelonia mydas</i> | T |
| | Hawksbill turtle | <i>Eretmochelys imbricata</i> | E |
| | Leatherback turtle | <i>Dermochelys coriacea</i> | E |
| | Loggerhead turtle | <i>Caretta caretta</i> | T |
| BIRDS | Bald eagle | <i>Haliaeetus leucocephalus</i> | T |
| | Piping plover | <i>Charadrius melodus</i> | T |
| | Roseate tern | <i>Sterna dougallii dougallii</i> | E |
| MAMMALS | Eastern cougar | <i>Felis concolor couguar</i> | E+ |
| | Indiana bat | <i>Myotis sodalis</i> | E |
| | Gray wolf | <i>Canis lupus</i> | E+ |
| | Delmarva fox squirrel | <i>Sciurus niger cinereus</i> | E+ |
| | Blue whale* | <i>Balaenoptera musculus</i> | E |
| | Finback whale* | <i>Balaenoptera physalus</i> | E |
| | Humpback whale* | <i>Megaptera novaeangliae</i> | E |
| | Right whale* | <i>Balaena glacialis</i> | E |
| | Sei whale* | <i>Balaenoptera borealis</i> | E |
| | Sperm whale* | <i>Physeter macrocephalus</i> | E |

| | COMMON NAME | SCIENTIFIC NAME | STATUS |
|---------------|---------------------------------|------------------------------------|--------|
| INVERTEBRATES | Dwarf wedgemussel | <i>Alasmidonta heterodon</i> | E |
| | Northeastern beach tiger beetle | <i>Cicindela dorsalis dorsalis</i> | T |
| | Mitchell's eye-butterfly | <i>Neonympha m. mitchellii</i> | E+ |
| | American burying beetle | <i>Nicrophorus americanus</i> | E+ |
| PLANTS | Small whorled pogonia | <i>Isotria medeoloides</i> | T |
| | Swamp pink | <i>Helonias bullata</i> | T |
| | Knie's kernel beaked rush | <i>Rhynchospora knieskernii</i> | T |
| | American chairseed | <i>Schwalbea americana</i> | E |
| | Sensine joint-veronica | <i>Aeschynomene virginica</i> | T |
| | Seabeach amaranth | <i>Amaranthus pumilus</i> | T |

| STATUS | | | |
|--------|-----------------------|----|---------------------|
| E | endangered species | PE | proposed endangered |
| T | threatened species | PT | proposed threatened |
| + | presumed extirpated** | | |

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service.

** Current records indicate the species does not presently occur in New Jersey, although the species did occur in the State historically.

Note: for a complete listing of Endangered and Threatened Wildlife and Plants, refer to 50 CFR 17.11 and 17.12.

For further information, please contact:

U.S. Fish and Wildlife Service
New Jersey Field Office
927 N. Main Street, Building D
Pleasantville, New Jersey 08232
Phone: (609) 646-9310
Fax: (609) 646-0352

Revised 12/06/00



FEDERAL CANDIDATE SPECIES IN NEW JERSEY

CANDIDATE SPECIES are species that appear to warrant consideration for addition to the federal List of Endangered and Threatened Wildlife and Plants. Although these species receive no substantive or procedural protection under the Endangered Species Act, the U.S. Fish and Wildlife Service encourages federal agencies and other planners to give consideration to these species in the environmental planning process.

| SPECIES | SCIENTIFIC NAME |
|---------------------|------------------------------|
| Bog asphodel | <i>Narthecium americanum</i> |
| Hurst's panic grass | <i>Panicum hirstii</i> |

Note: For complete listings of taxa under review as candidate species, refer to Federal Register Vol. 64, No. 205, October 25, 1999 (Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species).

Revised 11/99



State of New Jersey

James E. McGreevey
Governor

Department of Environmental Protection
Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program
P.O. Box 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

Bradley M. Campbell
Commissioner Designee

January 16, 2002

Eileen Flarity-Loftus
DMJM + Harris
Woodbridge Corporate Plaza, Office Building B
485 B U.S. Route 1 South
Iselin, NJ 08830

Re: Penns Neck Area EIS

Dear Ms. Flarity-Loftus:

Thank you for your data request regarding rare species information for the above referenced project site in West Windsor, Princeton and Plainsboro Townships, Mercer and Middlesex Counties.

The Natural Heritage Data Base has a record for an occurrence of barred owl that may be in the immediate vicinity of the site. The attached list provides more information about this occurrence. Because some species are sensitive to disturbance or sought by collectors, this information is provided to you on the condition that no specific locational data are released to the general public. This is not intended to preclude your submission of this information to regulatory agencies from which you are seeking permits.

Also attached are lists of rare species and natural communities that have been documented from Mercer and Middlesex Counties. These county lists can be used as master species lists for directing further inventory work. If suitable habitat is present at the project site, these species have potential to be present. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend you contact the Division of Fish and Wildlife, Endangered and Nongame Species Program.

PLEASE SEE THE ATTACHED 'CAUTIONS AND RESTRICTIONS ON NHP DATA'.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Herbert A. Lord

Herbert A. Lord
Data Request Specialist

cc: Thomas F. Breden
Lawrence Niles
NHP File No. 02-4007436

NATURAL LANDS MANAGEMENT

CAUTIONS AND RESTRICTIONS ON NATURAL HERITAGE DATA

The quantity and quality of data collected by the Natural Heritage Program is dependent on the research and observations of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys. Some natural areas in New Jersey have never been thoroughly surveyed. As a result, new locations for plant and animal species are continuously added to the data base. Since data acquisition is a dynamic, ongoing process, the Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of New Jersey. Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The attached data is provided as one source of information to assist others in the preservation of natural diversity.

This office cannot provide a letter of interpretation or a statement addressing the classification of wetlands as defined by the Freshwater Wetlands Act. Requests for such determination should be sent to the DEP Land Use Regulation Program, P.O. Box 401, Trenton, NJ 08625-0401.

This cautions and restrictions notice must be included whenever information provided by the Natural Heritage Database is published.

EXPLANATIONS OF CODES USED IN NATURAL HERITAGE REPORTS

FEDERAL STATUS CODES

The following U.S. Fish and Wildlife Service categories and their definitions of endangered and threatened plants and animals have been modified from the U.S. Fish and Wildlife Service (F.R. Vol. 50 No. 188; Vol. 61, No. 40; F.R. 50 CFR Part 17). Federal Status codes reported for species follow the most recent listing.

- LE Taxa formally listed as endangered.
- LT Taxa formally listed as threatened.
- PE Taxa already proposed to be formally listed as endangered.
- PT Taxa already proposed to be formally listed as threatened.
- C Taxa for which the Service currently has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species.
- S/A Similarity of appearance species.

STATE STATUS CODES

Two animal lists provide state status codes after the Endangered and Nongame Species Conservation Act of 1973 (NSSA 23:2A-13 et. seq.): the list of endangered species (N.J.A.C. 7:25-4.13) and the list defining status of indigenous, nongame wildlife species of New Jersey (N.J.A.C. 7:25-4.17(a)). The status of animal species is determined by the Nongame and Endangered Species Program (ENSP). The state status codes and definitions provided reflect the most recent lists that were revised in the New Jersey Register, Monday, June 3, 1991.

- D Declining species—a species which has exhibited a continued decline in population numbers over the years.
- E Endangered species—an endangered species is one whose prospects for survival within the state are in immediate danger due to one or many factors – a loss of habitat, over exploitation, predation, competition, disease. An endangered species requires immediate assistance or extinction will probably follow.
- EX Extirpated species—a species that formerly occurred in New Jersey, but is not now known to exist within the state.
- I Introduced species—a species not native to New Jersey that could not have established itself here without the assistance of man.
- INC Increasing species—a species whose population has exhibited a significant increase, beyond the normal range of its life cycle, over a long term period.
- T Threatened species—a species that may become endangered if conditions surrounding the species begin to or continue to deteriorate.
- P Peripheral species—a species whose occurrence in New Jersey is at the extreme edge of its present natural range.
- S Stable species—a species whose population is not undergoing any long-term increase/decrease within its natural cycle.
- U Undetermined species—a species about which there is not enough information available to determine the status.

Status for animals separated by a slash(/) indicate a dual status. First status refers to the state breeding population, and the second status refers to the migratory or winter population.

Plant taxa listed as endangered are from New Jersey's official Endangered Plant Species List N.J.S.A. 1318-15.151 et seq.

- E Native New Jersey plant species whose survival in the State or nation is in jeopardy.

REGIONAL STATUS CODES FOR PLANTS

- LP Indicates taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction. Not all species currently tracked by the Pinelands Commission are tracked by the Natural Heritage Program. A complete list of endangered and threatened Pineland species is included in the New Jersey Pinelands Comprehensive Management Plan.

EXPLANATION OF GLOBAL AND STATE ELEMENT RANKS

The Nature Conservancy has developed a ranking system for use in identifying elements (rare species and natural communities) of natural diversity most endangered with extinction. Each element is ranked according to its global, national, and state (or subnational in other countries) rarity. These ranks are used to prioritize conservation work so that the most endangered elements receive attention first. Definitions for element ranks are after The Nature Conservancy (1982: Chapter 4, 4.1-1 through 4.4.1.3-3).

GLOBAL ELEMENT RANKS

- G1 Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G2 Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
- G3 Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range; with the number of occurrences in the range of 21 to 100.
- G4 Apparently secure globally; although it may be quite rare in parts of its range, especially at the periphery.
- G5 Demonstrably secure globally; although it may be quite rare in parts of its range, especially at the periphery.
- GH Of historical occurrence throughout its range i.e., formerly part of the established biota, with the expectation that it may be rediscovered.
- GU Possibly in peril range-wide but status uncertain; more information needed.
- GX Believed to be extinct throughout range (e.g., passenger pigeon) with virtually no likelihood that it will be rediscovered.
- G? Species has not yet been ranked.

STATE ELEMENT RANKS

- S1 Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres). Elements so ranked are often restricted to very specialized conditions or habitats and/or restricted to an extremely small geographical area of the state. Also included are elements which were formerly more abundant, but because of habitat destruction or some other critical factor in its biology, they have been demonstrably reduced in abundance. In essence, these are elements for which, even with intensive searching, sizable additional occurrences are unlikely to be discovered.

- S2** Imperiled in New Jersey because of rarity (6 to 20 occurrences). Historically many of these elements may have been more frequent but are now known from very few extant occurrences, primarily because of habitat destruction. Diligent searching may yield additional occurrences.
- S3** Rare in state with 21 to 100 occurrences (plant species in this category have only 21 to 50 occurrences). Includes elements which are widely distributed in the state but with small populations/acreage or elements with restricted distribution, but locally abundant. Not yet imperiled in state but may soon be if current trends continue. Searching often yields additional occurrences.
- S4** Apparently secure in state, with many occurrences.
- S5** Demonstrably secure in state and essentially ineradicable under present conditions.
- SA** Accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded; examples include European strays or western birds on the East Coast and vice-versa.
- SE** Elements that are clearly exotic in New Jersey including those taxa not native to North America (introduced taxa) or taxa deliberately or accidentally introduced into the State from other parts of North America (adventive taxa). Taxa ranked SE are not a conservation priority (viable introduced occurrences of G1 or G2 elements may be exceptions).
- SH** Elements of historical occurrence in New Jersey. Despite some searching of historical occurrences and/or potential habitat, no extant occurrences are known. Since not all of the historical occurrences have been field surveyed, and unsearched potential habitat remains, historically ranked taxa are considered possibly extant, and remain a conservation priority for continued field work.
- SP** Element has potential to occur in New Jersey, but no occurrences have been reported.
- SR** Elements reported from New Jersey, but without persuasive documentation which would provide a basis for either accepting or rejecting the report. In some instances documentation may exist, but as of yet, its source or location has not been determined.
- SRF** Elements erroneously reported from New Jersey, but this error persists in the literature.
- SU** Elements believed to be in peril but the degree of rarity uncertain. Also included are rare taxa of uncertain taxonomical standing. More information is needed to resolve rank.
- SX** Elements that have been determined or are presumed to be extirpated from New Jersey. All historical occurrences have been searched and a reasonable search of potential habitat has been completed. Extirpated taxa are not a current conservation priority.
- SXC** Elements presumed extirpated from New Jersey, but native populations collected from the wild exist in cultivation.
- SZ** Not of practical conservation concern in New Jersey, because there are no definable occurrences, although the taxon is native and appears regularly in the state. An SZ rank will generally be used for long distance migrants whose occurrences during their migrations are too irregular (in terms of repeated visitation to the same locations), transitory, and dispersed to be reliably identified, mapped and protected. In other words, the migrant regularly passes through the state, but enduring, mappable element occurrences cannot be defined.

Typically, the SZ rank applies to a non-breeding population (N) in the state - for example, birds on migration. An SZ rank may in a few instances also apply to a breeding population (B), for example certain lepidoptera which regularly die out every year with no significant return migration.

Although the SZ rank typically applies to migrants, it should not be used indiscriminately. Just because a species is on migration does not mean it receives an SZ rank. SZ will only apply when the migrants occur in an irregular, transitory and dispersed manner.

- B** Refers to the breeding population of the element in the state.
- N** Refers to the non-breeding population of the element in the state.
- T** Element ranks containing a "T" indicate that the Intraspecific taxon is being ranked differently than the full species. For example *Stachys palustris* var. *homotricha* is ranked "G5T? SH" meaning the full species is globally secure but the global rarity of the var. *homotricha* has not been determined; in New Jersey the variety is ranked historic.
- Q** Elements containing a "Q" in the global portion of its rank indicates that the taxon is of questionable, or uncertain taxonomical standing, e.g., some authors regard it as a full species, while others treat it at the subspecific level.
- .1** Elements documented from a single location.

Note: To express uncertainty, the most likely rank is assigned and a question mark added (e.g., G27). A range is indicated by combining two ranks (e.g., G1G2, S1S3).

IDENTIFICATION CODES

These codes refer to whether the identification of the species or community has been checked by a reliable individual and is indicative of significant habitat.

- Y** Identification has been verified and is indicative of significant habitat.
- BLANK** Identification has not been verified but there is no reason to believe it is not indicative of significant habitat.
- ?** Either it has not been determined if the record is indicative of significant habitat or the identification of the species or community may be confusing or disputed.

MERCER COUNTY
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 |
|--------------------------------|--------------------------------|-------------------|-----------------|--------------------|-------|----------|
| *** Vertebrates | | | | | | |
| ACCIPITER COOPERII | COOPER'S HAWK | | T/T | | G5 | S3B, S4N |
| ACIPENSER BREVIROSTRUM | SHORTNOSE STURGEON | LE | E | | G3 | S3 |
| AMMODRAMUS HENSLOWII | HENSLOW'S SPARROW | | E | | G4 | S1B |
| AMMODRAMUS SAVANNARUM | GRASSHOPPER SPARROW | | T/S | | G5 | S2B |
| BARTRAMIA LONGICAUDA | UPLAND SANDPIPER | | E | | G5 | S1B |
| CLEMMYS INSCULPTA | WOOD TURTLE | | T | | G4 | S3 |
| CLEMMYS MUHLENBERGII | BOG TURTLE | LT | E | | G3 | S2 |
| DOLICHONYX ORYZIVORUS | BOBOLINK | | T/T | | G5 | S2B |
| EURYCEA LONGICAUDA LONGICAUDA | LONGTAIL SALAMANDER | | T | | G5T5 | S2 |
| FALCO SPARVERIUS | AMERICAN KESTREL | | INC/S | | G5 | S3B, S7N |
| GRAPTEMYS GEOGRAPHICA | COMMON MAP TURTLE | | U | | G5 | S3 |
| LYNX RUFUS | BOBCAT | | E | | G5 | S3 |
| PASSERCULUS SANDWICHENSIS | SAVANNAH SPARROW | | T/T | | G5 | S2B, S4N |
| PETROCHELIDON PYRRHONOTA | CLIFF SWALLOW | | S/S | | G5 | S2B |
| PODILYMBUS PODICEPS | PIED-BILLED GREBE | | E/S | | G5 | S1B, S3N |
| POOECETES GRAMINEUS | VESPER SPARROW | | E | | G5 | S1B, S2N |
| STRIX VARIA | BARRED OWL | | T/T | | G5 | S3B |
| STURNELLA MAGNA | EASTERN MEADOWLARK | | D/S | | G5 | S3B, S4N |
| *** Ecosystems | | | | | | |
| FLOODPLAIN FOREST | FLOODPLAIN FOREST | | | | G4 | S3? |
| FRESHWATER TIDAL MARSH COMPLEX | FRESHWATER TIDAL MARSH COMPLEX | | | | G4? | S3? |
| *** Invertebrates | | | | | | |
| ALASMIDONTA HETERODON | DWARF WEDGEMUSSEL | LE | E | | G1G2 | S1 |
| ALASMIDONTA UNDULATA | TRIANGLE FLOATER | | | | G4 | S3 |
| ALASMIDONTA VARICOSA | BROOK FLOATER | | | | G3 | S1 |
| CICINDELA MARGINIPENNIS | COBBLESTONE TIGER BEETLE | | | | G2G3 | S1S2 |
| FARONTA RUBRIPENNIS | PINK STREAK | | | | G3G4 | S3 |

26 JAN 2001

MERCER COUNTY
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 |
|------------------------|-------------------------|-------------------|-----------------|--------------------|-------|-------|
| GOMPHUS ABBREVIATUS | SPINE-CROWNED CLUBTAIL | | | | G3G4 | S283 |
| LAMPSILIS CARIOSA | YELLOW LAMPMUSSEL | | | | G3G4 | S1 |
| LAMPSILIS RADIATA | EASTERN LAMPMUSSEL | | | | G5 | S3 |
| LASMIGONA SUBVIRIDIS | GREEN FLOATER | | | | G3 | S1 |
| LEPTODEA OCHRACEA | TIDEWATER MUCKET | | | | G4 | S1 |
| LIGUMIA NASUTA | EASTERN POND MUSSEL | | | | G4G5 | S1 |
| MICROPHORUS AMERICANUS | AMERICAN BURYING BEETLE | LE | E | | G1 | SH |

*** Vascular plants

| | | | | | | |
|-----------------------------|-------------------------------|--|---|----|------|------|
| AGASTACHE NEPETOIDES | YELLOW GIANT HYSSOP | | | | G5 | S2 |
| AGASTACHE SCROPHULARIIFOLIA | PURPLE GIANT HYSSOP | | | | G4 | S2 |
| AGRIMONIA MICROCARPA | SMALL-FRUITED GROOVEBUR | | | | G5 | S2 |
| ALOPECURUS AQUALIS | MARSH MEADOW FOXTAIL | | | | G5 | S2 |
| APLECTRUM HYEMALE | PUTTYROOT | | E | | G5 | S1 |
| ASCLEPIAS RUBRA | RED MILKWEED | | | LP | G4G5 | S2 |
| ASCLEPIAS VARIEGATA | WHITE MILKWEED | | | | G5 | S2 |
| ASTER RADULA | LOW ROUGH ASTER | | E | | G5 | S1 |
| BIDENS BIDENTOIDES | BUR-MARIGOLD | | | | G3 | S2 |
| CACALIA ATRIPLICIFOLIA | PALE INDIAN PLANTAIN | | E | | G4G5 | S1 |
| CACALIA SUAVEOLENS | SWEET-SCENTED INDIAN PLANTAIN | | | | G3G4 | SX.1 |
| CALAMAGROSTIS PICKERINGII | PICKERING'S REEDGRASS | | E | | G4 | S1 |
| CALLITRICHE VERNA | SPRING WATER STARWORT | | | | G5 | S2 |
| CALYSTEGIA SPITHAMEA | ERECT BINDWEED | | E | | G4G5 | S1 |
| CAREX BARRATTII | BARRATT'S SEDGE | | | LP | G3G4 | S4 |
| CAREX FRANKII | FRANK'S SEDGE | | | | G5 | S3 |
| CAREX HAYDENII | CLOUD SEDGE | | E | | G5 | S1 |
| CAREX HITCHCOCKIANA | HITCHCOCK'S SEDGE | | | | G5 | S2 |
| CAREX JAMESII | NEBRASKA SEDGE | | E | | G5 | S1 |
| CAREX WILLDENOWII | WILLDENOW'S SEDGE | | | | G5 | S2 |
| CASTILLEJA COCCINEA | SCARLET INDIAN PAINTBRUSH | | | | G5 | S2 |

MERCER COUNTY
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 |
|--|--------------------------|-------------------|-----------------|--------------------|-------|-------|
| CERCIS CANADENSIS | REDBUD | | E | | G5 | S1 |
| CRATAEGUS CALPODENDRON | PEAR HAWTHORN | | E | | G5 | S1 |
| CRATAEGUS CHRYSOCARPA | PINEBERRY HAWTHORN | | | | G5 | S1 |
| CUSCUTA CEPHALANTHI | BUTTON-BUSH DODDER | | E | | G5 | S1 |
| CUSCUTA POLYGONORUM | SMARTWEED DODDER | | | | G5 | S2 |
| CYNOGLOSSUM VIRGINIANUM VAR VIRGINIANUM | WILD COMFREY | | | | G5T5 | S2 |
| CYPERUS LANCASTRIENSIS | LANCASTER FLATSEDGE | | E | | G5 | S1 |
| CYSTOPTERIS PROTRUSA | LOWLAND BRITTLE FERN | | | | G5 | S2 |
| DICENTRA CANADENSIS | SQUIRREL-CORN | | E | | G5 | S1 |
| ELLISIA NYCTELEA | AUNT LUCY | | E | | G5 | S1 |
| ERAGROSTIS FRANKII | FRANK'S LOVEGRASS | | | | G5 | S2 |
| ERIOCAULON PARKERI | PARKER'S PIPEWORT | | | | G3 | S2 |
| ERIOPHORUM GRACILE | SLENDER COTTONGRASS | | E | | G5 | SH |
| EUPHORBIA MARYLANDICA | MARYLAND SPURGE | | E | | GUQ | SH.1 |
| GEUM VERNUM | SPRING AVENS | | | | G5 | S2 |
| HELONIAS BULLATA | SWAMP-PINK | LT | E | LP | G3 | S3 |
| HETERANTHERA MULTIFLORA | MUD PLANTAIN | | | | G4 | S2 |
| HYBANTHUS CONCOLOR | GREEN VIOLET | | E | | G5 | S1 |
| JEFFERSONIA DIPHYLLA | TWINLEAF | | E | | G5 | S1 |
| LIMOSELLA SUBULATA | MUDWEED | | E | | G4? | S1 |
| MELANTHIUM VIRGINICUM | VIRGINIA BUNCHFLOWER | | E | | G5 | S1 |
| MIMULUS ALATUS | WINGED MONKEY FLOWER | | | | G5 | S3 |
| NUPHAR MICROPHYLLUM | SMALL YELLOW POND LILY | | E | | G4G5 | SH |
| PENSTEMON LAEVIGATUS | SMOOTH BEARD TONGUE | | E | | G5 | S1 |
| PHLOX PILOSA | DOWNY PHLOX | | E | | G5 | SH |
| PLATANATHERA PERAMOENA | PURPLE FRINGELESS ORCHID | | E | | G5 | S1 |
| POTAMOGETON VAGINATUS | SHEATHED PONDWEED | | | | G5 | SH |
| PYCNANTHEMUM CLINOPODIOIDES | BASIL MOUNTAIN MINT | | E | | G2 | S1 |
| RANUNCULUS AMBIGENS | WATER-PLANTAIN SPEARWORT | | | | G4 | S2 |

26 JAN 2001

MERCER COUNTY
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 |
|-------------------------------------|------------------------|-------------------|-----------------|--------------------|-------|-------|
| RANUNCULUS FUSILLUS | LOW SPEARMORT | | | | G5 | S2 |
| RANUNCULUS REPTANS | CREEPING BUTTERCUP | | E | | G5 | SH |
| RHYNCHOSPORA GLOBULARIS | GRASS-LIKE BEAKED RUSH | | E | | G5 | S1 |
| RHYNCHOSPORA PALLIDA | PALE BEAK RUSH | | | | G3 | S3 |
| SCIRPUS LONGII | LONG'S BULRUSH | | E | LP | G2 | S2 |
| SCUTELLARIA NERVOSA | VEINED SKULLCAP | | | | G5 | S2 |
| STACHYS PALUSTRIS VAR HOMOTRICHA | MARSH HEDGE-NETLE | | E | | G5?T? | SH |
| TRADESCANTIA OHIENSIS | OHIO SPIDERWORT | | | | G5 | S2 |
| VERBENA SIMPLEX | NARROW-LEAVED VERVAIN | | E | | G5 | S1 |
| ZIGADENUS LEIMANTHOIDES | OCEANORUS | | E | | G4Q | S1 |

92 Records Processed

MIDDLESEX COUNTY
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 |
|-----------------------------|------------------------------|-------------------|-----------------|--------------------|--------|----------|
| ** Vertebrates | | | | | | |
| AMMODRAMUS HENSLOWII | HENSLOW'S SPARROW | | E | | G4 | S1B |
| AMMODRAMUS SAVANNARUM | GRASSHOPPER SPARROW | | T/S | | G5 | S2B |
| ASIO OTUS | LONG-EARED OWL | | T/T | | G5 | S2B, S2N |
| BARTRAMIA LONGICAUDA | UPLAND SANDPIPER | | E | | G5 | S1B |
| CIRCUS CYANEUS | NORTHERN HARRIER | | E/U | | G5 | S1B, S3N |
| CLEMMYS INSCULPTA | WOOD TURTLE | | T | | G4 | S3 |
| CLEMMYS MUHLENBERGII | BOG TURTLE | LT | E | | G3 | S2 |
| DOLICHONYX ORYZIVORUS | BOBOLINK | | T/T | | G5 | S2B |
| FALCO PEREGRINUS | PEREGRINE FALCON | | E | | G4 | S1B, S7N |
| HYLA ANDERSONII | PINE BARRENS TREEFROG | | E | | G4 | S3 |
| IXOBRYCHUS EXILIS | LEAST BITTERN | | D/S | | G5 | S3B |
| LANIUS LUDOVICIANUS MIGRANS | MIGRANT LOGGERHEAD SHRIKE | | E | | G5T3Q | S1B, S1N |
| NYCTANASSA VIOLACEA | YELLOW-CROWNED NIGHT-HERON | | T/T | | G5 | S2B |
| PASSERCULUS SANDWICHENSIS | SAVANNAH SPARROW | | T/T | | G5 | S2B, S4N |
| PODILYMBUS PODICEPS | PIED-BILLED GREBE | | E/S | | G5 | S1B, S3N |
| ** Invertebrates | | | | | | |
| AESHNA CLEPSYDRA | MOTTLED DARNER | | | | G4 | S2S3 |
| ALASPIDONTA UNDULATA | TRIANGLE FLOATER | | | | G4 | S3 |
| ANAX LONGIPES | COMET DARNER | | | | G5 | S2S3 |
| BOLORIA SELENE MYRINA | A SILVER-BORDERED FRITILLARY | | | | G5T5 | S2 |
| CALLOPHRYS IRUS | FROSTED ELFIN | | | | G3 | S2S3 |
| CALLOPHRYS POLIOS | HOARY ELFIN | | | | G5 | S3 |
| CELITHEMIS MARTHA | MARTHA'S PENNANT | | | | G4 | S3S4 |
| ENALLAGMA BASIDENS | DOUBLE-STRIPED BLUET | | | | G5 | S3 |
| ENALLAGMA PICTUM | SCARLET BLUET | | | | G3 | S3 |
| ERYNNIS PERSIUS PERSIUS | A PERSIUS DUSKY WING | | | | G5T2T3 | S8 |
| HESPERIA LEONARDUS | LEONARD'S SKIPPER | | | | G4 | S2 |
| LASMIGONA SUBVIRIDIS | GREEN FLOATER | | | | G3 | S1 |

14 SEP 2001

MIDDLESEX COUNTY
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 |
|--------------------------------------|--------------------------|-------------------|-----------------|--------------------|-------|-------|
| LESTES EURINUS | AMBER-WINGED SPREADWING | | | | G4 | S2 |
| METARRANTHIS PILOSARIA | COASTAL BOG METARRANTHIS | | | | G3G4 | S384 |
| PAPAIPEMA NECOPINA | SUNFLOWER BORER MOTH | | | | G4? | SH |
| PONTIA PROTODICE | CHECKERED WHITE | | | | G4 | S1 |
| SATYRODES EURYDICE | EYED BROWN | | | | G4 | S1 |
| SPEYERIA APHRODITE | APHRODITE FRITILLARY | | | | G5 | S283 |
| SPEYERIA IDALIA | REGAL FRITILLARY | | | | G3 | SH |
| SYMPETRUM AMBIGUUM | BLUE-FACED MEADOWHAWK | | | | G5 | S2 |
| *** Vascular plants | | | | | | |
| AGALINIS AURICULATA | EAR-LEAF FALSE FOXGLOVE | | | | G3 | SX |
| AGASTACHE NEPETOIDES | YELLOW GIANT-HYSSOP | | | | G5 | S2 |
| ARTEMISIA CAMPESTRIS SSP CAUDATA | BEACH WORMWOOD | | | | G5T5 | S2 |
| ASCLEPIAS RUBRA | RED MILKWEED | | | LP | G4G5 | S2 |
| ASCLEPIAS VERTICILLATA | WHORLED MILKWEED | | | | G5 | S2 |
| ASTER RADULA | LOW ROUGH ASTER | | E | | G5 | S1 |
| BIDENS BIDENTOIDES | ESTUARY BURR-MARIGOLD | | | | G3 | S2 |
| BIDENS RATIONII | EATON'S BEGGAR-TICKS | | E | | G2 | S1.1 |
| CALAMOVILFA BREVIPILIS | PINE BARREN REEDGRASS | | | LP | G4 | S4 |
| CAREX BARRATTII | BARRATT'S SEDGE | | | LP | G4 | S4 |
| CAREX LOUISIANICA | LOUISIANA SEDGE | | E | | G5 | S1 |
| CAREX POLYMORPHA | VARIABLE SEDGE | | E | | G3 | S1 |
| CAREX UTRICULATA | BOTTLE-SHAPED SEDGE | | | | G5 | S2 |
| CAREX WILLDENOWII VAR WILLDENOWII | WILLDENOW'S SEDGE | | | | G5T5 | S2 |
| CRATAEGUS CALPODENDRON | PEAR HAWTHORN | | E | | G5 | S1 |
| CYPERUS LANCASTRIENSIS | LANCASTER FLAT SEDGE | | E | | G5 | S1 |
| DRABA REPTANS | CAROLINA WHITLOW-GRASS | | E | | G5 | SH |
| ELATINE AMERICANA | AMERICAN WATERWORT | | | | G4 | S2 |

MIDDLESEX COUNTY
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

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|---------------------------------------|--------------------------|-------------------|-----------------|--------------------|---------|-------|
| EUPATORIUM ALTISSIMUM | TALL BONESET | | | | G5 | S2 |
| GENTIANA SAPONARIA VAR SAPONARIA | SOAPWORT GENTIAN | | | | G5T? | S3 |
| HELONIAS BULLATA | SWAMP-PINK | LT | E | LP | G3 | S3 |
| HOTTONIA INFLATA | FEATHERFOIL | | E | | G4 | S1 |
| HYDROCOTYLE RANUNCULOIDES | FLOATING MARSH-PENNYWORT | | E | | G5 | S1 |
| ISOETES RIPARIA VAR RIPARIA | SHORE QUILLWORT | | | | G5?T5?Q | S3 |
| LATHYRUS OCHROLEUCUS | CREAM VETCHLING | | E | | G4G5 | SH |
| LIATRIS SCARIOSA VAR NOVAE-ANGLIAE | NORTHERN BLAZING-STAR | | E | | G5?T3 | SH |
| LISTERA AUSTRALIS | SOUTHERN TWAYBLADE | | | LP | G4 | S2 |
| LYGODIUM PALMATUM | CLIMBING FERN | | | LP | G4 | S2 |
| LYSIMACHIA HYBRIDA | LOWLAND LOOSESTRIPE | | | | G5 | S3 |
| MELANTHIUM VIRGINICUM | VIRGINIA BUNCHFLOWER | | E | | G5 | S1 |
| MICRANTHEMUM MICRANTHEMOIDES | NUTTALL'S MUDWORT | | E | | GH | SH |
| MIMULUS ALATUS | WINGED MONKEY-FLOWER | | | | G5 | S3 |
| MYRIOPHYLLUM TENELLUM | SLENDER WATER-MILFOIL | | E | | G5 | S1 |
| MYRIOPHYLLUM VERTICILLATUM | WHORLED WATER-MILFOIL | | E | | G5 | SH |
| PHORADENDRON LEUCARPUM | AMERICAN MISTLETOE | | | LP | G5 | S2 |
| PLANTAGO MARITIMA VAR JUNCOIDES | SEASIDE PLANTAIN | | | | G5T5 | S2 |
| PLATANThERA FLAVA VAR FLAVA | SOUTHERN REIN ORCHID | | E | | G4T4?Q | S1 |
| PLATANThERA PERAMOENA | PURPLE FRINGELESS ORCHID | | E | | G5 | S1 |
| POLYGALA POLYGAMA | RACEMED MILKWORT | | | | G5 | S2 |
| POLYGONUM GLAUCUM | SEA-BEACH KNOTWEED | | E | | G3 | S1 |
| PUCCINELLIA FASCICULATA | SALTMARSH ALKALI GRASS | | | | GU | S2 |
| RYCNANTHEMUM TORREI | TORREY'S MOUNTAIN-MINT | | E | | G2 | S1 |
| RANUNCULUS FUSILLUS VAR FUSILLUS | LOW SPEARWORT | | | | G5T4? | S2 |
| RHODODENDRON CANADENSE | RHODORA | | E | | G5 | S1 |

14 SEP 2001

MIDDLESEX COUNTY
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

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|--------------------------------------|------------------------|-------------------|-----------------|--------------------|----------|-------|
| RIBES CYNOSBATI | PRICKLY GOOSEBERRY | | | | G5 | SH |
| SAGITTARIA AUSTRALIS | SOUTHERN ARROWHEAD | | E | | G5 | S1 |
| SAGITTARIA CALYCINA VAR SPONGIOSA | TIDAL ARROWHEAD | | | | G5T4 | S3 |
| SCIRPUS MARITIMUS | SALTMARSH BULRUSH | | E | | G5 | SH |
| SCUTELLARIA LEONARDII | SMALL SKULLCAP | | E | | G4T4 | S1 |
| SOLIDAGO ELLIOTTII | ELLIOTT'S GOLDENROD | | | | G5 | S3 |
| SOLIDAGO RIGIDA | PRAIRIE GOLDENROD | | E | | G5T5 | S1 |
| STACHYS HYSSOPIFOLIA | HYSSOP HEDGE-NETTLE | | | | G5 | S2 |
| TRIGLOCHIN MARITIMA | SEASIDE ARROW-GRASS | | E | | G5 | S1 |
| UTRICULARIA GIBBA | HUMPED BLADDERWORT | | | LP | G5 | S3 |
| UTRICULARIA PURPUREA | PURPLE BLADDERWORT | | | LP | G5 | S3 |
| VERBENA SIMPLEX | NARROW-LEAF VERVAIN | | E | | G5 | S1 |
| VICIA AMERICANA VAR AMERICANA | AMERICAN PURPLE VETCH | | | | G5T5 | S2 |
| VIOLA BRITTONIANA VAR BRITTONIANA | BRITTON'S COAST VIOLET | | | | G4G5T4T5 | S3 |
| ZIGADENUS LEIMANTHOIDES | DEATH-CAMUS | | E | | G4Q | S1 |

94 Records Processed

January 10, 2001

Mr. Thomas F. Breden
NJDEP
Division of Natural Lands Management
Natural Heritage Program
PO Box 404
Trenton, NJ 08625-0404

RE: Penns Neck Area EIS
Township of Plainsboro, Middlesex County, and
Township of West Windsor, Mercer County, NJ

Dear Mr. Breden:

On behalf of the NJ Department of Transportation (NJDOT), DMJM+HARRIS is undertaking the Penns Neck Area Environmental Impact Statement (EIS) according to Federal Highway Administration requirements pursuant to the National Environmental Policy Act (NEPA). Enclosed please find portions of the US Geological Survey Hightstown and Princeton Quadrangles with the project study area shown. An information request was previously submitted for this project; however, the study area has been recently revised and updated information is required. Please provide us with any information you may have regarding threatened or endangered species and/or natural communities within or proximate to the project study area.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 732.596.5028, or Email me at Eileen.loftus@dmjmharris.com.

Very truly yours,

DMJM+HARRIS


Eileen Flarity-Loftus, PWS
Senior Environmental Scientist

Cc: Leslie Roche, Task Leader

DMJM+HARRIS

Woodbridge Corporate Plaza
Office Building B
485B U.S. Route One South
Iselin, NJ 08830

Tel: (732) 636-4990
Fax: (732) 636-6338

January 10, 2001

Mr. Clifford Day
US Fish and Wildlife Service
Ecological Services
927 N. Main Street, Building D
Pleasantville, NJ 08232

RE: Penns Neck Area EIS
Township of Plainsboro, Middlesex County, and
Township of West Windsor, Mercer County, NJ

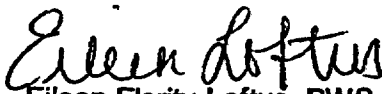
Dear Mr. Day:

On behalf of the NJ Department of Transportation (NJDOT), DMJM+HARRIS is undertaking the Penns Neck Area Environmental Impact Statement (EIS) according to Federal Highway Administration requirements pursuant to the National Environmental Policy Act (NEPA). These improvements are necessary to alleviate vehicular traffic congestion along this busy corridor. Enclosed please find portions of the US Geological Survey Hightstown and Princeton Quadrangles with the project study area shown. An information request was previously submitted for this project; however, the study area has been recently revised and updated information is required. Please provide us with any information you may have regarding threatened and/or endangered species within or proximate to the project study area.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 732.596.5028, or Email me at Eileen.loftus@dmjmharris.com.

Very truly yours,

DMJM+HARRIS



Eileen Flarity-Loftus, PWS
Senior Environmental Scientist

Cc: Leslie Roche, Task Leader

DMJM+HARRIS

Woodbridge Corporate Plaza
Office Building B
485B U.S. Route One South
Iselin, NJ 08830

Tel: (732) 636-4990
Fax: (732) 636-6338

January 10, 2001

Ms. Sherry Dudas
Bureau of Legal Services & Real Estate
NJDEP Green Acres Program
PO Box 412
Trenton, NJ 08625-0412

RE: Penns Neck Area EIS
Township of Plainsboro, Middlesex County, and
Township of West Windsor, Mercer County, NJ

Dear Ms. Dudas:

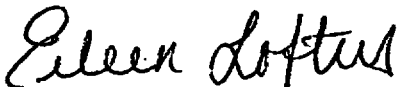
On behalf of the NJ Department of Transportation (NJDOT), DMJM+HARRIS is undertaking the Penns Neck Area Environmental Impact Statement (EIS) according to Federal Highway Administration requirements pursuant to the National Environmental Policy Act (NEPA). These improvements are necessary to alleviate vehicular traffic congestion along this busy corridor. Enclosed please find portions of the US Geological Survey Hightstown and Princeton Quadrangles with the project study area shown. An information request was previously submitted for this project; however, the study area has been recently revised and updated information is required. Please provide us with a list of parcels in the following municipalities that have Green Acres encumbrances.

- West Windsor Township, Mercer County;
- Plainsboro Township, Middlesex County.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 732.596.5028, or Email me at Eileen.loftus@dmjmharris.com.

Very truly yours,

DMJM+HARRIS



Eileen Flarity-Loftus, PWS
Senior Environmental Scientist

Cc: Leslie Roche, Task Leader

DMJM■HARRIS

Woodbridge Corporate Plaza
Office Building B
485B U.S. Route One South
Iselin, NJ 08830

Tel: (732) 636-4990
Fax: (732) 636-6338

January 10, 2001

NJDEP
Watershed Management Bureau
PO Box 418
Trenton, NJ 08625-0418

RE: Penns Neck Area EIS
Township of Plainsboro, Middlesex County, and
Township of West Windsor, Mercer County, NJ


Dear Sir or Madam:

On behalf of the NJ Department of Transportation (NJDOT), DMJM+HARRIS is undertaking the Penns Neck Area Environmental Impact Statement (EIS) according to the Federal Highway Administration requirements pursuant to the National Environmental Policy Act (NEPA). These improvements are necessary to alleviate vehicular traffic congestion along this busy corridor. Enclosed please find portions of the US Geological Survey Hightstown and Princeton Quadrangles with the project study area shown. Please provide us with any information you may have regarding surface and/or groundwater quality data within or proximate to the project study area and the location(s) of any public water supply intakes.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 732.596.5028, or Email me at Eileen.loftus@dmjmharris.com.

Very truly yours,

DMJM■HARRIS



Eileen Flarity-Loftus, PWS
Senior Environmental Scientist

Cc: Leslie Roche, Task Leader

DMJM+HARRIS

Woodbridge Corporate Plaza
Office Building B
485B U.S. Route One South
Iselin, NJ 08830

Tel: (732) 636-4990
Fax: (732) 636-6338

January 10, 2001

NJDEP
Bureau of Water Allocation
Well Permitting & Regulations Section
PO Box 426
Trenton, NJ 08625-0426

RE: Penns Neck Area
Township of Plainsboro, Middlesex County, and
Township of West Windsor, Mercer County, NJ

Dear Sir or Madam:

On behalf of the NJ Department of Transportation (NJDOT), DMJM+HARRIS is undertaking the Penns Neck Area Environmental Impact Statement (EIS) according to Federal Highway Administration requirements pursuant to the National Environmental Policy Act (NEPA). These improvements are necessary to alleviate vehicular traffic congestion along this busy corridor. Enclosed please find portions of the US Geological Survey Hightstown and Princeton Quadrangles with the project study area shown. Please provide us with any information you may have regarding potable wells within or proximate to the project study area.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 732.596.5028, or Email me at Eileen.loftus@dmjmharris.com.

Very truly yours,

DMJM+HARRIS


Eileen Flarity-Loftus, PWS
Senior Environmental Scientist

Cc: Leslie Roche, Task Leader

DMJM+HARRIS

Woodbridge Corporate Plaza
Office Building B
485B U.S. Route One South
Iselin, NJ 08830

Tel: (732) 636-4990
Fax: (732) 636-6338

January 10, 2001

Mr. Larry Niles
Endangered and Nongame Species Program
Division of Fish and Wildlife
PO Box 400
Trenton, NJ 08625-0404-0400

RE: Penns Neck Area EIS
Township of Plainsboro, Middlesex County, and
Township of West Windsor, Mercer County, NJ

Dear Mr. Niles:

On behalf of the NJ Department of Transportation (NJDOT), DMJM+HARRIS is undertaking the Penns Neck Area Environmental Impact Statement (EIS) according to Federal Highway Administration requirements pursuant to the National Environmental Policy Act (NEPA). Enclosed please find portions of the US Geological Survey Hightstown and Princeton Quadrangles with the project study area shown. An information request was previously submitted for this project; however, the study area has been recently revised and updated information is required. Please provide us with any information you may have regarding threatened or endangered species and/or natural communities within or proximate to the project study area.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 732.596.5028, or Email me at Eileen.loftus@dmjmharris.com.

Very truly yours,

DMJM+HARRIS



Eileen Flarity-Loftus, PWS
Senior Environmental Scientist

Cc: Leslie Roche, Task Leader

DMJM+HARRIS

Woodbridge Corporate Plaza
Office Building B
485B U.S. Route One South
Iselin, NJ 08830

Tel: (732) 636-4990
Fax: (732) 636-6338

January 10, 2001

Mr. John Scordato
NJDEP
Bureau of Floodplain Management
PO Box 401
Trenton, NJ 08625-0401

RE: Penns Neck Area EIS
Township of Plainsboro, Middlesex County, and
Township of West Windsor, Mercer County, NJ

Dear Mr. Scordato:

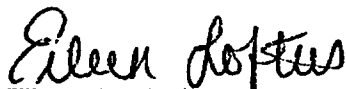
On behalf of the NJ Department of Transportation (NJDOT), DMJM+HARRIS is undertaking the Penns Neck Area Environmental Impact Statement (EIS) according to Federal Highway Administration requirements pursuant to the National Environmental Policy Act (NEPA). Enclosed please find portions of the US Geological Survey Hightstown and Princeton Quadrangles with the project study area shown. An information request was previously submitted for this project; however, the study area has been recently revised and updated information is required. Please advise us as to the availability of the following information for the Millstone River, the Delaware & Raritan Canal and Little Bear Brook, in the project vicinity:

- Topographic maps delineating flood hazard areas;
- Stream cross sections & profiles;
- HEC 1 runs for the existing condition and the "encroachment run";
- HEC 2 runs, or available hydrologic information; and
- Reports or supplemental information that would be useful for our analysis of impacts to these resources and their floodplains from the proposed improvements.

Should you have any questions or need additional information, please do not hesitate to contact me directly at 732.596.5028, or Email me at Eileen.loftus@dmjmharris.com.

Very truly yours,

DMJM+HARRIS



Eileen Flarity-Loftus, PWS
Senior Environmental Scientist

Cc: Leslie Roche, Task Leader



Prod

Christine Todd Whitman
Governor

Department of Environmental Protection
Division of Parks & Forestry
Historic Preservation Office
PO Box 404
Trenton, NJ 08625-0404
TEL: (609)292-2023
FAX: (609)984-0578

Robert C. Shinn, Jr.
Commissioner

HPO-B2000-72 PROD
February 16, 2000

Ms. Lynn Middleton, Project Manager
Division of Project Management
New Jersey Department of Transportation
1035 Parkway Avenue
PO Box 600
Trenton, New Jersey 08625-0600

Dear Ms. Middleton:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on 10/15/1999 (64 FR 27071-27084), I am providing continuing consultation comments for the following project:

Route U.S. 1, Sections 2S and 3J
Millstone By-Pass
West Windsor Township, Mercer County
Plainsboro Township, Middlesex County

These comments are in response to your letter dated December 17, 1999, received at the Historic Preservation Office (HPO) on January 7, 2000, requesting review and comment on the effects assessment for the Delaware and Raritan Canal Historic District and the Lake Carnegie Historic District. Previous HPO comments (HPO-H98-1, August 5, 1998) responded to the effects assessment for the Washington Road Elm Alley, Covenhoven-Silvers-Logan House (31 Logan Drive), Princeton Operating Station AT&T Building (Eden Institute), Aqueduct Mills Historic District, and three archaeological sites.

I agree with the assessment that the proposed project will not effect the historic character of the Lake Carnegie Historic District.

I very respectfully disagree with the assessment that the proposed project will have no adverse effect upon the Delaware and Raritan Canal Historic District (Canal). The proposed roadway would substantially change the character of physical features within a portion of the Canal's setting and would introduce visual, atmospheric, and audible elements that diminish the integrity of significant historic features in this portion of the Canal.

The introduction of the proposed roadway would result in a significant change in the character of the setting of the Canal in the area between Washington Road and Harrison Street. The area to the east of the Canal between Washington Road on the south and Harrison Street on the north has historically been undeveloped and lightly vegetated with no substantial roadway features. Currently, the land to the east of the Canal is undeveloped open space used primarily for recreation and for the storage of cut wood, stone, and recycled construction material. A narrow paved driveway provides restricted access to the area.

The proposed roadway would also introduce visual, atmospheric, and audible elements that diminish the integrity of this particular portion of the Canal. The FHWA noise impact criteria assist in understanding the magnitude of potential noise impacts but do not establish a decibel level threshold for determining an adverse effect.

Currently some noise is transmitted up and down the Canal as vehicles make a perpendicular crossing of the Canal at Washington Road and Harrison Street. This is suggested by Table 1 on page 5 that indicates that peak hour noise drops to a level of 45 leq dBA at the midpoint between Washington Road and Harrison Street. No significant noise source abuts or parallels the Canal to either the east or west between these two perpendicular roadway crossings. The introduction of a roadway, with a 40 mile per hour design speed, abutting and parallel to this section of the Canal would substantially expand the noise paths, currently limited to the perpendicular crossings at Washington Road and Harrison Street, to the length of this section of the Canal, despite the presence of some natural and to be constructed noise attenuators.

The proposed introduction of berms and supplemental vegetation to screen the roadway and dampen roadway noise represents one approach to mitigating adverse visual and audible effects, however, I can not agree that the berms and supplemental vegetation will ^{recycle} these adverse effects to this portion of the Canal Historic District. I recognize that immediately north of Washington Road a large earthen berm rises on the eastern side of the Canal and would separate a segment of the proposed roadway from the Canal. However, heading north from Washington Road the land east of the Canal flattens and, beginning approximately 1400 feet north of Washington Road, is level with the Canal. This is also where the proposed roadway will be closest to the Canal. Here, project plans call for the construction of an earthen berm and the planting of supplemental vegetation to visually screen the roadway from the Canal and dampen the roadway noise. Consequently, the proposed roadway would substantially alter the physical and visual setting of this portion of the Canal and represent the introduction of visual, atmospheric, and audible elements not currently or previously present. Since the removal of the Camden and Amboy Branch Railroad from the eastern berm in the 1860's, this segment of the Canal has been devoid of development or transportation infrastructure.

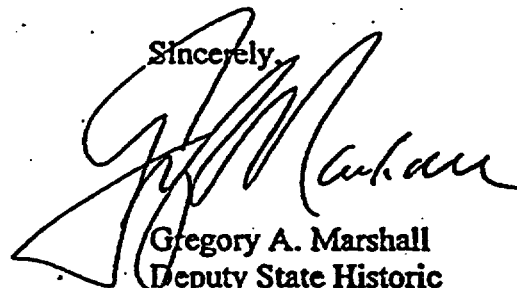
Log #00-559 (98-1263, 97-909, 97-563)
February 15, 2000, HPO-B2000-72 PROD
Page 3 of 3

Additional Comments

Please note that pursuant to the revised regulations implementing Section 106 of the National Historic Preservation Act, (64 FR 27071-27084, effective June 17, 1999), archaeological sites may now be adversely affected by proposed undertakings. This change in the regulations applies to the no adverse effect with data recovery assessment previously given to archaeological sites 28-Me-2, 28-Me-23, and 28-Me-86.

I look forward to continuing consultation to avoid, minimize, and/or mitigate the adverse effects this proposed roadway will have on historic properties. If you have questions concerning this project review, please call HPO Transportation and Planning Coordinator Charles Scott at 609-292-2023, HPO staff Carl Nittinger for historic architecture at 609-984-0141 and/or HPO staff Mike Gregg for archaeology at 609-633-2395.

Sincerely,



Gregory A. Marshall
Deputy State Historic
Preservation Officer

DPG/cn:mg:cs
Log #00-559 (98-1263, 97-909, 97-563)
c:\My Documents\106.REV\2000\HPO-B2000.072
c. R. Schroeder, FHWA
A. Fekete, NJDOT
A. Fox, FHWA
J. Sweger, NJDOT
Interested Parties List



State of New Jersey

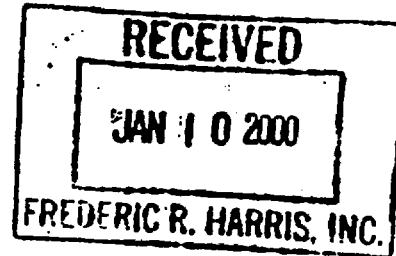
DEPARTMENT OF TRANSPORTATION
P.O.Box 600
Trenton, New Jersey 08625-0600

CHRISTINE TODD WHITMAN
Governor

December 17, 1999

JAMES WEINSTEIN
Commissioner

Dorothy Guzzo, Administrator
NJ Historic Preservation Office
Division of Parks and Forestry
NJ Department of Environmental Protection
P. O. Box 404
Trenton, NJ 08625-0404



Attention: Transportation Planning Group

Re: Route U. S. 1, Section 2S and 3J
Mercer and Middlesex Counties

Dear Ms. Guzzo:

On August 5, 1998 you responded to our request for comments on the above project. In your response you requested additional information with respect to the project's potential to cause visual and noise impacts to the Delaware and Raritan Canal and the Lake Carnegie Historic District.

The requested information is contained in the enclosed Technical Memorandum prepared by Frederic R. Harris, Inc. The memorandum concludes that the project as proposed will cause an effect to the Canal which is not adverse through minimal encroachments at Harrison Street and Washington Road; however, there would be no destruction of or damage to elements which qualify the district for inclusion in the Register. It further concludes that there would be no effect to the Lake Carnegie Historic District. After consideration of the methods used in preparing the memorandum (discussed in the document), we concur with these conclusions.

On a related topic, minor modifications have been made to the design of the proposed intersection of Relocated Route 571 with Washington Road to address concerns raised by the Delaware and Raritan Canal Commission. These concerns dealt with the horizontal alignment and the design speed of Relocated Route 571. A plan sheet showing the intersection as currently proposed is also enclosed.

We look forward to receiving your comments as to eligibility and effect. However, in

advance of this, we would like to meet with you and the Federal Highway Administration to discuss the project's foreseeable effects and to address any outstanding questions you may have. We will contact your office to arrange this meeting.

In the interim, if you have any questions please contact me at 530-3780, Joseph Sweger at 530-2985 or Charles Ashton at 530-5266.

Yours very truly,



Lynn Middleton
Project Manager

cc: L. Roche, F. R. Harris ✓
R. Schroeder, FHWA w/encl.
A. Fekete
L. Rappleye-Marsett
L. Rich
J. Sweger

Encl.
CHA:tm

**State of New Jersey**

Christine Todd Whitman
Governor

Department of Environmental Protection
Division of Parks & Forestry
Historic Preservation Office
PO Box 404
Trenton, N.J. 08625-0404
TEL: (609)292-2023
FAX: (609)984-0578

Robert C. Shinn, Jr.
Commissioner

HPO-H98-1
August 5, 1998

Ms. Lynn Rich, Program Manager
Division of Project Management
New Jersey Department of Transportation
CN 600
1035 Parkway Avenue
Trenton, New Jersey 08625-0600

Dear Ms. Rich:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on 2 September 1986 (51 FR 31115-31125), I am providing continuing consultation comments for the following project:

Route U.S. 1, Sec. 2S & 3J
Washington to Mapleton Road
Grade Separated Interchange
Mercer and Middlesex Counties

SUMMARY: The project as currently designed will have an adverse effect on historic architectural properties identified within the area of potential effects (APE). (See 800.4 Identifying Historic Properties and 800.5 Assessing Effects below.)

These comments are in response to your letter of May 20, 1998, received at this office on May 27, 1998, with additional information attached pursuant to the Historic Preservation Office (HPO) letter of request dated March 10, 1997 (HPO-C97-9), requesting continuing Section 106 review and comments for the archaeological and architectural inventory and evaluation reports for this road bypass project, and meeting, Tuesday, July 21, 1998, at NJDOT Building, 1035 Parkway, Trenton, attended by representatives of Federal Highway Administration (FHWA) staff, New Jersey Department of Transportation (NJDOT) staff, and HPO staff. Additional information submitted or received for staff review include:

Ms. Lynn Rich, BES, NJDOT
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State of New Jersey Department of Transportation. 1996. *Plans of Route U.S. 1 (1953) Sections 2S & 3J, From N.J. Transit Railroad Bridge To Princeton-Plainsboro Road, Grading, Drainage, Paving and Structures, Townships of Plainsboro and West Windsor, Counties of Middlesex and Mercer* [one (1) copy each in three (3) of drawing in plan with details].

Mc Varish, Douglas C. 1997. *Determination of Eligibility, Washington Road Elm Allee, West Windsor Township, Mercer County, New Jersey*. Prepared for: New Jersey Department of Transportation, 1035 Parkway Avenue, CN 600, Trenton, NJ 08625-0600; Prepared by: John Milner Associates, Inc., 309 North Matlack Street, West Chester, PA 19380.

Mc Varish, Douglas C. 1997. *New Jersey Department of Environmental Protection & Energy, Historic Preservation Office, Individual Structures Survey Form: Historic Name: RCA Laboratories, 3740 Brunswick Pike, West Windsor Township, Mercer County*. Prepared by John Milner Associates, Inc., 309 North Matlack Street, West Chester, PA 19308.

Mc Varish, Douglas C. 1997. *New Jersey Department of Environmental Protection & Energy, Historic Preservation Office, Individual Structures Survey Form: Historic Name: Princeton Operating Station, (AT&T Building), 3794 Brunswick Pike, West Windsor Township, Mercer County*. Prepared by John Milner Associates, Inc., 309 North Matlack Street, West Chester, PA 19308.

Mc Varish, Douglas C. 1997. *New Jersey Department of Environmental Protection & Energy, Historic Preservation Office, Individual Structures Survey Form: Historic Name: Covenhoven-Silvers-Logan House, 31 Logan Drive, West Windsor Township, Mercer County*. Prepared by John Milner Associates, Inc., 309 North Matlack Street, West Chester, PA 19308.

Hand, Susanne C. [Draft] 1998. *Washington Road Elm Allee, National Register of Historic Places Nomination Application Description and Statement of Significance*. Prepared by Kinsey & Hand, 14 Aiken Avenue, Princeton, NJ 08540.

800.4 Identifying Historic Properties

Pursuant to HPO letter of request dated March 10, 1997 (HPO-C97-9), it is my opinion as Deputy State Historic Preservation Officer for New Jersey, based on the additional

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information submitted to the HPO for review and concurrence, that Covenhoven-Silvers-Logan House, 31 Logan Drive, West Windsor Township, Mercer County, Block: 2, Lot: 8, is eligible to be listed in the National Register of Historic Places (NRHP) under NRHP Evaluation Criterion C.

Covenhoven-Silvers-Logan House is one of the few standing Dutch farmhouses in West Windsor Township, a portion of which dates from the mid-eighteenth century.

Also, pursuant to HPO letter of request dated March 10, 1997 (HPO-C97-9), it is my opinion as Deputy State Historic Preservation Officer for New Jersey, based on the additional information submitted to the HPO for review and concurrence, that Princeton Operating Station (AT&T Building), 3794 Brunswick Pike, West Windsor Township, Mercer County, Block 2.03, Lot 2-3, is eligible to be listed in the NRHP under NRHP Evaluation Criterion A and Criterion C.

Princeton Operating Station (AT&T Building) is a significant component associated with the development of the East Coast long-distance telephone network in the early twentieth century, serving as a repeater station for long distance calls that traveled through New Jersey. Also, it is considered to be a rare surviving example of an early twentieth century long distance telephone repeater-test station.

In addition, pursuant to HPO letter of request dated March 10, 1997 (HPO-C97-9), it is my opinion as Deputy State Historic Preservation Officer for New Jersey, based on the additional information submitted to the HPO for review and concurrence, that the houses north of the northern right-of-way of Harrison Street, west of U.S. Route 1, to the Delaware and Raritan Canal Historic District boundary to the Lake Carnegie Historic District boundary, are eligible to be listed in the NRHP under NRHP Criterion C as an extension of Aqueduct Mills Historic District, located across the Millstone River in Middlesex County, previously found eligible to be listed in the NRHP pursuant to review of another project APE situated in Middlesex County, by SHPO Opinion dated December 20, 1988 (ONJH-L88-131), i.e:

1. **John Applegate House, 43 Lower Harrison Street, West Windsor Township, Mercer County, Block: 1, Lot: 10;**
2. **Robert D. Thompson House, 47 Lower Harrison Street, West Windsor Township, Mercer County, Block:1, Lot: 4;**
3. **George A. Reynolds, Jr. House, 48 Lower Harrison Street, West Windsor Township, Mercer County, Block: 3, Lot: 11;**

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4. **Isiah Jemison House, 51 Lower Harrison Street, West Windsor Township, Mercer County, Block: 1, Lot: 3; and**
5. **Edward S. Patterson House, 65 Lower Harrison Street, West Windsor Township, Mercer County, Block: 1, Lot: 2 & 9.**

In summary, to concur with your letter dated May 20, 1998, received at this office on May 27, 1998, the following properties are listed in the NRHP:

1. **Penns Neck Baptist Church (listed in the NRHP on 12/28/98);**
2. **Delaware and Raritan Canal Historic District (listed in the NRHP on 05/11/75); and**
3. **Lake Carnegie Historic District (listed in the NRHP on 06/28/90).**

Also, in summary to your letter dated May 20, 1998, received at this office on May 27, 1998, the following properties have been found eligible to be listed in the NRHP by SHPO opinion:

1. **28-Me-2 (SHPO Opinion dated 09/13/76);**
2. **28-Me-23 (SHPO Opinion dated 03/10/97, HPO-C97-9);**
3. **28-Me-86 (SHPO Opinion dated 09/09/76);**
4. **Aqueduct Mills Historic District (SHPO Opinion dated 12/20/88, ONJH-L88-131);**
5. **Aqueduct Mills Historic District Extension (SHPO Opinion herein dated 07/08/98, HPO-G98-32);**
6. **Penns Neck Cemetery (SHPO Opinion dated 03/10/97, HPO-C97-9);**
7. **31 Logan Drive (SHPO Opinion herein dated 07/08/98, HPO-G98-32);**
8. **Princeton Operating Station (AT&T Building) (SHPO Opinion herein dated 07/08/98, HPO-G98-32); and**

Ms. Lynn Rich, BES, NJDOT
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9. Washington Road Elm Allee (SHPO Opinion dated 03/10/97, HPO-C97-9).

In evaluating the eligibility and the character defining features of the Washington Road Elm Allee, the HPO has relied upon both the submitted report prepared by Douglas C. McVarish of John Milner and Associates, and a NRHP Nomination draft description and statement of significance prepared by Susan Hand of Kinsey and Hand Associates. The draft statement of significance summary concludes:

The Washington Road Elm Allee is significant as a ... roadway with a well-preserved allee of American Elm trees. As a planned, landscaped entrance to Princeton, New Jersey, Washington Road is a gateway of historic and scenic significance. It represents one of the primary styles of landscape design along the American open road of the early twentieth century - the regularly spaced allee of shade trees. The Washington Road Elm Allee is also the most extensive surviving elm-lined roadway in central New Jersey and the only elm-allee that serves as a scenic vehicular entrance to a town.

The visual and physical characteristics of the Washington Road Elm Allee include the regularly spaced procession of elm trees with a high and nearly continuous canopy of leaves that functions as the scenic portal or entranceway to Princeton Borough, Princeton Township, Princeton University, and the Lake Carnegie Historic District. As a planned, roadway landscape, the Washington Road Elm Allee is an enduring accomplishment of the civic improvement and roadway beautification movements of the early twentieth century. The HPO fully expects that the evaluation of the significance of the Washington Road Elm Allee as a planned, roadway landscape, functioning as the entrance to Princeton from the east, will remain a major focus of the NRHP nomination application as it is advanced by the applicant to the New Jersey State Review Board, and, ultimately, to the Keeper of the NRHP.

800.5 Assessing Effects

To summarize the assessment of effects this project will have on the three (3) archaeological properties identified within the APE of this project, the HPO concurs with your letter dated May 20, 1998, received at this office on May 27, 1998, that, if disturbance of these properties cannot be avoided, mitigation through data recovery would be appropriate. The project, therefore, would have no adverse effect on the three (3) archaeological properties situated within the APE of this project if data recovery is carried out in accord with a plan developed in consultation with HPO staff and in keeping with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation.

Ms. Lynn Rich, BES, NJDOT
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Pursuant to the meeting held on Tuesday, July 21, 1998, at the NJDOT Building, 1035 Parkway, Trenton, attended by FHWA staff, NJDOT staff, and HPO staff, additional information concerning the effects this project will have on the following historic architectural properties is forthcoming:

1. Delaware and Raritan Canal Historic District; and
2. Lake Carnegie Historic District.

Based on your letter dated May 20, 1998, and project documentation attached, received at this office on May 27, 1998, HPO staff concur that the project as currently designed will have no effect on Penns Neck Baptist Church.

Also, based on your letter dated May 20, 1998, and project documentation attached, received at this office on May 27, 1998, HPO staff concur that the project as currently designed will have an adverse effect on:

1. Aqueduct Mills Historic District;
2. Washington Road Elm Allee;
3. Covenhoven-Silvers-Logan House; and
4. Princeton Operating Station (AT&T Building).

Within the boundaries of the Aqueduct Mills Historic District, the project as currently designed proposes the following:

1. minor widening of U.S. Route 1 right-of-way above Millstone River Bridge;
2. construct retaining wall along U.S. Route 1 northwest of Millstone River Bridge;
3. introduce fill on northwest side of U.S. Route 1 in the vicinity of Mapleton Road; and
4. remove dry laid stone on northwest side of U.S. Route 1 in the vicinity of Mapleton Road.

Ms. Lynn Rich, BES, NJDOT
Penns Neck Grade-separated Interchange
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Within the boundaries of Washington Road Elm Allee, the project as currently designed proposes to remove five (5) of the original American Elms which are a character defining feature of the landscape designed allee of elm trees flanking Washington Road. Also, the project proposes to terminate Washington Road where it currently intersects U.S. Route 1, and to construct a cul-de-sac at that location. Based on the significance and character defining features of the Washington Road Elm Allee, both the proposed removal of five (5) of the original American Elms and the termination of the elm allee by a cul-de-sac at the eastern end of Washington Road, where it currently intersects U.S. Route 1, would be adverse to this NRHP eligible property.

The project as currently designed proposes to demolish the following historic architectural properties:

1. Covenhoven-Silvers-Logan House; and
2. Princeton Operating Station (AT&T Building).

Additional Review Comments

The HPO is disappointed that NJDOT and the FHWA have not, prior to requesting HPO comments, provided information to or solicited information from individuals and organizations expressing interest in the historic resources effected by the proposed undertaking. Guidance from the Advisory Council on Historic Preservation describes the practical objectives and benefits of involving the public:

Obtaining assistance from members of the public to have information about historic properties and the areas that may be affected by undertakings and informing them of agency undertakings and purposes;

Utilizing the applicable knowledge and expertise of professional and avocational practitioners of such disciplines as history, architectural history, landscape architecture, and archaeology;

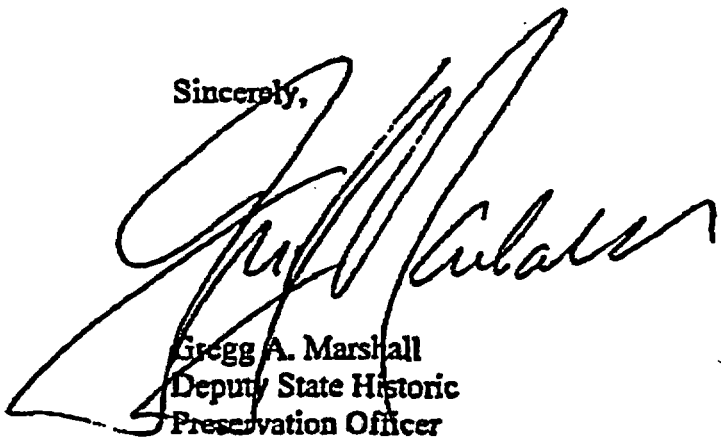
Involving property owners, local governments, Indian tribes, neighborhood associations, and others whose immediate interests may be affected, whose viewpoints need to be considered in decisionmaking and who may need to participate in Section 106 review as interested persons;

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Penns Neck Grade-separated Interchange
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Considering viewpoints presented by interested persons and other members of the public, both as an aid to information gathering, and as a basis for decisionmaking.

I look forward to continuing consultation to avoid and/or minimize the adverse effects this project will have on historic architectural properties identified within the APE of the project as currently designed that are listed and discussed above. If you have questions concerning this project review, please call HPO Transportation and Planning Coordinator Charles Scott at 609-292-2023, HPO staff Carl Nittinger for historic architecture at 609-984-0141, and/or HPO staff Mike Gregg for archaeology at 609-63302395.

Sincerely,



Gregg A. Marshall
Deputy State Historic
Preservation Officer

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c. R. Schroeder, FHWA
V. Martinez, FHWA
A. Fox, FHWA
A. Fekete, NJDOT, BES
L. Rappleye-Marsett, NJDOT, BES
J. Sweger, NJDOT
D. Mc Varish, John Milner Associates, Inc.
Friends of the Washington Road Elms
Sensible Transportation Options

AUG 11 1998

PROJECT MANAGEMENT
RECEIVED



Christine Todd Whitman
Governor

State of New Jersey
Department of Environmental Protection
Division of Parks & Forestry
Historic Preservation Office
PO Box 404
Trenton, N.J. 08625-0404
TEL: (609)292-2023
FAX: (609)984-0578

Robert C. Shinn, Jr.
Commissioner

HPO-H98-1
August 5, 1998

Ms. Lynn Rich, Program Manager
Division of Project Management
New Jersey Department of Transportation
CN 600
1035 Parkway Avenue
Trenton, New Jersey 08625-0600

Dear Ms. Rich:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on 2 September 1986 (51 FR 31115-31125), I am providing continuing consultation comments for the following project:

Route U.S. 1, Sec. 2S & 3J
Washington to Mapleton Road
Grade Separated Interchange
Mercer and Middlesex Counties

SUMMARY: The project as currently designed will have an adverse effect on historic architectural properties identified within the area of potential effects (APE). (See 800.4 Identifying Historic Properties and 800.5 Assessing Effects below.)

These comments are in response to your letter of May 20, 1998, received at this office on May 27, 1998, with additional information attached pursuant to the Historic Preservation Office (HPO) letter of request dated March 10, 1997 (HPO-C97-9), requesting continuing Section 106 review and comments for the archaeological and architectural inventory and evaluation reports for this road bypass project, and meeting, Tuesday, July 21, 1998, at NJDOT Building, 1035 Parkway, Trenton, attended by representatives of Federal Highway Administration (FHWA) staff, New Jersey Department of Transportation (NJDOT) staff, and HPO staff. Additional information submitted or received for staff review include:

Ms. Lynn Rich, BES, NJDOT
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August 5, 1998
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State of New Jersey Department of Transportation. 1996. *Plans of Route U.S. 1 (1953) Sections 2S & 3J, From N.J. Transit Railroad Bridge To Princeton-Plainsboro Road, Grading, Drainage, Paving and Structures, Townships of Plainsboro and West Windsor, Counties of Middlesex and Mercer* [one (1) copy each in three (3) of drawing in plan with details].

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Mc Varish, Douglas C. 1997. *New Jersey Department of Environmental Protection & Energy, Historic Preservation Office, Individual Structures Survey Form: Historic Name: RCA Laboratories, 3740 Brunswick Pike, West Windsor Township, Mercer County*. Prepared by John Milner Associates, Inc., 309 North Matlack Street, West Chester, PA 19308.

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Hand, Susanne C. [Draft] 1998. *Washington Road Elm Allee, National Register of Historic Places Nomination Application Description and Statement of Significance*. Prepared by Kinsey & Hand, 14 Aiken Avenue, Princeton, NJ 08540.

800.4 Identifying Historic Properties

Pursuant to HPO letter of request dated March 10, 1997 (HPO-C97-9), it is my opinion as Deputy State Historic Preservation Officer for New Jersey, based on the additional

Ms. Lynn Rich, BES, NJDOT
Penns Neck Grade-separated Interchange
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August 5, 1998
Page 3 of 8

information submitted to the HPO for review and concurrence, that Covenhoven-Silvers-Logan House, 31 Logan Drive, West Windsor Township, Mercer County, Block: 2, Lot: 8, is eligible to be listed in the National Register of Historic Places (NRHP) under NRHP Evaluation Criterion C.

Covenhoven-Silvers-Logan House is one of the few standing Dutch farmhouses in West Windsor Township, a portion of which dates from the mid-eighteenth century.

Also, pursuant to HPO letter of request dated March 10, 1997 (HPO-C97-9), it is my opinion as Deputy State Historic Preservation Officer for New Jersey, based on the additional information submitted to the HPO for review and concurrence, that **Princeton Operating Station (AT&T Building)**, 3794 Brunswick Pike, West Windsor Township, Mercer County, Block 2.03, Lot 2-3, is eligible to be listed in the NRHP under NRHP Evaluation Criterion A and Criterion C.

Princeton Operating Station (AT&T Building) is a significant component associated with the development of the East Coast long-distance telephone network in the early twentieth century, serving as a repeater station for long distance calls that traveled through New Jersey. Also, it is considered to be a rare surviving example of an early twentieth century long distance telephone repeater-test station.

In addition, pursuant to HPO letter of request dated March 10, 1997 (HPO-C97-9), it is my opinion as Deputy State Historic Preservation Officer for New Jersey, based on the additional information submitted to the HPO for review and concurrence, that the houses north of the northern right-of-way of Harrison Street, west of U.S. Route 1, to the Delaware and Raritan Canal Historic District boundary to the Lake Carnegie Historic District boundary, are eligible to be listed in the NRHP under NRHP Criterion C as an extension of **Aqueduct Mills Historic District**, located across the Millstone River in Middlesex County, previously found eligible to be listed in the NRHP pursuant to review of another project APE situated in Middlesex County, by SHPO Opinion dated December 20, 1988 (ONJH-L88-131), i.e: *Plainsboro*

1. **John Applegate House**, 43 Lower Harrison Street, West Windsor Township, Mercer County, Block: 1, Lot: 10;
2. **Robert D. Thompson House**, 47 Lower Harrison Street, West Windsor Township, Mercer County, Block: 1, Lot: 4;
3. **George A. Reynolds, Jr. House**, 48 Lower Harrison Street, West Windsor Township, Mercer County, Block: 3, Lot: 11;

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4. **Isiah Jemison House, 51 Lower Harrison Street, West Windsor Township, Mercer County, Block: 1, Lot: 3; and**
5. **Edward S. Patterson House, 65 Lower Harrison Street, West Windsor Township, Mercer County, Block: 1, Lot: 2 & 9.**

In summary, to concur with your letter dated May 20, 1998, received at this office on May 27, 1998, the following properties are listed in the NRHP:

1. **Penns Neck Baptist Church (listed in the NRHP on 12/28/98);**
2. **Delaware and Raritan Canal Historic District (listed in the NRHP on 05/11/75); and**
3. **Lake Carnegie Historic District (listed in the NRHP on 06/28/90).**

Also, in summary to your letter dated May 20, 1998, received at this office on May 27, 1998, the following properties have been found eligible to be listed in the NRHP by SHPO opinion:

- X 1. **28-Me-2 (SHPO Opinion dated 09/13/76);**
2. **28-Me-23 (SHPO Opinion dated 03/10/97, HPO-C97-9);**
3. **28-Me-86 (SHPO Opinion dated 09/09/76);**
4. **Aqueduct Mills Historic District (SHPO Opinion dated 12/20/88, ONJH-L88-131);**
- X 5. **Aqueduct Mills Historic District Extension (SHPO Opinion herein dated 07/08/98, HPO-G98-32);**
6. **Penns Neck Cemetery (SHPO Opinion dated 03/10/97, HPO-C97-9);**
- X 7. **31 Logan Drive (SHPO Opinion herein dated 07/08/98, HPO-G98-32);**
8. **Princeton Operating Station (AT&T Building) (SHPO Opinion herein dated 07/08/98, HPO-G98-32); and**

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9. **Washington Road Elm Allee (SHPO Opinion dated 03/10/97, HPO-C97-9).**

In evaluating the eligibility and the character defining features of the Washington Road Elm Allee, the HPO has relied upon both the submitted report prepared by Douglas C. McVarish of John Milner and Associates, and a NRHP Nomination draft description and statement of significance prepared by Susan Hand of Kinsey and Hand Associates. The draft statement of significance summary concludes:

The Washington Road Elm Allee is significant as a ... roadway with a well-preserved allee of American Elm trees. As a planned, landscaped entrance to Princeton, New Jersey, Washington Road is a gateway of historic and scenic significance. It represents one of the primary styles of landscape design along the American open road of the early twentieth century – the regularly spaced allee of shade trees. The Washington Road Elm Allee is also the most extensive surviving elm-lined roadway in central New Jersey and the only elm-allee that serves as a scenic vehicular entrance to a town.

The visual and physical characteristics of the Washington Road Elm Allee include the regularly spaced procession of elm trees with a high and nearly continuous canopy of leaves that functions as the scenic portal or entranceway to Princeton Borough, Princeton Township, Princeton University, and the Lake Carnegie Historic District. As a planned, roadway landscape, the Washington Road Elm Allee is an enduring accomplishment of the civic improvement and roadway beautification movements of the early twentieth century. The HPO fully expects that the evaluation of the significance of the Washington Road Elm Allee as a planned, roadway landscape, functioning as the entrance to Princeton from the east, will remain a major focus of the NRHP nomination application as it is advanced by the applicant to the New Jersey State Review Board, and, ultimately, to the Keeper of the NRHP.

800.5 Assessing Effects

To summarize the assessment of effects this project will have on the three (3) archaeological properties identified within the APE of this project, the HPO concurs with your letter dated May 20, 1998, received at this office on May 27, 1998, that, if disturbance of these properties cannot be avoided, mitigation through data recovery would be appropriate. The project, therefore, would have no adverse effect on the three (3) archaeological properties situated within the APE of this project if data recovery is carried out in accord with a plan developed in consultation with HPO staff and in keeping with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation.

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Pursuant to the meeting held on Tuesday, July 21, 1998, at the NJDOT Building, 1035 Parkway, Trenton, attended by FHWA staff, NJDOT staff, and HPO staff, additional information concerning the effects this project will have on the following historic architectural properties is forthcoming:

1. Delaware and Raritan Canal Historic District; and
2. Lake Carnegie Historic District.

Based on your letter dated May 20, 1998, and project documentation attached, received at this office on May 27, 1998, HPO staff concur that the project as currently designed will have no effect on Penns Neck Baptist Church.

Also, based on your letter dated May 20, 1998, and project documentation attached, received at this office on May 27, 1998, HPO staff concur that the project as currently designed will have an adverse effect on:

1. Aqueduct Mills Historic District;
2. Washington Road Elm Allee;
3. Covenhoven-Silvers-Logan House; and
4. Princeton Operating Station (AT&T Building).

Within the boundaries of the Aqueduct Mills Historic District, the project as currently designed proposes the following:

1. minor widening of U.S. Route 1 right-of-way above Millstone River Bridge;
2. construct retaining wall along U.S. Route 1 northwest of Millstone River Bridge;
3. introduce fill on northwest side of U.S. Route 1 in the vicinity of Mapleton Road;
and
4. remove dry laid stone on northwest side of U.S. Route 1 in the vicinity of Mapleton Road.

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Within the boundaries of Washington Road Elm Allee, the project as currently designed proposes to remove five (5) of the original American Elms which are a character defining feature of the landscape designed allee of elm trees flanking Washington Road. Also, the project proposes to terminate Washington Road where it currently intersects U.S. Route 1, and to construct a cul-de-sac at that location. Based on the significance and character defining features of the Washington Road Elm Allee, both the proposed removal of five (5) of the original American Elms and the termination of the elm allee by a cul-de-sac at the eastern end of Washington Road, where it currently intersects U.S. Route 1, would be adverse to this NRHP eligible property.

The project as currently designed proposes to demolish the following historic architectural properties:

1. Covenhoven-Silvers-Logan House; and
2. Princeton Operating Station (AT&T Building).

Additional Review Comments

The HPO is disappointed that NJDOT and the FHWA have not, prior to requesting HPO comments, provided information to or solicited information from individuals and organizations expressing interest in the historic resources effected by the proposed undertaking. Guidance from the Advisory Council on Historic Preservation describes the practical objectives and benefits of involving the public:

Obtaining assistance from members of the public to have information about historic properties and the areas that may be affected by undertakings and informing them of agency undertakings and purposes;

Utilizing the applicable knowledge and expertise of professional and avocational practitioners of such disciplines as history, architectural history, landscape architecture, and archaeology;

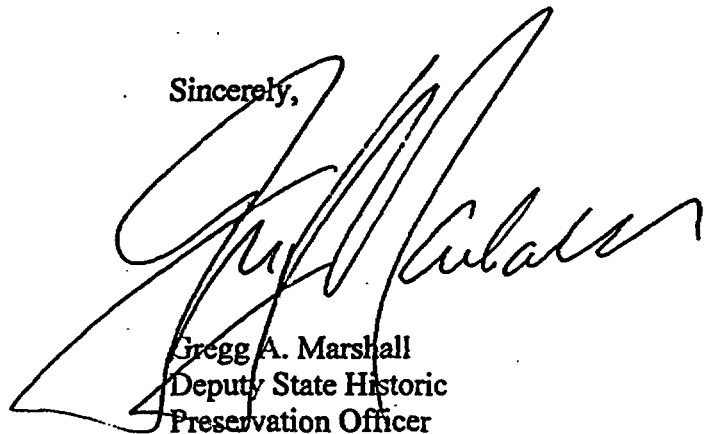
Involving property owners, local governments, Indian tribes, neighborhood associations, and others whose immediate interests may be affected, whose viewpoints need to be considered in decisionmaking and who may need to participate in Section 106 review as interested persons;

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Considering viewpoints presented by interested persons and other members of the public,
both as an aid to information gathering, and as a basis for decisionmaking.

I look forward to continuing consultation to avoid and/or minimize the adverse effects
this project will have on historic architectural properties identified within the APE of the project
as currently designed that are listed and discussed above. If you have questions concerning this
project review, please call HPO Transportation and Planning Coordinator Charles Scott at 609-
292-2023, HPO staff Carl Nittinger for historic architecture at 609-984-0141, and/or HPO staff
Mike Gregg for archaeology at 609-63302395.

Sincerely,

A large, stylized handwritten signature in black ink, appearing to read 'Gregg A. Marshall'.

Gregg A. Marshall
Deputy State Historic
Preservation Officer

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Log #98-1263 (97-909, 97-563)
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c. R. Schroeder, FHWA
V. Martinez, FHWA
A. Fox, FHWA
A. Fekete, NJDOT, BES
L. Rappleye-Marsett, NJDOT, BES
J. Sweger, NJDOT
D. Mc Varish, John Milner Associates, Inc.
Friends of the Washington Road Elms
Sensible Transportation Options



State of New Jersey

DEPARTMENT OF TRANSPORTATION
1035 Parkway Avenue
CN 600

Trenton, New Jersey 08625-0600

CHRISTINE TODD WHITMAN

Governor

FRANK J. WILSON

Commissioner

May 20, 1998

Dorothy Guzzo, Administrator
NJ Historic Preservation Office
Division of Parks and Forestry
NJ Department of Environmental Protection
P. O. Box 404
Trenton, NJ 08625-0404

Attention: Transportation Planning Group

Re: Route U. S. 1, Section 2S and 3J
Mercer and Middlesex Counties

RECEIVED

MAY 27 1998

JOHN MILNER
ASSOCIATES, INC.

Dear Ms. Guzzo:

On March 10, 1997 you responded to our request for comments on the above project. In your comments you requested additional information on a number of topics. At our request, John Milner Associates, Inc. has compiled this information. The purpose of this letter is to transmit that information and to request your comments on eligibility and effect so that the Section 106 process may be concluded.

Identifying Historic Properties:

1. Your letter states that properties on Harrison Street and 31 Logan Drive "must be evaluated for their potential eligibility as contributing resources to the NRHP eligible Aqueduct Mills Historic District." Milner has explored this question and concluded that an appropriate boundary for the Aqueduct Mills Historic District would follow the western (southbound) right-of-way line along Route 1 across the Millstone River, to the northern right-of-way line of Harrison Street, to the Delaware and Raritan Canal boundary to the Lake Carnegie Historic District boundary. Using this boundary, the properties on the northerly side of Harrison Street would be within the district, but 31 Logan Drive would not. Milner has found that while the house is related historically to the village, it is at too great a distance from the other surviving elements of the community to be considered a contributing resource. The individual eligibility of the

property is discussed in more detail below.

We are in agreement with Milner's boundary recommendation.

2. Your letter states that "Washington Road Elms, ...is eligible to be listed in the NRHP under National Register Evaluation Criteria C because of its importance to landscape architecture."

Although this statement was not accompanied by a request for more information, Milner has investigated the question of the elms' eligibility in more detail. The resulting document, formatted as a request for a Determination of Eligibility (and enclosed herewith), concurs with your opinion that the elms are eligible under Criterion C; Milner concluded that the elms are "...a designed landscape reflecting significant early twentieth century trends in landscape design. The elms represent an intact example of an American elm allée, a once-common but now uncommon designed landscape...Despite the loss of a number of original trees, the rows still clearly read as an allée and therefore possess the requisite integrity for National Register eligibility" (p. 10). This conclusion varies somewhat from the reasons stated in your letter, since it is based on the design of the landscape and the survival of mature specimens of a plant species which are elsewhere declining in number; the "dramatic entrance" cited in your letter is not seen as a contributing factor or element.

We are in agreement with Milner's recommendation of eligibility. The proposed boundary of the eligible resource includes the single row of trees flanking Washington Road on either side and is shown in Milner's Figure 5 (following page 10).

3. Your letter states that "the information in the submitted report is not sufficient to clearly and objectively evaluate the NRHP eligibility of three properties: the former Radio Corporation of America Laboratory...the former American Telephone and Telegraph building known as the Eden Institute...and 31 Logan Drive." Milner has prepared state survey forms for all three properties, enclosed herewith. The survey information may be summarized as follows:

a) *The former Radio Corporation of America Laboratory.* Following extensive research into the questions raised in your letter, Milner concluded that the complex is not eligible for inclusion in the National Register under Criteria A or C because i) "RCA Laboratories were not the principal location of origination or development of any product or process important to the electronics or communications industries"; and ii) "Contemporary accounts of the property's construction, including an overview of the complex in *Architectural Record*..., fail to indicate that its suburban campus site was unusual."

b) *The former American Telephone and Telegraph building.* Milner documents the

building's use as a repeater/test station for long distance telephone service, but concludes that its subsequent loss of integrity precludes National Register eligibility.

c) **31 Logan Drive:** On the basis of additional research which included an interior inspection, Milner determined that:

...at least a portion of the house dates from the mid-eighteenth century and represents one of the few standing Dutch farmhouses in West Windsor Township...It is locally significant under National Register Criterion C as embodying the distinctive characteristics of a type, period or method of construction, an eighteenth-century Dutch farmhouse. The property is recommended eligible for the National Register individually.

We agree with Milner's recommendations with respect to all three properties.

To summarize this section and the reports previously transmitted, the following properties within the project's Area of Potential Effect (A. P. E.) are listed in the National Register of Historic Places:

Penns Neck Baptist Church
Delaware and Raritan Canal
Lake Carnegie Historic District

In our opinion the following properties within the project's A. P. E. are eligible for inclusion in the National Register of Historic Places:

28-Me-2
28-Me-23
28-Me-86
Aqueduct Mills Historic District (including specified properties on Harrison Street)
Penns Neck Cemetery
Washington Road Elms
31 Logan Drive

At your request, the following properties have been investigated in more detail and in our opinion are not eligible for inclusion in the National Register of Historic Places:

Former Radio Corporation of America Laboratory (Samoff Research Center)
Former American Telephone and Telegraph building (Eden Institute)

Assessing Effects:

Your letter states that "...the HPO is unable to fully assess effects for any architectural

properties until the HPO has...reviewed more detailed plans." A full set of plans (50% photocopy, 261 sheets) is transmitted herewith.

Based on the information contained in the plans and the reports by John Milner Associates previously transmitted, in our view the effects of the project will be as follows:

Penns Neck Baptist Church: No effect.

Delaware and Raritan Canal: No adverse effect. The boundary of the listed resource is 100 yards (91.4 meters) on either side of the centerline of the canal. The main line of the realigned CR 571 will be approximately 120 to 150 meters from the canal (scaled from sheets 13 and 14). Roadway construction will occur within the boundary of the listed resource in the vicinity of the Harrison Street and Washington Road bridges, but this is not expected to diminish the Canal's integrity.

Lake Carnegie Historic District: No effect.

28-Me-2, 28-Me-23, 28-Me-86: No adverse effect with data recovery in accordance with a plan to be developed in consultation with HPO staff and in keeping with the Secretary of the Interior's *Standards and Guidelines for Archaeological Documentation*.

Aqueduct Mills Historic District: As discussed in our earlier correspondence, the district will be affected by the removal of a low stone wall at the intersection of Mapleton Road and Route U. S. 1. We propose to record the wall photographically, then relocate it elsewhere in the district (preferably on the same property).

Construction of the realigned CR 571 will move the traffic currently using Harrison Street—adjacent to the district boundary as recommended by Milner—away from the district by more than 200 meters (scaled from sheet 14).

The net result of these effects to the district will not, in our opinion, be adverse.

Penns Neck Cemetery: No effect.

Washington Road Elms: The overall length of the allée is approximately 1,160 meters. Based on Milner's Figure 2, there are at present approximately 122 trees in the two rows immediately flanking the roadway. These trees are about 15 meters apart and about 4 meters from the edge of pavement. Of the 122 trees, 78 (or 64%) are identified as American elms from the original planting; 25 (20%) are younger Liberty elms, and 19 (16%) are younger Norway maples.

That the resource retains integrity, in spite of the fact that more than one third of the

original trees have been replaced, illustrates a point made by Milner in the eligibility assessment: it is not necessary for all the original plantings to be present in order for a designed landscape to be eligible, as long as the integrity of location and visual effect have been preserved. Milner (p. 10) quotes Keller and Keller on integrity: "A boulevard that has lost its original trees but where appropriate new street trees have been planted may retain integrity."

Sheet 24 (C-9) of the enclosed plans calls for the realigned CR 571 to meet the existing alignment of Washington Road near the Delaware and Raritan Canal, and the realignment of a short segment of the eastern portion of Washington Road to create an intersection with CR 571. This plan sheet shows about 80 meters of Washington Road being realigned, and the removal of about 12 trees in the primary rows. This scheme has since been revised with the intent of minimizing the project's effects to the allée; a copy of the revised sheet C-9 is enclosed. As shown on the revised sheet, the length of the realigned segment will be about 44 meters, and approximately five of the 122 trees will be removed (four on the westbound side of the road and one on the eastbound side). Approximately 117 trees will remain in the two primary rows. The 44-meter realigned segment of Washington Road will also be flanked by two rows of trees to continue the feeling of the allée. Using the same spacing as the original planting, three trees would be planted on each side of the realigned segment.

A cul-de-sac near Route 1 will close Washington Road to through traffic, although the roadway will remain. Thus, the vista framed by the trees—and thus the feeling and association of the tree-lined roadway—will persist, and will continue to be visible to users of Washington Road. Decreasing the traffic on Washington Road will also eliminate the principal threat to the elms: Milner (p. 7) cites a statement by William Flemer, III, of Princeton Nurseries, that "deterioration [of the elms] over the years was found to be attributable more to the effects of constant heavy automotive traffic rather than to the effects of Dutch Elm Disease." The project should therefore be beneficial to the remaining trees.

Proposed landscaping (sheets 111 through 120) includes two rows of trees flanking the realigned CR 571 from Washington Road to approximately the intersection with Sarnoff Drive, east of Route U. S. 1, a distance of approximately 1.8 km.

Because of the relatively small number of trees to be removed, the beneficial aspects of the project with respect to the remaining trees, and the nature and extent of the proposed landscaping, the visual integrity of the allée is expected to be present at the conclusion of the project. In our view the project will have an effect on the Elms which will not be adverse.

31 Logan Drive: Present plans call for the removal of the house. Since demolition would be an adverse effect, alternatives have been and will continue to be explored.

Among these is relocation of the house, preferably to a site near its present location and ideally within the Aqueduct Mills Historic District, since the house is historically related to the community. If this can be achieved, the move would be preceded by recording on its present site and an archaeological investigation of the proposed site to avoid the disruption of any significant subsurface remains. Under this scenario, we would anticipate that the result would be an effect which is not adverse. However, we anticipate further consultation with your office with respect to this property.

We look forward to receiving your comments as to eligibility and effect. If you have any questions please contact me at 530-3780, Joseph Sweger at 530-2985 or Charles Ashton at 530-5266.

Yours very truly,



Lynn Middleton
Project Manager

cc: R. Meyer, John Milner Associates
R. Schroeder, FHWA
A. Fox, FHWA
V. Martinez, FHWA
A. Fekete
L. Rappleye-Marsett
J. Sweger

Encl.
CHA:tm



106 file

Christine Todd Whitman
Governor

State of New Jersey
Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

DIVISION OF PARKS AND FORESTRY
HISTORIC PRESERVATION OFFICE
CN-404

TRENTON, N.J. 08625-0404
TEL: (609) 292-2023
FAX: (609) 984-0578

HPO-C97-9
March 10, 1997

Ms. Lynn Rich, Program Manager
Division of Project Management
New Jersey Department of Transportation
CN 600
1035 Parkway Avenue
Trenton, New Jersey 08625-0600

Dear Ms. Rich:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on 2 September 1986 (51 FR 31115-31125), I am providing consultation comments for the following project:

Route U.S. 1, Sec. 2S & 3J
Washington to Mapleton Road
Grade Separated Interchange
Mercer and Middlesex Counties

SUMMARY: Based on the information contained in the reports submitted for review, Historic Preservation Office (HPO) staff cannot comment on the effects this project might have on all cultural properties identified within the Area of Potential Effect (APE). Additional information as requested herein must be submitted for HPO staff to complete the project review. (See 800.4 Identifying Historic Properties and 800.5 Assessing Effects below.)

These comments are in response to your memorandum of December 26, 1996 requesting Section 106 review and comments for the architectural evaluation of the AT&T building (Eden Institute) at U.S. Route 1, and your memorandum of February 3, 1997, received at this office February 7, 1997, requesting Section 106 review and comments for the archaeological and architectural inventory and evaluation reports for this road bypass project. The reviewed reports are:

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Phase I/II Archaeological Survey of the U.S. Route 1 Corridor, Penn's Neck, Prepared for New Jersey Department of Transportation, Trenton; Prepared by: Roberts, William I., Nancy A. Stehling, Anna V. Furkas, Allen Drost, and Brian Ludwig, Greenhouse Consultants, New York, NY, 1988.

Supplement Phase I Archaeological Survey and Phase II Archaeological Evaluations of Three Sites, Route U.S. 1/Penn's Neck Interchange, Prepared for: New Jersey Department of Transportation; Prepared by: Siegel, Peter E., John Milner Associates, West Chester, PA, 1996.

Route U.S. 1/Penns Neck Interchange, Technical Environmental Study, Historic Architecture, Prepared for U.S. Department of Transportation Federal Highway Administration and New Jersey Department of Transportation; Prepared by: John Milner Associates, Inc., West Chester, PA, November 1986.

Supplemental Architectural Resources Investigation, Route U.S. 1/Penns Neck Interchange, West Windsor Township, Mercer County and Plainsboro Township, Middlesex County, Prepared for: New Jersey Department of Transportation, Trenton, NJ; Prepared by: John Milner Associates, Inc., West Chester, PA, 1996.

800.4 Identifying Historic Properties

The archaeological inventory and evaluation efforts described in these reports were adequate to identify eligible archaeological deposits within the APE of preferred alternative D1.1C as illustrated in the Siegel report (1996:Figure 5). No further identification efforts are recommended for the APE of the preferred alternative as surveyed. Two of these four sites have previously been found eligible to be listed in the National Register of Historic Places (NRHP) in Section 106 consultation for prior projects, one has been found eligible pursuant to these comments, and the fourth has been determined not eligible pursuant to these comments. The four archaeological properties are:

1. 28-Me-2, the RCA 2 prehistoric site, has a SHPO opinion of eligibility dated 9/13/76.
2. 28-Me-23, the RCA prehistoric site, is eligible based on the following opinion offered for the first time in these comments, and in concurrence with the assessment offered by Siegel (1996:30). This site is eligible under

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Criterion D because it has potential to yield important information regarding changes in technological and subsistence practices in New Jersey's Inner Coastal Plain from the Late Archaic period to the Late Woodland period.

3. 28-Me-86, the RCA 3 prehistoric site, has a Determination of Eligibility dated 9/9/76.
4. 28-Me-264, the Kidd historic domestic site, is not eligible because the archaeological deposits lack integrity.

The architectural inventory and evaluation efforts described in these reports did not identify all eligible architectural resources within the APE. The Historic Preservation Office (HPO) identified one (1) additional property within the APE eligible to be listed in the NRHP which was not identified in the submitted reports.

I concur with the submitted reports that three (3) historic architectural properties identified within the APE are listed in the National Register of Historic Places (NRHP). Penns Neck Baptist Church was listed in the NRHP on 12/28/89. The Delaware and Raritan Canal was listed in the NRHP on 05/11/75. Lake Carnegie Historic District was listed in the NRHP on 06/28/90.

I also concur with the submitted reports that Aqueduct Mills Historic District was determined eligible to be listed in the National Register of Historic Places by SHPO opinion dated December 20, 1988 (ONJH-L88-131). The Aqueduct Mills Historic District was initially recommended for inclusion in the NRHP by a 1978 Middlesex County Historic Sites survey. The Middlesex County Survey recommended including, but did not identify, a number of properties in Mercer County as part of the eligible historic district. A copy of that survey recommendation is included in the documentation submitted by the consultant. Additionally, the original SHPO opinion of eligibility for the Aqueduct Mills Historic District, transmitted as consultation regarding Route 1 and the Scudder's Mill Road Interchange, referenced the inclusion of properties in Mercer County in the historic district. The evaluation of properties in Mercer County was not undertaken, perhaps because these properties were outside the APE of the Scudder's Mill Road project, and the southern boundary of the historic district was never delineated. The HPO feels that the properties on Harrison

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Street and 31 Logan Drive must be evaluated for their potential eligibility as contributing resources to the NRHP eligible Aqueduct Mills Historic District.

As Deputy State Historic Preservation Officer for New Jersey, I concur with the submitted report that Penns Neck Cemetery, Block 3, Lot 15, West Windsor Township, Mercer County, is eligible to be listed in the NRHP under National Register Evaluation Criterion A because of its association with the early development of the community.

Penns Neck Cemetery, the oldest cemetery in West Windsor Township, is located on land originally owned by Garret Schenck, one of the founders of Penns Neck. Based on the headstones readable within the last forty-five years, it dates to the 1730's. Formal organization occurred early in the nineteenth century when, in 1812, William Kovenhoven deeded a parcel of land to Jacob S. Stout and John C. Schenck to be held in trust as a burial ground for the residents of Penns Neck. In 1813, Samuel Worth also conveyed a parcel of land to Stout and Schenck for the same purpose (the cemetery apparently straddled the boundary of the two properties). The cemetery contains the graves of many members of the community's founding families.

Also, as Deputy State Historic Preservation Officer for New Jersey, it is my opinion that Washington Road Elms, which extends along both sides of County Route 571 from West of U.S. Route 1 nearly to the Delaware and Raritan Canal, in West Windsor Township, Mercer County, is eligible to be listed in the NRHP under National Register Evaluation Criteria C because of its importance to landscape architecture.

The Washington Road Elms were developed in the 1920's by horticulturist William Flemer. This vista of Dutch elms is possibly the last allee' of its type in New Jersey and clearly represents an important historic designed landscape. The mature trees that line Washington Road from U.S. Route 1 in West Windsor Township to Princeton Borough articulates and accentuates the linear character of the corridor and creates a dramatic entrance from U.S. Route 1 through open fields and natural habitat to the bridge which carries the roadway over the Delaware and Raritan Canal and the larger more design conscious bridge which carries the roadway over Lake Carnegie.

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However, the information in the submitted report is not sufficient to clearly and objectively evaluate the NRHP eligibility of three (3) properties: the former Radio Corporation of America (RCA) Laboratory known as the Sarnoff Research Center (SRC), the former American Telephone and Telegraph (AT&T) building known as the Eden Institute building, and 31 Logan Drive. The HPO feels that to properly evaluate the significance and integrity of the three (3) properties requires additional research and information.

The consultant's evaluation of the significance of the SRC concludes that it "has been, and remains, an important center for research that has resulted in the production of many consumer and industrial electronic components, most notably the color television". Although the contribution of the SRC to the development of color television was described sufficiently, the contribution of the SRC to other research activities or the development of the other listed final products was not adequate to understand the full measure of the property's historic significance. Given the continuing use and significance of the SRC as a research center and the presence of portions of the facility that are less than fifty (50) years of age, the potential eligibility of the property under Criteria Consideration G, properties that have achieved significance within the past fifty years, must be adequately examined.

Finally, unlike the RCA facilities in Camden, the SRC was established in a relatively rural environment in proximity to a major university. The potential significance of the SRC as an early example or prototype of a research laboratory campus established separate from a production facility has not been, but should be, explored.

The issues regarding the evaluation of integrity are equally important. Balancing Historic Preservation Needs With The Operation Of Highly Technical Or Scientific Facilities, prepared by the Advisory Council on Historic Preservation (ACHP) in 1991, establishes helpful guidance for evaluating properties associated with scientific and technological history. The ACHP, recognizing that scientific or technological properties are most appropriately evaluated under Criterion A or B, offers relevant insight with the question: "Does a property's historic value derive from its association with events or persons, making physical history fabric of secondary importance?" (page 28, column 1). In discussing the evaluation of integrity, the ACHP notes: "integrity does not denote absolute purity, but it does demand enough physical presence to

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retain a 'preservable entity' that communicates relevant significance." (page 29, column 1). The ACHP concludes: "For a property to be historically important for its scientific or technological advances does not mean that it cannot be unchanged..." (page 33, columns 1 and 2).

National Register Bulletin 15, How To Apply The National Register Of Historic Places Criteria, defines integrity as the "ability of a property to convey its significance" and delineates seven integrity factors. The SRC clearly possesses a number of the seven integrity factors. The location and association of the resource are unchanged. Depending upon the period of significance of the SRC, the setting and feeling, a multi-acre campus enhanced by the presence of a landscaped main entrance, are also retained, even with additions to the original 1941 buildings.

Questions do arise regarding three of the seven integrity factors: the design, materials, and workmanship of the additions to the original buildings. Again, depending upon the period of significance established for the SRC, integrity would be maintained by the continued use of brick facades at a height compatible with the original main structure and by the construction of additions that project from, rather than enclose, the original structure.

In the light of the previously cited ACHP document, the HPO respectfully disagrees with the consultant's conclusion that alterations to the interior of the SRC have erased the integrity of the resource.

To adequately and objectively evaluate the NRHP eligibility of the SRC, the following information or research is needed relevant to both significance and integrity:

1. an expanded description and evaluation of the scientific and technological research and products associated with the SRC, including research and products deriving significance within the last fifty (50) years;
2. the role of the SRC in scientific and technological research associated with both World War II and the subsequent "Cold War" during the 1950's and early 1960's;
3. information regarding the decision to establish a unified RCA research facility at this location, especially the relationship of the original buildings to the three

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hundred (300) acre parcel of land and any expectations or plans for eventual growth or expansion;

4. a delineation, preferably with plans, of subsequent exterior alterations, additions or expansions, and deletions (if any) to the original 1941 buildings;
5. an evaluation of the size or percentage of additions or alteration to the original 1941 buildings; and
6. an examination of the compatibility of the design, workmanship, and materials of the additions that includes a discussion of the scale, height, massing, and proportions of the additions.

The assessment of the eligibility of the Eden Institute, the former American Telephone and Telegraph (AT&T) building, is also incomplete. The submitted evaluation was prepared in 1986 and does not illustrate the current condition of the building. In the submitted photograph, the building appears to possess some distinctive architectural details. To adequately and objectively evaluate the NRHP eligibility of this building, the following information or research is needed relevant to both significance and integrity:

1. a description of the original use or function of the building, including a discussion of any interior equipment associated with telecommunications operation;
2. the functional relationship of this building to the AT&T system;
3. a description of the original architectural design or features of the building;
4. current photographs that illustrate the retention or removal of original architectural features and permit an evaluation of the integrity of the building.

The identification and evaluation of 31 Logan Drive is also incomplete and, perhaps, incorrect. HPO staff have concluded that the building reads as an 18th century residence (with 19th century replacement windows and later additions to the North), not as an early to mid-19th century wagon shop. The architectural character and heritage of this building needs to be further described, and

Ms. Lynn Rich, BES, NJDOT
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its origin and history reinvestigated. To shed light on the origins and heritage of this house, an interior inspection is recommended.

The evaluation of 31 Logan Drive should also include an evaluation of its relationship to the Aqueduct Mills Historic District.

800.5 Assessing Effects

Plans should be formulated in consultation with HPO staff to avoid, minimize, and/or mitigate adverse effects to sites Me-2, Me-23, and Me-86. These three sites contain important components within a larger site complex that has attracted the attention of the professional and avocational archaeological communities for sixty (60) years. "Although much of the above site material is not published, a general picture emerges of a more or less continuous line of sites [from] the confluence of the Millstone and Stony Brook and extending southeast along the southwest bank of the Millstone and Big Bear Brook" (Kardas and Larrabee 1978:20, MER E114b). The significance of this site complex, and its constituent components, has not yet been explored. Unmitigated destruction of any of the NRHP eligible components would be a significant loss to the regional archaeological record.

If disturbance of these three (3) sites cannot be avoided, then mitigation through archaeological data recovery would be appropriate. There will be No Adverse Effect to these sites if data recovery is carried out in accord with a plan developed in consultation with HPO staff and in keeping with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation.

Based on the submitted documentation, the HPO is unable to fully assess effects for any architectural properties until the HPO has met with NJDOT and reviewed more detailed plans. The three (3) or four (4) photocopies (at reduced scale) of plans (no profiles or elevations) of the proposed alignments of the roadway do not provide an adequate foundation for assessing effects. The HPO has no knowledge of the distance of the proposed roadway from the D&R Canal or Lake Carnegie Historic District or the elevation of the roadway along these resources. Additionally, we have no information on projected traffic volumes or roadway design parameters.

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All proposed project alternatives might have an adverse effect on Washington Road Elms where the Penns Neck Bypass intersects Washington Road, depending on the impacts on the allee' of Elms in the event that removal of several of the elms might be necessary. Also, proposed Schemes D1.1 and D1.1C would have an adverse effect on Washington Road Elms because it would require Washington Road to become a cul-de-sac at the intersection with U.S. Route 1 West of U.S. Route 1. This would diminish the integrity of the historic property by altering the property's historic use and function. The property would no longer serve as the historic ingress and egress for traffic traveling from West Windsor Township into and out of Princeton.

The HPO would like the opportunity to meet with the NJDOT project team responsible for this undertaking to discuss the issues referenced in this letter. Please call HPO staff Charles Scott at 609-292-2023 to arrange a suitable time and location to initiate this dialogue. I look forward to continuing consultation comments for this project.

Sincerely,



Dorothy P. Guzzo
Deputy State Historic
Preservation Officer

DPG/cn:mg
Log #97-909 (97-563)
c:\wp51\cen.gen\106.REV\HPO-C97.009
c. V. Martinez, FHWA
R. Schroeder, FHWA
A. Fekete, NJDOT
L. Middleton, NJDOT
R. Meyer, John Milner Associates, Inc.



State of New Jersey
NEW JERSEY STATE MUSEUM
DEPARTMENT OF STATE
205 WEST STATE STREET CN 530
TRENTON, NJ 08625-0530

March 26, 1996

Mr. Peter Siegel
John Milner Associates
309 North Matlack Street
West Chester, PA 19380

Re: Phase I archaeological survey just east of Carnegie
Lake, Penns Neck, Mercer County

Dear Mr. Siegel:

We have checked our records for the above-referenced project
and report the following:

Known archaeological resources appear to be
located within and near the boundaries of the
project site. A copy of your project map
showing the locations of these sites and the
summary charts of the related site data is
also enclosed. An archaeological survey, by a
professional archaeologist, would have to be
conducted in order for an accurate assessment
to be made of its archaeological significance.

If we can be of further assistance, please do not hesitate to contact
us.

Sincerely,

A handwritten signature in black ink, appearing to read "Karen Flinn".

Karen Flinn
Registrar
Archaeology/Ethnology Bureau

KF:gg
encl.

CC: NJ Department of Environmental Protection
Historic Preservation Office

| Site No. | Site Name | USGS Quadrangle ^b | Topographic Setting | Site Type | Cultural Association | Reference |
|-------------|--------------------------------|------------------------------|---------------------|------------------------|--|--------------------------|
| ✓ 28-ME-2 | RCA II Hemmings | Princeton | | TRAILS | LA, TA, W | ASSN BUL 9:15 |
| ✓ 28-ME-5 | Stoebbe | Hightstown | | Prehistoric | A, W | VOL 1:225 |
| ✓ 28-ME-86 | GARDEN STATE S.W. RCA #3 | Hightstown | | #86 28-12-5-1-6 | LA, LW, min. 13 house s. MW (7-800 B.S.) | KARDAS LARRABEE |
| ✓ 28-ME-50 | Stoebbe | Hightstown | | Prehistoric | EA-LW | VOL 1 155.7 |
| ✓ 28-ME-55 | RCA I, Sheepmen OLDEN | Hightstown | | Prehistoric | MA - contact | Collector DIMITASH 155.7 |
| ✓ 28-ME-56 | Lotysh | Hightstown | | Prehistoric | — | 155.7 |
| ✓ 28-ME-60 | CARNEGIE | Princeton | | | Mid-ARCHAIC TRANSITIONAL (17-18) | RICK GLASS |
| ✓ 28-ME-62 | millstone | Hightstown | | Prehistoric | | POLLAK |
| ✓ 28-ME-63 | millstone | Hightstown | | Prehistoric | | POLLAK |
| ✓ 28-ME-90 | PLAINSBORO Wellnitz Hill | Hightstown | | Prehistoric | LA, EW, LW | KAL |
| ✓ 28-ME-91 | ALEXANDER ROAD Princeton Basin | Princeton | | Prehistoric | W + NO FORM EA? LA, TA, P | KAL |
| ✓ 28-ME-120 | MILLSTONE RIVER | Hightstown | | Prehistoric | | VOLUME 1 PAGE 225 |
| ✓ 28-ME-136 | RCA-SALWEJ | HIGHTSTOWN | | PREHISTORIC | | B. SALWEJ |

✓ 28-ME-129 Mapleton Rd.

LA, EW?, MW

✓ 28-ME-131 Holiday Inn Princeton Hill Site

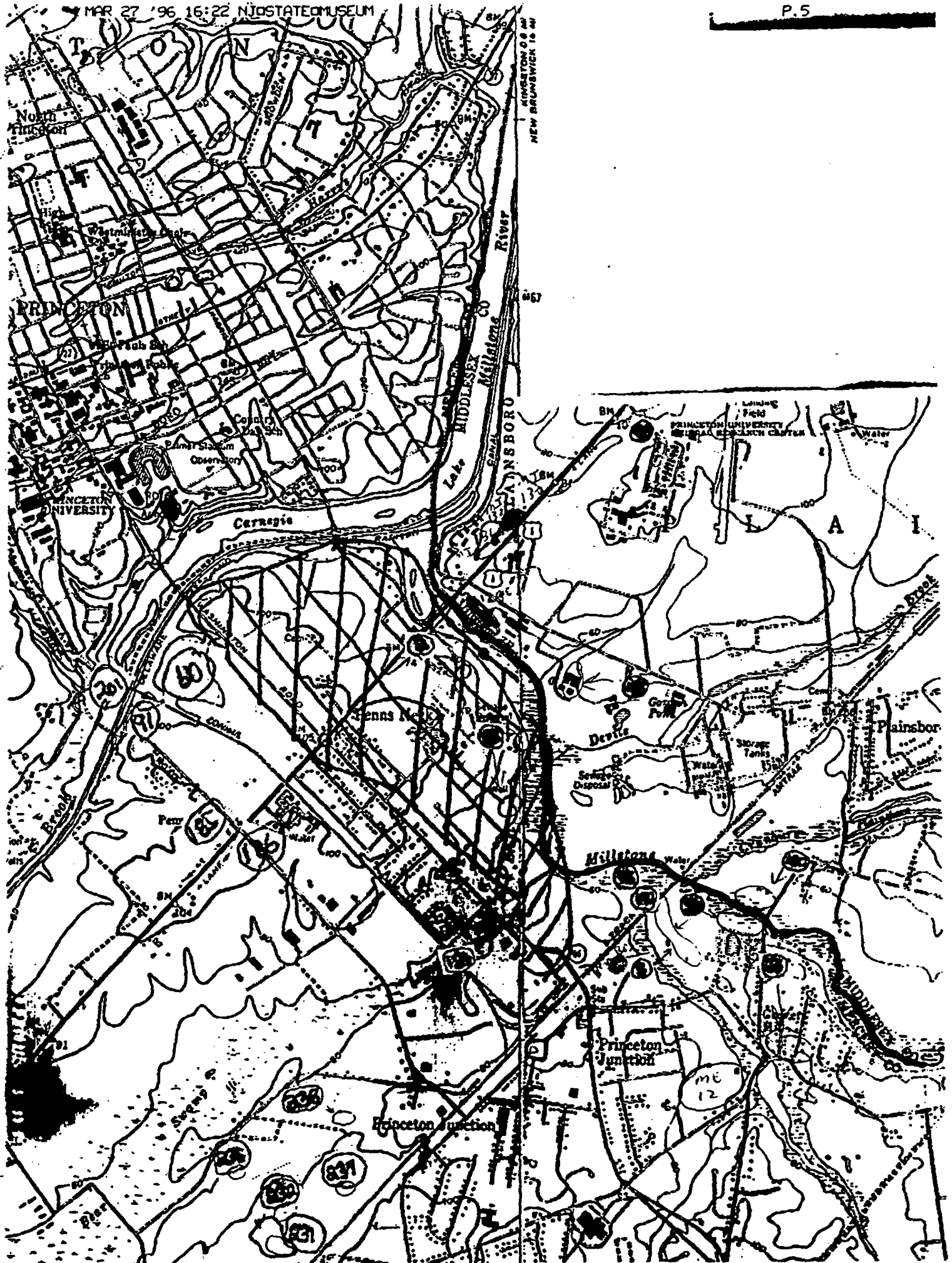
LW

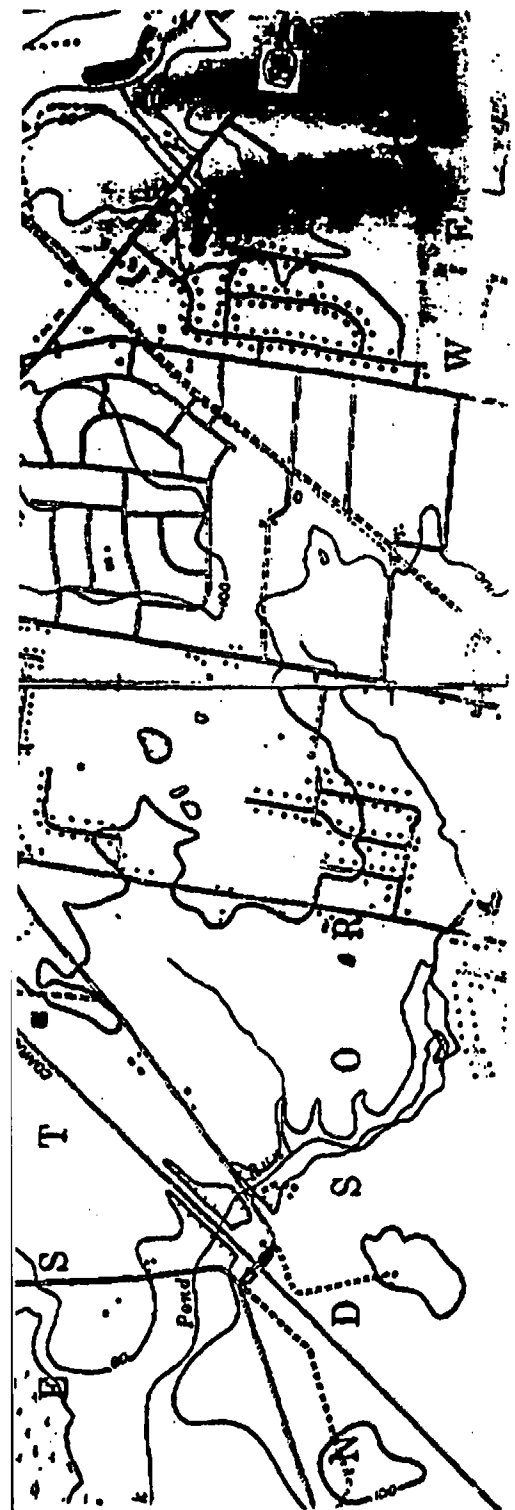
✓ 28-ME-130 Blackwell Princeton Anderson Farm Site

✓ MT 132 Lemmon/Blackwell

?
?
?

| Site No. | Site Name | USGS Quadrangle ^b | Topographic Setting | Site Type | Cultural Association | Reference |
|-------------|-------------------------------------|------------------------------|---------------------|---------------------------|--|-----------------------------------|
| ✓ 28-ME-181 | Site # 12 DILATUSH | Princeton | | Prehistoric? | | DILATUSH - SRP ACC. 746 Folder |
| ✓ 28-ME-185 | Schenck Farmstead | Princeton | | Historic | mid 18 th Century to Present | RAM |
| ✓ 28-ME-186 | ELISHA Jewell Farm House | Princeton | | Historic | mid 19 th Century to Present | RAY ? |
| ✓ 28-ME-190 | RCA NURSERY SITE Also S, Also 55 | Hightstown | | Prehistoric | W ——— | ASNS BUL. 9 155:7 ? |
| ✓ 28-ME-201 | TRIN E.P.S. CHapel BASIN | Princeton | | Prehistoric & Historic | 19 th Century AND ARCHAIC | RAM |
| ✓ 28-ME-231 | Stives-A | Princeton | | Prehistoric | Procurement Processing | Sczepkowski |
| ✓ 28-ME-232 | Stives-B | Princeton | | Prehistoric | Procurement Processing | KALB |
| ✓ 28-ME-236 | Stives-C | Princeton | | Prehistoric | Procurement Processing | KALB |
| ✓ 28-ME-237 | Princeton JUNCTION | Princeton | | Prehistoric | Procurement Processing | KALB |
| ✓ 28-ME-238 | Upper Bear Swamp | Princeton | | Prehistoric | Procurement Processing | KALB |
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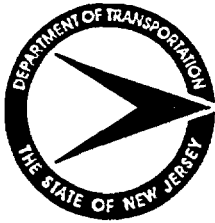




APPENDIX B

CONGESTION MANAGEMENT SYSTEM

NEW JERSEY DEPARTMENT OF TRANSPORTATION



CONGESTION MANAGEMENT SYSTEM ROUTE 571, PENNS NECK AREA FINAL REPORT

W. Windsor Twp., Mercer County N.J.

*Prepared for New Jersey Department of Transportation
by Frederic R. Harris, Inc.*

Final Version Adopted: March 26, 1998



Revisions to report since February 10, 1998

- Commitment #1 - Pedestrian and Bicycle Improvements was modified to clarify the use of the feasibility study under Route 1 Pedestrian/Bicycle Crossing.
- Commitment #5 - Signing Program was changed to Signing Program Coordination to clarify its intent.
- Commitment #6 - Traffic Monitoring Program was included.

Revisions to report since February 20, 1998

- Site specific generators used in development of traffic volumes were reviewed and compared to recent estimates.
- Eliminated strategies, Parking Regulations and Ordinances and expand Parking at Rail Stations, were clarified.
- Information on the Hamilton train station was updated based on NJ Transits recent projections.
- NJ Transits response to implementing an interim stop along the Dinky Line was included.
- All commitment language was strengthened by indicating that all commitments will be implemented.
- Funding sources of all commitments were clarified.

Revisions to report since March 20, 1998

- Section 1 was revised to clarify that a 1996 Environmental Assessment is being performed for the proposed project.
- Under Commitment #1 the width of a shoulder for the proposed facility was removed from the text.

Executive Summary

Introduction

Under the ISTEA, as defined in 450:320 (b) of the Metropolitan Planning Regulations published in the Federal Register on October 28, 1993, federal funds may only be programmed for projects such as "a new general purpose highway on a new location or adding general purpose lanes" that significantly increase capacity for a Signal Occupant Vehicle (SOV) in nonattainment areas if the project results from a Congestion Management System (CMS) meeting the requirements of 23 CFR Part 500. A CMS is designed to document the way in which the requirements for programming federal funds for projects that increase SOV carrying capacity in nonattainment areas are met. The CMS study must cover all reasonable available travel demand reduction and travel demand management strategies for the area and demonstrate how effective these strategies can be at eliminating the need for additional SOV capacity. If the analysis demonstrates that new SOV capacity is warranted, strategies to manage the facility must be incorporated into the proposed facility.

The purpose of this Executive Summary is to provide the following:

- A run through of current conditions in the project area,
- A description of the intended project,
- A description of the CMS evaluation process,
- A summary of the CMS evaluation and study recommendations and

- An overview of the commitments (by NJDOT and others) to strategies that are reasonable and complementary to the facility and project area.

Current Conditions & Project Description

In 1984 the New Jersey Department of Transportation (NJDOT) implemented a study of the 20 mile section of the Route 1 corridor between Lawrence Township, Mercer County and New Brunswick, Middlesex County. The corridor was divided into sections, and alternative improvements in each section were developed. The alternative improvements were analyzed and presented in a series of feasibility studies. In some sections the recommendations were accepted and NJDOT began implementing the final concept, but in other sections the alternatives are still under consideration. One of these sections is the Penns Neck Area.

Penns Neck is an established community just east of Route 1 along both sides of County Route 571 (Washington Road). The Penns Neck Circle is located at the intersection of Washington Road and Route 1. To the South of the circle, the "Dinky Railroad" crosses over Route 1 and to the north are signalized intersections at Fisher Place and Harrison Street. Just north of Harrison Street, Route 1 crosses over the Millstone River, into Middlesex County. Most of the land west of Route 1 is owned by Princeton University. The David Sarnoff Laboratory is located in the northeast corner of Penns Neck, South of the Millstone River and East of Route 1.

Traffic volume in the Penns Neck area is affected by Route 1 which runs north-south and County Route 571 which runs east-west. The two roads intersect at the Penns Neck Circle. The conflict between the north-south

and east-west traffic movements at the Penns Neck Circle contributes to the congestion in the entire Penns Neck area.

Washington Road is an important east-west route in the Penns Neck Area. West of Route 1, the two lane road provides access to Princeton Borough and Princeton University. East of Route 1 Washington Road extends through the community of Penns Neck to a point 500 feet west of the railroad tracks where the roadway bends abruptly to the north. From this point the road crosses over the Northeast Corridor rail lines (Amtrak). This small 0.3 mile segment of roadway/bridge is New Jersey State Route 64. East of the rail lines the roadway is named Princeton-Hightstown Road. The road begins with two lanes and then widens to a 4-lane undivided highway east of Clarksville Road. Together, these roads are designated as County Route 571 that connects Princeton and Hightstown and is heavily used by local commuters. It also connects Route 1 in the Princeton area to Hightstown in the vicinity of New Jersey Turnpike, Interchange 8.

Route 1 is a major north-south route for both local and regional traffic. Route 1 presently experiences heavy traffic flows which result in significant delays at the many signalized intersections along the corridor. Route 1 is typically a 6-lane divided highway with 12-foot travel lanes, a 2-foot inner shoulder and no outer shoulder. Congested conditions prevail during the peak travel periods through the project area. Because Route 1 is a signalized arterial, the capacity of the traffic signals control not only the entire section of Route 1 but also the intersecting cross streets such as Washington Road and Harrison Street. These intersections operate near or over capacity conditions during the peak periods. This causes extensive queuing and delays,

contributing to the deterioration of overall traffic flow, operational conditions and increased travel time for both Washington Road (Route 571) and Route 1. This results in the inability to efficiently accommodate traffic movements to and from other roadways and the surrounding land uses.

For these reasons, a design concept was developed for the Penns Neck area to remove the traffic signals along Route 1 and provide an overpass structure for Route 571 to cross over Route 1 with connecting ramps. Following the completion of the roadway improvement project, the major source of delay will be eliminated, the traffic signals, while still maintaining the east-west connectivity.

The CMS Evaluation Process

The Delaware Valley Regional Planning Commission (DVRPC) is the Metropolitan Planning Organization (MPO) who has jurisdiction over Mercer County. At a May 16, 1997 meeting between DVRPC and NJDOT it was agreed that NJDOT will sponsor the CMS study process with the process being done in accordance with the requirements of DVRPC. In preparing the CMS Study a four (4) step process was formulated. The following is a description of this process.

Step 1 - A steering committee was formed to coordinate the work performed and to obtain input from other key regional transportation agencies. This committee is to include representatives from NJDOT, DVRPC, Mercer and Middlesex Counties, Federal Highway Administration (FHWA), N.J. Transit, Federal Transportation Administration (FTA), West Windsor Planning Board, Princeton Regional Planning Board, Plainsboro Planning Board,

Middlesex-Somerset-Mercer Regional Council, Inc (MSM) and the Greater Mercer TMA.

The first steering committee meeting reviewed the history of the project and any supporting traffic studies. The objective was to document existing and future congestion levels and traffic growth. DVRPC presented a systems-wide picture of where the project falls on the NJ CMS (the project is located in two CMS corridors - US 1 and CR 571).

Lastly, DVRPC presented a screening of improvement strategies, using a systems-wide approach, to identify applicable strategies in the corridor. The committee reviewed the strategies and based on local considerations determined the level of study necessary for the individual strategies. See Table E-1 for the results of the first steering committee meeting relevant to the type of analysis to be performed for each strategy.

Step 2- NJDOT's consultant, Frederic R. Harris, Inc., established performance measures which are applicable to the strategies, identified the appropriate methodologies, and conducted a preliminary evaluation of strategies. A presentation was made to the steering committee on the evaluation process, assumptions and preliminary results.

A public meeting was held on November 5, 1997 as part of the CMS process. The purpose of this meeting was to introduce the project to the public and present the preliminary results of the strategy evaluation. A formal presentation was given, followed by a question and answer period. DVRPC distributed a survey requesting public opinion regarding preferences among the CMS strategies. Results of the survey are tabulated and shown in the Final CMS Study Report.

Step 3 - The committee reviewed the results of the analysis and a concurrence was reached that there is no acceptable alternative to an SOV widening.

The committee then develop a preliminary list of travel demand management strategies that "compliment" the project, help manage or reduce the impacts of traffic to improve system performance and extend the service life of the proposed facility. Those complementary strategies will then be incorporated into the CMS process for more detailed analysis, selection and/or implementation.

Step 4 - The complementary strategies were identified as commitments to the project implementation or for further action as part of the project. Commitments were developed to sufficient detail to outline the funding source, the time frame for which the commitment will be implemented, the lead agency to carry the commitment forward and approximate cost. These commitments were presented to the steering committee for review.

With concurrence from the committee, the commitments to be instituted as part of the CMS process were incorporated into the CMS Study and the report was finalized.

Summary of the CMS Evaluation

As in the first step of the CMS process, a detailed assessment of existing and future operating conditions was initiated. Based on such conditions it was determined that the project area has insufficient capacity that severely impacts traffic flow.

**TABLE E-1
CMS STRATEGY IDENTIFICATION**

| Strategy | Type of Study | Coordinate with Strategy # |
|--|-------------------|----------------------------|
| Mode Shift | | |
| 1. Carpool/Vanpool | Quantitative | 2, 9, 11 |
| 2. Guaranteed Ride Home | Quantitative | 1, 9, 11 |
| 3. Paratransit Services | Quantitative | |
| 4. Transit Marketing | Qualitative | |
| 5. Pedestrian Improvements | Qualitative | |
| 6. Bicycle Improvements | Qualitative | 19 |
| 7. Park and Ride | Qualitative | |
| PARKING MANAGEMENT | | |
| 8. Parking Regulations/Ordinances | Not to be Studied | |
| 9. Preferential HOV Parking | Quantitative | 1, 2, 11 |
| TDM | | |
| 10. Transportation Management Associations (TMA) | Qualitative | |
| 11. Ride Matching | Quantitative | 1, 2, 9 |
| 12. Telecommuting | Quantitative | |
| GROWTH MANAGEMENT | | |
| 13. Activity Centers | Qualitative | 14 |
| 14. Land Use Policies/Regulations | Qualitative | 13 |
| ACCESS MANAGEMENT | | |
| 15. Median Control | Qualitative | |
| 16. Driveway Controls | Qualitative | |
| TRANSIT SERVICE/OPERATIONS IMPROVEMENTS | | |
| 17. Transit Coordination | Not to be Studied | |
| 18. New Transit Service | Quantitative | |
| 19. Bicycle Improvements at Rail Stations | Qualitative | 6 |
| 20. Transit Enhancement/Expansion | Qualitative | |

**TABLE E-1
CMS STRATEGY IDENTIFICATION**

| Strategy | Type of Study | Coordinate with Strategy # |
|--|-------------------|----------------------------|
| TRAFFIC OPERATION IMPROVEMENTS | | |
| 21. Intersection & Roadway Widening | Quantitative | 22 |
| 22. Channelization | Quantitative | 21 |
| 23. Traffic Surveillance and Control System | Quantitative | |
| 24. Ramp Metering | Not to be Studied | |
| 25. Computerized Signal System | Quantitative | 27 |
| 26. Elimination of Bottlenecks | Not to be Studied | |
| 27. Coordinate & Upgrade Traffic Signals | Quantitative | 25 |
| 28. One-way Streets | Not to be Studied | |
| INCIDENT MANAGEMENT | | |
| 29. Incident Detection/Verification | Qualitative | 30, 31 |
| 30. Emergency Response Time Improvements | Qualitative | 29, 31 |
| 31. Alternative Routing Techniques | Qualitative | 29, 30 |
| 32. Construction Management | Qualitative | |
| ALTERNATIVE WORK HOURS | | |
| 33. Staggered Work Hours/Flexible Work Schedules | Quantitative | 34 |
| 34. Compressed Work Weeks | Quantitative | 33 |
| TRANSIT CAPITAL IMPROVEMENTS | | |
| 35. Expand Parking at Rail Stations | Not to be Studied | |
| INTELLIGENT TRANSPORTATION SYSTEMS | | |
| 36. Traveler Information Services | Not to be Studied | |
| GENERAL PURPOSE LANES | | |
| 37. SOV Roadway Widening | Quantitative | |

To determine the most appropriate improvement measure, a CMS analysis was conducted. This was accomplished through an analysis (both quantitatively and qualitatively) of projected traffic conditions in the corridor and evaluation of the impacts of various congestion management system strategies.

It was anticipated that strategies analyzed in this fashion may only result in a small reduction in congestion that may be too fine to measure using available techniques. Therefore, the Committee determined certain strategies may be grouped and evaluated collectively.

The original grouping of strategies outlined at the first steering committee meeting was modified to help better evaluate the potential benefits of such strategies. Upon further examination of the strategies, it was concluded that these strategies could be organized into 8 groups. These eight groups include a car/vanpool program, pedestrian/bicycle facilities, transit improvements, physical improvements, traffic signal improvements, advanced traffic control, travel behavior modifications and growth and development modifications. From these 8 groupings three distinct categories of strategies were formed. These categories are Mode Shift, Traffic Improvements and Travel Demand Reduction.

Need for SOV Capacity Improvement

The next step in the CMS process was to determine if reasonable travel demand strategies could be implemented that may eliminate the need for the SOV capacity increase. It was determined that in order to

achieve acceptable operating conditions through the project area a trip reduction of approximately 50% would need to be achieved. It was determined that, even if all of the strategies were to be combined, the resulting total would not meet the required trip reduction to eliminate the need for an SOV widening. Results of the analysis are summarized below.

SUMMARY OF RESULTS

| STRATEGY | RANGE OF TRIP REDCT. |
|---------------------|---------------------------------|
| Mode Shift | 2.7% to 5.5% |
| Car/Vanpool | |
| Pedestrian/Bicycle | |
| Transit | |
| Traffic Improvemts | 0% |
| Physical | |
| Traffic Signal | |
| Advanced Traffic | |
| Trvl Dmd Reduction | 1.9% to 3.0% |
| Growth & Develp. | |
| Travel Behavior | |
| TOTAL CHANGE | 4.6 - 8.5% |

Complementary Strategies

The most effective TDM programs are

Route 571 - Penns Neck Area Congestion Management System

comprised of several complementary and coordinated strategies. Certain strategies were determined to provide a measure of operational, safety, or mobility improvement and enlist public support. These strategies will play a role in managing the area's travel demand and complement the SOV capacity increase. Thus, if such strategies are implemented along with the project improvements, the potential to increase the service life of the improvements, provide a means of managing future travel demand and providing a better quality of life through the project area can be realized.

The following is a brief description of the project commitments determined during the CMS process.

Commitment #1 - Pedestrian and Bicycle Improvements; The leading concern of area residents is the implementation of pedestrian and bicycle facilities. With the removal of the traffic signals under the proposed project, Route 1 may act as a barrier for pedestrian access across Route 1. The Steering Committee has agreed that the need for such facilities to provide a connection between Penns Neck and Princeton is essential, as well as, to achieve the goal of improving mobility through the project area. A commitment to incorporating strategies into the proposed facility will include the following:

- ***Sidewalk/Bicycle Mobility*** - The proposed project will include facilities for bicycles/pedestrians along a proposed Bypass providing a connection between the two communities. A 5 foot wide sidewalk will be constructed for the length of a Bypass.

The Steering Committee also recommended and NJDOT has committed to including paved shoulders for bicycle travel on the proposed facility.

- ***Route 1 Pedestrian/Bicycle Crossing*** - NJDOT has committed to providing a feasibility study to accommodate pedestrian access across Route 1 relative to the residential neighborhoods. The feasibility study will establish the need for the crossing and determine if such a crossing is supported by area residents. If the feasibility study determines the crossing is warranted, a location for the crossing will be determined. Implementation of the crossing would then occur with the construction of the project. The crossing would be located between the Dinky railroad bridge and Washington Road.

- ***Bicycle lockers at Princeton Junction & Dinky train stations*** - The Steering Committee recommended and NJDOT has committed to increase awareness of the existing program as a project commitment. This commitment would best be addressed after the project construction is complete.

Commitment #2 - Central Jersey Transportation Forum; A majority of local concerns were related to the regional traffic impacts due to planned roadway improvement projects, area development, and transit improvements. The Steering Committee discussed the concerns of the local residents and agreed that such issues need to be addressed to effectively manage future traffic conditions in the area. However, it was also agreed that this is beyond the scope of this CMS Study. Many studies regarding these issues have been performed over the past

several years. The committee felt that these previous investigations should be integrated as a means to address regional issues.

To do this, a Central Jersey Transportation Forum is recommended. This Forum would address a number of issues facing Central New Jersey, such as the need for better traffic management, truck traffic, population forecasts, roadway projects such as Route 92 and provide the much needed coordination effort between member agencies. The Forum will result in a transportation action plan and priority of projects for NJDOT and allow the Counties/Municipalities to form a mechanism to aid in the decisions made at both the State and Local levels.

Commitment #3 - Ridesharing Program; The Steering Committee recommended and NJDOT has committed to continue current levels of funding for TMAs to administer and market these services. In addition, the Steering Committee recommended and NJDOT has committed to the following expansion of the program.

- Placement of signs along the project, Routes 571 and Route 33 to promote the toll free rideshare assistance telephone number.
- Provide preferential parking for people who carpool to the Princeton Junction train station. This commitment should be contingent on the completion of the Hamilton Train station and an assessment of its impact on the Princeton Junction train station.
- Funding for the TMA to provide rideshare matching services and supply registration

forms can be absorbed through the existing TMA/NJDOT grant.

Alternate Work Schedules

The Steering Committee recommended a commitment to providing seed money for interested large employers along the study area to develop and implement an alternate work schedule program with their TMA. The Smart Moves Challenge Grant program is a potential funding source for this.

Commitment #4 - Transit Service Transit Marketing

- A commitment to provide funding for marketing a vanpool program will be provided.
- A commitment to provide additional funding for mass distribution of information to targeted residential areas near the study area is to be included as a commitment.

Coordination of Regional Transit Feeder Service

- A commitment is made to develop a coordinated east-west shuttle system that might connect East Windsor, Princeton Junction Station, Sarnoff Center, Princeton University, Princeton residential areas and CBD, outlying Princeton employment sites (Institute, hospital) and the Dinky. This could be further pursued as part of the Central Jersey Transportation Forum and as part of the TMA Core Program.

Commitment #5 - Signing Program; The Steering Committee has recommended and NJDOT has committed to a signing program to be performed jointly by NJDOT and the Princetons. The signing program is to

investigate whether traffic between Route 1 and Princeton can be more efficiently directed to its destination. Sign construction would be funded separately, by NJDOT as part of the Route 1 Penns Neck roadway improvements.

Commitment #6 - Traffic Monitoring Program - To document the distribution of traffic prior to and following the construction of the proposed project, the steering committee has recommended and Middlesex County has committed to a traffic monitoring program as part of the CMS process. The traffic monitoring program will conduct seven day-24 hour traffic counts through the use of Automatic Traffic Recorders (ATR's) at key locations in the project area.

Counts will be taken prior to construction of the proposed project to establish a base case for traffic volumes. Counts will subsequently be taken at 1 year intervals for a period of three years after construction of the project is complete. At the conclusion of each counting period results will be summarized in a report of findings. A meeting will be held with the local officials to present the report and discuss findings.

Conclusion

The construction of a general purpose lane, was found to be the most effective method of addressing future travel demands in the study area. During the process of this determination, it was found that other supporting strategies proved to be appropriate for the corridor. The Table below shows a summary of the recommended strategies for implementation as part of the Penns Neck CMS process.

Summary of Commitments

| No | Commitment | Funding Source | Time Frame | Lead Agency | Approx. Cost |
|--------------|---|-----------------------------|---------------------------|-----------------|--------------------|
| 1 | Pedestrian/Bicycle Improvements | | | | |
| | -Millstone Sidewalk/Bicycle Mobility | NJDOT Const. Funds | w/Project Construction | NJDOT | \$285,000 |
| | -Route 1 ped./bicycle crossing • Feasibility Study | NJDOT Dgn. Funds | w/Project Design | NJDOT | \$50,000 |
| | -Route 1 ped./bicycle crossing • Implementation | NJDOT Const. Funds | w/Project Construction | NJDOT | \$600,000 |
| | -Bicycle lockers | NJDOT | Post Project Construction | NJ Transit | \$10,000 |
| 2 | Central Jersey Transportation Forum | Public Partnership | Multi-year | DVRPC/ NJTPA | \$350,000 |
| 3 | Ridesharing Program | NJDOT Core Prog. | Multi-year | TMA | \$150,000/yr |
| 4 | Transit Service | NJDOT/NJ Transit Core Prog. | 2yr. Study/ Implement | TMA | \$35,000 |
| 5 | Signing Program Coordination | NJDOT Dgn. Funds | w/Project Design | NJDOT | \$20,000 |
| 6 | Traffic Monitoring Program | Mercer Co./ NJDOT | Multi-year | Mercer Co. | \$10,000/yr. |
| Total | | | | | \$1,510,000 |

**NEW JERSEY DEPARTMENT
OF TRANSPORTATION**

**CONGESTION MANAGEMENT SYSTEM
ROUTE 571, PENNS NECK AREA
FINAL REPORT
W. Windsor Twp., Mercer County N.J.**

*Prepared for:
New Jersey Department of Transportation*

*Prepared by:
Frederic R. Harris, Inc.*

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1.0 INTRODUCTION

1.1 Study Purpose

Under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, federal funds may only be programmed for projects that will significantly increase carrying capacity for single occupancy vehicles (SOV) in a nonattainment area that results from a Congestion Management System (CMS). This requirement is for both ozone and carbon monoxide. As the entire State of New Jersey is classified as nonattainment for ozone, all projects are subject to this requirement requesting federal funds. A CMS can be defined as a study designed to document the way in which travel demand reduction and operational strategies are evaluated to determine their ability to eliminate the need for the additional SOV capacity proposed by the project. This study is being performed in accordance with the Delaware Valley Regional Planning Commission (DVRPC) interim CMS process.

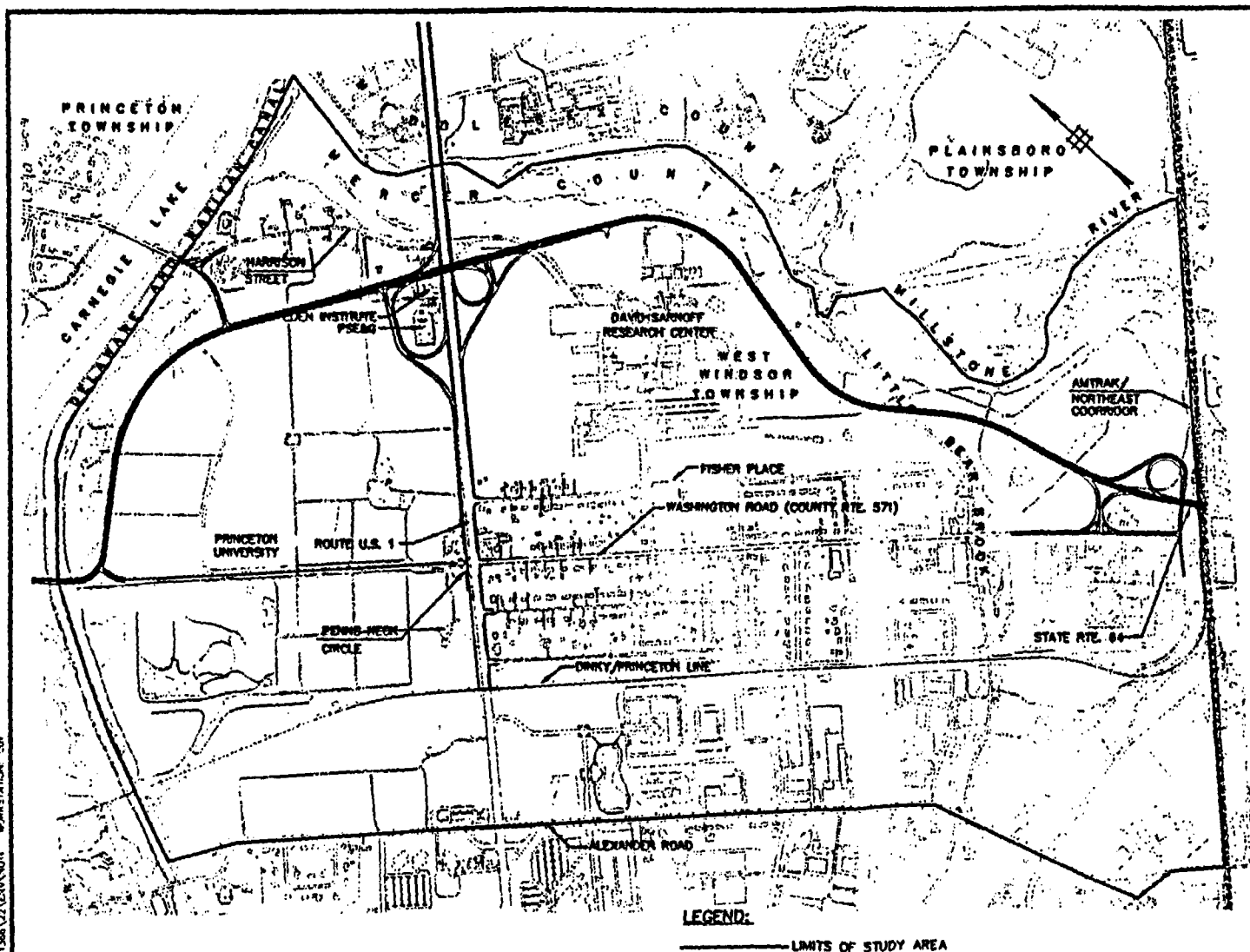
1.2 Project Background

In December, 1986 the New Jersey Department of Transportation issued the Route 1 Corridor Transportation Study. In this study, the Department identified the Route 1 corridor as an area of intense growth. In 1991, the Department completed an Environmental Assessment (EA) for Route 1 from Quakerbridge Road to Sayre Drive and the Federal Highway Administration (FHWA) issued a Finding of No Significant Impact (FONSI). The study and EA formed the foundation for a series of roadway improvements along Route 1 that have been completed. This included widening from four to six lanes and grade separations at several locations including Alexander Road and Scudders Mill Road and signal eliminations at the Motor Vehicle Inspection Station and Plainsboro Road. The EA recognized that improvements are required in the Penns Neck area and specified the construction of a grade separated interchange between Fisher Place and Logan Drive. The Penns Neck area is shown in the attached Figure 1-1 Project Vicinity and Location Map. However, the development of alternatives and preliminary design of the Penns Neck area improvements were not part of this EA.

To date, Route 1 improvements in the Penns Neck Area have been restricted to elimination of the shoulders to create three travel lanes in each direction and reconstructing the signals. These Transportation Systems Management (TSM) improvements are intended as an interim measure to relieve congestion through the Penns Neck area while more permanent solutions for Route 1 are being advanced. As part of the initial Route 1 corridor studies in 1986, NJDOT developed a series of alternatives for Route 1 through the Penns Neck Area.

These alternatives included grade separations at the Penns Neck Circle, at Harrison Street and other sites in between. Key issues associated with the alternatives included community impacts, impacts to historical resources and traffic operations. In 1992, a study was performed to evaluate five

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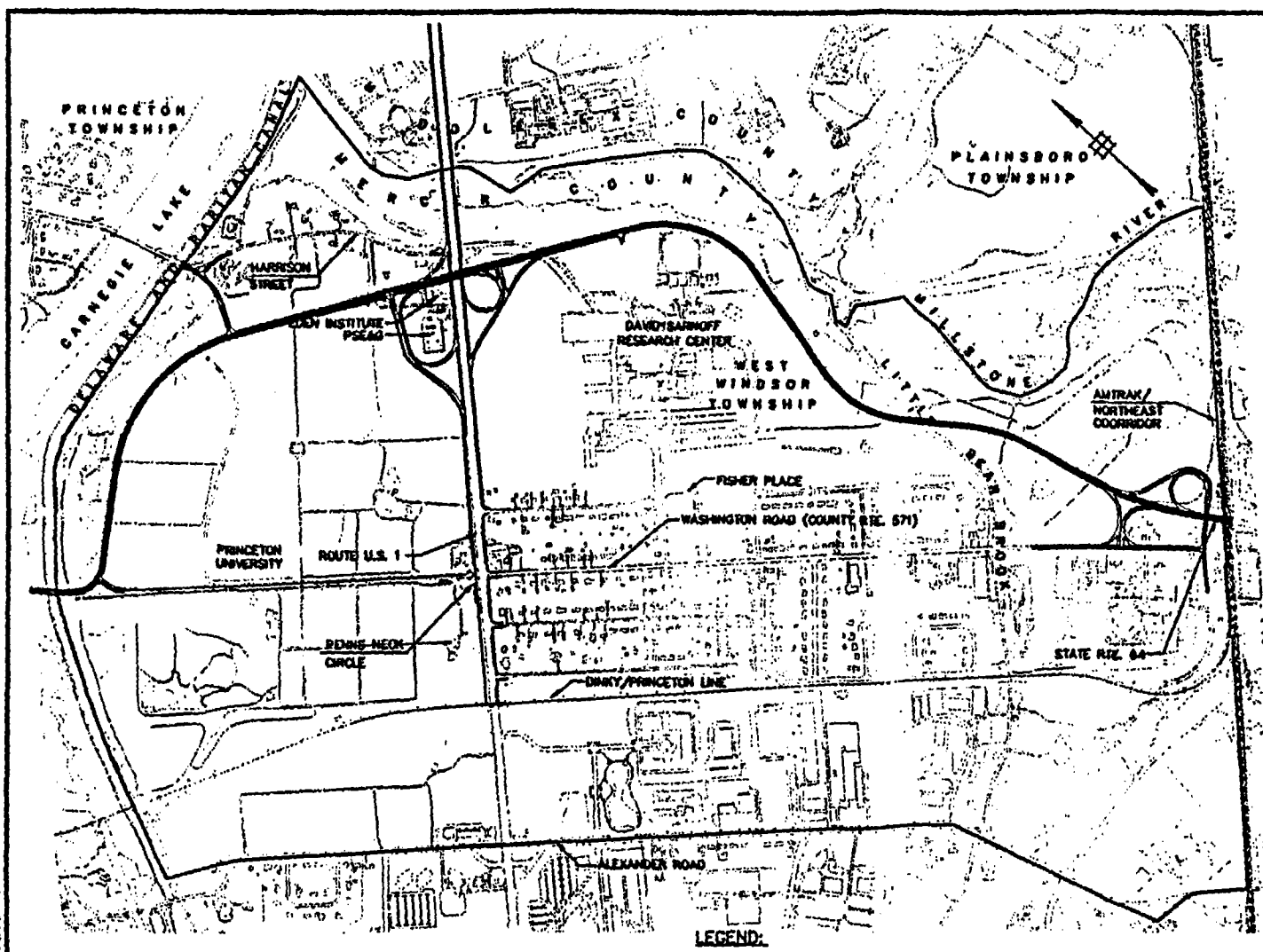
NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S.1/ PENNS NECK AREA
IMPROVEMENTS

SCHEME D-1.1C

Frederic R. Harris, Inc.
Bd. of New Jersey 08520

SCALE: 1" = 1000'
DATE: February 1998

PROJECT: 156-22-22 RLE DATE: 7/1/84 BY: J22/DAV/NO1 WORKSTATION: 201



LEGEND:
—— LIMITS OF STUDY AREA

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S.1/ PENNS NECK AREA
IMPROVEMENTS

SCHEME D-1.1C

Frederic R. Harris, Inc.
Rahway, New Jersey 08039

SCALE: 1" = 1000'
DATE: February, 1984

signalized intersections at Fisher Place and Harrison Street. Just north of Harrison Street, Route 1 crosses over the Millstone River, into Middlesex County. The Penns Neck area is shown in the attached Figure 1-1 Project Vicinity and Location Map.

It was agreed that the Route 571 improvements trigger the need for the CMS. However in performing the CMS study, strategies should be evaluated on an area wide basis. The analysis is to be conducted relative to where congestion is most prevalent. Therefore, although the proposed project has triggered the CMS, the study should not be confined to Route 571.

1.5 Study Coordination

To coordinate the work performed and to obtain input from other key regional transportation agencies, a steering committee was formed for this CMS Study. This committee includes representatives from NJDOT, DVRPC, Mercer and Middlesex Counties, Federal Highway Administration (FHWA), N.J. Transit, Federal Transportation Administration (FTA), West Windsor Planning Board, Princeton Regional Planning Board, Plainsboro Planning Board, Middlesex-Somerset-Mercer Regional Council, Inc (MSM) and the Greater Mercer TMA. A total of five steering committee meetings were held.

In addition, a public meeting was included as part of the CMS process. The purpose of this meeting was to introduce the project to the public and present the preliminary results of the strategy evaluation. A formal presentation was given, followed by a question and answer period. In general, residents are in agreement that congestion is severe and an improvement in the roadway network is needed. DVRPC distributed a survey requesting public opinion regarding preferences among the CMS strategies discussed previously. See the Appendix for a copy of the survey. Results of the survey have been tabulated by DVRPC and discussed in Section 6 of this report.

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Sarnoff Research Center. Harrison Street is a two-lane, 22-foot wide roadway without paved shoulders.

Alexander Road

The Route 1 and Alexander Road intersection has been replaced with a full grade separated interchange. This improvement included the widening of Route 1 to three lanes in each direction with full shoulders.

Fisher Place

Fisher Place is a two-lane, 24 to 40-foot wide residential street with a jughandle along the southbound side of Route 1. The jughandle provides access to Fisher Place and allows U-turns to Route 1 northbound. Traffic from David Sarnoff Research Center and some diversionary traffic from Washington Road also use Fisher Place.

Faculty Road

Faculty Road is a two-lane road with 14-foot travel lanes without shoulders. The road begins at a signal controlled T-intersection with Alexander Road. It extends north and crosses Washington Road with a signalized intersection. It then crosses Harrison Street with a stop controlled intersection where it becomes Hartley Avenue. Faculty Road primarily serves Princeton University and the local residents of Princeton Township and Princeton Borough.

North Post-Wallace-Cranbury Road

North Post Road begins at the community of Post Corner in West Windsor Township. This road crosses Clarksville Road as it extends north towards Princeton Junction. At a stop controlled intersection with Alexander Road, North Post Road becomes Wallace Road which provides access to the Princeton Junction Train Station. At a signalized intersection with Route 571, Wallace Road becomes Cranbury Road. Cranbury Road extends northeast to the Grovers Mill and Cranbury. Within the study area, this road is one lane in each direction.

Clarksville Road

Clarksville Road is a two-lane road which begins at Quakerbridge Road, traverses northerly and ends at Route 571. At Route 571, Clarksville Road becomes Grovers Mill Road. Grovers Mill Road ends at its intersection with Cranbury Road. Clarksville Road experiences heavy peak hour traffic as it connects West Windsor Township with Lawrence and Hamilton Townships. Capacity is limited due to kinks in the alignment of the road.

2.2 Transit Services

A review of the study area's available transit services included a focus on both regional and local alternatives. Within the study area there are rail, bus, and paratransit services available, provided by both the public and private sectors. Developments in the area are constructed in campus-style suburban settings. Such developments provide significant impediments to the implementation of traditional transit services.

Rail Service

The focus of the area transit is the Northeast Corridor Rail Line linking Philadelphia, Trenton, New Brunswick, Newark, and New York City. Both N.J. Transit and Amtrak operate commuter service with frequent service throughout the day. Within the immediate study area, a regional train station is located at Princeton Junction in West Windsor Township. Additionally, the Princeton Line, or "The Dinky" as it is more commonly known, operates a 2.7 mile rail shuttle between the Princeton and Princeton Junction train stations. Service is provided throughout the day, with frequency of service highest during the AM and PM peak hours. The Dinky service is scheduled to meet nearly all NYC-Trenton bound trains on the Northeast Corridor.

Bus Service

Local bus service for the project area is provided by N.J. Transit through its Mercer Division. N.J. Transit operates ten routes in Mercer County. NJ Transit began operating Mercer County routes in 1984 with the first full year of operation in 1985. Table 2-1 summarizes project area bus routes.

In addition, there are several privately operated transportation services in the study area. Both express and local bus service are provided to the Port Authority Bus Terminal in New York City. Paratransit type services are provided by private operators to link corporation with the Princeton Junction train station. Such services are paid for by the corporations being served.

Park and Ride Facilities

As documented in the *Route 1 Local and Corridor Demand Management Plan* (Reference # 6) a total of twenty-one park and ride lots exist between Trenton and New Brunswick through the Route 1 corridor. The lots range in capacity from 28 spaces to 3,800 spaces. A description of these lots is included in the Appendix. Table 2-2 summarizes park and ride facilities for the Route 1 corridor.

TABLE 2-1
Project Area Bus Service

| New Jersey Transit Bus Service Mercer County | | | | |
|--|--|---------------------------|---------------------|-----------------------|
| Bus # | Route Name | # of Trips (10/96) | Total Riders | Avg. Ridership |
| 600 | Trenton-Princeton Forrestal Center | 52 | 1,717 | 15 |
| 601 | Trenton State College - White Horse | 48 | 905 | 19 |
| 602 | Pennington - Trenton | 44 | 374 | 9 |
| 603 | Quaker Bridge Mall - Hamilton | 73 | 2,555 | 35 |
| 604 | East Trenton | 34 | 255 | 8 |
| 605 | Princeton - Quaker Bridge Mall | 28 | 393 | 14 |
| 606 | Princeton - Mercerville - Hamilton Square | 71 | 2,518 | 35 |
| 607 | Ewing - Trenton | 44 | 1,096 | 25 |
| 608 | Hamilton - West Trenton | 78 | 2,052 | 26 |
| 609 | Ewing - Quaker Bridge Mall - Mercer County College | 99 | 3,097 | 31 |
| New Jersey Transit (Red & Tan) New Brunswick Area Service | | | | |
| M10 | N/A | 57 | N/A | N/A |
| M11 | N/A | 26 | N/A | N/A |
| M14 | N/A | 60 | N/A | N/A |
| M15 | N/A | 36 | N/A | N/A |
| M18 | N/A | 30 | N/A | N/A |
| Mercer County Wheels Service | | | | |
| 976 | Lawrence Connection | 13 | 126 | 9.7 |
| 977 | Windsor Connection | 10 | 39 | 3.9 |
| New Brunswick Wheels Service | | | | |
| 980 | Centennial Avenue | 8 | 80 | 10 |

N/A - Not Available

Source: Route 1 Local & Corridor Demand Management (Reference #6)

**Route 571 - Penns Neck Area
Congestion Management System**

**Table 2-2
Park and Ride Lot Summary for the Route 1 Corridor**

| Lot # | Lot Name | Township | Capacity | % Use | Shelter/ Services | Official/ Unofficial |
|-------|---------------------------------|--------------------|----------|-------|----------------------|-------------------------|
| 1 | Ferren Daily Parking Deck | New Brunswick | 599 | 90 | Y | Official |
| 2 | Ferren Monthly Parking Deck | New Brunswick | 621 | 95 | Y | Official |
| 3 | Lower Church Street Parking Lot | New Brunswick | 416 | 90 | Y | Official |
| 4 | Upper Church Street Parking Lot | New Brunswick | 39 | 100 | Y | Official |
| 5 | Patterson Street Parking Lot | New Brunswick | 48 | 100 | Y | Official |
| 6 | Welton Street Parking Lot | New Brunswick | 162 | 55 | Y | Official |
| 7 | Jersey Avenue Daily PNR | New Brunswick | 147 | 75 | Y | Official |
| 8 | Jersey Avenue Monthly PNR | New Brunswick | 826 | 90 | Y | Official |
| 9 | Suburban Transit PNR | New Brunswick | 230 | 100 | Y | Official |
| 10 | North Brunswick PNR | North Brunswick | 100 | 0 | Y | Official |
| 11 | A&P Shopping Center | South Brunswick | 20 | - | Y | Unofficial |
| 12 | Shogun Restaurant | South Brunswick | 100 | 10 | Y | Unofficial |
| 13 | Kendall Park Shopping Center | South Brunswick | 78 | 60 | Y | Unofficial |
| 14 | Princeton Shopping Center | Princeton Township | 28 | 90 | Y | Official |
| 15 | Dinky Shuttle | Princeton Borough | 60 | 80 | Y | Official |
| 16 | National Business Parks | Plainsboro | 50 | 0 | N | Official |
| 17 | Princeton Jct. Station | West Windsor | 3791 | 100 | Y | Official |
| 19 | Quaker Bridge Mall | Lawrence | 100 | 50 | Y | Unofficial |
| 20 | Perry Street | Trenton | 725 | 60 | Y | Official |
| 21 | Trenton Rail Station | Trenton | 2913 | 99 | Y | Official |
| 25 | Route 130 PNR | South Brunswick | - | 80 | Y | Official |

Source: Route 1 Local & Corridor Demand Management
(Reference #6)

3.0 EXISTING CONDITIONS

Prior to the design of the proposed project traffic studies were conducted which began with the counting of existing volumes in the study area. This raw data was then reduced and adjusted to develop base year 1992 weekday traffic volumes for the AM Peak Hour, the PM Peak Hour, and Daily Volume. The 1992 Volume Adjustment Report (Reference #4) dated July 1, 1992 details the methodologies used to develop the adjusted traffic volumes. Traffic volume counts taken at this time period did not include programed roadway improvements such as the interchange at Alexander Road and the conversion of the Route 1 shoulder to a travel lane. Traffic Flow Maps were developed for existing (1992) conditions and include:

- AM Volume, truck percentage, speed
- PM Volume, truck percentage, speed

See the Traffic Analysis Report Route U.S. 1 - Penns Neck Area (Reference #2) for the traffic flow maps. The required analysis for the CMS Study dictated that current (1997) traffic volume conditions be verified. To accomplish this, sample traffic counts were conducted. Traffic data was collected through Automatic Traffic Recorders (ATR) at key locations within the study area over a 24-hour period. Traffic counts were performed between February and March 1997. See the Appendix for count data. The following are those locations where traffic volume counts were taken.

- Alexander Road between Canal Road and West Drive
- Harrison Street at Lake Carnegie Bridge
- Washington Avenue south of Faculty Road
- Route 1 north of the Millstone River
- Alexander Road at the railroad bridge
- Washington Road at the railroad bridge

A comparison of the 1992 traffic volume counts with the recently conducted 1997 ATR counts was performed to assess the recent traffic growth over the past five years. The 1997 ATR counts indicate that traffic through the area generally increases by about 20% along Route 1 and 10% through along Route 571 east of Route 1. Similarly 1997 traffic volumes could then be compared to the projected 2002 traffic volumes to ensure traffic volume projections have not been under or over estimated. The 1997 traffic volume counts were found to verify the growth projected for the 2002 and 2022 conditions.

3.1 Existing (1992) Analysis

The existing analysis is based on the 1992 traffic volumes and roadway geometries that were present at the time of the counts. The existing roadway was analyzed according to the methods of the 1994 Highway Capacity Manual (HCM). The microbased Highway Capacity Software, Version 2.1 was

**Route 571 - Penns Neck Area
Congestion Management System**

utilized to assist with the analyses. Roadway segments and signalized intersections were analyzed for level-of-service (LOS). The definition of LOS varies by facility as described in Table 3-1.

**TABLE 3-1
LEVEL-OF-SERVICE**

| LOS | | HIGHWAY SEGMENT | | SIGNALIZED INTERSECTION |
|-----|-----------------------------------|-----------------|--------------|-------------------------|
| | | 2-Lane (VPH)* | 4-Lane(VPH)* | Delay (sec) |
| A | Free Flow, No Delays | 140 | 1,170 | ≤ 5.0 |
| B | Stable Flow,Short Delays | 340 | 1,170 | 5.1 to 15.0 |
| C | Desirable Design, Moderate Delays | 580 | 2,300 | 15.1 to 25.0 |
| D | Minimum Design, Long Delays | 960 | 2,840 | 25.1 to 40.0 |
| E | Theoretical Capacity | 1,600 | 3,550 | 40.1 to 60.0 |
| F | Unstable flow | >1,600 | >3,500 | >60 |

* Peak Direction Volume

Route 1 TSM and Dinky Railroad Bridge improvements did not begin until 1993, almost one year after the counts. Therefore the 1992 capacity analysis reflects the operation of Route 1 in 1992, but does not necessarily reflect the operation of Route 1 in 1993. A summary of the 1992 AM/PM peak hour levels of service for the roadway network are shown in the Traffic Analysis Report, Route U.S. 1 Penns Neck Area (Reference #2).

Route 1

The intersection at Harrison Street fails in both the AM and PM peak hours with volume/capacity (v/c) ratios of 1.23 in the AM and 1.07 in the PM. All Route 1 links operate within capacity except for the link north of Harrison Street which fails in the AM peak hour.

County Route 571

In the AM and PM peak hours all links and signalized intersections along Route 571 operate at a level of service of E or better. The unsignalized intersections along Washington Road operate above capacity.

3.2 Origin-Destination Investigation

Origin-Destination (O/D) characteristics of trips along Route 1 were examined as part of the CMS process. A review and analysis of this data provides for a comprehensive assessment of travel characteristics through the project area. Such information will aid in the evaluation of proposed CMS strategies and the effects on travel patterns.

The DVRPC performed an O/D study in 1989 titled "Regional Cordon Line Traffic Survey". The survey included a location on Route 1 between Logan Drive and Harrison Street in West Windsor Township, Mercer County. This location was approximately one quarter mile south of the Middlesex County line. A copy of the O/D results for this location is shown in the Appendix.

To summarize, a total of 2013 responses were received from the survey. Results indicate that of the total traffic generated, approximately 70% are for work purposes. Additionally, 82% of respondents travel alone in their vehicles. The origin of trips for the project area included Plainsboro Township (17.8%), West Windsor Township (9.4%), Princeton Borough (7.0%) and Princeton Township (2.2%). Similarly, destinations for the project area included Plainsboro Township (18.3%), West Windsor Township (7.3%), Princeton Borough (8.5%) and Princeton Township (1.1%).

4.0 TRAFFIC FORECASTS

The Route 1 corridor has been the focus of numerous traffic studies. To develop and analyze CMS strategies, traffic data from two studies were utilized, the NJDOT Penns Neck Traffic Study and the DVRPC regional transportation model. The Penns Neck Traffic Study represents a detailed investigation of the existing traffic volumes and forecasts focused on the Penns Neck Area. The other volumes were developed by DVRPC through the use of the regional transportation model. Discussed below are each of these methods and how each will be utilized on this project.

4.1 NJDOT Penns Neck Traffic Study

In 1984 the NJDOT implemented a study of the 20 mile Route 1 corridor between Lawrence and New Brunswick. The corridor was divided into study areas. The Department developed 2004 volume projections from 1984 traffic count data. The 2004 volumes were later superseded by 2005 volumes. Roadway improvements for each study area were developed, analyzed and recommended in a series of feasibility studies using the volume forecasts. Recommended improvements such as the Quakerbridge Road Interchange and Alexander Road Interchange, have been constructed and are presently in service. In other areas the need for improvements has been accepted by the Department and improvements are being investigated. The Penns Neck Traffic Study was performed to supplement the previous traffic volume forecasts for the purpose of developing proposed improvements to the Route 1 Corridor in the Penns Neck area. The Penns Neck Study was focused between the following limits: Alexander Road to the south, Plainboro Road to the north, Faculty Road to the west and South Mill Road to the east.

Traffic volume counts for the Penns Neck Area were taken in 1992 and forecasted to the years 2002 and 2022 where 2002 is the estimated time of construction (ETC) and 2022 is the design year. The existing (1992) volumes were increased by a background growth rate and volume from site specific traffic generators were added. The result was 2002 and 2022 Demand Volumes. The Demand Volumes were distributed over the alternative roadway networks and capacity restraints were applied to locations where volume exceeded capacity. The procedures to develop demand volumes are described in detail in the Traffic Forecast Methodology Report (Reference #3) and the procedures for restraints and redistributions are described in the Traffic Analysis Report, Route U.S. 1 Penns Neck Area (Reference #2). The following is a discussion of the factors that were applied to the base year volumes in determination of future volumes.

4.1.a NJDOT Programmed Improvements

At the beginning of the study process Route 1 was two-lanes in each direction with a full outside shoulder, except under the Dinky Railroad Bridge where the shoulder is eliminated. In the spring and summer of 1993 the shoulder was converted to a third travel lane between the Penns Neck Circle and the intersection at Plainsboro Road. This improvement, often referred to as TSM, is

intended to serve as a temporary measure until a build scheme is selected.

North of Plainsboro Road, Scudders Mill Road met Route 1 at a signalized intersection. This intersection was replaced with a grade separated interchange. Also included was the widening of Route 1 to six-lanes with shoulders from the intersection at Plainsboro Road north to meet the previously widened section at the College Road interchange.

South of the Penns Neck circle, the Dinky Railroad crosses over Route 1. The bridge carries a single track over Route 1 and in 1992 only had room underneath for two-lanes in each direction without shoulders. The construction to replace this bridge began in the summer of 1993 and the scope of the project included the construction of one additional lane in each direction, without shoulders. The new bridge provided sufficient under clearances to eventually widen Route 1 to three through-lanes in each direction plus one auxiliary-lane in each direction.

South of the Dinky Railroad, Alexander Road had crossed Route 1 with a signalized intersection. This intersection was replaced with a full grade separated interchange. Included with the Alexander Road interchange is the widening of Route 1 to three-lanes in each direction with full shoulders from the Dinky Railroad Bridge to Woodrow Wilson Boulevard.

Local Roadway Improvements

The intersection of Alexander Road/Wallace-North Post Road has been investigated by West Windsor Township, as yet no improvements have been constructed. Improvements to that intersection included replacing the existing structure carrying Alexander Road over the Amtrak rail lines and creating a direct connection between Alexander Road and North Post Road. Wallace Road would tie into the new alignment at a "T" intersection.

Route 571

County Route 571 controls much of the east-west movements of vehicles through the study area. To develop traffic volume forecasts it was assumed that intersection capacity improvements would be performed at key locations in Princeton Junction, consistent with the NJDOT Route 571 Needs Assessment. These improvements are currently being investigated by the Mercer County Engineer's Office.

No-Build

The No-Build alternative was analyzed with roadway improvements that were constructed and are anticipated to be in place prior to the year 2002. These improvements include:

- TSM Improvements
- Replacement of the Dinky Railroad Overpass

- Alexander Road interchange and widening of Route 1 to the south
- Scudders Mill Road interchange and the widening of Route 1 to the north
- Intersection improvements to:
 - 1) Wallace / North Post / Alexander
 - 2) Princeton-Hightstown / Clarksville
 - 3) Princeton-Hightstown / Alexander
 - 4) Princeton-Hightstown / Wallace-Cranbury

4.1.b Background Growth Rate

The Background Growth Rate is the volume growth applied to the base year volumes resulting from factors not specifically controlled for in the traffic model. Typically, this is population and employment growth in the region surrounding the study areas, but can also include small site specific generators within the study area which are not included in the model. To establish the background growth rate three factors were examined: population growth, employment growth and historical traffic growth.

The population of Mercer and Middlesex Counties is expected to grow at an annual rate of 0.64% to 1.01%. Employment in the two county region is expected to grow at an annual rate of 1.1%. Historical data indicate that background traffic growth follows employment growth so a background growth rate of 1% was selected. Refer to the Traffic Forecast Methodology Report for Details (Reference #3).

4.1.c Site Specific Traffic Generators

The Penns Neck Area has tremendous growth potential. This section of Route 1 is commonly referred to as the "zip strip" with the prestigious Princeton zip code of 08540. With land readily available, many corporations find this area attractive for their corporate headquarters and offices. Princeton University's presence also attracts businesses and residents to the area. Of particular importance are the University's research, office and retail developments at the Forrestal Campus in Plainsboro Township.

Local zoning laws generally allow for office/research development in this area. Access to this area is provided primarily by Route 1. However, Princeton Junction Train Station also provides rail service to the area, linking it to New York and Philadelphia.

Over the next 30 years, expected development of this area includes approximately 14 million square feet of office space, 1.4 million square feet of commercial and retail space and 3,000 residential units. Proposed developments in the project area were identified and the latest development data was provided by local officials. The approved Traffic Impact Studies were used to obtain trip generation and distribution data, when that information was available. However, some projects were only in the concept stage so Traffic Impact Studies had not yet been developed. In these

instances, the ITE Trip Generation Manual was used to generate development volumes. The trip distributions for these developments were derived from available distributions for nearby sites.

Many of the Traffic Impact Studies contained reduced volumes where trip reduction strategies were warranted. For example, transit and car pooling for office developments, pass-by trips for retail developments and internal capture for mixed-use developments are taken into account for reducing trip generation. When applicable, the reduced trips were used in the traffic model. To generate trips for the years 2002 and 2022 the development projects were ranked. Projects with final approval or under construction were assumed to be occupied by 2002 and included in those forecasts. Development projects with only preliminary or concept approval were included with the 2022 forecasts.

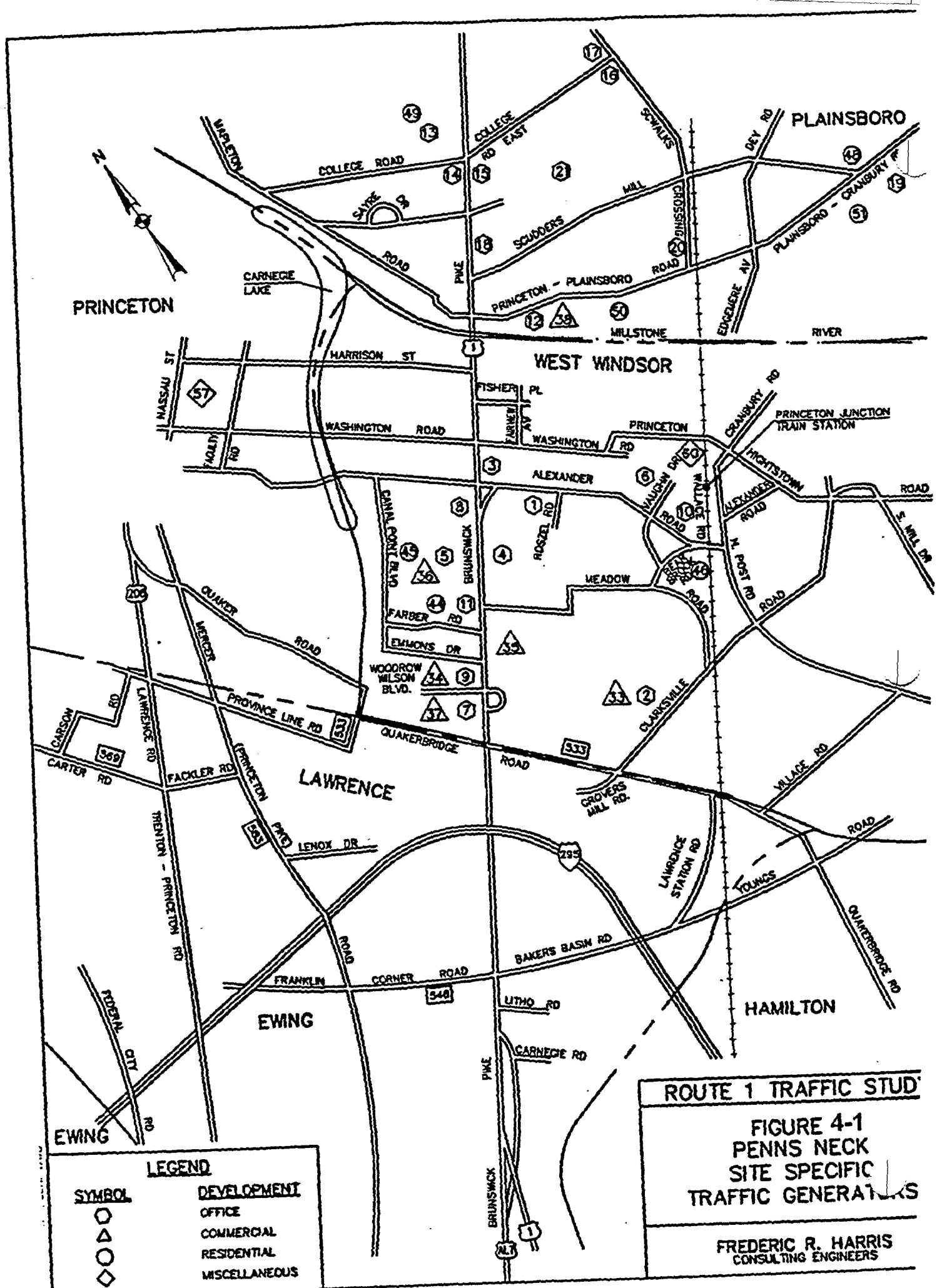
Site specific traffic generators used in the development of traffic volumes are identified in the Appendix. It should be noted that as part of the CMS study, the status of these site specific generators was compared recent estimates. The estimated growth for the project area was found to be on target with original estimates. The location of the site specific generators is shown in Figure 4-1. Notable site specific traffic generators in Penns Neck include Carnegie Center (2,436,000 s.f. Office), Princeton Forrestal (928,000 s.f. Office) and Princeton Nurseries (3,000,000 s.f. Office).

4.1.d Demand Volumes

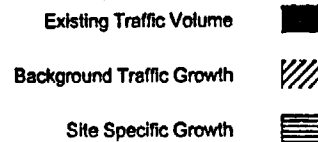
Traffic volume forecasts were developed from the base year volumes, background growth rate and site specific generators. See Figures 4-2 & 4-3 for forecasted traffic volumes. The period between 1980 and 1992 was a time of aggressive development in the Route 1 corridor. In the 1980's numerous developers acquired large tracts of land, applied for and received approvals and started developing their land in a phased scenario. The office projects listed below had been partially developed and have additional phases with preliminary approvals.

- Carnegie Developments
- Nassau Park
- Squibb
- University Square
- Princeton Forrestal Developments

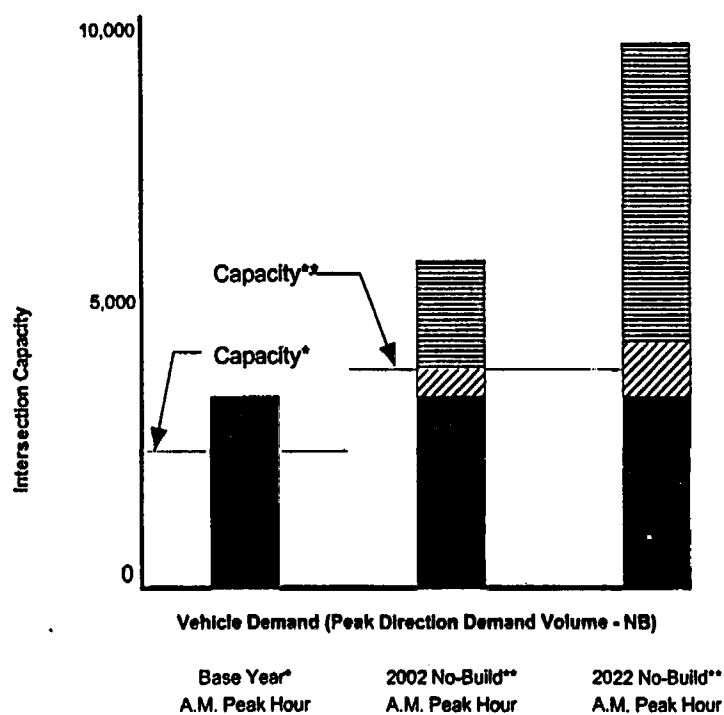
It is anticipated that these developers will continue to build as quickly as they can find new occupants, resulting in traffic volume growth that directly impacts the Route 1 corridor. Over the next 20 to 30 years many of the developments will be completed and fully occupied. However, similar new developments are not likely to follow because there are few remaining large parcels of land that can support office parks of this magnitude. Therefore, as the existing development projects are completed the corridor will approach build-out, and the rate of employment growth will diminish. In other words, as these developments and the surrounding communities approach build-out, traffic volume growth will moderate.



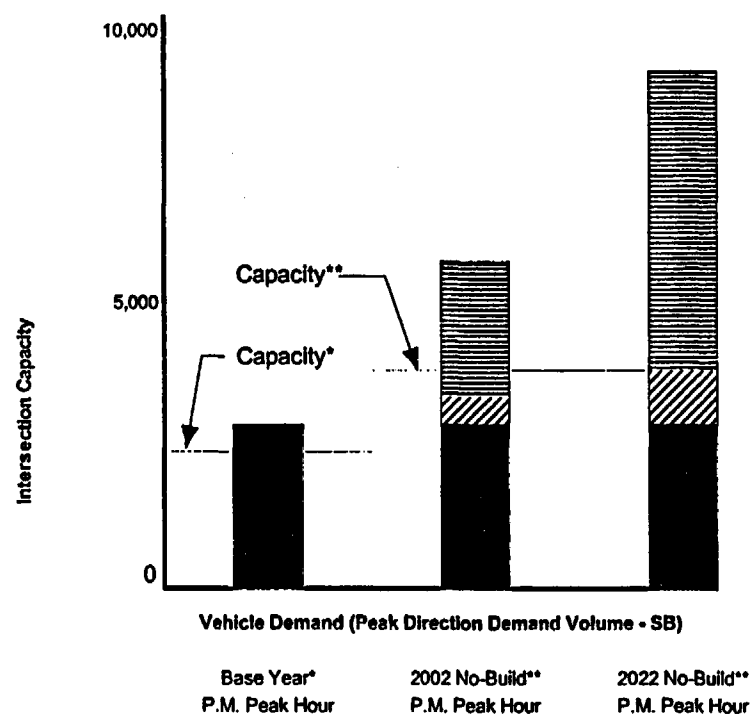
Legend



A.M. PEAK HOUR






P.M. PEAK HOUR

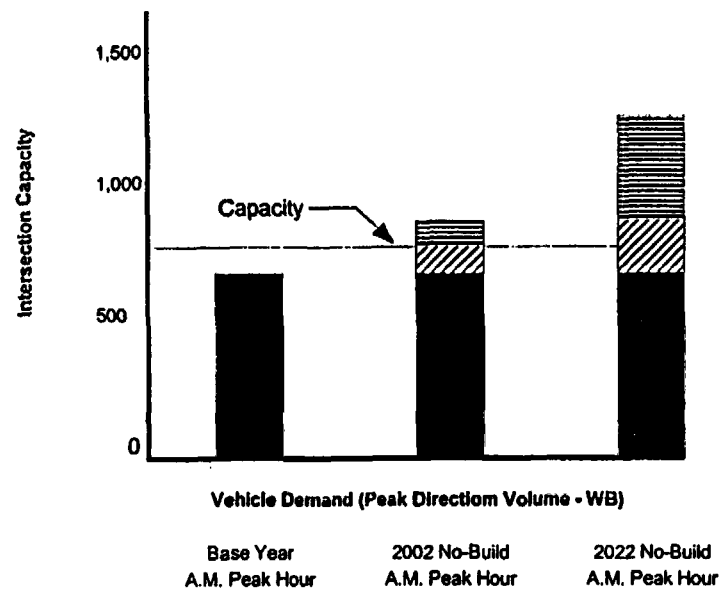


* Two approach lanes on Route 1
 ** Three approach lanes on Route 1

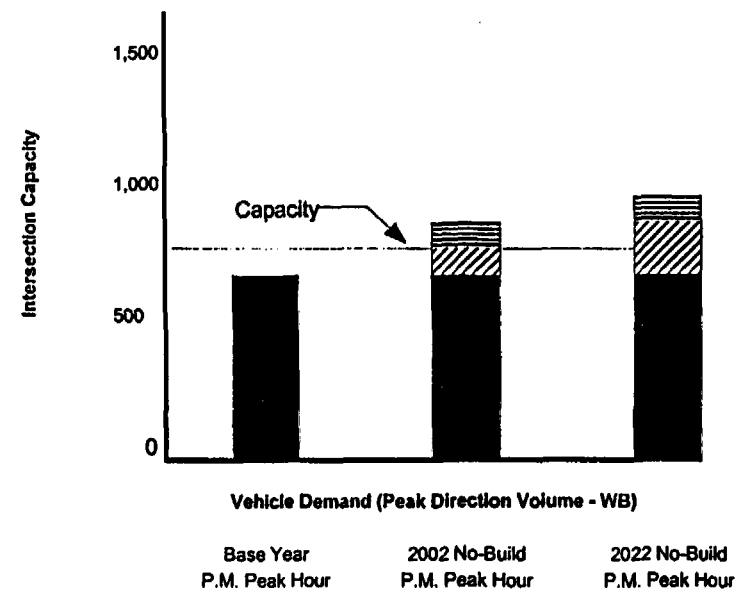
Legend

- Existing Traffic Volume 
- Background Traffic Growth 
- Site Specific Growth 

A.M. PEAK HOUR



P.M. PEAK HOUR



**FORECASTED TRAFFIC GROWTH vs CAPACITY
WASHINGTON ROAD
FIGURE 4-3**

4.1.e Route 92 Adjustments

Proposed Route 92 is an east-west highway which would provide direct access between the New Jersey Turnpike Interchange 8A and U.S. Route 1. In development of the traffic forecasts, Route 92 was assumed to end at its intersection with U.S. Route 1 in South Brunswick Township, north of College Road. The traffic in the Penns Neck area would be affected by this new route and volume adjustments were made.

Route 92 was included in the traffic model associated with the Route 571 Needs Assessment, prepared by NJDOT. A comparison of Build and No-Build volumes revealed that impacts to traffic volumes in the study area are minor. Route 1 peak hour demand volumes were adjusted +/- 200 to account for the effects of Route 92.

4.1.f Capacity Restraints

Much of the anticipated traffic volume growth results from trips between work and home. This growth will have significant impacts on morning and afternoon peak hour volumes. The volume forecasts were examined with respect to the No-Build, and restrained volumes were developed for the AM and PM peak hours. The link capacity of roadways, ramps and the capacity of signalized intersections were evaluated to determine capacity restraints. While many locations within the study area were examined, the peak hour volume is controlled by just a few key restraint points. Table 4-1 depicts the capacity restraints applied by scenario from the controlling links or intersections in the Penns Neck network. Controlling (intersection) restraints are designated with the name of the corresponding cross street.

**TABLE 4-1
ROUTE 1 PENNS NECK CAPACITY RESTRAINTS**

| SCENARIO | RESTRAINT | | | |
|------------------|-----------------|-----------------|------------------|------------------|
| | ROUTE 1 | | ROUTE 571 | |
| | NB | SB | EB | WB |
| 2002 AM No-Build | Harrison Street | Harrison Street | | |
| 2002 PM No-Build | Harrison Street | Harrison Street | | |
| 2022 AM No-Build | Harrison Street | Harrison Street | | Clarksville Road |
| 2022 PM No-Build | Harrison Street | Harrison Street | Clarksville Road | |

4.2 DVRPC's Regional Transportation Model

The regional transportation model includes estimate of demographic and employment data for small areas or zones. This enables the model to assign trip making characteristics associated with households and businesses to the streets and transit facilities serving them. For regional travel, a traffic analysis zone system is employed based on census tracts within the nine-county region making up DVRPC's regional area. This results in 1,335 traffic zones for the entire DVRPC region, which encompasses 3,833 square miles. The regional model projects traffic volumes to the year 2020.

In development of the model, each roadway has a fixed capacity. The capacity is determined through a series of look-up tables. Once the roadway reaches its capacity, the excess volumes are redistributed over the roadway network. The model goes through 15 iterations to "smooth out" the traffic volumes.

The DVRPC regional model includes the Penns Neck Area, however, the model limits only include Mercer County. The Penns Neck Area is therefore on the fringe of the DVRPC regional model. This causes the traffic analysis zones to be larger therefore, diminishing the effectiveness of the model. In addition, the model is "unfocused" through the area representing a more regional perception of traffic conditions. Finally, there is a cordon station at the Millstone River which serves as one of the entrance points to the model. At this location, the traffic volumes do not vary with the roadway capacity. This is due to the model having no way of determining alternate routes for traffic because the model limits do not go into Middlesex County.

4.3 Recommendations

As discussed above, although the regional model developed by DVRPC is an excellent tool for estimating traffic growth on a region-wide bases, however is not suitable for such a small traffic corridor as the Penns Neck area. The traffic forecasts developed by NJDOT represent a more accurate gage of expected traffic volumes in the Penns Neck area. On the other hand, the regional model provides a secondary tool in evaluating regional CMS strategies. This is discussed further in Section 6 of this report.

5.0 CAPACITY ANALYSIS

Traffic volumes have been forecast to the Estimated Time of Construction (ETC) which is the year 2002 and for the design year of 2022. The study area roadway network was evaluated to determine No-Build levels of service. The roadways were analyzed with 2002 and 2022 traffic volumes using the methods described in the 1994 Highway Capacity Manual. The computer based Highway Capacity Software, version 2.1 was utilized to perform the capacity/level of service computations. In evaluating CMS strategies, traffic volumes developed for the design year will be utilized. In addition, the evaluation of strategies will be performed assuming No-Build roadway conditions.

5.1 Traffic Analysis

The No-Build year 2002 and 2022 roadway network is different from the existing. For instance, the signalized intersection at Route 1 and Alexander Road has been replaced with a grade separated interchange. These changes are reflected in the 2002 and 2022 no-build traffic volumes. In performing the traffic analysis, the traffic volume forecasts developed for the restrained condition was utilized. Summary of the traffic analysis is shown in the Traffic Analysis Report, Route U.S. 1 - Penns Neck Area (Reference #2).

Route 1

The north-south movement along Route 1 dominates the flow of traffic in the study area. Route 1 volume is controlled by the capacity of the six lane segment north of Harrison Street and south of Plainsboro Road. Intersections of key importance in the No-Build are Route 1/Harrison Street, and Route 1/Washington Road. These intersections serve as primary or secondary restraint points that govern the traffic volumes permitted in the No-Build Network. Under the restraint condition all roadway links operate at a level of service of E or better in the peak hour in 2002 and 2022. However, if the demand volumes are used in the analysis all roadway links will operate at over capacity conditions.

County Route 571

County Route 571 controls the east-west traffic movement in the study area. No-Build traffic volumes on Route 571 are controlled by the capacity of the intersection at Washington Road/Clarksville Road. Traffic peaks westbound in the AM peak hour and eastbound in the PM peak hour, in the years 2002 and 2022. Capacity restraints are applied in the peak direction to the 2022. In the year 2002, Washington Road will operate at levels of service D or better at the intersections and links. In 2022 the links and intersections degrade to a level of service E.

6.0 CMS ANALYSIS METHODOLOGY

The intent of the CMS analysis is to analyze all reasonable available travel demand reduction and operational management strategies for the corridor. This is accomplished through an analysis (both quantitatively and qualitatively) of existing and projected traffic conditions in the corridor and evaluation of the impacts of various congestion management system strategies. The analysis demonstrates how effective such strategies are in eliminating the need for additional SOV capacity in the corridor. If the analysis demonstrates that additional SOV capacity is warranted, then reasonable strategies to manage the facility effectively (or to facilitate its management in the future) will be incorporated into the proposed facility or recommended for further action.

Preparation of the CMS analysis will be done in accordance with DVRPC requirements. In preparing the CMS study, the following methodology has been utilized in determining a reduction in congestion due to the outlined strategies:

6.1 Project Initiation

A steering committee was formed to coordinate the work performed and to obtain input from other key regional transportation agencies. This committee includes representatives from NJDOT, DVRPC, Mercer and Middlesex Counties, Federal Highway Administration (FHWA), N.J. Transit, Federal Transportation Administration (FTA), West Windsor Planning Board, Princeton Regional Planning Board, Plainsboro Planning Board, Middlesex, Somerset, and Mercer Regional Council, Inc (MSM) and the Greater Mercer TMA. To date, four steering committee meetings have been held.

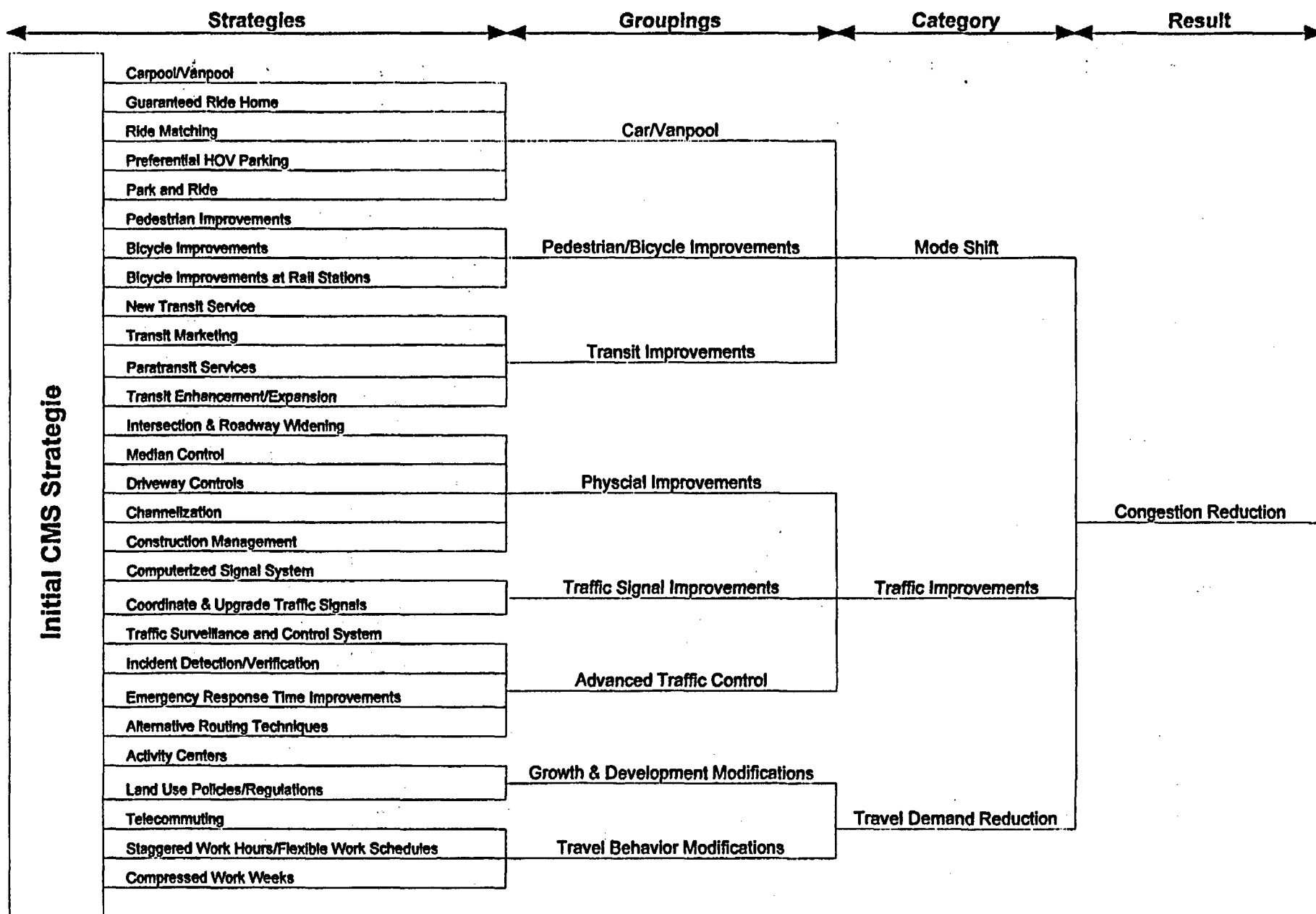
At the first meeting, the DVRPC presented a screening of improvement strategies, using a systems-wide approach, to identify applicable strategies in the corridor. The committee discussed each strategy and based on local considerations evaluated the study needs. Each strategy was categorized into three designations of study types which include quantitative, qualitative and not applicable to the study area. Table 6-1 shows a list of the 37 strategies provided by DVRPC and the results of the first steering committee meeting relevant to the type of analysis to be performed for each strategy.

**TABLE 6-1
CMS STRATEGY IDENTIFICATION**

| Strategy | Type of Study | Coordinate with Strategy # |
|--|-------------------|----------------------------|
| Mode Shift | | |
| 1. Carpool/Vanpool | Quantitative | 2, 9, 11 |
| 2. Guaranteed Ride Home | Quantitative | 1, 9, 11 |
| 3. Paratransit Services | Quantitative | |
| 4. Transit Marketing | Qualitative | |
| 5. Pedestrian Improvements | Qualitative | |
| 6. Bicycle Improvements | Qualitative | 19 |
| 7. Park and Ride | Qualitative | |
| PARKING MANAGEMENT | | |
| 8. Parking Regulations/Ordinances | Not to be Studied | |
| 9. Preferential HOV Parking | Quantitative | 1, 2, 11 |
| TDM | | |
| 10. Transportation Management Associations (TMA) | Qualitative | |
| 11. Ride Matching | Quantitative | 1, 2, 9 |
| 12. Telecommuting | Quantitative | |
| GROWTH MANAGEMENT | | |
| 13. Activity Centers | Qualitative | 14 |
| 14. Land Use Policies/Regulations | Qualitative | 13 |
| ACCESS MANAGEMENT | | |
| 15. Median Control | Qualitative | |
| 16. Driveway Controls | Qualitative | |
| TRANSIT SERVICE/OPERATIONS IMPROVEMENTS | | |
| 17. Transit Coordination | Not to be Studied | |
| 18. New Transit Service | Quantitative | |
| 19. Bicycle Improvements at Rail Stations | Qualitative | 6 |
| 20. Transit Enhancement/Expansion | Qualitative | |

**TABLE 6-1
CMS STRATEGY IDENTIFICATION**

| Strategy | Type of Study | Coordinate with Strategy # |
|--|-------------------|----------------------------|
| TRAFFIC OPERATION IMPROVEMENTS | | |
| 21. Intersection & Roadway Widening | Quantitative | 22 |
| 22. Channelization | Quantitative | 21 |
| 23. Traffic Surveillance and Control System | Quantitative | |
| 24. Ramp Metering | Not to be Studied | |
| 25. Computerized Signal System | Quantitative | 27 |
| 26. Elimination of Bottlenecks | Not to be Studied | |
| 27. Coordinate & Upgrade Traffic Signals | Quantitative | 25 |
| 28. One-way Streets | Not to be Studied | |
| INCIDENT MANAGEMENT | | |
| 29. Incident Detection/Verification | Qualitative | 30, 31 |
| 30. Emergency Response Time Improvements | Qualitative | 29, 31 |
| 31. Alternative Routing Techniques | Qualitative | 29, 30 |
| 32. Construction Management | Qualitative | |
| ALTERNATIVE WORK HOURS | | |
| 33. Staggered Work Hours/Flexible Work Schedules | Quantitative | 34 |
| 34. Compressed Work Weeks | Quantitative | 33 |
| TRANSIT CAPITAL IMPROVEMENTS | | |
| 35. Expand Parking at Rail Stations | Not to be Studied | |
| INTELLIGENT TRANSPORTATION SYSTEMS | | |
| 36. Traveler Information Services | Not to be Studied | |
| GENERAL PURPOSE LANES | | |
| 37. SOV Roadway Widening | Quantitative | |



Strategy Flow Chart

Figure 6-1

As the CMS process evolved, the grouping of the strategies was modified to help better evaluate the potential benefits of such strategies. Upon further examination of the 29 remaining strategies to be evaluated, it was concluded that these strategies could be organized into 8 groups. These eight groups include a car/vanpool program, pedestrian/bicycle facilities, transit improvements, physical improvements, traffic signal improvements, advanced traffic control, travel behavior modifications and growth and development modifications. From these 8 groupings three distinct categories of strategies can be formed. These categories are Mode Shift, Traffic Improvements and Travel Demand Reduction. Figure 6-1 illustrates the strategy groupings and their relationship to the grouping in a flow chart format. In addition, Figure 6-2 exhibits the relationships between the strategy groupings and the different agencies facilitating the CMS process.

6.2 Evaluation Methodology

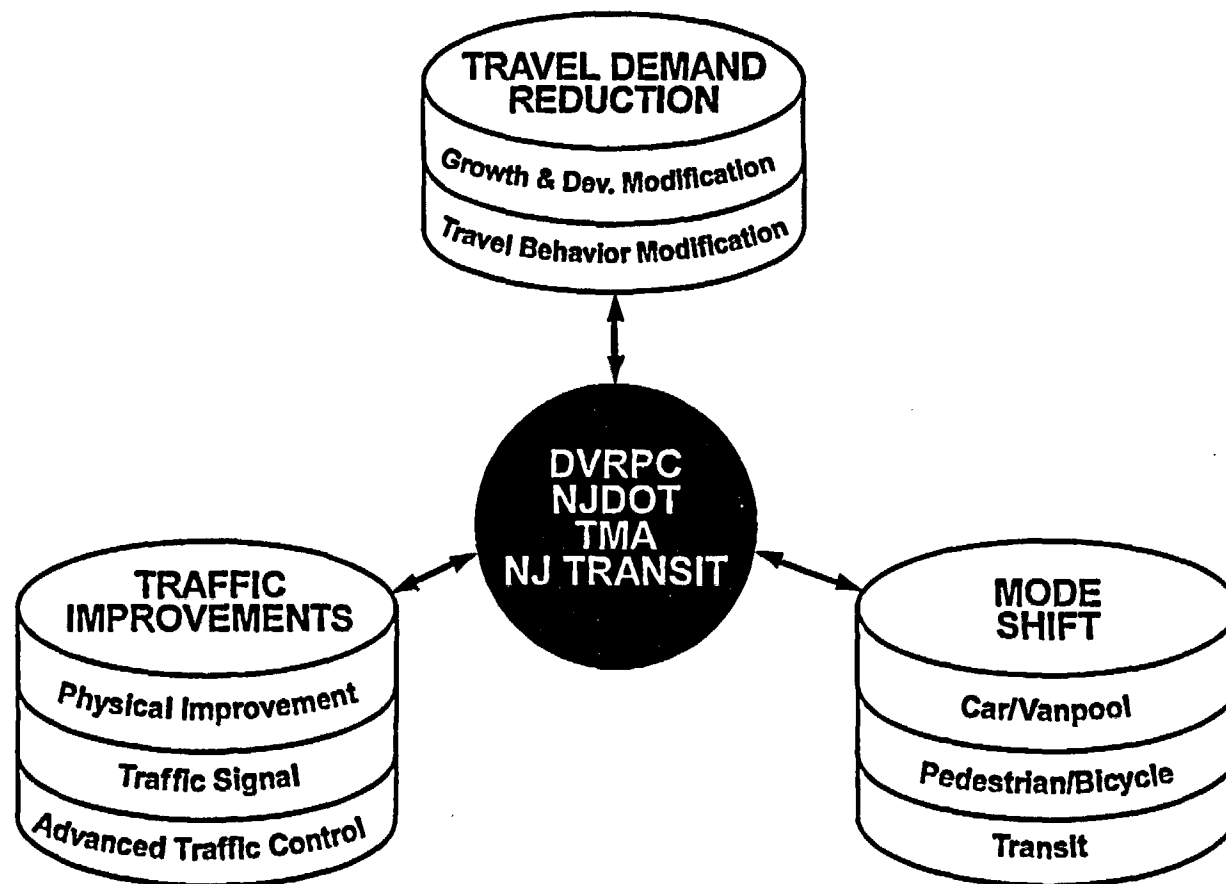
The DVRPC region consists of a total 72 planning districts. These districts are used as the basic analysis zones in the regional model. The Penns Neck traffic impact corridor is only included within one of these districts (#57) as shown in Figure 6-3. County districts are then broken down into traffic analysis zones to replicate the study area. See Figure 6-4. For the purposes of this study, district 57 has remained intact and is not separated into smaller traffic analysis zones. This was done to take into account the full effects of the project area. Figure 6-5 shows the roadway network within the analysis zones. This will provide the best representation of the project area including Route 1, Washington Avenue and the proposed improvement.

Quantitative Analysis

With the strategies identified and categorized into the level of analysis to be performed, the methodology to evaluate each strategy was developed. The first type of analysis to be performed will be a quantitative study. This type of analysis will use specific data and documented means such as the Regional Transportation Model developed by DVRPC and computer programs to analyze each strategy or a group of strategies by one or a combination of the following means:

1. To evaluate the strategies, one tool which has been utilized is the Travel Demand Management (TDM) Evaluation Model developed by the COMSIS corporation. The model was developed in the late 1980's drawing upon nationwide research in TDM. A version of this model was sponsored by FHWA in 1993 which was available to the public to help States and Metropolitan Planning Organizations (MPO's) evaluate transportation strategies with respect to estimates in a reduction of vehicle trips and Vehicle Miles Traveled (VMT).

The TDM model was developed to address employer-based strategies such as transit, carpool/vanpool, and alternative work schedules including flexible and staggered work hours, compressed work weeks and telecommuting. Additionally, the model will evaluate area wide applied strategies such as regulatory requirements, transit service improvements, and High Occupancy Vehicle (HOV) priority lanes.



1990 COUNTY PLANNING AREAS AND EXTERNAL CORDON STATIONS

County Planning Areas 1-72
External Cordon Stations 1396-1509

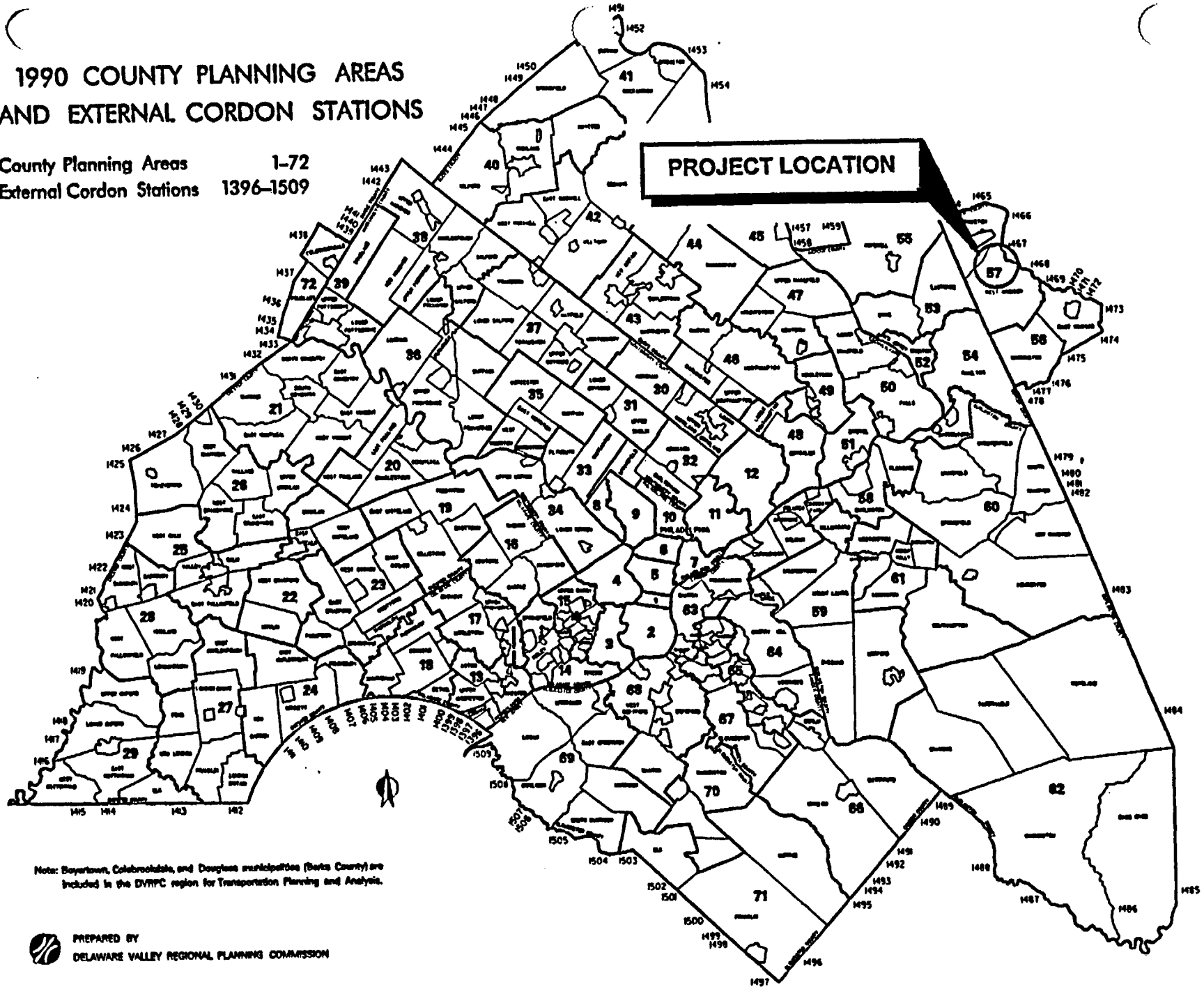
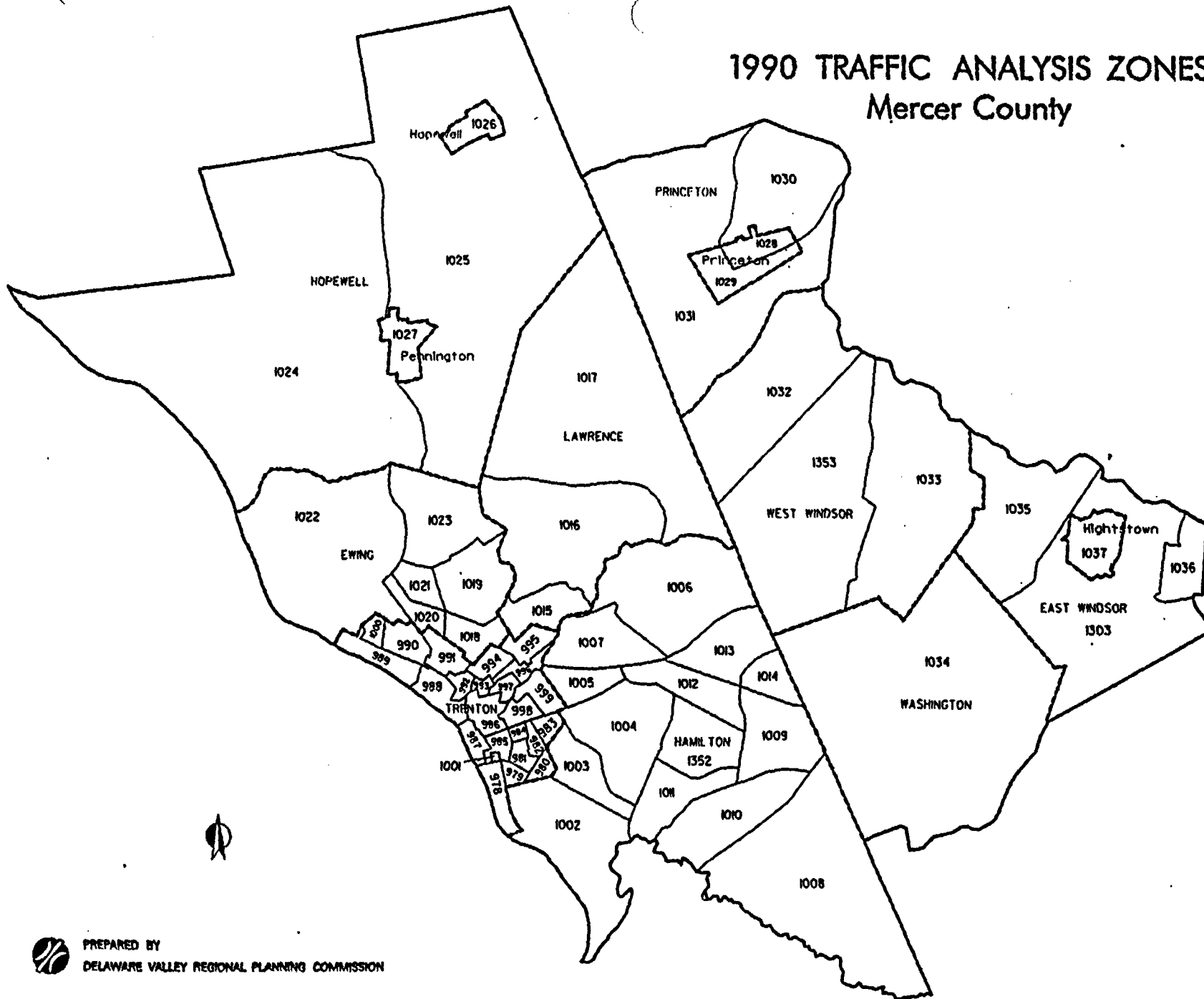


FIGURE 6-3

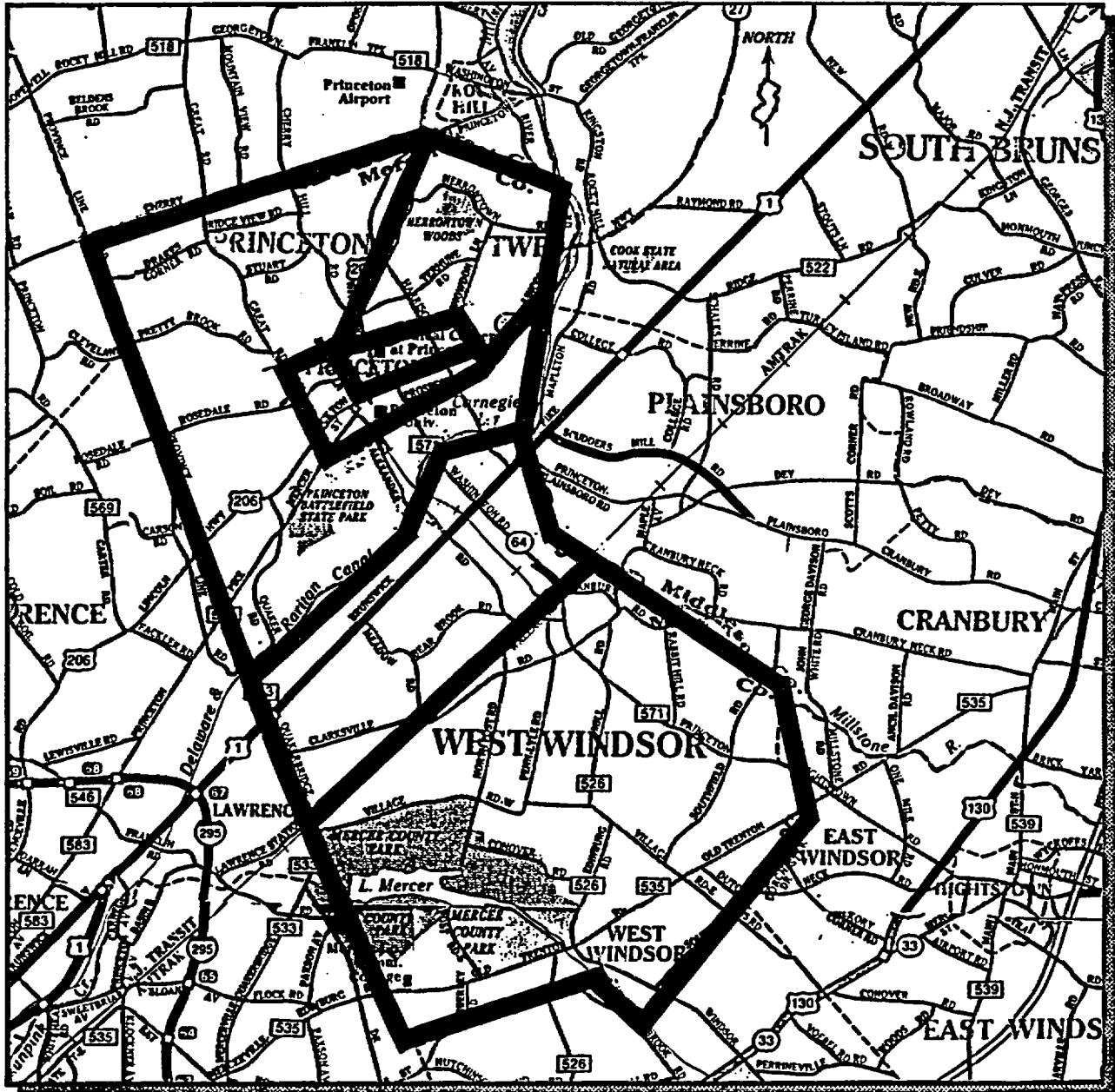
1990 TRAFFIC ANALYSIS ZONES Mercer County



PREPARED BY
DELAWARE VALLEY REGIONAL PLANNING COMMISSION

FIGURE 6-4

*Route 571 - Penns Neck Area
Congestion Management System*



ROADWAY NETWORK WITH TRAFFIC ANALYSIS ZONES
FIGURE 6-5

Model input consists of trip tables for home-based person trips, home-based vehicle trips and home-based transit trips provided by DVRPC's TRANPLAN trip tables. The model uses a series of computer spreadsheets where information on the type and scope of strategy, level of program (voluntary/mandatory) and type and size of employer. All assumptions to be used in this development will be consistent with those employed in DVRPC's requirements. Output of the model consists of both tabular and graphical reports which characterize the effectiveness of a strategy or group of strategies. It does this through such measures as modal split, vehicles occupancy, VMT and number of person trips and vehicle trips. Due to the location of the project area and the fact that the DVRPC regional transportation model is unfocused through the project area, this analysis was used as a secondary tool.

2. Congestion Mitigation/Air Quality (CMAQ) Program is an analysis tool used by the Pennsylvania Department of Transportation (PennDOT) to estimate travel and transportation system impacts. In discussions with DVRPC, it was recommended that as many strategies or groups of strategies be evaluated using this methodology. This was done to provide an alternative analysis to the TDM evaluation model which bases the estimated benefits in travel reduction through use of the DVRPC regional transportation model. As previously discussed, DVRPC's regional model has limitations regarding the location of this project. The CMAQ program calculates the change in vehicle trips and VMT by estimating conditions prior to the implementation of a strategy or group of strategies.
3. Conventional traffic engineering analyses, such as capacity and level of service analyses using the principals outlined in the 1994 Highway Capacity Manual. Tools to be utilized will include the Highway Capacity Software (HCS94), Passer II or Transyt-7F.

It is anticipated that strategies analyzed in this fashion may only result in small reduction in congestion that may be too fine to measure using available techniques. Therefore, as discussed above, the Committee has determined those strategies may be grouped and evaluated collectively.

In looking at certain strategies, DVRPC requested that Route 1 also be considered in the analysis. The CMS analysis has focused on the project area but the regional strategies such as a Car/Vanpooling Program or Park and Ride lots will consider effects to Route 1. This analysis will depict the overall effectiveness of CMS strategies with regard to the reduction of traffic on Route 1 such that capacity along Washington Road may improve, specifically at the intersection of Washington Road and Route 1.

Qualitative Analysis

The Second type of analysis to be performed will be that of a qualitative analysis. This type of analysis will rely on existing studies that have been performed in the project corridor and are approved by the applicable jurisdiction and national or regional statistics which have been published by industry accepted agencies such as ITE, AASHTO and FHWA.

6.3 Public Involvement

To further tailor a CMS program to the project area, a public meeting was held on November 5, 1997 in West Windsor Township. The purpose of this meeting was to introduce the project to the public and present the preliminary results of the strategy evaluation. Approximately 100 people attended the meeting. A formal presentation was given, followed by a question and answer period. In general, residents are in agreement that congestion is severe and an improvement in the roadway network is needed. DVRPC distributed a survey requesting public opinion regarding preferences among the CMS strategies discussed previously. See the Appendix for a copy of the survey. Results of the survey have been tabulated by DVRPC and categorized into 5 groups from very high support to not supported. These results are shown in Figure 6-6 and graphically in Figure 6-7.

The survey also sought additional comments regarding the CMS study or other aspects of the project. Most of the comment at the public meeting focused around the following items:

- Pedestrians and Bicycles
- Regional Traffic Issues
- Local traffic Issues
- Truck Traffic
- Better Utilization of the Dinky Right-of-Way
- CMS Study too Narrowly Focused
- Depressing Route 1 at Washington Road

At the third Steering Committee meeting, the committee reviewed each of these concerns and developed an action item as part of the CMS process commitments. This will be discussed as part of the CMS commitment presented in Section 8 of this report.

Summary of Public Support of CMS Strategies

from Washington Road/US 1 CMS Study Survey

(November 5, 1997 Public Meeting)

Very High Level of Support

Bicycle Improvements
Bicycle Parking at Rail Stations
Improved Transit Service
Pedestrian Improvements

High Level of Support

Carpool/Vanpool Programs and Promotion
Staggered Work Hours Flexible Work Schedules
Transit Marketing
Park-and-Ride
Land Use Policies/Regulations
Compressed Work Weeks
Coordinate & Upgrade Traffic Signals
Telecommuting
Ride Matching
Computerized Signal System
Preferential High Occupancy Vehicle (HOV) Parking

Moderate Level of Support

Guaranteed Ride Home
Paratransit Services
Transportation Management Assoc. Services and Programs
Activity Centers (planned multi-use development)
Traffic Surveillance & Control System
Alternative Routing Techniques

Some Support

Incident Detection/Verification
Emergency Response Time Improvements
Driveway and median control
Channelization

Not Supported

Intersection & Roadway Widening

FIGURE 6-6

CMS Strategy Ranking

from tabulated results of survey

CMS Strategies

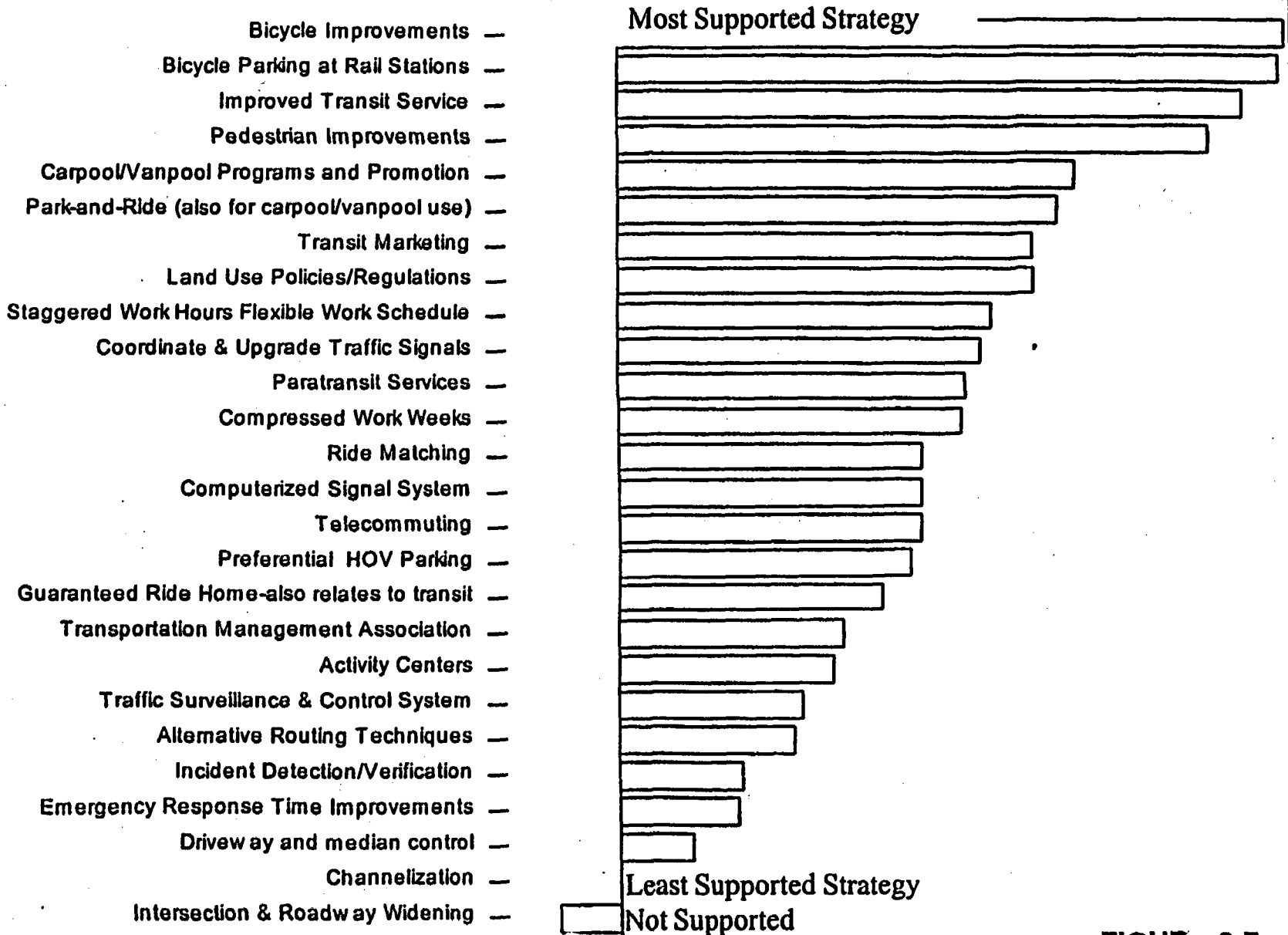


FIGURE S-7

7.0 CMS STRATEGY ANALYSIS

As presented earlier in this report, traffic volumes during the peak periods and throughout the average day are projected to exceed capacity. Local traffic activity will continue to compete with regionally oriented through traffic of Route 1. These conditions will adversely impact operations resulting in congestion and delays.

To determine the most appropriate improvement measure, a CMS analysis was conducted. The intent of the CMS analysis is to evaluate all reasonable available travel demand reduction and operational management strategies for the corridor. This is accomplished through an analysis (both quantitatively and qualitatively) of projected traffic conditions in the corridor and evaluation of the impacts of various congestion management system strategies. The analysis demonstrates how effective such strategies are in eliminating the need for additional Single Occupancy Vehicle (SOV) capacity in the corridor. If the analysis demonstrates that additional SOV capacity is warranted, then reasonable strategies to manage the facility effectively (or to facilitate its management in the future) will be incorporated into the proposed facility or recommended for further action. The following sections describe the analysis of those strategies studied for the Penns Neck Area.

As previously discussed, the Route 571 improvements triggers the need for the CMS. However in performing the CMS study, strategies are to be evaluated on an area wide bases. The analysis is to be conducted relative to where congestion is most prevalent. Therefore, although the proposed project has triggered the CMS, the study has not been confined to Route 571.

7.1 Mode Shift

Increases in capacity and reductions in congestion can be achieved by reducing vehicular travel. Work-based travel is the most consistent daily trip type and has the greatest potential for reductions. Providing a shift in the mode of travel is one of the more effective ways to realize such reductions. Discussed below are the analysis of strategies aimed at determining whether such measures will provide the needed reduction in vehicle trips.

Carpool/Vanpool

Increasing ridesharing is difficult. People want the flexibility to leave home and work when they wish to, and have a vehicle available for running errands and in case of emergencies. Other factors that discourage ridesharing include child care needs, free parking at work sites and the low cost of driving. However, for many, ridesharing can be a way to save commuting costs.

Carpooling and Vanpooling is primarily attractive to long distance commuters and are easier to form at locations with large employers. Average trip lengths for the Route 1 corridor are approximately 15 miles making this strategy well suited for the corridor. Within the Route 1 corridor, approximately 12% of work trips are through the use of carpools. To increase this

share, employers can promote ridesharing by designating an individual to coordinate the program, provide subsidies and/or provide information and ridematching capabilities. In modeling this strategy, it has been analyzed as a group with other strategies. These strategies include **Guaranteed Ride Home**, **Preferential HOV Parking** and **Ride Matching** services to increase the attractiveness of ridesharing to the motorist and its trip reduction potential.

In performing the analysis for this group, certain key assumptions had to be made. These assumptions relate to the employment make-up of the area and the level of participation the program can achieve. It is assumed that this type of program is most effective at large employment sites of 500 or more workers. Nationwide, approximately 25% of employment situations meet this criteria. This percentage was used in the analysis performed for this project. The level of participation assumed in the analysis was that of a low and medium effort. Additional assumptions are shown on the analysis work sheets shown in the Appendix.

Results of the analysis showed a potential range of reduction in work trips of 1.7% to 3.7%. This percentage equates to the elimination of 321 to 704 vehicle trips during both the AM and PM peak hours. This reduction in vehicle trips was then reviewed with respect to the effects to the specific roadways. As previously discussed, this strategy is a regional strategy which will have its primary benefits to the Route 1 corridor. To apply the reduction of vehicle trips to the specific roadway corridors, the traffic volumes of each was reviewed. The share of Route 1 traffic to Washington Road traffic is approximately 85% and 15% respectively. Using these percentage splits, the number of eliminated trip on the specific roadway could then be calculated. As a check to the determination of the eliminated trips with the implementation of a car/vanpool program, the Strategy Evaluation Handbook (Reference #10) developed by NJDOT was checked for input. As outlined in this document, the upper limit for vanpooling in reducing vehicle trips is 2.2 percent of all trips. This percentage may be slightly higher where more large employers are located. This reduction percentage is within the range found in the analysis for the Penns Neck area.

In order to facilitate the car/vanpool program, the use of a **Transportation Management Association (TMA)** was investigated. TMA's were created to promote partnerships between government and businesses to solve transportation problems. By supporting the TMA's, employers can receive assistance in the task of influencing and alerting employees' of the commuting options. The Greater Mercer and Keep Middlesex Moving are TMA's which have presently established such programs in Mercer and Middlesex Counties. However, for the purposes of this report in establishing the effects of a TMA's on congestion, no separate reduction in vehicle trips was considered. Generally TMA's are supportive of other CMS strategies. Support of the local TMA's is critical to the success of any program if further implementation of a car/vanpool program is to continue. This will ensure that the benefits estimated for the specific strategies be realized.

Park-and-Ride Lots are areas where individuals park their cars or are dropped off to use an

adjacent transit line or carpools. The existence of such facilities enables commuters to share a portion of their work trip with others traveling by auto, paratransit or public transportation. Park-and-ride lots that are secure and free of charge increase the convenience of those who choose to carpool, vanpool or take transit.

In performing the analysis for this strategy, the Princeton Area Transportation Study (Reference #8) was utilized in determining possible lot location and size. Based on an analysis of employee residence locations, a screening was conducted by location, access and market potential. Potential sites determined were:

- I-95 Corridor (Scotch Road Interchange area)
- US 130/I-295 (Rising Sun Road area)
- US 1 North Corridor (Adams Lane area and/or Johnson & Johnson/Squib area)

Lot sizes for each of the above locations were estimated to be 100 spaces each and assumed to be 100% full for the purposes of the analysis. Additionally, to obtain the maximum benefit of each lot it was assumed each lot would be serviced by transit to increase the attractiveness of lot usage.

To estimate the effectiveness of the Park-and-Ride Lots in reducing congestion in the project area, the CMAQ program was utilized. The results of the CMAQ analysis were applied such that the reduction in vehicle trips created from the three lots above would be only applied to Route 1. The results of the analysis showed a reduction of less than 1% in work trips along Route 1. The total number of trips eliminated is approximately 70 vehicles in both the AM and PM peak hour.

Pedestrian and Bicycle Improvements

Pedestrian facilities such as sidewalks, pedestrian overpasses and walkways are typical pedestrian facilities. One important role for pedestrian facilities is to provide connectivity to transit services. Pedestrian amenities for the project area are mostly limited to sidewalks that are required for subdivision approval and are not part of a rational, comprehensive system designed to link different land uses and provide alternatives to driving.

According to the 1990 Nationwide Personal Transportation Study, the length of a walking trip for different purposes ranges from 0.4 to 1.0 mile. Typically, through the Route 1 corridor trips are made over long distances. Pedestrian alternatives in the corridor would not address regional travel (through trips) and truck-based goods movements. However, with the proximity of the Princeton Junction Train Station and the Dinky Rail Line, some benefit may be realized along Washington Road. To achieve such benefits, special consideration should be given to providing pedestrian facilities to connect the community destinations, transit facilities and make recreational facilities accessible and convenient.

Bicycle facilities may be utilized as a primary mode directly connecting origins and destinations, as a feeder providing a connection to transit modes or for circulation at activity centers. In evaluating this strategy, Bicycle Improvements at Rail Stations was included in the analysis. A key factor in deciding whether to use bicycles is the trip distance. According to the 1990 Nationwide Personal Transportation Study, the length of a bicycle trip for work trips is 2.1 miles. As far as an alternative to regional traffic, bicycle improvements would not be appropriate. However, similar to the discussion for pedestrian facilities the proximity of the Princeton Junction Train Station and the Dinky Rail Line some benefit may be realized along Washington Road. To achieve such benefits, special consideration should be given to providing bicycle facilities to connect the community destinations, transit facilities and make recreational facilities accessible and convenient. Bicycle storage facilities should be provided at the destinations.

As an alternative to help meet the capacity needs for the Penns Neck area, pedestrian and bicycle facilities would not be appropriate. However, comment from the public meeting showed strong support for such facilities. Implementation of such features would not so much relieve congestion through the project area but would improve the quality of life. The analysis performed in the study has focused on trip reduction with respect to work trips. However, the majority of uses of such facilities would be recreational.

Presently, NJDOT is conducting a pedestrian/bicycle mobility study which includes the Penns Neck area. It is recommended that findings from this study be further advanced to examine a series of rational alternatives to provide improved pedestrian and bicycle access between Princeton and Penns Neck. Local representatives should be brought into the process in order to help flush-out the most viable alternatives. For instance, representatives of Princeton recommended that there may be an opportunity to provide a pedestrian/bicycle link along the Dinky railroad corridor.

Transit Improvements

Transit service has been one of the strategies considered in an effort to improve travel conditions, reduce congestion and meet the need for future traffic growth in the project area. Through the project area, as documented in Section 2 of this report, existing transit services are extensive in the project area and include both bus and rail service. Due to this extensive service, this study will consider any New Transit Service to be implemented as an enhancement or expansion of the existing service. Results of the analysis have been considered under the strategy Transit Enhancement/Expansion for reducing congestion and vehicle trips. Several transit options have been investigated and a discussion of the applicability to the study area is discussed below.

Transit Coordination involves cooperation in the delivery of transit services so as to enhance services and make them more attractive to transit riders. In evaluating this strategy, the Steering Committee determined at the first committee meeting that the strategy Transit Enhancement/Expansion is a more appropriate strategy. Any reduction in congestion would therefore be included within that strategy. Transit Coordination will therefore not be analyzed

separately.

Transit Enhancement/Expansion involves increasing transit capacity by expanding the number of vehicles operated, constructing new facilities and providing better overall coordination between systems. There are many variations of providing such improvements. For the purposes of this report, each condition was examined individually. This would be an overestimate of possible users in that some enhancements/expansions are drawing from the same pool of potential users. Discussed below are those options which were considered in the evaluation of providing an enhanced or expanded transit service.

- Hamilton Train Station - N.J. Transit is presently constructing a train station along the Northeast Corridor line. The station is located in Hamilton Township in the area of I-295 off Sloan Avenue. Preliminary estimates have been made to assess the impacts construction of this train station will have on the roadway network surrounding the Princeton Junction train station. N.J. Transit estimates that the Hamilton Train Station will attract approximately 980 riders per morning peak period. This translates into approximately 800 parking spaces that are expected to be freed up.
- Interim stop along the Dinky Railroad (Faculty Road) - As part of the CMS analysis process, the steering committee determined that an additional stop along the Dinky rail line was worthy of consideration. The initial reasons for consideration were to provide additional parking for permit holders to free up spaces for daily travelers at the Princeton station and to serve developments in the stations vicinity with the rail. As documented in the Princeton Area Transportation Study (Reference #8), a 50 space parking lot was proposed. It was estimated that with the addition of this interim Dinky station during the peak hour a reduction of 14 trips would be realized.

New Jersey Transit has reviewed this proposed station and has made the following observations:

The 2.7 mile Princeton Branch is a single track line served by one train. With this constraint the peak period schedule has been defined to meet as many Princeton Junction arrivals and departures as possible, with preference for peak direction trips. Currently the peak periods feature several stretches of continuous shuttle operations, up to 77 minutes, without a minute of recovery time. A new station would add about 1 to 1.5 minutes per trip, which would result in an added 2 to 3 minutes to each round trip. This would result in less peak service for passengers and as a result fewer Northeast Corridor trains would have connection with shuttle trains to/from Princeton. Such a change would assuredly draw customer Criticism.

By adding a second train to the Princeton Branch current service levels could be maintained, but this would involve a significant investment in rail equipment and infrastructure (a mid-line passing siding), which we have not even begun to define.

- **West Trenton Rail Line** - At the November 5, 1997 public meeting residents expressed an interest in the effects of the West Trenton rail line may have on the project area if put back into service. As documented in the November 14, 1997 Star Ledger, N.J. Transit has initiated a passenger rail line study to examine the potential of restoring service from West Trenton to Bound Brook.
- **Increase Bus Service** - In examining the effects of increased bus service the Princeton Area Transportation Study (Reference #8) was utilized. Four potential bus routes were considered for implementation and include:
 - A - Princeton Borough downtown circulation and feeder to the Dinky station
 - B - Hightstown to Princeton Junction feeder
 - C - North Brunswick to Jersey Avenue station feeder
 - D - Hamilton to Route 1 corridor

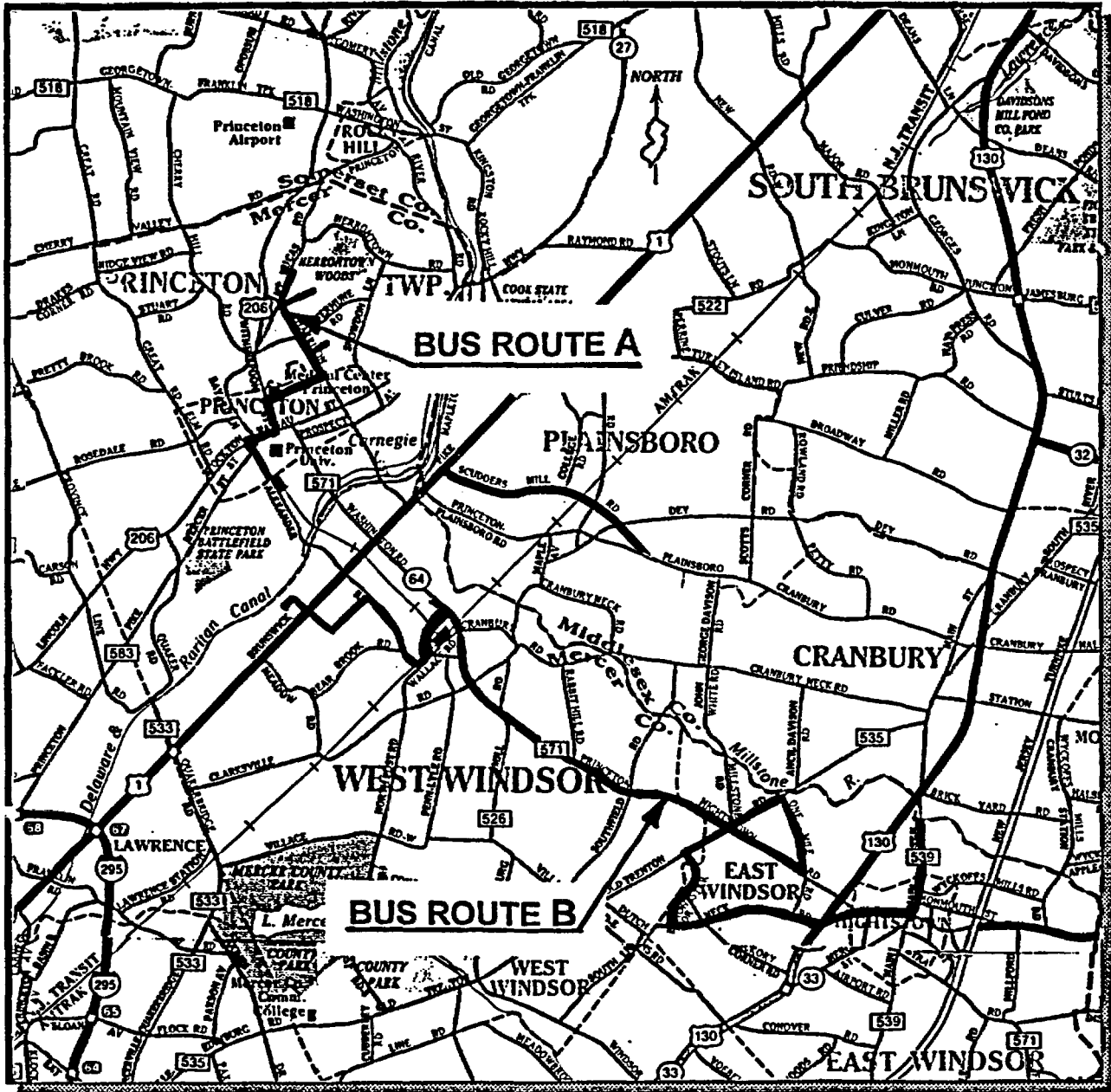
Figure 7-1 depicts the bus routes for services A & B. Bus service under Route C serviced North Brunswick and New Brunswick Townships and was considered too far north of the project area to effect travel patterns along Washington Road. Service D would provide transfer opportunities from N.J. Transit's Mercer County routes. The route would serve Route 1 and West Windsor Township and either feed the Dinky or Princeton Junction train station. Such a service could possibly service the new Hamilton rail station and the Quakerbridge Mall.

In analyzing the effects of such bus service, potential benefits to the project area could only be realized from services B & D. Ridership estimates for these two routes during the AM peak period (6:30 - 8:30 am) were projected to be 245 persons for service B and 134 persons for service D.

Paratransit Services cover a wide variety of transit services, usually in smaller vehicles, often without fixed routes or schedules, and for a variety of special purposes. These services can act as feeders to long-haul bus and rail for pick-up of reverse commuters. Paratransit vehicles can also be used to bring commuters to mid-day activities such as restaurants and shopping. Such a service is important to encourage ridesharing and traditional use of transit.

Currently, there are paratransit services being operated in the area. New Jersey Transit is operating a pilot project called Wheels, which is a flexible fixed route van service. Service is provided from Lawrence and West Windsor Townships to the Princeton Junction Train Station, Carnegie Center, and Nassau Park during morning and evening peak hours. Similarly in New Brunswick, service is provided which picks-up passengers at the train station during the morning peak and provides service to area businesses north of New Brunswick. The reverse service is provided in the evening peak. This is a reservation based service and reservations must be made the day before.

Route 571 - Penns Neck Area
Congestion Management System



BUS ROUTES
FIGURE 7-1

The Greater Mercer TMA also administers the Train Link Shuttle. This is a shuttle system providing service from the Princeton Junction Train Station to businesses along Scudders Mill Road and College Road East. In addition, a host of shuttles are operated by local businesses and town centers providing service to the Princeton Junction Train Station.

In addition to the expansion of these services, providing a "Dial-a-Commute" type of service to the residential areas (Princeton Landing and Canal Point) was investigated. This type of program would provide direct service to residents who may not have any other option but car to get to the train station or bus stop. This type of program is effective where development area are of a campus type style generating densities too low to support traditional mass transit.

In performing the analysis for expected ridership of such services, the Princeton Area Transportation Study (Reference # 8) was utilized. Increasing existing services, which primarily addresses a reverse commute, showed an increase of 83 users. This result would primarily affect congestion on Route 1. The second type of service which is geared towards the residential communities in providing service to Princeton Junction Train Station for commuters bound for New York City and Philadelphia would result in an estimated increase of 94 riders. This increase in ridership would provide relief to congestion along the local roadway network.

Efforts to publicize the existence of transit of various special programs can be viewed as part of a Transit Marketing strategy. As outlined in the Strategy Evaluation Handbook (Reference #10), a 0.5 percent increase in transit usage is estimated as the result of a "typical" package of marketing and information actions. This translates to a less than 0.1% reduction in work trips.

7.2 Traffic Improvements

The capacity of a traffic facility is the measure of its ability to accommodate a stream of moving vehicles. It is a rate instead of a quantity. All flow rates can be effected by a number of factors including the roadway, vehicle performance characteristics, operational controls, and environmental elements. The following discussion considers ways to increase the flow rate without increasing capacity. With the implementation of this type of improvement, it should be noted that vehicle trips are not reduced, however, delay may be reduced and levels of service improved.

Physical Improvements

One of the first physical improvements that was investigated was Intersection and Roadway Widening. This is a strategy to widen existing lanes, to provide shoulders where there are no shoulders and/or widen existing shoulders to increase the traffic flow rate. According to the survey distributed to the public at the November 5, 1997 meeting, this strategy was not supported by local residents. Similarly, Channelization was also investigated to separate conflicting traffic movements thereby reducing the delay. To do this would require intersection widening along Route 571. At the public meeting this strategy was the least supported strategy. In addition, widening of intersections along Route 571 may diminish the character of downtown Millstone.

As part of the traffic analysis performed for the Penns Neck project, roadway improvement projects were considered in the development of traffic volumes and future operational conditions. Results from this analysis showed poor levels of service and excessive delay.

A cause of congestion on roadways with uncontrolled access is vehicles turning across the centerline to and from adjacent land uses. Controlling access is an operational improvement strategy that has the potential to increase mobility and reduce congestion. Generally, such control is most effective where significant development has not occurred. Implementation of such a measure can involve concentrating movements generated by several land uses at a single driveway or require that ingress and egress be conducted from an adjacent signalized intersection controlled side street. The result is reduced vehicle friction and better mobility. To reduce congestion the strategy, Median Control was investigated. Presently, Route 1 has median control in place. It is a 3 lane arterial with a center median barrier prohibiting crossing of the roadway centerline. Washington Road is a two lane arterial consisting primarily of residential properties to the east and University property to the west. Prohibiting crossing of the roadway centerline along Washington Road is not an appropriate strategy given the local conditions. Given these conditions providing median control through the project area does not appear to be appropriate and would provide minimal reduction in congestion.

Similar to a strategy for median control is Driveway Controls. This strategy addresses congestion from vehicles turning from or entering the roadway from adjacent land uses. Presently, along Route 1 driveway controls are in place. Adjacent land uses have common driveways and are often only permitted exiting the facility at a side street where available. As stated above, Washington Road consists primarily of residential properties. Providing driveway control through this area is not an appropriate strategy given the local conditions. Given these conditions providing driveway control through the project area does not appear to be appropriate and would offer only minimal reduction in congestion.

Traffic Signal Improvements

Computerized Signal System and Coordinate and Upgrade Traffic Signals are similar and have therefore been reviewed as one strategy. This type of system allows for control of individual and/or groups of traffic signals. NJDOT is presently implementing Traffic Signal Contract #10 which extends from New Brunswick to Trenton. This system will provide a fiber optic interconnection of traffic signals along Route 1 and include updated timing plans, Variable Message Signs, CCTV cameras and a Highway Advisory Radio system. Control of the system will be through a central command center allowing the intersection operations to respond to changing traffic conditions given local conditions.

The ideal saturation flow rate for a signalized intersection is 1900 passenger cars per hour of green time per lane (pcphgpl). Presently, the green time split between Route 1 and Washington Road is about 70/30, respectively. This will reduce the ideal flow rate by 30% on Route 1 and 70% on Washington Road. In addition, if factors for trucks, lost time due to clearance phases and

response start up times will further reduce the flow rate. Early studies on implementing such a system have shown an 8-15% reduction in delay. Reduced emissions are also achieved by allowing platoons of vehicles to travel in the traffic stream minimizing disruptions in flow due to a red signal. This allows for a smoother flow of traffic through a designated area.

Construction Management addresses disruption of traffic flow due to maintenance and construction operations that must take place periodically. In addition to a reduction in capacity as a result of a loss of roadway space, additional capacity is lost due to restricted roadway use. Construction management strategies may include such activities as maintaining a given number of lanes, restrict work to off-peak hours or phase work to minimize traffic impacts. This type of coordination is presently employed by the transportation agencies through the project area. In addition, any construction impacts are of a non-recurring type of congestion and does not provide relief to the everyday congestion problems that exist in the Penns Neck area.

Advanced Traffic Control

Congestion on a roadway network can be classified into two types: recurring and nonrecurring. Congestion that occurs at regularly at particular locations during certain times is recurring congestion while congestion caused by random events such as accidents, incidents, and special situations is nonrecurring congestion. Both types of congestion lead to driver frustrations. There is however, a difference. With recurring congestion drivers plan there trips according to the expected congested conditions. With nonrecurring congestion a trip which may normally be satisfactory could be detrimental in terms of delay. A **Traffic Surveillance and Control System** is primarily aimed at addressing traffic operations improvements along a highway, corridor or region. Incorporating communications networks and intelligent transportation systems offer technology based measures to reduce congestion. Many specific systems such as CCTV cameras, Variable Message Signs, and advanced detection systems as discussed above are presently being implemented by NJDOT under TSC #10.

Additionally, by coordinating personnel, equipment (such as closed circuit television cameras) and techniques, the strategy **Incident Detection/Verification** could help to facilitate early detection of incidents and provide a quick response to clear such incidents thereby limiting unnecessary delays. To enhance the effects of this strategy, **Emergency Response Time Improvements** and **Alternative Routing Techniques** were included as support strategies. Typically, such systems are used on limited access roadways to allow for possible diversions. This eliminates the condition where once a motorist has passed a certain portion of the roadway where there are no exits to divert to in order to avoid such delays. Currently, NJDOT is installing TSC#10, which includes the implementation of CCTV cameras, a Highway Advisory Radio System and a Variable Message Sign system along Route 1. This system will be controlled by a central command center and be able to monitor traffic activities throughout the Route 1 corridor to help provide relief from certain types of congestion.

An expansion of the system to include Washington Road was considered infeasible because it

is a local roadway consisting mainly of residential properties. Any installation of this type of surveillance system along such a roadway would be excessive. In addition, installation of CCTV cameras along any type of residential area often is often met with opposition due to concerns about privacy. Any further expansion of this type of system would not solve the need in meeting future traffic growth.

7.3 Travel Demand Reduction

Transportation Demand Management is designed to increase the efficiency of moving people by encouraging the use of other modes of transportation. Such programs are effective in developing travel alternatives, providing incentive/disincentives and establishing alternative work arrangements.

Travel Behavior Modifications

Increases in capacity and reductions in congestion can be achieved by reducing vehicle travel. Work-based travel is the most consistent daily type trip and has the greatest potential for reductions or adjustments. Alternative work hours is an employer based strategy where the employees' schedule is such that the peak times for roadway traffic may be avoided. **Compressed Work Weeks** is one such strategy. Compressed work weeks can be defined as a program where employers offer their employees the option to work either a 9-day/80 hour (9/80) schedule or a 4-day/40 hour (4/40) schedule. For the purposes of this report, a 4/40 schedule was assumed. This type of analysis will provide for a higher reduction in vehicle trips. In performing the analysis, the strategy for **Staggered Work Hours/Flexible Work Schedules** was included as a complementary strategy. To estimate the trip reduction potential of this strategy, assumptions on the level of effort were required. As previously discussed, a low and medium level of effort were considered. The analysis yielded a total reduction of 1% to 1.6% in work trips. This percentage equates to a reduction of 385 to 616 vehicle trips per day. The reduction in vehicle trips would primarily benefit Route 1. It is estimated that the trip reduction potential along Route 1 and Washington Road would be distributed approximately 85% along Route 1 and 15% along Washington Road.

Similarly, **Telecommuting** is a work based employer demand management program designed to reduce the number of work trips and the length of trips for those working at satellite centers. The fax machine, personal computer and modem are making it possible for employees to work at home or at work centers closer to their homes. As communication technologies improve, telecommuting could become a significant factor in reducing demand and congestion.

A recent survey found that six percent of Americans already telecommute. The benefits of telecommuting vary by how it is conducted. The greatest benefits are realized from employees who telecommute from home since they eliminate the work trip entirely. Measures to promote telecommuting include educating employers, establishing work centers and implementing tax incentives for companies with telecommuting programs.

The analysis yielded a total reduction of 0.9% to 1.4% in work trips. This percentage equates to a reduction of 332 to 532 vehicle trips per day. The reduction in vehicle trips would primarily benefit Route 1. It is estimated that the trip reduction potential along Route 1 and Washington Road would be distributed approximately 85% along Route 1 and 15% along Washington Road.

Growth & Development Modifications

The adoption and application of land planning or zoning requirements by local municipalities were also considered. By limiting the development to land use proposals that have low vehicle generation characteristics, or by regulating the density of site development vehicle trips can be reduced. However, this is a strategy that can only be implemented on a local level.

It has been estimated that growth in the project area is to expand significantly over the coming years. Presently, the project area consists of campus type developments. Many land development projects are already approved and committed to making it extremely difficult to realize the effects of implementing growth management policies in the near future. In addition, such a change in zoning would need to be performed on a regional basis to account for through trips. Specific strategies analyzed to achieve a reduction in generated trips is **Activity Centers**. This is designed to encourage more efficient patterns of retail or entertainment development. Development patterns surrounding the study area are well established. Similarly **Land Use Policies/Regulations** is designed to encourage more efficient patterns of residential or commercial development. Any change in zoning would be difficult to establish and but could have an effect on future vehicle trips.

Unless widespread and timely cooperation in the area and surrounding communities can be achieved and maintained, it is unlikely that development regulations will lead to significant reductions in future traffic in the area. Nevertheless, adoption of the principals of a growth management policy would certainly be a beneficial element in a complete package of managing future traffic conditions in the area.

7.4 Eliminated Strategies

As discussed previously, the steering committee reviewed the potential strategies for the Penns Neck area. During the review process, the steering committee found certain strategies were not applicable to the study area. In such cases, the strategy was not considered during the CMS process. Discussed below are those strategies which were eliminated from consideration and the reasoning for such exclusion.

Parking Regulations/Ordinances

Parking management programs, such as cash-out parking, are designed to provide incentive/disincentives that would reduce vehicle demand on the existing transportation system. In general, parking management strategies are most effective when implemented in dense Central Business Districts (CBD) that have limited parking. There are no CBD's within the study area

and parking is available. This type of strategy does not provide relief for through trips which is one of the main concerns through the project area. In discussions with the Steering Committee, it was determined that this strategy would not be included in the analysis.

Ramp Metering

Ramp metering is a flow management technique which, by controlling the rate of vehicles entering the highway, reduces congestion and improves flow on the highway. This involves the placement of a signal on an entrance ramp to stop for a specified amount of time before entering the highway. This eliminates platoons of vehicles attempting to merge into the traffic flow simultaneously. Washington Road and Route 1 are both arterial roadways with unlimited access. A ramp metering type of installation is not feasible for the project area. The steering committee therefore eliminated this strategy from the analysis process.

Elimination of Bottlenecks

Bottlenecks are areas where lane drops or constricts significantly reduce traffic capacity. Bottlenecks frequently occur at bridge crossings with narrow lanes and at entrance ramps with high traffic volumes. Intersections can also be considered bottlenecks, however, intersection improvements were previously discussed. This strategy was therefore eliminated from consideration by the steering committee.

One-way Streets

One-way streets are usually considered for corridor studies where two parallel streets are used to carry traffic in each direction. Washington Road is an arterial that has no immediate parallel route making one-way streets an unrealistic strategy in reducing congestion. The steering committee therefore eliminated this strategy from analysis.

Expand Parking at Rail Stations

In evaluating this strategy, the committee determined that expanding parking at rail stations within the study area (Princeton and Princeton Junction) may increase trips to the study area. Expanding parking facilities outside the study area, such as at Monmouth Junction train station would not have a significant impact on trips in the Penns Neck area. Additional parking which may be implemented due to the construction of an additional train station such as the Hamilton train station or an interim stop along the Dinky have been included under Transit Enhancement/Expansion. Therefore this strategy was eliminated from the study.

Traveler Information Services

Incorporating communications networks and intelligent transportation systems offer technology based measures to reduce congestion. Many specific systems such as CCTV cameras, Variable Message Signs, and advanced detection systems have been discussed under separate strategies. This strategy would provide up-to-date or real time information about transit operations or roadway conditions. For this strategy to be effective through the Route 1 corridor, the information would need to be supplied to the user before the trip is to begin. This type of

program is relatively new and to a large extent in the demonstration stages. Reliable information on their effectiveness is not yet available. The committee therefore eliminated this strategy from analysis.

Cumulative Effects of Strategies

Each of the strategies was evaluated individually or as a group. The results of this analysis were then combined to evaluate the total cumulative reduction in traffic and are shown in Table 7-1. It should be noted that this may be an overestimate, in that some of the strategies overlap and may not be additive. Strategies such as Telecommuting and Compressed Work Weeks are competing for the same pool of workers. The table below presents the total reduction in vehicle work trips during the peak hour. The percentages outlined below, although relatively low do represent measurable reduction in vehicle trips.

**Table 7-1
Summary of Results**

| STRATEGY | RANGE OF TRIP REDUCTION |
|------------------------------------|------------------------------------|
| MODE SHIFT | 2.7% to 5.5% |
| Car/Vanpool | |
| Pedestrian/Bicycle Improvements | |
| Transit Improvements | |
| TRAFFIC IMPROVEMENTS | 0% |
| Physical Improvements | |
| Traffic Signal | |
| Advanced Traffic Control | |
| TRAVEL DEMAND REDUCTION | 1.9% to 3.0% |
| Growth & Development Modifications | |
| Travel Behavior Modifications | |
| TOTAL CHANGE | 4.6 - 8.5% |

7.5 Conclusion

As can be seen above, implementation of CMS strategies to reduce traffic demand will provide a reduction of 4.6% to a 8.5% reduction in work trips through the study area. Given the traffic demand in the area, congestion management strategies alone will not meet the need in reducing congestion. Figure 7-2 shows the relationship between existing capacity, the reduction in vehicle trips due to implementation of CMS strategies and the unmet traffic demand. It is therefore recommended that the additional SOV capacity improvement be made to help alleviate congestion. The percentages outlined above, although relatively low do represent measurable reduction in vehicle trips. Implementation of traffic management strategies along with the construction of a Bypass will provide for the tools needed to help relieve congestion through the Penns Neck area.

US 1/Washington Road

Traffic Demand

Morning Peak Hour(2022)

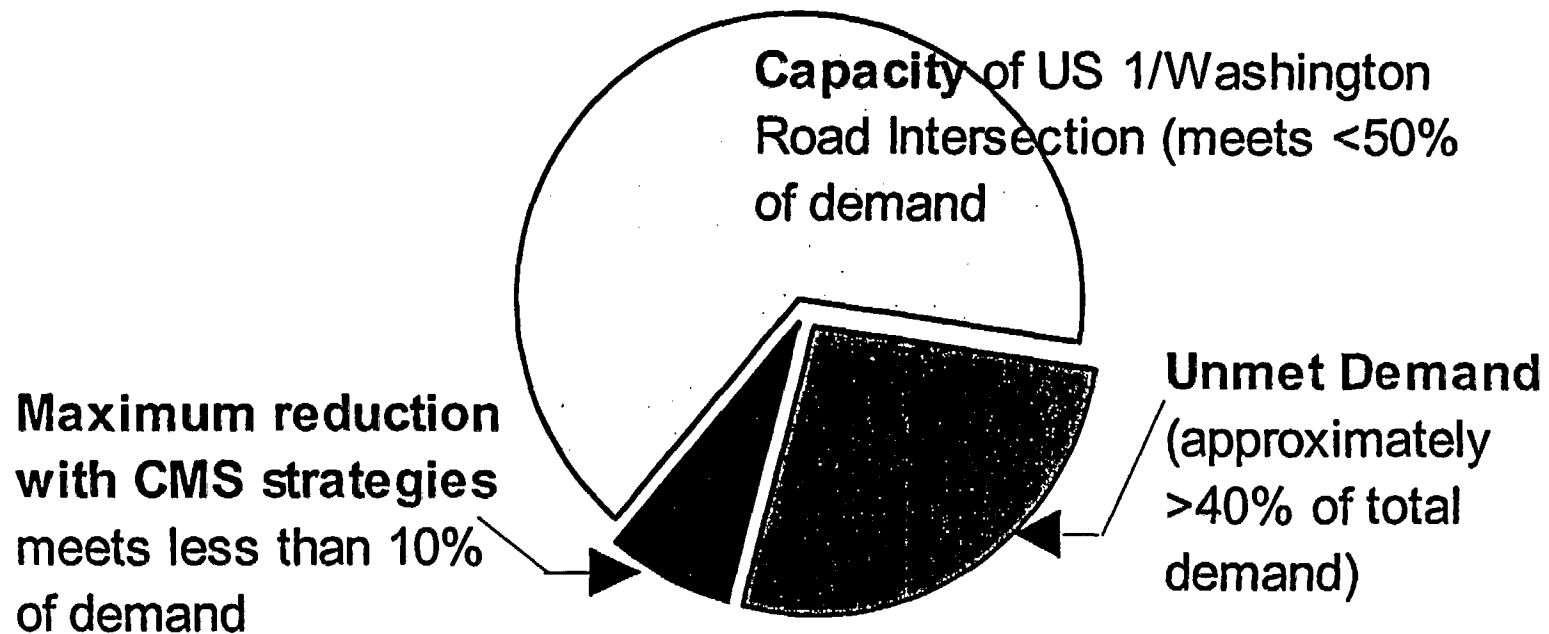


FIGURE 7-2

8.0 RECOMMENDATIONS FOR COMPLEMENTARY STRATEGIES

The alternative analysis conducted for this CMS study assessed a full range of options with the potential to improve mobility through the Penns Neck area. Development of TDM programs encompass a variety of strategies designed to optimize the efficiency of the transportation system and better manage traffic by reducing the number of vehicles using the system or by influencing when travel occurs. The most effective TDM programs are comprised of several complementary and coordinated strategies. Certain strategies were determined to provide a measure of operational, safety, or mobility improvement and enlist public support. However, the level of improvement which could be expected either alone or in combination would not adequately address future year capacity needs through the project area. The Steering Committee therefore determined that a capacity increase was unavoidable.

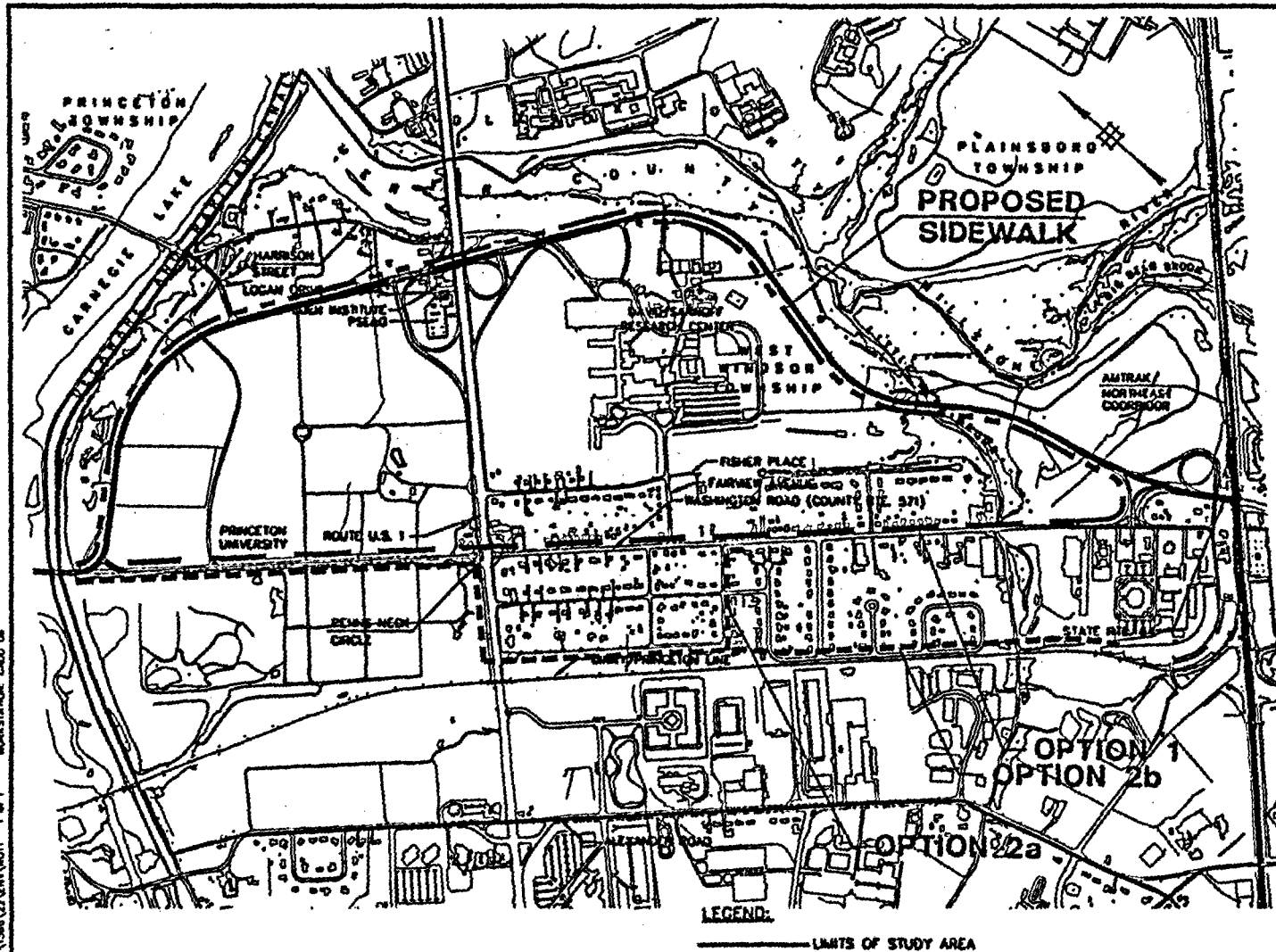
The construction of a general purpose lane was found to be the most effective method of addressing future travel demands in the study area. The purpose of the proposed construction is to improve traffic flow along Route 1 through the elimination of the traffic signals and the Penns Neck Circle, while still maintaining an east-west connection between west Windsor and Princeton. During the process of this determination, it was found that other strategies proved to be appropriate for the corridor. These strategies will play a role in managing the area's travel demand and trip activity. Thus, if such strategies are implemented along with the project construction, the potential to increase the service life of the facility, provide a means of managing future travel demand and providing a better quality of life through the project area can be realized.

As discussed in the previous sections of this report, several strategies were found to have varying measures of benefit to the area. However, some strategies such as increased bus service and an interim stop along the Dinky, were judged by the Steering Committee to not have an immediate, sizable or long term benefit associated with this project. While these strategies are not being dismissed as inappropriate strategies for the area, a compelling need has not been defined for further consideration at this time. Other strategies that showed benefit, such as Computerized Signal Systems and Park-n-Rides, have either been programmed for construction/implementation prior to this study or are considered part of other proposed commitments that are recommended within this section of the report. Therefore, upon the consensus of the Steering Committee, the strategies contained within the following commitments have been recommended as the most favorable actions at this time.

8.1 Complementary Strategies

Commitment #1 - Pedestrian and Bicycle Improvements

The leading concern of area residents is the implementation of pedestrian and bicycle facilities. With the removal of the traffic signals under the project, Route 1 may act as a barrier for



NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S.1/ PENNS NECK AREA
IMPROVEMENTS

PEDESTRIAN/BICYCLE FACILITIES

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pedestrian access across Route 1. The Steering Committee has agreed that the need for such facilities to provide a connection between Penns Neck and Princeton is essential, as well as, to achieve the goal of improving mobility through the project area. A commitment to incorporating strategies into the facility as currently proposed (scheme D-1.1c) will include the following:

- **Millstone Bypass Sidewalk/Bicycle Mobility** - The proposed project will include facilities for bicycles/pedestrians along the proposed improvement by providing a connection between the two communities. The Steering Committee recommended and NJDOT has committed to providing a 5 foot wide sidewalk for the length of the proposed roadway to be constructed as part of the project construction. It is recommended that the sidewalk begin where a Bypass would connect with Washington Road to the east of Route 1 and continue along the south side of such a Bypass to the proposed traffic signal at the Sarnoff driveway. At the traffic signal, pedestrian actuation will be provided with a crosswalk to the north side of the roadway. The sidewalk will continue west over Route 1 to where the facility connects back to Washington Road. Destination signing will also be included to indicate to users where the sidewalk will provide access to *i.e.* West Windsor and Princeton. See Figure 8-1

The Steering Committee recommended and NJDOT has committed to providing paved shoulders for bicycle travel for the length of the proposed facility. Special signing and markings will be included as part of this commitment providing clear direction for pedestrian and bicycle usage. In addition, Mercer County has committed to providing regular street sweeping of the shoulders to allow for safe bicycle travel.

- In an effort to increase pedestrian and bicycle safety, treatments will be employed at the intersection of Washington Road and the proposed facility west of Route 1. Just east of this intersection are two large vacant tracks of land, both owned by Princeton University. It is anticipated that this land will be developed by the University. The development of this land will increase pedestrian and bicycle traffic through the intersection necessitating the need for safe access to the future development.

NJDOT will, as part of the design documents, include provisions for pedestrian/bicycle treatments at this intersection. Such treatments could include painted crosswalks, appropriate warning signs, a flashing beacon system warning approaching motorists of the presents of a pedestrian or bicycle, or other treatments which may be developed as part of the design documents. These treatments would also help to further realize the benefits of the sidewalk along the proposed improvement.

Cost: \$285,000

Funding: New Jersey Department of Transportation - Construction Funds

Lead Agency: New Jersey Department of Transportation

- **Route 1 Pedestrian/Bicycle Crossing** - NJDOT is committed to providing a feasibility study to allow pedestrian access across Route 1 relative to the residential neighborhoods. The feasibility study will establish the need for the crossing and determine if such a crossing is supported by area residents. If the feasibility study determines the crossing is warranted, a location for the crossing will be determined. Implementation of the crossing would then occur with the construction of the project. The crossing would be located between the Dinky railroad bridge and Washington Road. A pedestrian/bicycle crossing must be linked to a local network or system of pedestrian/bicycle facilities, requiring at a minimum, connections on both the east and west sides of the crossing. Connection to the east and west of the pedestrian bridge would need to be provided by local jurisdictions. Establishing such connections would be one of the criteria which the crossing will be evaluated on for implementation. Other criteria may include environmental, safety, aesthetics and traffic impacts considerations. These issues would be addressed in the feasibility report. As part of the development of this report NJDOT is committed to working with the County and local municipalities to further define and refine the implementation of this commitment.

As a precursor to this study, field meetings were held to investigate possible location options. Three options merit further investigation. A description of possible crossing is discussed below. See Figure 8-1 for possible connection to the Route 1 crossings.

Option 1 - Provide a pedestrian overpass at Washington Road. Connection to this overpass would be along Washington Road. This location does not seem to be well suited for a pedestrian overpass as it may alter the historical character of Penns Neck, and likely not be permitted under current historical regulations. In addition, long approach ramps would be required to accommodate bicycles. An alternate to this option would be to have Washington Road pass over a depressed Route 1. This alternate was not pursued due to the high cost of such a proposal.

Option 2a - Provide a pedestrian overpass at the Mather Avenue cul-de-sac, adjacent to the Dinky Rail Line. Connection to this overpass could be through the local roadway system *i.e.* Washington Road, Wilder Ave, Pierson Ave. The site appeared to be well suited for a bicycle/pedestrian overpass. The Route 1 grade is depressed by approximately 8-10 feet at this location in order to pass under the Dinky Railroad. A new overpass structure would not require long ramps to meet the approach grades. There appeared to be a worn path from the cul-de-sac to the Dinky overpass, indicating that pedestrians are currently using the railroad bridge as a means to cross Route 1. This location is at the edge of the Penns Neck community and may not be ideally situated for all residence.

Option 2b - This crossing would also be at Mather Avenue but would provide connections via the Dinky right of way. Mostly open fields were observed between the

Dinky railroad bridge over Route 1 and the Princeton Junction Train Station. However, as the proposed connection to the east gets closer to the Princeton Junction train station, right of way becomes more restrictive due to the residential neighborhood and the crossing of Little Bear Brook. The bridge at Little Bear Brook was not sufficiently wide to accommodate pedestrian/bicycles. An adjacent bridge would be required possibly impacting wetlands.

N.J. Transit is in favor of such local access improvements, however, it must be designed such that it would provide a suitable separation from the railroad track and N.J. must be indemnified from liability related to such a facility.

Option 3 - Provide a crossing at Varsity Avenue. This location would be very similar to the Mather Avenue crossing but may serve the community better due to its proximity to the Penns Neck residents.

Cost: \$50,000 Feasibility Study/\$600,000 Construction

Funding: New Jersey Department of Transportation - Design/Construction Funds

Lead Agency: New Jersey Department of Transportation

- *Bicycle lockers at Princeton Junction & Dinky train stations* - Both Princeton and Princeton Junction train stations have bicycle locker or racks. There are 60 bicycle lockers at the Princeton Junction Rail Station. These can be rented for only \$12.00 a year, however only 40 are presently being used. This marginal participation may be due to the lack of adequate facilities providing access to the train station.

The Steering Committee recommended and NJDOT has committed to increase awareness of this program as part of the project commitments. This could be done with informational signing instructing users of the process. The Steering Committee also recommended and NJ Transit has committed to revisiting its bike-on-board policy to permit more bicycles on trains and buses. This commitment will be addressed after the project construction is complete.

Cost: \$10,000

Funding: New Jersey Department of Transportation

Lead Agency: New Jersey Transit

Commitment #2 - Central Jersey Transportation Forum

A majority of local concerns were related to the regional traffic impacts due to planned roadway improvement projects, area development, and transit improvements. The Steering Committee discussed the concerns of the local residents and agreed that such issues need to be addressed to effectively manage future traffic conditions in the area. However, it was also agreed that this is beyond the scope of this CMS Study. Many studies regarding these issues have been performed

over the past several years. The committee felt that these studies should be combined into one document and that this study will be a way to address additional issues.

To do this, a Central Jersey Transportation Forum is included as part of the project commitments. This Forum would address a number of issues facing Central New Jersey. Such as the need for better traffic management, truck traffic, population forecasts, roadway projects such as Route 92 and provide the much needed coordination effort between member agencies. The Forum's goal will be to develop a transportation action plan and priority of projects for NJDOT and the Counties/Municipalities and to form a mechanism to aid in the decisions made at both the State and Local levels. An outline of the Forum is as follows:

Proposed Study Area

Cranbury, East Windsor, Franklin, Highstown, Lawrence, Montgomery, Plainsboro, Princeton Borough, Princeton Township, South Brunswick, and West Windsor.

Policy Committee

NJDOT, FHWA, FTA, NJ Transit, DVRPC, NJTPA, Middlesex County, Mercer County, Somerset County, Middlesex-Somerset-Mercer Regional Council, Keep Middlesex Moving, Greater Mercer TMA, Office of State Planning and the study area municipalities.

Project Tasks

- Identify land use, transportation and economic issues
- Identify Transportation policies and issues
- Map proposed site plans/subdivisions
- Identify transportation improvements and studies in the area. Obtain periodic status updates
- Review previous transportation studies and models. Determine study elements requiring updating
- Compile a composite traffic map showing AADT's, historical growth trends, and major areas of traffic flow
- Public involvement program
- Review transit routes and opportunities for transit improvements
- Identify opportunities for Travel Demand Management programs and improve coordination among existing programs
- Evaluate proposals from the previous efforts and input from the policy committee
- Develop a transportation plan and prioritize high priority projects
- Identify additional transportation improvement needs for the area.
- Identify a need for a continued effort and a means to maintain policy committee
- Identify next steps and implementation schedule.

Project Duration

Multi-year

Cost: \$350,000

Funding: Public Sector Partnership

Lead Agency: Delaware Valley Regional Planning Commission & North Jersey Transportation Planning Authority

Commitment #3 - Ridesharing Program

Greater Mercer TMA receives funding from NJDOT to provide rideshare matching services to employers within its service area. This includes conducting on site registration and transportation fairs at employment sites, providing an emergency ride home and vanpool subsidy program for new vanpools at member companies. The Steering Committee recommended and NJDOT has committed to continue current levels of funding for TMAs to administer and market these services. This commitment will be part of the 1999 funding program. In addition, the following expansion of the program are part of this commitment.

- Placement of signs along the proposed facility, Routes 571 and Route 33 to promote the toll free rideshare assistance telephone number.
- Provide preferential parking for people who carpool to the Princeton Junction train station. Presently, 92 spaces are dedicated for carpool parking, all of which are being utilized. Commitments could include providing additional preferential parking for carpools at the train station. This commitment should be contingent on the completion of the Hamilton Train station and an assessment of its impact on the Princeton Junction train station. Completion of this train station may impact current conditions at the Princeton Junction train station which may alter present needs.
- Funding for the TMA to provide rideshare matching services and supply registration forms can be absorbed through the existing TMA/NJDOT grant.

Alternate Work Schedules

The Steering Committee recommended and NJDOT has committed to providing seed money for interested large employers along the study area to develop and implement an alternate work schedule program with their TMA. The Smart Moves Challenge Grant program is a potential funding source for this.

Cost: \$150,000

Funding: NJDOT Core Program

Lead Agency: Greater Mercer TMA

Commitment #4 - Transit Service

This commitment is a combination of the NJDOT and NJ Transit core programs with the greater Mercer TMA. Distribution of funding will be determined under final scoping of such programs.

Transit Marketing

- NJ Transit recently approved a vanpool subsidy program, which will provide approximately \$150.00 per month to qualifying, registered vanpools. The Steering Committee recommended and a commitment has been is be instituted to market this program. TMAs have limited funding for marketing this program through their NJ Transit work programs; however additional funding for advertisements, signs, etc. will be included as a project commitment.
- Greater Mercer TMA is in the process of developing a brochure to make it easier for commuters to take the train at Princeton Junction. The brochure explains ticket purchasing, parking, how to read schedules, bus connections and is intended to address common concerns about using transit. Greater Mercer TMA has limited funding for the design and production of this document through the NJ Transit work program. The Steering Committee recommended and a commitment has been established for additional funding for mass distribution to targeted residential areas near the study area (\$10,000-\$20,000).

Coordination of Regional Transit Feeder Service

- There are a multitude of shuttles and corporate vans that regularly travel to and from the Princeton Junction Rail Station. As part of this project, a commitment is made to develop a coordinated east-west shuttle system that might connect East Windsor, Princeton Junction Station, Sarnoff Center, Princeton University, Princeton residential areas and CBD, outlying Princeton employment sites (Institute, hospital) and the Dinky. This could be included as part of the Central Jersey Transportation Forum.

Cost: \$35,000

Funding: NJDOT/N.J. Transit Core Program

Lead Agency: Greater Mercer TMA

Commitment #5 - Signing Program Coordination

As representatives/residents of Princeton have expressed a concern that drivers may have difficulty knowing which route to take into Princeton, the Steering Committee has recommended and NJDOT has committed to a signing program being performed jointly by NJDOT and the Princetons. The signing program coordination is to determine whether traffic can be more efficiently directed to their destination in Princeton. The program would include identification of major destinations, such as the business district or university facilities, routes and mode options in the Princeton area, evaluation of current usage, and development of strategies to direct drivers to efficiently use Princeton's transportation infrastructure. As part of the development of this program NJDOT is committed to working with the County and local municipalities to further define and refine this commitment. One key element of this program would be to evaluate the opportunities associated with utilizing Faculty Road as a secondary traffic sorting facility.

Cost: \$20,000

Funding: NJDOT - Design Funds

Lead Agency: NJDOT/Mercer County/Local Municipalities

Commitment #6 - Traffic Monitoring Program

Members of the steering committee have expressed concern that the construction of the proposed project may unduly strain certain roadways in the project area not originally anticipated. To document the effect of distribution of traffic with the construction of the proposed project, the steering committee has recommended that a traffic monitoring program be instituted as part of the CMS process. NJDOT has committed to working with the County and local municipalities to further define and refine this commitment. The traffic monitoring program will conduct seven day-24 hour traffic counts through the use of Automatic Traffic Recorders (ATR's) at key locations in the project area.

Middlesex County has committed to providing the resources to perform the data collection effort, development of the findings report and presentation to local officials. NJDOT will provide resources in support of the data collection and technical input in development of the report of findings. The following roadways have been identified as possible locations for data collection:

- Alexander Road between Canal Road and West Drive
- Alexander Road over the Amtrak railroad tracks
- Harrison Street at Lake Carnegie Bridge
- Washington Road east of Faculty Road
- Route 571 over the Amtrak railroad tracks
- Faculty Road between Alexander Road and Washington Road
- Faculty Road between Harrison Street and Washington Road
- Hartley Avenue north of Harrison Street
- Prospect Avenue between Harrison Street and Washington Road

Counts will be taken prior to construction of the proposed project to establish a base case for traffic volumes. Prior to performing the traffic counts a meeting will be conducted with local officials to establish count procedures, identify count locations and coordinate all counting efforts. Counts will subsequently be taken at 1 year intervals for a period of three years after construction of the proposed project is complete. At the conclusion of each counting period results will be summarized in a report of findings. A meeting will be held with the local officials to present the report and discuss findings.

Cost: \$10,000/yr. (\$40,000)

Funding: Mercer County/NJDOT

Lead Agency: Mercer County

8.2 Summary

The construction of a general purpose lane, was found to be the most effective method of addressing future travel demands in the study area. During the process of this determination, it was found that other strategies proved to be appropriate for the corridor. Table 8-1 shows a summary of the recommended strategies for implementation as part of the Penns Neck CMS process.

**Table 8-1
Summary of Commitments**

| No | Commitment | Funding Source | Time Frame | Lead Agency | Approx. Cost |
|--------------|---|-----------------------------|---------------------------|--------------|--------------------|
| 1 | Pedestrian/Bicycle Improvements | | | | |
| | -Millstone Sidewalk/Bicycle Mobility | NJDOT Const. Funds | w/Project Construction | NJDOT | \$285,000 |
| | -Route 1 ped./bicycle crossing • Feasibility Study | NJDOT Dgn. Funds | w/Project Design | NJDOT | \$50,000 |
| | -Route 1 ped./bicycle crossing • Implementation | NJDOT Const. Funds | w/Project Construction | NJDOT | \$600,000 |
| | -Bicycle lockers | NJDOT | Post Project Construction | NJ Transit | \$10,000 |
| 2 | Central Jersey Transportation Forum | Public Partnership | Multi-year | DVRPC/ NJTPA | \$350,000 |
| 3 | Ridesharing Program | NJDOT Core Prog. | Multi-year | TMA | \$150,000/yr |
| 4 | Transit Service | NJDOT/NJ Transit Core Prog. | 2yr. Study/ Implement | TMA | \$35,000 |
| 5 | Signing Program Coordination | NJDOT Dgn. Funds | w/Project Design | NJDOT | \$20,000 |
| 6 | Traffic Monitoring Program | Mercer Co./ NJDOT | Multi-year | Mercer Co. | \$10,000/yr. |
| Total | | | | | \$1,510,000 |

9.0 CONCLUSION AND RECOMMENDATIONS

This Penns Neck CMS Study was performed to document current and future conditions through the project area. The existing physical and operating conditions of Washington Road and Route 1 were assessed, future conditions and operational characteristics for the year 2022 were forecasted and analyzed. A full range of traffic management strategies were evaluated to meet the need of the forecasted increase in congestion. The study analyzed such strategies and the impact they would have on congestion. Recommendation were developed to provide support in managing future congestion.

The findings of this study validate the earlier study findings, that a capacity increase is necessary in the Penns Neck area to allow the facility to function more effectively now and in the future. Complementary strategies were investigated and those determined to be feasible and appropriate for the project area are recommended for inclusion under the CMS process. Such strategies will serve to aid in managing the proposed facility. Major conclusions of the analysis are as follows:

9.1 Conclusions

1. Route 571 is an important roadway in the regional transportation network. The corridor is residential and commercial in character and supports trip activity for area residents and businesses.
2. Through the Route 1 corridor approximately 70% of the vehicles have only 1 occupant. Estimates show approximately 12% of commuters are presently in some form of carpool.
3. Route 1 carries substantial traffic volumes. Peak hour operations are characterized by volumes which exceed capacity. The result is poor levels of service, low travel speeds and long delays. Other off peak periods, also encounter congestion and delays.
4. The growth trends are anticipated to result in significant increases in traffic demand over the next 20 years through the project area.
5. Comparison of 1992, 1997 and 2002 traffic volumes validate the traffic forecasts developed as part the traffic studies performed for the project.
6. Physical conditions along Route 1 hamper the roadways ability to function as a regional and local travel facility. Traffic signal along Route 1 operate at oversaturated conditions.
7. The study findings verify conclusions reached in previous studies of the Route 1 Corridor. The congested conditions are projected to continue and that a capacity increase is needed.

9.2 Recommendations

- 1. A capacity increase is necessary in the Penns Neck area to allow the Route 571 and Route 1 to function more effectively now and in the future.**
- 2. Incorporate findings from the Route 1 Bicycle and Pedestrian Corridor Case study as it relates to the proposed project.**
- 3. Provide 5' concrete sidewalk along the proposed improvement from Washington Road in the vicinity of Princeton Junction train station to Washington road at the D & R Canal.**
- 4. Provide paved shoulders along the proposed roadway for bicycle use.**
- 5. Investigate potential locations for a Route 1 pedestrian crossing. As part of this investigation commitments into providing adjoining access to the facility should be investigated.**
- 6. Initiate a Central Jersey Transportation Study. This study would address a number of issues facing Central New Jersey. Such as the need for better traffic management, truck traffic, and roadway projects such as Route 92. The study will result in a transportation action plan and priority of projects for NJDOT and the Counties/Municipalities to form a mechanism to aid in the decisions made at both the State and Local levels.**
- 7. Continue to provide current levels of funding for local TMA's to administer and market services effecting ridesharing and transit usage.**

REFERENCES

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4. Frederic R. Harris Inc., *Lawrence Section and Penns Neck Area 1992 Volume Adjustment Report*, July 1, 1992.
5. New Jersey Department of Transportation, *Route 571 Transportation Needs Assessment*, December, 1990.
6. Lehr & Associates, Inc. and MSM Regional Council, Inc., *Route 1 Local & Corridor Demand Management Plan*, January 1997.
7. Lehr & Associates, Inc. and MSM Regional Council, Inc., *Traffic Reduction Strategies for the Route 1 Region*, December, 1993.
8. New Jersey Transit Corporation, *Princeton Area Transportation Study*, May 1990.
9. New Jersey Department of Transportation, *Route 1 Corridor Transportation Study Technical Report*, December, 1986.
10. New Jersey Department of Transportation, *Congestion Management System Strategy Evaluation Handbook*, February, 1996.
11. New Jersey Department of Transportation, *Congestion Management and Intermodal Systems Development, Technical Memorandum No. 13*, June 1996.
12. COMSIS, *Implementing Effective Travel Demand Management Measures*, institute of Transportation Engineers, Washington D.C., June 1993.

APPENDIX
Site Specific Traffic Generators



SITE SPECIFIC GENERATORS

OFFICE DEVELOPMENT

| Name | Municipality | Size (SF) | Status | | | |
|--------------------------------------|--------------|-----------|---------------|----------|--------------|---------|
| | | | Vacant or U/C | Approved | Under Review | Concept |
| 1. The Commons | W. Windsor | 292,000 | | X | | |
| 2. West Windsor Commerce Ctr. | W. Windsor | 81,606 | | X | | |
| 3. University Sq. | W. Windsor | 315,000 | | | X | |
| 4. Carnegie Ctr. | W. Windsor | 462,000 | | X | | |
| Carnegie Ctr. | W. Windsor | 364,000 | | X | | |
| 5.* Carnegie Ctr. West | W. Windsor | 1,295,000 | | | | X |
| 6. Princeton Metro Park | W. Windsor | 34,475 | X | | | |
| * Princeton Metro Park | W. Windsor | 171,500 | | | | X |
| * Nassau Park | W. Windsor | 1,050,000 | | | | X |
| 8. Princeton Overlook | W. Windsor | 122,000 | X | | | |
| 9. Windsor Green Center | W. Windsor | 10,000 | X | | | |
| 10. Alexander Pk. | W. Windsor | 75,000 | X | | | |
| Alexander Pk. | W. Windsor | 216,000 | | X | | |
| 11. * 70 Acre Parcel | W. Windsor | 457,380 | | | | X |
| 12. Firmenich Expansion | Plainsboro | 250,000 | | X | | |
| 13.* Princeton Nurseries | Plainsboro | 3,000,000 | | | | X |
| 14.* Princeton Forrestal Vlg. | Plainsboro | 928,000 | | | | X |
| 15. * Robert Wood Johnson Foundation | Plainsboro | 500,000 | | | | X |

* Post 2002

OFFICE DEVELOPMENT

| Name | Municipality | Size (SF) | Status | | | |
|---------------------------|--------------|-----------|---------------|----------|--------------|---------|
| | | | Vacant or U/C | Approved | Under Review | Concept |
| 16. College Road East | Plainsboro | 16,900 | | X | | |
| College Road East | Plainsboro | 460,500 | | X | | |
| 17. Research Way | Plainsboro | 157,000 | | X | | |
| 18. Princeton For. Campus | Plainsboro | 1,000,000 | | X | | |
| 19.* Gateway East | Plainsboro | 590,000 | | | | X |
| 20. Merrill Lynch | Plainsboro | 880,000 | | X | | |
| 21. Squibb For. Center | Plainsboro | 1,160,000 | X | | | |

COMMERCIAL DEVELOPMENT

| Name | Municipality | Size (SF) | Status | | | |
|----------------------------------|--------------|-----------|---------------|----------|--------------|---------|
| | | | Vacant or U/C | Approved | Under Review | Concept |
| 33. West Windsor Commerce Center | W. Windsor | 105,000 | | X | | |
| 34. Windsor Green Ctr. | W. Windsor | 166,752 | X | | | |
| 35.* R.J. Brunelli & Co. | W. Windsor | 220,000 | | | | X |
| 36.* Carnegie Ctr. West | W. Windsor | 149,000 | | | | X |
| 37. Nassau Park | W. Windsor | 600,000 | | | X | |
| 38. Firmenich Expansion | Plainsboro | 250,000 | | X | | |

RESIDENTIAL DEVELOPMENT

| Name | Municipality | Size (du) | Status | | | |
|-----------------------------|--------------|-----------|------------------|----------|-----------------|---------|
| | | | Vacant or U/C | Approved | Under Review | Concept |
| 44.* 70 Acre Parcel | W. Windsor | 110 | | | | X |
| 45.* Carnegie Park | W. Windsor | 252 | | | | X |
| 46.* Countryside | W. Windsor | 750 | | | | X |
| 48. Mt. Laurel Units | Plainsboro | 126 | | X | | |
| 49.* Princeton Nurseries | Plainsboro | 263 | | X | | |
| 50.* Fountain Oaks | Plainsboro | 560 | | X | | |
| 51. Wyndhurst | Plainsboro | 162 | | X | | |

MISCELLANEOUS

| Name | Municipality | Size | Status | | | |
|--|--------------|---------------|------------------|----------|-----------------|---------|
| | | | Vacant or U/C | Approved | Under Review | Concept |
| 57.* Princeton University | Princeton | 250,000 SF | | | | X |
| 60. Princeton - Junction Train Station | West Windsor | 400 Spaces | | | | X |

APPENDIX C

VALUE ENGINEERING DOCUMENTATION

NEW JERSEY DEPARTMENT OF TRANSPORTATION

MEMORANDUM

To: Tony Sabidussi
Bureau of Environmental Services

From: Robert Abitz *Robert Abitz*
Value Engineering Unit

Phone: 530 - 5515

Date: November 27, 2002

Subject: Route 1 / Penns Neck Bypass
West Windsor Township, Mercer County

INTRODUCTION

The Value Engineering (VE) Unit has completed its review of the Route 1/Penns Neck Bypass project. We have provided two modified alternative schemes along with other independent elements. We would like to present our schemes to you at your convenience.

EXISTING CONDITIONS

The existing traffic signals at Washington Road, Fisher Place and Harrison Street create restriction points on Route 1 that deteriorate highway capacity, particularly during the am/pm peak hours. The NJDOT has set a goal of removing the traffic signals from Route 1. A number of traffic signals on Route 1, in the area of this project, have been replaced with grade-separated interchanges including: to the north, at Scudders Mill/Plainsboro Road and to the south, at Quaker Bridge Road, Alexander Road and most recently, Meadow Road.

County Route (CR) 571 is a regionally significant east/west roadway. Within the project limits, CR 571 (Washington Road) is a two lane undivided road. From Route 130 to Clarksville Road, CR 571 is four lanes and undivided. From Clarksville Road to the Amtrak Northeast Corridor Bridge, CR 571 is basically a two-lane road, however the curb-lines are set back far enough to accommodate a four-lane section. The Amtrak Northeast Corridor Bridge is currently 52 feet wide from curb to curb, but it is only striped for two lanes. The intersection of CR 571 at Route 1 is an old traffic circle that has been signalized. The am/pm peak hours produce significant queues on CR 571 (and Harrison Street), east and west of Route 1.

There are two connections crossing Carnegie Lake into Princeton within the project limits: Washington Road (CR 571) and Harrison Street. A third connection is located one-half mile south at Alexander Road.

CURRENTLY PROPOSED ALTERNATIVES

The current alternatives vary significantly in function and cost (each construction cost listed includes the Vaughn Drive Connector). For example, the "D" alternatives provide two new Route 1 grade separated crossings and various connections: one is located at existing CR 571 (Route 1 is in a cut or "tunnel" section) and another to the north along with a new east/west connector roadway. This costs approximately \$97 million. On the other hand, the "G" alternatives are basically roadway widening and intersection improvements with a cost of \$22 million. The "A" and "F" alternatives provide a new bridge crossing for existing CR 571 over Route 1 (Route 1 is in a cut) along with corresponding connections. These alternatives also provide a new east/west alignment and various interchange connections at Route 1 located to the north near Harrison Street. Construction costs for Alternatives "A" and "F" are approximately \$60 - \$64 million. Alternative "E" provides a diamond interchange for Route 1 and existing CR 571 (Route 1 again is in a cut with existing CR 571 over), and it provides a new east/west alignment and corresponding interchange at Route 1 located just north of Fisher Place. The construction costs for this alternative is approximately \$61 million. Alternative "C" does not cut Route 1 or provide a new east/west alignment; they provide improvements along Route 1 and a northern interchange at Harrison Street. Alternate "C" costs approximately \$38 million. The "B" alternatives do not cut Route 1 either; they utilize a northern crossing for the new east/west alignment and a corresponding interchange. This alternative costs approximately \$48 million. It is our understanding that this alternative distributes traffic best, however it met resistance for the following reasons: the new CR 571 alignment nears the Little Bear Brook and it either nears the Delaware and Raritan Canal (Alternate B.1) or it divides the Princeton University property (Alternate B.2).

To construct Route 1 in a cut, Route 1 at CR 571 would be lowered by 25 feet. The first 10 feet consists of soil (not rock) and the next 15 feet consists of bedrock. Very complex construction methods and staging along with complex underground utility relocations would be required. It was given that this would result in a construction cost of \$25 million alone.

KEY ISSUES

It is our understanding that the goals of this project are to remove the traffic signals from Route 1 and best distribute traffic entering and exiting Princeton between Alexander Road, Washington Road and Harrison Street. To achieve this, several schemes show two - Route 1 crossings (as discussed above). This would result in the existing CR 571 remaining a regionally significant roadway working in conjunction with the proposed Bypass (East Side Connector). This however, in our opinion, undermines the value of the Bypass. For these reasons, it was the goal of this office to maximize the use of the proposed East Side Connector Road and the Vaughn Drive Connector Road and provide a centrally located interchange with Route 1 to best balance the traffic between Alexander Road, Washington Road and Harrison Street without depressing Route 1 and limiting environmental impacts.

RECOMMENDATIONS

Vaughn Drive

Utilizing the same north and south limits, relocate the Vaughn Drive Connector further west than the three current alternatives and provide a typical "Trumpet" style interchange with the proposed CR 571 alignment.

Advantages

1. Minimal parking impacts to businesses and particularly the train station thereby greatly reducing mitigation costs.
2. Relocates the at grade rail crossing to a tangent section as opposed to the existing location which is on a curved section.
3. Improves access to the train station by adding a third access point.
4. Provides a simplified interchange (CR 571/Vaughn Drive), improving traffic circulation.

Disadvantages

1. Requires an entire acquisition of a property (an abandoned bank).
2. A minimal encroachment on the 100-year floodplain will need to be mitigated.

"Modified Alternative B"

Of the three currently proposed locations for the "East Side Connector" (CR 571), this alternative utilizes the northern most alignment. However, the Route 1 crossing and corresponding ramp locations are relocated slightly to the south. CR 571 then continues south, parallel to Route 1 (approximately 350 feet to the west) and connects to Washington Road. Also a "Harrison Street Connector" road is proposed to connect the CR 571 extension to Harrison Street. The alignment of this connector road can be modified to bypass more of Harrison Street if deemed necessary. It also should be noted that collector – distributor (c-d) roads can be provided on Route 1 to accommodate the proposed Route 1/CR 571 Interchange.

Advantages (as compared to Alternative B)

1. Balances the traffic between Alexander, Washington and Harrison Street with less severe impacts to the vacant Princeton University property and without encroaching the Delaware and Raritan Canal.
2. Provides a more efficient interchange for Route 1/CR571. The heavy turning movements are not signalized. The currently proposed Alternate B requires CR 571 EB to Route 1 SB (465vph/630vph) and Route 1 NB to CR 571 EB (550vph/785vph) to turn left at signalized intersections.
3. Greatly reduces ROW impacts in the vicinity of Harrison Street.
4. No impact to the historic school.

Disadvantages (as compared to Alternative B)

1. Requires additional ROW from the Sarnoff property.
2. Introduces a weave on Route 1 NB and SB (weaving distances = approximately 1,000 feet). Again, c-d roads may be added to Route 1 if it is deemed desirable to separate the weaves from the main line.

"Modified Alternative B (B.2)" (See Inset)

The significant difference between this alternative and our "Modified Alternative B" is that in lieu of the loop ramp from the proposed "East Side Connector" (CR 571) WB to Route 1 SB, a new bridge would be provided allowing the WB to SB move to cross under the EB roadway and enter Route 1 SB further south. This would eliminate the weave that is introduced in "Modified Alternative B" (on Route 1 SB between the proposed loop ramps). In addition, it would reduce potential impacts to the utility sub-station.

"Modified Alternative E" (Option 1)

This alternative is a partial bypass. It utilizes the existing CR 571 roadway between Little Bear Brook and Morning Sun Avenue. This section will be widened as to provide two - 12 - foot inside lanes and two - 15 foot outside lanes (no median, as exists to the east). A new section of roadway would be required between Little Bear Brook and the Amtrak North East Corridor Bridge. (This section would connect to Vaughn Drive essentially as shown on our "Modified Alternative B" scheme.) West of Morning Sun Avenue, CR 571 would be relocated north, to the location shown on Alternative E, then cross Route 1 (with a full interchange) and then turn back to the south to join Washington Road. A connector road is proposed on the east side of Route 1 to service both the interchange and the Sarnoff property. Also, as in our "Modified Alternative B" scheme, a "Harrison Road Connector" is proposed on the west side of Route 1. This alternative also provides collector distributor roads on Route 1 to better accommodate the weaving movements.

Advantages (as compared to Alternative E)

1. Maximizes the value of the proposed CR 571 by distributing the traffic entering and exiting Princeton between Alexander, Washington and Harrison Street with only one Route 1 crossing.
2. Provides a more efficient interchange for Route 1/CR571. The heavy turning movements are not signalized and a collector-distributor road is provided. The currently proposed diamond interchange requires two closely spaced traffic signals, which in our opinion, would be less desirable.
3. Does not require depressing Route 1 or shifting it to the west (\$25 Million) eliminating the constructibility issues that would be encountered with depressing Route 1.
4. Greatly reduces ROW impacts in all four quadrants of the Route 1/Washington Road intersection.
5. Eliminates potential utility impacts (that will occur if Route 1 is depressed)
6. Significantly reduces the amount of new roadway required for the Bypass.

Disadvantages (as compared to Alternative E)

1. Additional wetland impacts in the vicinity of Little Bear Brook.
2. Different ROW impacts along existing CR 571 (3 residential acquisitions and several strip takings).
3. Potential public disapproval (residents along the existing CR 571).
4. Requires the acquisition of the buildings (seemingly the old farmstead buildings) located approximately 1,000 feet to the northwest of Route 1/Washington Road intersection. However the roadway alignment in this area may be altered to miss these buildings if deemed necessary.

"Modified Alternative E" (Option 2)

The significant difference between this and "Option 1" is that this scheme bypasses the entire leg of CR 571, from Route 1 to the Amtrak Bridge, as shown in Alternate "E". From the standpoint of the residences along this stretch of CR 571, this option would be an advantage over option 1. However, more ROW is required from the Sarnoff property (as compared to Alternate "E" and our "Modified Alternate E - Option 1").

SUMMARY

In summary, these modified alternatives meet the stated function of the project, which is to remove the traffic signals from Route 1 while distributing the traffic entering and exiting Princeton from Route 1 and points east among the three local roads (Alexander, Washington and Harrison). These alternatives achieve this with only one new Route 1 crossing (which is in accordance with the original scope of the project) thus maximizing the value of the new east/west connector. In addition, these alternatives do not require depressing the Route 1 profile.

ATTACHMENTS:

Typical Sections
Modified Alternate B
Modified Alternate E

APPENDIX D

TRAFFIC AND TRANSPORTATION DATA

DP. NO. BRILISTR 03/07/01

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURAL EVALUATION - STRUCTURE INVENTORY AND APPRAISALSTATE ERROR NO
FEDERAL ERROR NO
LAST UPDATE 03/07/01

AA ROUTE 1 8 STR.NO. 1103155

AB STRUCTURE NAME US 1 OVER MILLSTONE RIVER

IDENTIFICATION

1 STATE NEW JERSEY
2 HIGHWAY DISTRICT 03
3 COUNTY MERCER
4 PLACE CODE 80240
A TOWN 1113
5 INVENTORY ROUTE 121000010
6 FEATURES INTERSECTED MILLSTONE RIVER
7 FACILITY CARRIED US 1
9 LOC. 5.2 MI NORTH OF 1-295
10 VERTICAL CLEAR 99 FT 99 IN
11 MILEPOINT 11.960
100 DEFENSE HIGHWAY NO
101 PARALLEL STRUCTURE N
102 DIRECTION OF TRAFFIC 2-WAY
103 TEMPORARY STRUCTURE
16 LATITUDE 40D 20.3M
17 LONGITUDE 074D 37.8M
19 BYPASS DETOUR LENGTH 01 MI
20 TOLL 3 ON FREE ROAD
21 MAINTENANCE 01 NJDOT
22 OWNER 01 NJDOT

CLASSIFICATION

104 HIGHWAY SYSTEM INVENTORY ROUTE 1 ON NHS
26 FUNCTIONAL CLASS 14 PRINCIPAL ARTERIAL URBAN
98 BORDER BRIDGE
99 BORDER BRIDGE STRUCTURE NO

AC NON-INV.FEATURE
AD ADMINISTRATIVE
AE ALTERNATE AGENCY
AF ALTERNATE STRUCTURE NO.

WATERWAY
STATE

STRUCTURE DATA

27 YEAR BUILT 1928
106 YEAR RECONSTR 1959
28 LANES ON/UNDER 06/00
29 ADT 065600
30 YR OF ADT 1900
109 TRUCK ADTT 04 %
31 DESIGN LOAD H-20
32 APP. RDWY WIDTH 075 FT
33 BR. MEDIAN CLOSED/YES
34 SKEW 00 D
35 STRUC. FLARED NO
36 SAFETY FEATURES 0011
AG BR. RAILING TYPE 16
AH RAILING HT. 4FT 00IN
37 HISTORIC SIG 5
38 NAVIG. CONTROL NO
39 NAV.VERT.CLEAR 000 FT
40 NAV.HOR.CLEAR 0000 FT
116 MIN.NAV.VRT.CL FT

41 OPEN/CLOSED/POSTED A OPEN-NO RESTRICTION
42 TYPE OF SERVICE HWY-PED/ WATERWAY
43 STRUC TYPE MAIN SPAN STL.STR.
44 STRUC TYPE APPR SPANS NONE
45 NUMBER OF SPANS MAIN 003
46 NUMBER OF APPROACH SPANS 0000
47 INVENT. ROUTE HORZ. CLEAR 37.8 FT
48 MAXIMUM SPAN LENGTH 0035 FT
49 STRUCTURE LENGTH 000111 FT
50 SIDEWALK/CURB LEFT 5.0 FT RIGHT 5.0 FT
51 BRIDGE RDWY. WIDTH CURB TO CURB 75.2 FT
52 DECK WIDTH OUT TO OUT 89.8 FT
53 VERTICAL CLEARANCE OVER DECK 99 FT 99 IN
54 MIN. VERTICAL UNDERCLEARANCE N 00 FT 00 IN
DJ MIN.VERT.UNDER.(INC. SHOULDERS) 00 FT 00 IN
55 MIN.LAT.Underclearance RIGHT N 99.9 FT
56 MIN.LAT.Underclearance LEFT 0.0 FT
108 WEARING SURFACE/PROTECTIVE SYSTEM 690
A TYPE WEARING SURFACE 6 BITUMINOUS
B TYPE MEMBRANE 9 OTHER
C TYPE DECK PROT. 0 NONE

AI SPEED POSTING MPH
AJ SLOPE PROT. NC/E
AK ABUT. 09
AL PIER 02
AM FILL OVER 0.0 FT
AN PLAN AVAIL YES
AO UTILITY EGTW
AP FENDER SYSTEM
AQ CHLK.FNC HT FT IN
AR SPECIAL EQUIP. A
AS SPECIAL TESTING 0
AT SPECIAL MATERIAL
AU ADD. STRUCT. TYPE
AV WIDENING TYPE
107 DECK STRUC.TYPE 1
110 DESIG.NAT.NETWK NO
111 NAVIGATION PROT.
112 NBIS BRIDGE YES

CONDITION RATINGS

58 DECK 3
59 SUPERSTRUCTURE 6
60 SUBSTRUCTURE 4
61 CHANNEL AND CHAN. PROTECTION 8
62 CULVERT N
BA APPROACH RDWY CONDITION 8

BF (58) OVER 60% CONTAMINATION LEAKAGE WITH EFFL DETERIORATED SIDEWALKS
BG (59) ENCASEMENT DETERIORATION

REMARKS

64 OPER. RATING 261
66 INV. RATING 236

BH (60) SEVERE SPALLING MEDIUM/WIDE CRACKS EXPOSED FOOTINGS
BI (61)
BJ (62)

APPRAISAL RATINGS

67 STRUCTURAL EVALUATION 4
68 DECK GEOMETRY 4
69 UNDERCLEARANCE VERT. & LAT. N
70 BRIDGE POSTING 5
71 WATERWAY ADEQ. 8
72 APPR. RDWY ALIGNMENT 8

REMARKS

BK PERCENT OVERSTRESS
113 SCOUR CRITICAL 7 NO

RAILROAD ITEMS

BB ORPHAN BRIDGE
BC USRA LINE CODE
BD RR TRKS ON/UNDR
BE RR. MILEPOST

PROGRAMMING

BL DISCRETIONARY FUNDS
BM FED. JOB NO. BR NBIS73501
BN STATE JOB NUMBER 2202932

RATING (TONS)

ITEMS
H TRUCK/LD1
HSTRUCK/LD2
TYPE 3 /LD3
TY.3S2 /LD4
TY.3-3 /LD5
MIL.LD /LD6
POSTED LOAD

INV. OPER.
BQ-BV CA-CG
36 61
31 52
47 78
62 99

CH MISC. RATING L

INSPECTION DATA

90 LATEST INSPECTION 11/00
CI CYCLE NUMBER 11
CJ TYPE INSPECTION S
91 DESIG. INSP. FREQ. 24 MO
CK INSP. CREW P
CL NEXT INSP. DATE 11/02
CM CONSULT. ARORA & ASSOC.
CN PREV. INSP. DATE S 08/98
CO PREV CONSULT. ARORA & ASSOC.
CP FEDERAL REPORT YES
CQ BRIDGE LIST
CR OFF THE ROUTE BRIDGE

AZ FATIGUE DETAILS
LOC. 1
LOC. 2
LOC. 3
SUFFICIENCY RATING (STRUC DEF) 56.8

PROGRAMMING INFO: GROUP: P98S CONSULTANT: Arora & Assoc. PROJECT MANAGER: AO

(DUPLICATE SIGN)

DP. NO. BRILISTR 11/30/00

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURAL EVALUATION - STRUCTURE INVENTORY AND APPRAISALSTATE ERROR NO
FEDERAL ERROR NO
LAST UPDATE 11/30/00

AA ROUTE 64 8 STR.NO. 1117150

AB STRUCTURE NAME ROUTE 64 OVER AMTRAK

IDENTIFICATION

1 STATE NEW JERSEY
2 HIGHWAY DISTRICT 03
3 COUNTY MERCER
4 PLACE CODE 80240
A TOWN 1113
5 INVENTORY ROUTE 131000640
6 FEATURES INTERSECTED AMTRAK
7 FACILITY CARRIED RT 64
9 LOC. WEST WINDSOR TWP
10 VERTICAL CLEAR 99 FT 99 IN
11 MILEPOINT 0.120
100 DEFENSE HIGHWAY NO
101 PARALLEL STRUCTURE N
102 DIRECTION OF TRAFFIC 2-WAY
103 TEMPORARY STRUCTURE
16 LATITUDE 40D 19.1M
17 LONGITUDE 074D 37.3M
19 BYPASS DETOUR LENGTH 04 MI
20 TOLL 3 ON FREE ROAD
21 MAINTENANCE 01 NJDOT
22 OWNER 01 NJDOT

CLASSIFICATION

104 HIGHWAY SYSTEM INVENTORY ROUTE 0
26 FUNCTIONAL CLASS 14
98 BORDER BRIDGE
99 BORDER BRIDGE STRUCTURE NO
NOT ON NHS
PRINCIPAL ARTERIAL URBAN

AC NON-INV.FEATURE
AD ADMINISTRATIVE
AE ALTERNATE AGENCY
AF ALTERNATE STRUCTURE NO.

RAILROAD
AMTRAK

STRUCTURE DATA

27 YEAR BUILT 1939
106 YEAR RECONSTR. 0000
28 LANES ON/UNDER 02/00
29 ADT 002500
30 YR OF ADT 1998
109 TRUCK ADTT 04 %
31 DESIGN LOAD H-20
32 APP. RDWY WIDTH 052 FT
33 BR. MEDIAN CLOSED/NO
34 SKEW 13 D
35 STRUC. FLARED NO
36 SAFETY FEATURES 1011
AG BR. RAILING TYPE 49
AH RAILING HT. 5FT 10IN
37 HISTORIC SIG 5
38 NAVIG. CONTROL N/A
39 NAV. VERT. CLEAR 000 FT
40 NAV. HOR. CLEAR 0000 FT
116 MIN. NAV. VRT. CL FT
41 OPEN/CLOSED/POSTED A OPEN-NO RESTRICTION
42 TYPE OF SERVICE HWY-PED/ RAILROAD
43 STRUC TYPE MAIN SPAN STL.GIRD
44 STRUC TYPE APPR SPANS NONE
45 NUMBER OF SPANS MAIN 001
46 NUMBER OF APPROACH SPANS 0000
47 INVENT. ROUTE HORZ. CLEAR 52.0 FT
48 MAXIMUM SPAN LENGTH 0103 FT
49 STRUCTURE LENGTH 000104 FT
50 SIDEWALK/CURB LEFT 6.0 FT RIGHT 6.0 FT
51 BRIDGE RDWY. WIDTH CURB TO CURB 52.0 FT
52 DECK WIDTH OUT TO OUT 53.3 FT
53 VERTICAL CLEARANCE OVER DECK 99 FT 99 IN
54 MIN. VERTICAL UNDERCLEARANCE R 22 FT 02 IN
D4 MIN. VERT. UNDER. (INC. SHOULDERS) 00 FT 00 IN
55 MIN. LAT. UNDERCLEARANCE RIGHT R 12.3 FT
56 MIN. LAT. UNDERCLEARANCE LEFT 0.0 FT
108 WEARING SURFACE/PROTECTIVE SYSTEM 600
A TYPE WEARING SURFACE 6 BITUMINOUS
B TYPE MEMBRANE 0 NONE
C TYPE DECK PROT. 0 NONE
PROPOSED IMPROVEMENTS (COST IN THOUSANDS)
75 TYPE OF WORK
76 IMPROVEMENT LENGTH 000000 FT
94 BRIDGE IMPROVEMENT COSTS \$000000
95 ROADWAY IMPROVEMENT COST \$000000
96 TOTAL PROJECT COST \$000000
97 YEAR OF IMPROVEMENT COST ESTIMATE
114 FUTURE ADT 003700
115 YEAR OF FUTURE ADT 2018
BO STATE MAINTENANCE COST \$
BP BRIDGE TO BE DEMOLISHED/NO REPLACEMENT
DA DESCRIPTION OF PROPOSED IMPROVEMENTS
UPGRD SFTY FTRS, PTCH BR CB & SDWK SPLS, SL
RDWY CKS, BKFL APR SDWKS, RMV APR ELECT BXS
RPR WARNG SGNS, RMV BR DEBRIS, PNT BRGS & BR
CBS, PTCH U/DK & SUBSTR SPLS, RPR SUPSTR CN
ENCSMT, BKFL SW WNGWL EROSN

MPH

NONE

NONE

0.0 FT

YES

E

FT

IN

F

1

NO

YES

CONDITION RATINGS

58 DECK 6
59 SUPERSTRUCTURE 7
60 SUBSTRUCTURE 6
61 CHANNEL AND CHAN. PROTECTION N
62 CULVERT N
BA APPROACH RDWY CONDITION 7

REMARKS

BF (58) SPALLED UNDER DECK
EXPOSED REBARS
DETERIORATED CURBS
DETERIORATED SIDEWALKS
BG (59) ENCASEMENT DETERIORATION
RUSTED BEARINGS
BH (60) SEVERE SCALING
EROSION
BI (61)
BJ (62)

64 OPER. RATING 286
66 INV. RATING 251

APPRAISAL RATINGS

67 STRUCTURAL EVALUATION 6
68 DECK GEOMETRY 9
69 UNDERCLEARANCE VERT. & LAT. 5
70 BRIDGE POSTING 5
71 WATERWAY ADEQ. N
72 APPR. RDWY ALIGNMENT 6

REMARKS

BK PERCENT OVERSTRESS
113 SCOUR CRITICAL N N/A

RAILROAD ITEMS

BB ORPHAN BRIDGE
BC USRA LINE CODE 1401
BD RR TRKS ON/UNDER 00/05
BE RR. MILEPOST 04683

PROGRAMMING

BL DISCRETIONARY FUNDS
BM FED. JOB NO. BR NBIS711
BN STATE JOB NUMBER 2202386

ITEMS
H TRUCK/LD1
HSTRUCK/LD2
TYPE 3 /LD3
TY.3S2 /LD4
TY.3-3 /LD5
MIL.LD /LD6
POSTED LOAD

CH MISC. RATING L

RATING (TONS)

INV. OPER.
BQ-BV CA-CG
27 46
51 86
38 63
60 99
70 99

INSPECTION DATA

90 LATEST INSPECTION 11/00
CJ CYCLE NUMBER 09
CJ TYPE INSPECTION S
91 DESIG. INSP. FREQ. 24 MO
CK INSP. CREW F
CL NEXT INSP. DATE 10/00
CM CONSULT. ARORA & ASSOC.
CN PREV. INSP. DATE S 08/96
CO PREV CONSULT. EMJ MCFARLAND
CP FEDERAL REPORT YES
CQ BRIDGE LIST
CR OFF THE ROUTE BRIDGE

92 CRITICAL FEATURE INS
A FRAC. CRIT. DET. YES
INSP. FREQUENCY 24 MO
B UNDERWATER INSP. NO
INSP. FREQUENCY MO
C OTHER SPEC. INSP. NO
INSP. FREQUENCY MO

OTHER INSP. DATES

93A FRAC. CRIT. INSP. 10/98
93B UNDERWATER INSP.
93C SPECIAL INSP.
AW ME./EL. INSP. /
AX DECK CONO SURV /
AY SPEC. TESTING /

AZ FATIGUE
DETAILS
LOC. 1 0423
LOC. 2 0422
LOC. 3

SUFFICIENCY
RATING
(NOT DEF)
98.2

PROGRAMMING INFO: GROUP: 98AM CONSULTANT: Arora & Assoc. PROJECT MANAGER: LK

(DUPLICATE S1&A)

DP. NO. BRILISTR 04/03/01

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURAL EVALUATION - STRUCTURE INVENTORY AND APPRAISALSTATE ERROR NO
FEDERAL ERROR NO
LAST UPDATE 04/03/01

AA ROUTE 6011 8 STR.NO. 1149173

AB STRUCTURE NAME ALEXANDER ROAD OVER AMTRAK

IDENTIFICATION

1 STATE NEW JERSEY
2 HIGHWAY DISTRICT 03
3 COUNTY MERCER
4 PLACE CODE 80240
A TOWN 1113
5 INVENTORY ROUTE 150000000
6 FEATURES INTERSECTED
7 FACILITY CARRIED
9 LOC. 1.0 MILE EAST OF RT 1
10 VERTICAL CLEAR 99 FT 99 IN
11 MILEPOINT 0.000
100 DEFENSE HIGHWAY N
101 PARALLEL STRUCTURE N
102 DIRECTION OF TRAFFIC 2-WAY
103 TEMPORARY STRUCTURE
16 LATITUDE 40D 18.7M
17 LONGITUDE 074D 37.8M
19 BYPASS DETOUR LENGTH 01 MI
20 TOLL 3 ON FREE ROAD
21 MAINTENANCE 01 NJDOT
22 OWNER 80 UNKNOWN

CLASSIFICATION

104 HIGHWAY SYSTEM INVENTORY ROUTE 0
26 FUNCTIONAL CLASS 16
98 BORDER BRIDGE
99 BORDER BRIDGE STRUCTURE NO
27 YEAR BUILT 1941
106 YEAR RECONSTR 0000
28 LANES ON/UNDER 02/00
29 ADT 009700
30 YR OF ADT 1998
109 TRUCK ADTT 04 %
31 DESIGN LOAD OTHER
32 APP. RDWY WIDTH 020 FT
33 BR. MEDIAN NONE
34 SKEW 00 D
35 STRUC. FLARED NO
36 SAFETY FEATURES 0000
AG BR. RAILING TYPE 09
AH RAILING HT. 6FT 06IN
37 HISTORIC SIG 5
38 NAVIG. CONTROL N/A
39 NAV. VERT. CLEAR 000 FT
40 NAV. HOR. CLEAR 0000 FT
116 MIN. NAV. VRT. CL FT

NOT ON NHS
MINOR ARTERIAL URBAN

AC NON-INV. FEATURE
AD ADMINISTRATIVE
AE ALTERNATE AGENCY
AF ALTERNATE STRUCTURE NO.

RAILROAD
AMTRAK

STRUCTURE DATA

41 OPEN/CLOSED/POSTED A OPEN-NO RESTRICTION
42 TYPE OF SERVICE HIGHWAY/
43 STRUC TYPE MAIN SPAN STL.GIRD
44 STRUC TYPE APPR SPANS STL.STR.
45 NUMBER OF SPANS MAIN 001
46 NUMBER OF APPROACH SPANS 0002
47 INVENT. ROUTE HORZ. CLEAR 20.0 FT
48 MAXIMUM SPAN LENGTH 0074 FT
49 STRUCTURE LENGTH 000146 FT
50 SIDEWALK/CURB LEFT 0.5 FT RIGHT 2.7 FT
51 BRIDGE RDWY. WIDTH CURB TO CURB 20.0 FT
52 DECK WIDTH OUT TO OUT 23.5 FT
53 VERTICAL CLEARANCE OVER DECK 99 FT 99 IN
54 MIN. VERTICAL UNDERCLEARANCE R 21 FT 05 IN
55 MIN. VERT. UNDER. (INC. SHOULDERS) 00 FT 00 IN
56 MIN. LAT. UNDERCLEARANCE RIGHT R 16.7 FT
57 MIN. LAT. UNDERCLEARANCE LEFT 0.0 FT
108 WEARING SURFACE/PROTECTIVE SYSTEM 100
A TYPE WEARING SURFACE 1 CONCRETE
B TYPE MEMBRANE 0 NONE
C TYPE DECK PROT. 0 NONE
PROPOSED IMPROVEMENTS (COST IN THOUSANDS)
75 TYPE OF WORK 311
76 IMPROVEMENT LENGTH 000176 FT
94 BRIDGE IMPROVEMENT COSTS \$002429
95 ROADWAY IMPROVEMENT COST \$000050
96 TOTAL PROJECT COST \$003998
97 YEAR OF IMPROVEMENT COST ESTIMATE 1998
114 FUTURE ADT 013580
115 YEAR OF FUTURE ADT 2018
80 STATE MAINTENANCE COST \$
BP BRIDGE TO BE DEMOLISHED/NO REPLACEMENT
DA DESCRIPTION OF PROPOSED IMPROVEMENTS
RPLC BR; INT RPRS: UPGRD SFTY FTRS, RPR&PNT
SUPSTR STL & BRGS, INSTL BR DK LMC OVRLY,
RPV APRS, BKFL NW EROSN, PTCH U/DK, DIPHRGM
SUBSTR SPLS, SL SUBSTR CKS, RMV BR DEBRIS &
VEGTN, RPR ABUTMT SLP PROTECTIONS

AI SPEED POSTING MPH
AJ SLOPE PROT. NONE
AK ABUT. 02 SEMI-STUB
AL PIER 06 CON COL BNT
AM FILL OVER 0.0 FT
AN PLAN AVAIL YES
AO UTILITY Z
AP FENDER SYSTEM
AQ CHLK FNC HT FT IN
AR SPECIAL EQUIP.
AS SPECIAL TESTING
AT SPECIAL MATERIAL
AU ADD. STRUCT. TYPE F
AV WIDENING TYPE
107 DECK STRUC. TYPE 1
110 DESIG. NAT. NETWK NO
111 NAVIGATION PROT.
112 NBIS BRIDGE YES

CONDITION RATINGS

58 DECK 4
59 SUPERSTRUCTURE 4
60 SUBSTRUCTURE 5
61 CHANNEL AND
CHAN. PROTECTION N
62 CULVERT N
BA APPROACH RDWY
CONDITION 6

REMARKS

BF (58) MORE THAN 5% SPALLS
SPALLED UNDER DECK
EXPOSED REBARS
ASPHALT PATCHED SPALLS
DETERIORATED RAILINGS
BG (59) LOSS OF SECTION
MODERATE/SEVERE RUSTING
RUSTED BEARINGS
BH (60) MODERATE SPALLING
EXPOSED REBARS
SLOPE PROTECTION DET
BI (61)
BJ (62)

64 OPER. RATING 224
66 INV. RATING 214

APPRAISAL RATINGS

67 STRUCTURAL
EVALUATION 2
68 DECK GEOMETRY 2
69 UNDERCLEARANCE
VERT. & LAT. 5
70 BRIDGE POSTING 5
71 WATERWAY ADEQ. N
72 APPR. RDWY
ALIGNMENT 3

REMARKS

BK PERCENT OVERSTRESS
113 SCOUR CRITICAL N N/A

RAILROAD ITEMS

BB ORPHAN BRIDGE Y
BC USRA LINE CODE 1401
BD RR TRKS ON/UNDR 00/04
BE RR. MILEPOST 4745

PROGRAMMING

BL DISCRETIONARY FUNDS
BM FED. JOB NO. BR NBIS711
BN STATE JOB NUMBER 2202386

ITEMS

H TRUCK/LD1
HSTRUCK/LD2
TYPE 3 /LD3
TY.3S2 /LD4
TY.3-3 /LD5
MIL.LD /LD6
POSTED LOAD

CH MISC. RATING L

RATING (TONS)

INV. OPER.
BQ-BV CA-CG
14 24
19 31
30 50
32 53

INSPECTION DATA

90 LATEST INSPECTION 11/00
CJ CYCLE NUMBER 07
CI TYPE INSPECTION S
91 DESIG. INSP. FREQ. 24 MO
CK INSP. CREW F
CL NEXT INSP. DATE 10/00
CM CONSULT. ARORA & ASSOC.
CN PREV. INSP. DATE S 08/96
CO PREV CONSULT. EMJ MCFARLAND
CP FEDERAL REPORT YES
CQ BRIDGE LIST
CR OFF THE ROUTE BRIDGE

92 CRITICAL FEATURE INS
A FRAC. CRIT. DET. YES
INSP. FREQUENCY 24 MO
B UNDERWATER INSP.
INSP. FREQUENCY NO
C OTHER SPEC. INSP.
INSP. FREQUENCY NO

OTHER INSP. DATES
93A FRAC. CRIT. INSP. 11/00
93B UNDERWATER INSP.
93C SPECIAL INSP.
AM ME./EL. INSP. /
AX DECK COND SURV /
AY SPEC. TESTING /

11/00 AZ FATIGUE
07 DETAILS
S LOC. 1 0423
24 MO LOC. 2
F LOC. 3

SUFFICIENCY
RATING
(STRUC DEF)
3.3

PROGRAMMING INFO: GROUP: 98AM CONSULTANT: Arora & Assoc. PROJECT MANAGER: LK

(DUPLICATE S1&A)

**NEW JERSEY DEPARTMENT OF TRANSPORTATION
MEMORANDUM**

TO: Andras Fekete
Manager
Bureau of Environmental Services

FROM: Stephen E. Warren *S.W.*
Manager
Bureau of Safety Programs

DATE: September 19, 2001

RE: ACCIDENT SUMMARY, RATES AND RECORDS
ROUTE 1 (M.P. 11.1 – 12.1)
WEST WINDSOR
MERCER COUNTY

This is in reference to your memorandum dated July 10, 2001 requesting this office to furnish an accident summary, accident rates and accident records for the above-mentioned location.

ACCIDENT RATES

| ROUTE | MILEPOST | CROSS-SECTION | ACTUAL ACCIDENT RATE | STATEWIDE ACCIDENT RATE FOR |
|-------|-------------|---------------------------------|----------------------|-----------------------------|
| | | | ACCS/MM | 2000 ACCS/MM |
| 1 | 11.1 – 12.1 | 4 lanes barrier no shoulders | 3.74 | 4.35 |

The accident rate for the above location indicates that the accident history for this location on Route 1 exhibits a relatively good safety performance.

Also, please find an accident summary for the subject location along with copies of police accident reports for the years 1998 through 2000 for your review.

If you have any questions, please contact Gary Stout of this office at 530-3478.

ATTACHMENTS

SEW:GS:sw

RECEIVED

SEP 19 2001

BEA

Accident Summary For Route 1

From Milepost 11.1 to 12.1

For Time Period January 1, 1998 to December 31, 2000

342 - Total Accidents

| | | | |
|--------------------------------|---|-----------------------------------|---|
| 0 - 0% Fatal | F | 264 - 77% At Intersection (45.1%) | F |
| 70 - 20% Injury | F | 78 - 23% Between Inter. | F |
| 272 - 80% Property Dam. (68.7) | F | 0 - 0% RR Crossing | F |
| 283 - 83% Same Dir. (57.7%) | F | 228 - 67% Dry Surface | F |
| 33 - 10% Angle | F | 114 - 33% Wet Surface (21.3%) | F |
| 5 - 1.5% Left Turn | F | 0 - 0% Snow or Ice | F |
| 1 - .3% Head On | F | 0 - 0% Unknown | F |
| 0 - 0% Overturned | F | | |
| 0 - 0% Pedestrian | F | | |
| 8 - 2.3% Fixed Object | F | 246 - 72% Day (70.5%) | F |
| 6 - 1.8% Animal | F | 96 - 28% Night, Dawn, Dusk | F |
| 2 - .6% Parked Vehicle | F | 0 - 0% Unknown | F |
| 0 - 0% Pedalcycle | F | | |
| 4 - 1.2% Other Types | F | | |

NOTE:

Percentages in parenthesis are 2000 State Highway Average Values corresponding to overrepresented accident categories.

**NEW JERSEY DEPARTMENT OF TRANSPORTATION
MEMORANDUM**

TO: Andras Fekete
Manager
Bureau of Environmental Services

FROM: Stephen E. Warren *SEW*
Manager
Bureau of Safety Programs

DATE: March 7, 2002

RE: **ACCIDENT RATES AND SUMMARIES FOR
ROUTE 1(M.P. 10.8 – 12.1) VARIOUS INTERSECTIONS
WEST WINDSOR, MERCER COUNTY**

This is in response to your memo dated November 19, 2001 requesting this office to furnish the above-mentioned accident data for the years 1998 through 2000.

ACCIDENT DATA RELATIVE TO OVERREPRESENTATIONS:

The accident summary relative to accident overrepresentations for the subject locations on Route 1 for the period from January 1, 1998 to December 31, 2000 is herewith attached. The percentages in parenthesis on the summary are the year 2000 statewide average values corresponding to overrepresented accident categories.

ACCIDENT RATES:

| ROUTE | MILEPOST | CROSS SECTION | ACTUAL ACCIDENT RATE ACCS/AVMIL | STATEWIDE ACCIDENT RATE FOR 2000 ACCS/AVMIL |
|-------|---------------|---|---------------------------------------|--|
| 1 | 10.76 – 11.06 | 4 lanes barrier median with shoulders | 2.27 | 2.24 |
| 1 | 11.06 – 11.29 | 4 lanes barrier median no shoulders | 8.55 | 4.35 |

The accident rates for the above-mentioned locations on Route 1 are above the statewide accident rate for similar cross-sections. Hence, a further review of the accident summary may be necessary. A review of the accident overrepresentation may provide an insight into any additional countermeasures that could be implemented to bring the accident rate more in line with the statewide average.

MAR 07 2002

ACCIDENT RATES:

| ROUTE | MILEPOST | CROSS-SECTION | ACTUAL ACCIDENT RATE ACCS/MM | STATEWIDE ACCIDENT RATE FOR 2000 ACCS/MM |
|-------|---------------|---|------------------------------------|---|
| 1 | 11.29 - 11.49 | 4 lanes barrier median no shoulders | 3.86 | 4.35 |
| 1 | 11.69 - 11.96 | 4 lanes barrier median no shoulders | 3.93 | 4.35 |

The accident rates for the above-mentioned locations indicate that the accident history for these locations on Route 1 exhibit a relatively good safety performance.

If you have any questions, please contact Gary Stout of this office at 530-3478.

Attachments

EW:GS:sw

Accident Summary For Route 1 and Alexander Road

From Milepost 10.76 to Milepost 11.06

For Time Period January 1, 1998 to December 31, 2000

57 - Total Accidents

| | | | | | |
|------------------------------------|---------|----|------------------------------|---------|----|
| 0 - 0.0% Fatal | | | 26 - 45.6% At Inter. | (45.1%) | OF |
| 15 - 26.3% Injury | | | 31 - 54.4% Between. Inter. | | OF |
| 42 - 73.7% Property Damage (68.5%) | | | 0 - 0.0% RR Crossing | | OF |
| 34 - 59.6% Same Dir. (rear) | (57.7%) | OF | | | |
| 6 - 10.5% Same Dir. (side) | | OF | 42 - 73.7% Dry Surface | | OF |
| 4 - 7.0% Angle | | OF | 10 - 17.5% Wet Surface | | OF |
| 7 - 12.3% Left Turn | (5.9%) | OF | 5 - 8.8% Snow or Ice | (3.4%) | OF |
| 0 - 0.0% Head On | | OF | 0 - 0.0% Unknown | | OF |
| 0 - 0.0% Overturned | | OF | | | |
| 0 - 0.0% Pedestrian | | OF | | | |
| 5 - 8.8% Fixed Object | | OF | 44 - 77.2% Day | (70.5%) | OF |
| 1 - 1.8% Animal | | OF | 13 - 22.8% Night, Dawn, Dusk | | OF |
| 0 - 0.0% Parked Vehicle | | OF | 0 - 0.0% Unknown | | OF |
| 0 - 0.0% Pedalcycle | | OF | | | |
| 0 - 0.0% Other Types | | OF | | | |

NOTE:

Percentages in parenthesis are 2000 State Highway Average Values corresponding to overrepresented accident categories.

** These columns indicate the number of fatal accidents in each accident category.

Accident Summary For Route 1 and Washington Road

From Milepost 11.06 to Milepost 11.29

For Time Period January 1, 1998 to December 31, 2000

| | | | | |
|-------------------------------------|----|-----------|--------------------------------|-----------|
| 133 - Total Accidents | | ** | | ** |
| 0 - 0.0% Fatal | | | 124 - 93.2% At Inter. (45.1%) | OF |
| 27 - 20.3% Injury | | | 9 - 6.8% Between. Inter. | OF |
| 106 - 79.7% Property Damage (68.5%) | | | 0 - 0.0% RR Crossing | OF |
| 83 - 62.4% Same Dir. (rear) (57.7%) | OF | | | |
| 18 - 13.5% Same Dir. (side) | OF | | 89 - 66.9% Dry Surface | OF |
| 26 - 19.5% Angle (15%) | OF | | 44 - 33.1% Wet Surface (21.2%) | OF |
| 1 - 0.8% Left Turn | OF | | 0 - 0.0% Snow or Ice | OF |
| 0 - 0.0% Head On | OF | | 0 - 0.0% Unknown | OF |
| 0 - 0.0% Overturned | OF | | | |
| 0 - 0.0% Pedestrian | OF | | | |
| 3 - 2.3% Fixed Object | OF | | 91 - 68.4% Day | OF |
| 1 - 0.8% Animal | OF | | 42 - 31.6% Night, Dawn, Dusk | OF |
| 0 - 0.0% Parked Vehicle | OF | | 0 - 0.0% Unknown | OF |
| 0 - 0.0% Pedalcycle | OF | | | |
| 1 - 0.8% Other Types | OF | | | |

NOTE:

Percentages in parenthesis are 2000 State Highway Average Values corresponding to overrepresented accident categories.

** These columns indicate the number of fatal accidents in each accident category.

Accident Summary For Route 1 and Fischer Place

From Milepost 11.29 to Milepost 11.49

For Time Period January 1, 1998 to December 31, 2000

| | | | | | |
|------------------------------------|---------|-----------|------------------------------|---------|-----------|
| 58 - Total Accidents | | ** | | | ** |
| 0 - 0.0% Fatal | | | 39 - 67.2% At Inter. | (45.1%) | OF |
| 12 - 20.7% Injury | | | 19 - 32.8% Between. Inter. | | OF |
| 46 - 79.3% Property Damage (68.5%) | | | 0 - 0.0% RR Crossing | | OF |
| 45 - 77.6% Same Dir. (rear) | (57.9%) | OF | | | |
| 6 - 10.3% Same Dir. (side) | | OF | 40 - 69.0% Dry Surface | | OF |
| 3 - 5.2% Angle | | OF | 18 - 31.0% Wet Surface | (21.2%) | OF |
| 0 - 0.0% Left Turn | | OF | 0 - 0.0% Snow or Ice | | OF |
| 0 - 0.0% Head On | | OF | 0 - 0.0% Unknown | | OF |
| 0 - 0.0% Overturned | | OF | | | |
| 0 - 0.0% Pedestrian | | OF | 44 - 75.0% Day | (70.5%) | OF |
| 3 - 5.2% Fixed Object | | OF | 14 - 24.1% Night, Dawn, Dusk | | OF |
| 1 - 1.7% Animal | | OF | 0 - 0.0% Unknown | | OF |
| 0 - 0.0% Parked Vehicle | | OF | | | |
| 0 - 0.0% Pedalcycle | | OF | | | |
| 0 - 0.0% Other Types | | OF | | | |

NOTE:

Percentages in parenthesis are 2000 State Highway Average Values corresponding to overrepresented accident categories.

** These columns indicate the number of fatal accidents in each accident category.

Accident Summary For Route 1 and Harrison Street

From Milepost 11.69 to Milepost 11.96

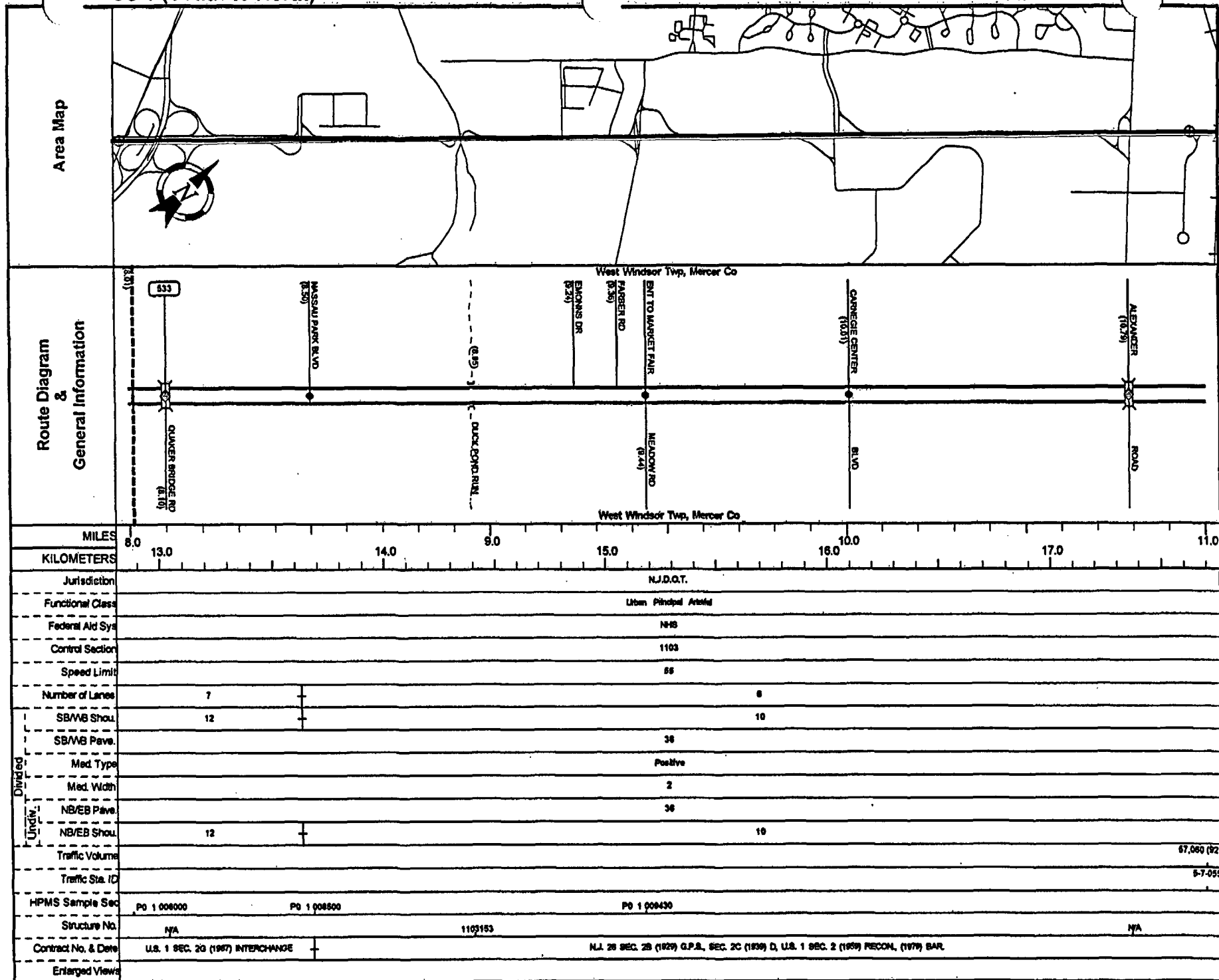
For Time Period January 1, 1998 to December 31, 2000

| 96 - Total Accidents | | ** | | | ** |
|------------------------------------|---------|----|--------------------------------------|---------|----|
| 0 - 0.0% Fatal | | | 75 - 78.1% At Inter. | (45.1%) | OF |
| 26 - 27.1% Injury | | | 21 - 21.9% Between. Inter. | | OF |
| 70 - 72.9% Property Damage (68.5%) | | | 0 - 0.0% RR Crossing | | OF |
| 67 - 69.8% Same Dir. (rear) | (57.7%) | OF | | | |
| 10 - 10.4% Same Dir. (side) | | OF | 61 - 63.5% Dry Surface | | OF |
| 8 - 8.3% Angle | | OF | 35 - 36.5% Wet Surface | (21.2%) | OF |
| 5 - 5.2% Left Turn | | OF | 0 - 0.0% Snow or Ice | | OF |
| 0 - 0.0% Head On | | OF | 0 - 0.0% Unknown | | OF |
| 0 - 0.0% Overturned | | OF | | | |
| 0 - 0.0% Pedestrian | | OF | 68 - 70.8% Day | (70.5%) | OF |
| 4 - 4.2% Fixed Object | | OF | 28 - 29.2% Night, Dawn, Dusk (28.6%) | | OF |
| 0 - 0.0% Animal | | OF | 0 - 0.0% Unknown | | OF |
| 0 - 0.0% Parked Vehicle | | OF | | | |
| 0 - 0.0% Pedalcycle | | OF | | | |
| 2 - 2.1% Other Types | | OF | | | |

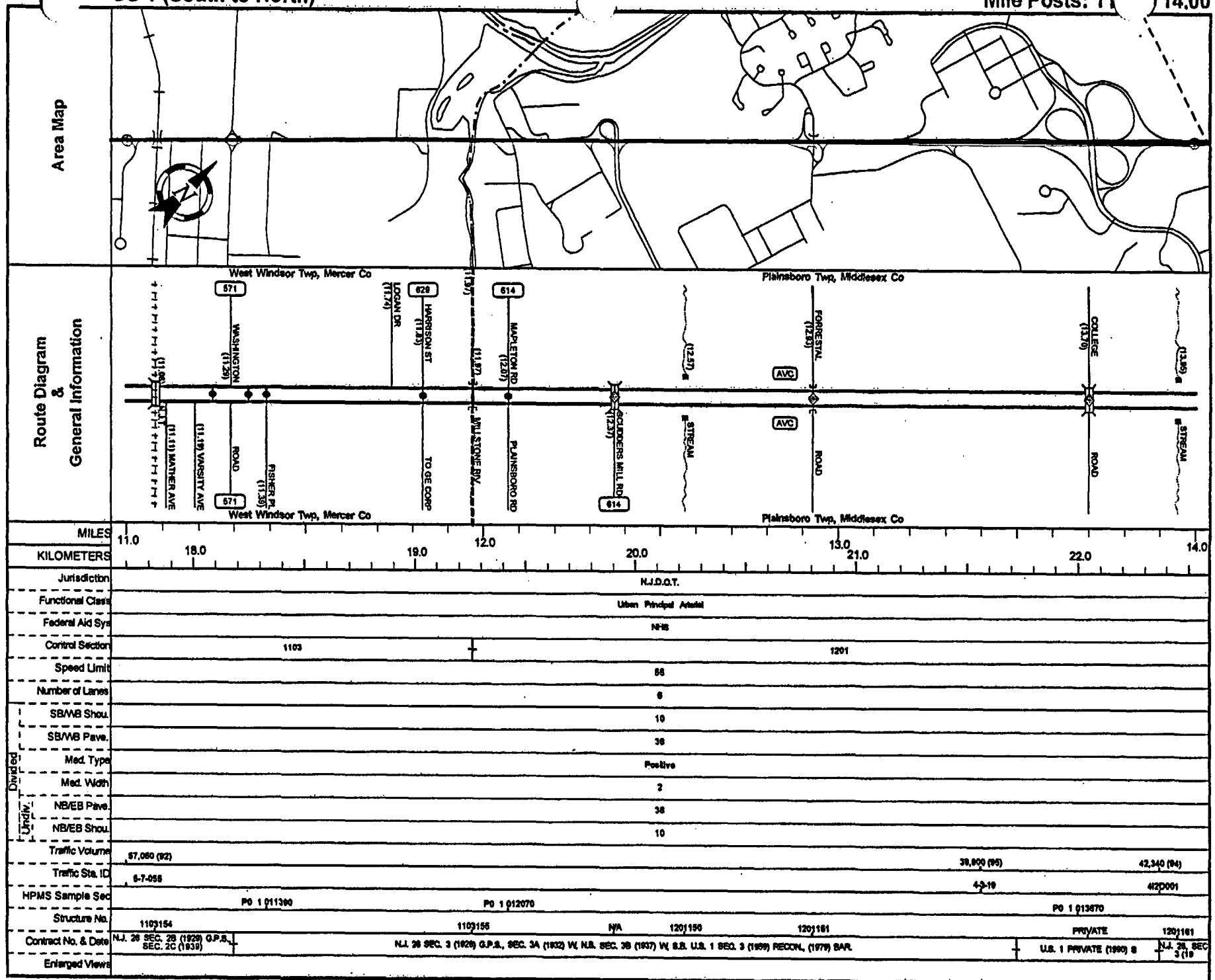
NOTE:

Percentages in parenthesis are 2000 State Highway Average Values corresponding to overrepresented accident categories.

** These columns indicate the number of fatal accidents in each accident category.

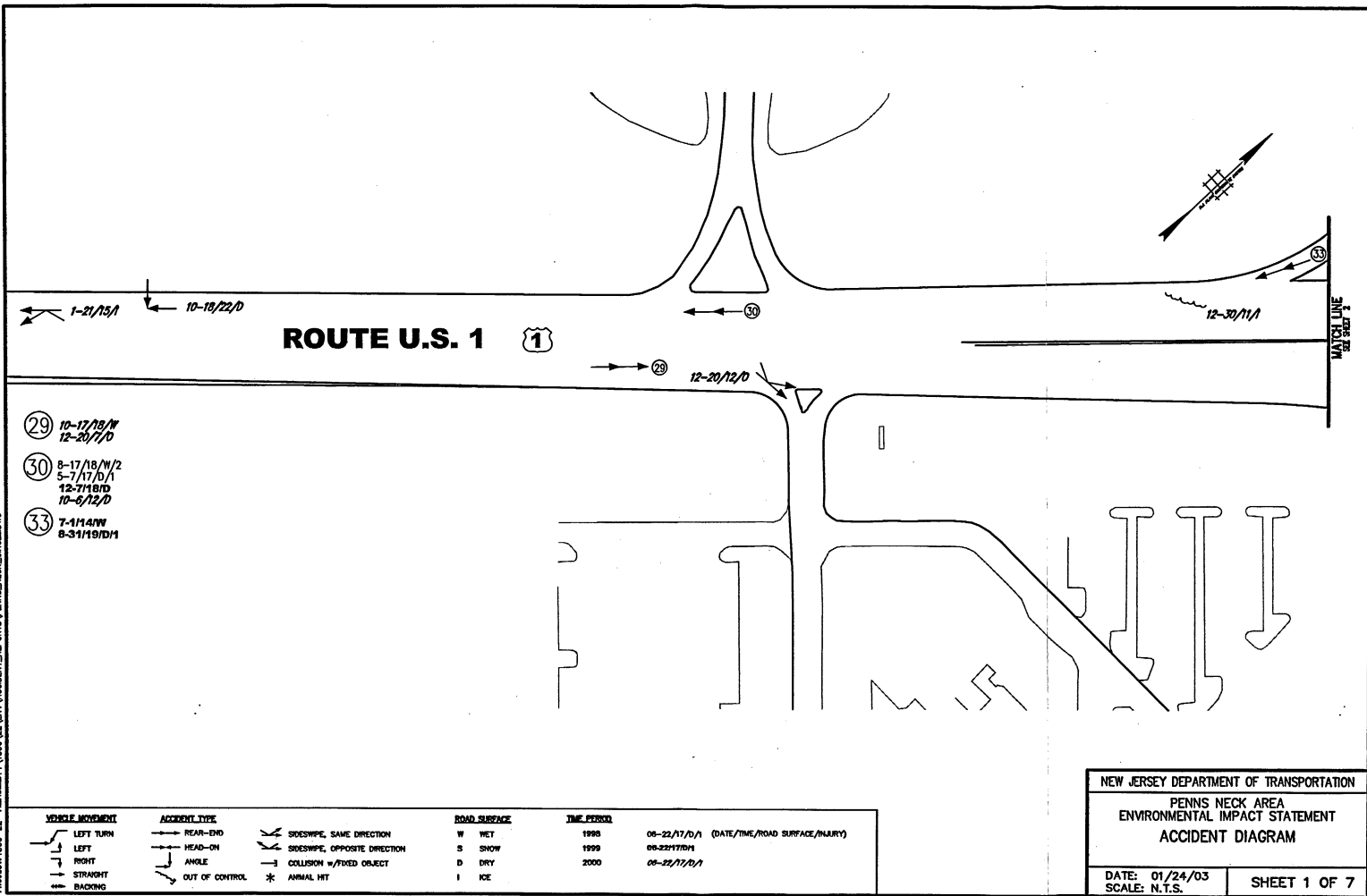


SRI = 00000001



SRI = 00000001

2-SHEET, NONE
 LAST EDIT 06/22/03
 PROJECT 100-22-22
 THE MAIN P:\100-22\ENV\ACCIDENT_REPORTS\PENNS_NECK_CIRCLE.DWG



MATCH LINE
 SEE SHEET 1

ROUTE U.S. 1 **1**

ALEXANDER RD.

MATCH LINE
 SEE SHEET 2

- (26) 12-8/12/D
 6-7/13/D/1
- (27) 4-22/9/D/2
 4-20/7/D/2
 12-21/20/D
 12-3/17/D
 7-10/7/D/1
 8-1/10/D
 11-1/7/D
 3-30/7/D/2
 8-27/17/D
 11-21/7/D
- (28) 2-25/8/D
 8-18/8/D
 8-24/17/D
 3-3/14/D
 9-11/7/D
- (29) 10-17/18/W
 12-20/7/D
- (30) 8-17/18/W/2
 5-7/17/D/1
 12-7/18/D
 10-6/12/D
- (31) 11-20/17/W
 12-22/16/D
- (32) 10-29/13/D
 11-28/8/D
- (33) 7-1/14/W
 8-31/19/D/1
- (34) 12-20/19/D/2
 8-20/22/D/1
 10-18/13/D
- (35) 7-14/21/D
 11-25/12/D
- (36) 12-24/00/1
 6-12/15/D/1
- (37) 2-9/08/D/2
 11-10/11/D
- (38) 4-3/8/D
 10-5/15/D
 12-14/19/W

11-10/11/D

10-14/9/D

7-17/14/D

1-16/8/W

2-4/3/1

1-20/14/D

VEHICLE MOVEMENT

← LEFT TURN
 ← LEFT
 → RIGHT
 → STRAIGHT
 → BACKING

ACCIDENT TYPE

→ REAR-END
 → HEAD-ON
 → ANGLE
 → OUT OF CONTROL

↘ SIDESWIP, SAME DIRECTION
 ↘ SIDESWIP, OPPOSITE DIRECTION
 → COLLISION w/ FIXED OBJECT
 * ANIMAL HIT

ROAD SURFACE

W WET
 S SNOW
 D DRY
 I ICE

TIME PERIOD

1995
 1998
 2000

06-22/17/D/1 (DATE/TIME/ROAD SURFACE/INJURY)
 06-22/17/D/1
 06-22/17/D/1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACCIDENT DIAGRAM

DATE: 01/24/03
 SCALE: N.T.S.

SHEET 2 OF 7

MATCH LINE
SEE SHEET 2

MATCH LINE
SEE SHEET 3

ROUTE U.S. 1



NJ TRANSIT "DINKY" R.R.

VARSITY AVE.

- Q 06-22/17/D
 09-30/17/D
 03-27/07/D
 05-18/11/D/1
- R 04-14/09/D
 05-22/09/D
 04-03/17/D
 08-29/17/D
 11-29/08/D
- S 08-26/09/D
 05-12/17/D/1
 12-22/17/D
 07-19/18/D
- T 05-22/08/D
 03-23/17/D
 11-17/07/D
- 35 7-14/21/D
 11-25/12/D
- 38 4-3/8/D
 10-5/15/D
 12-14/19/W

VEHICLE MOVEMENT
 LEFT TURN
 LEFT
 RIGHT
 STRAIGHT
 BACKING

ACCIDENT TYPE
 REAR-END
 HEAD-ON
 ANGLE
 OUT OF CONTROL

SWERVE, SAME DIRECTION
 SWERVE, OPPOSITE DIRECTION
 COLLISION w/FIXED OBJECT
 ANIMAL HIT

ROAD SURFACE
 W WET
 S SNOW
 D DRY
 I ICE

TIME PERIOD

1000
 1999
 2000

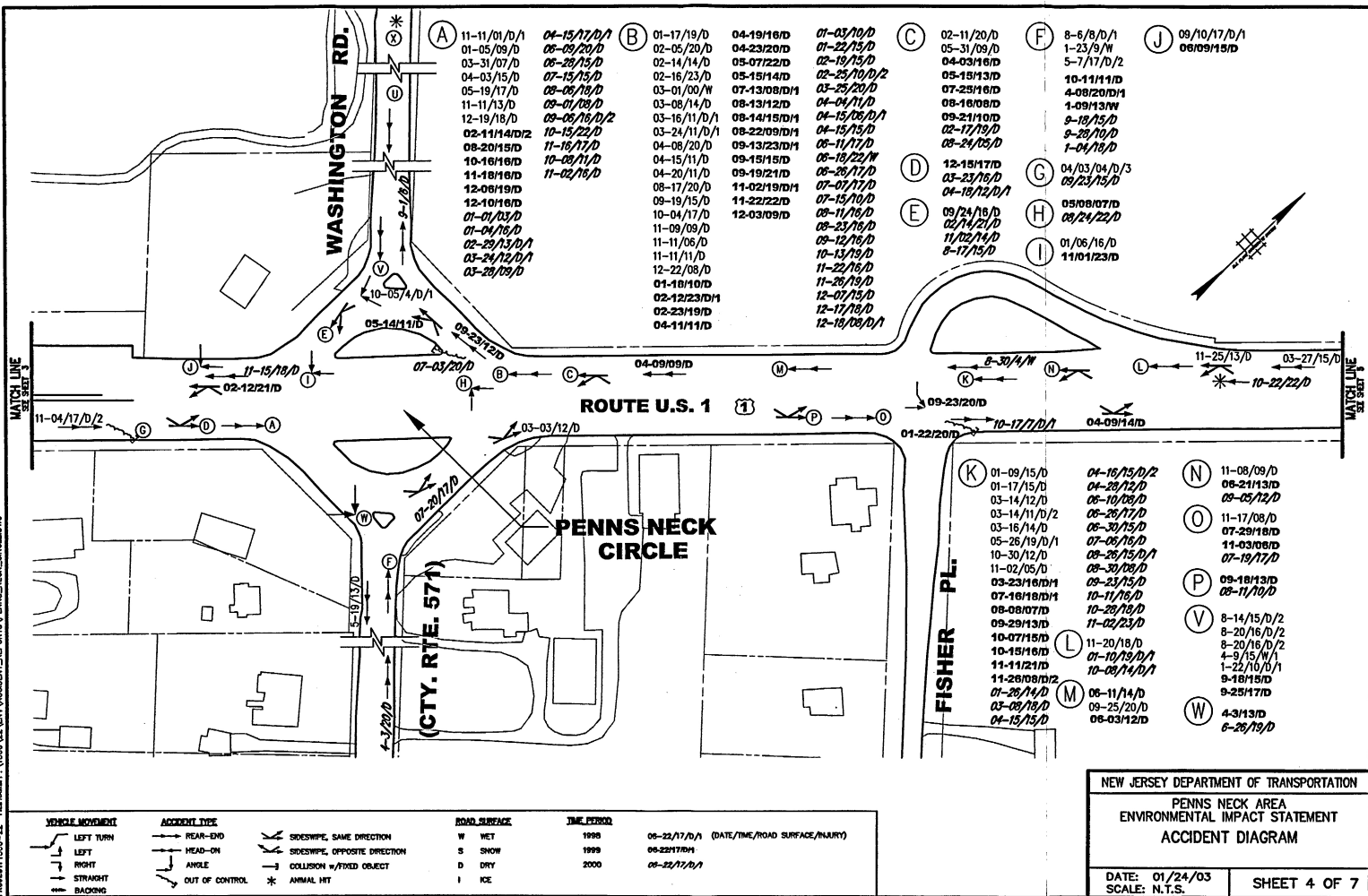
05-22/17/D/1 (DATE/TIME/ROAD SURFACE/HOUR)
 06-22/17/D/1
 08-22/17/D/1

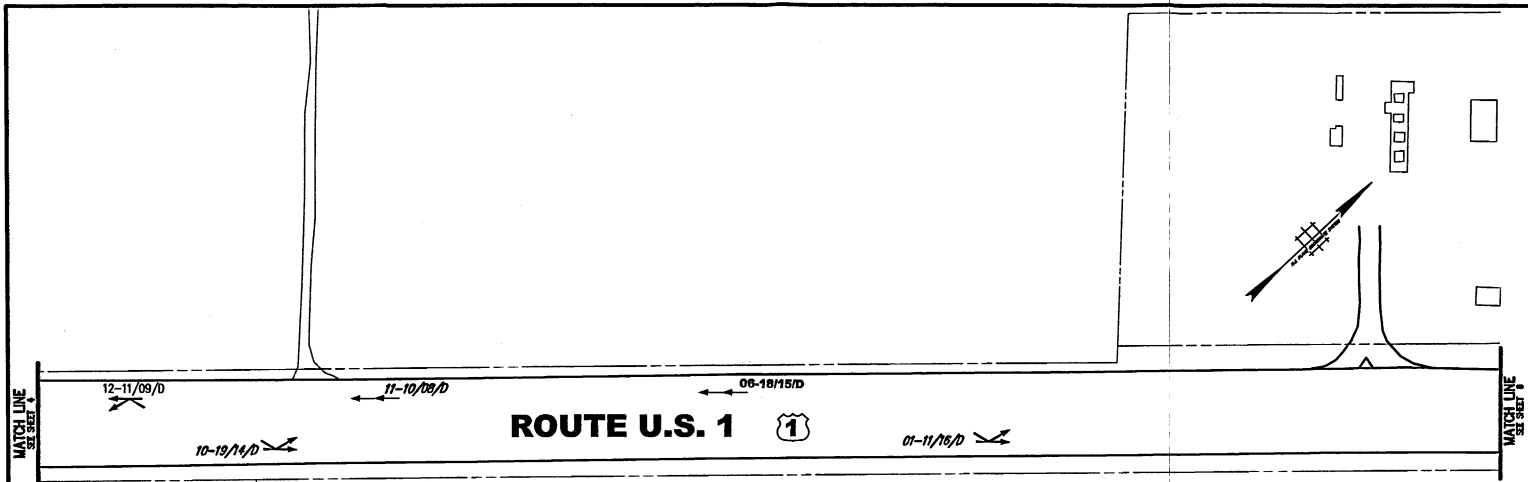
NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACCIDENT DIAGRAM

DATE: 01/23/03
 SCALE: N.T.S.






SHEET 3 OF 7













ROUTE U.S. 1 

01-11/16/D 

 LEFT TURN
 LEFT
 RIGHT
 STRAIGHT
 BACKING

 REAR-END
 HEAD-ON
 ANGLE
 OUT OF CONTROL

 SIDESWIPE, SAME DIRECTION
 SIDESWIPE, OPPOSITE DIRECTION
 COLLISION w/FIXED OBJECT
 ANIMAL HIT

| | |
|---|------|
| W | WET |
| S | SNOW |
| D | DRY |
| I | ICE |

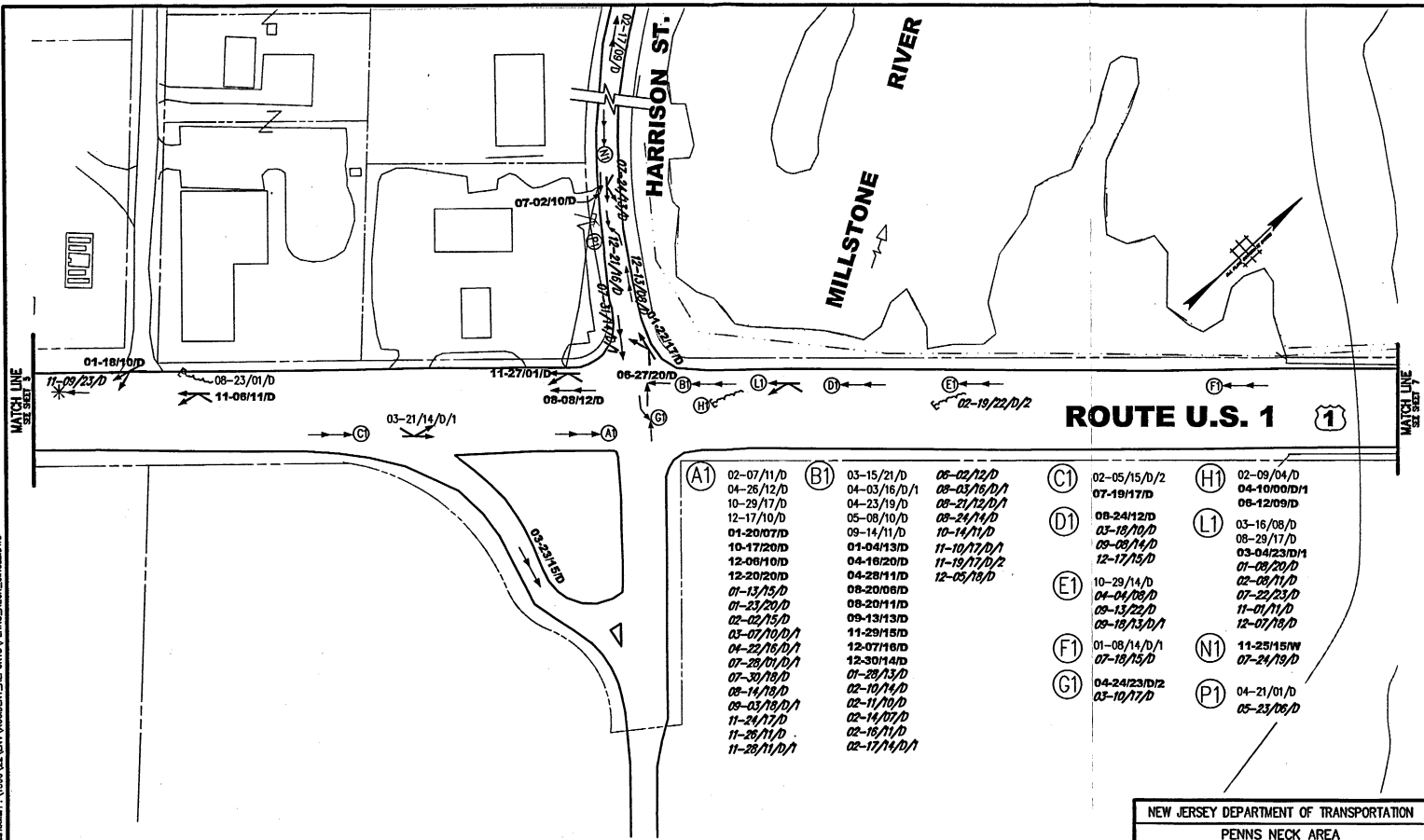
1998
1999
2000

06-22/17/D/1 (DATE/TIME/ROAD SURFACE/INJURY)
06-22/17/D/1
06-22/17/D/1

PENNS NECK AREA
ENVIRONMENTAL IMPACT STATEMENT
ACCIDENT DIAGRAM

DATE: 01/24/03
SCALE: N.T.S.

SHEET 5 OF 7



VEHICLE MOVEMENT

LEFT TURN
 LEFT
 RIGHT
 STRAIGHT
 BACKING

ACCIDENT TYPE

REAR-END
 HEAD-ON
 ANGLE
 OUT OF CONTROL

SKEW, SAME DIRECTION
 SKEW, OPPOSITE DIRECTION
 COLLISION w/FIXED OBJECT
 ANIMAL HIT

ROAD SURFACE

W WET
 S SNOW
 D DRY
 I ICE

TIME PERIOD

1998
 1999
 2000

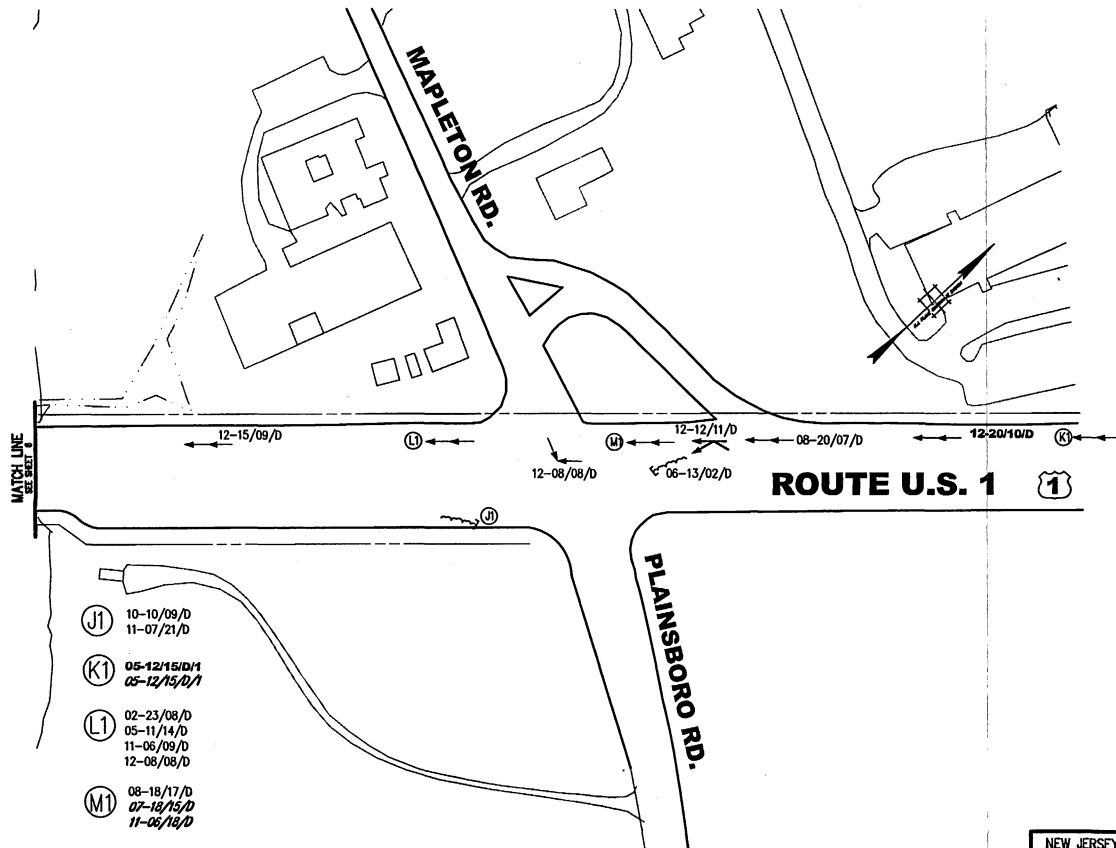
06-22/17/D/1 (DATE/TIME/ROAD SURFACE/INJURY)
 06-22/17/D/1
 06-22/17/D/1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACCIDENT DIAGRAM

DATE: 01/24/03
 SCALE: N.T.S.

SHEET 6 OF 7



ROUTE U.S. 1

1

PLAINSBORO RD.

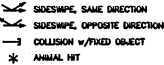
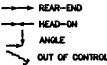
MAPLETON RD.

MATCH LINE

VEHICLE MOVEMENT



ACCIDENT TYPE



ROAD SURFACE



TIME PERIOD



NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
ENVIRONMENTAL IMPACT STATEMENT
ACCIDENT DIAGRAM

DATE: 01/24/03
SCALE: N.T.S.

SHEET 7 OF 7

PENNS NECK AREA EIS
Summary of Intersection Level-of-Service
Alternative Comparison- 2028 AM PEAK HOUR

| NO. | N/S Street | E/W Street | | NoBuild | Alt-A | Alt-A1 | Alt-A2 | Alt-A3 | Alt-A4 | Alt-B | Alt-B1 | Alt-B2 | Alt-C | Alt-C1 | Alt-D | Alt-D1 | Alt-D2 | Alt-E | Alt-F | Alt-F1 | Alt-G/G1 | Alt-G2 |
|-----|-----------------------|--------------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------------|------------|
| 1 | Route 1 NB Ramp | Alexander Road | LOS Delay | C 28.7 | C 23.7 | C 25.9 | C 23.1 | C 23.3 | B 19.8 | C 22.5 | C 21.7 | C 31.2 | D 45.6 | C 24.3 | C 21.3 | B 17.0 | B 19.0 | C 21.3 | C 20.9 | C 20.5 | C 31.4 | E 70.7 |
| 2 | Route 1 | Washington Road | LOS Delay | F . | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | F / F 362/360 | N/A |
| 3 | Route 1 | Fisher Pl | LOS Delay | F 268.0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | Route 1 | Harrison Street | LOS Delay | F 352.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | F / F 360/370 | N/A |
| 5 | Carnegie Way | Alexander Road | LOS Delay | B 19.5 | B 19.8 | B 19.6 | B 19.3 | B 19.4 | B 19.1 | C 20.9 | B 19.5 | B 19.7 | B 19.6 | C 24.1 | B 19.2 | B 19.1 | B 19.1 | C 20.7 | B 19.5 | B 19.7 | B 19.2 | B 19.7 |
| 6 | Roszel Road | Alexander Road | LOS Delay | F 218.0 | D 53.2 | D 54.9 | E 56.0 | D 51.5 | E 72.8 | D 49.0 | E 65.0 | E 75.5 | F 100.0 | E 79.5 | E 77.0 | E 67.3 | E 67.3 | E 57.9 | E 69.3 | E 75.9 | D 62.0 | E 67.9 |
| 7 | Bear Brook /Vaughn | Alexander Road | LOS Delay | D 48.7 | F 161.8 | F 163.4 | F 125.4 | F 159.4 | F 146.4 | D 42.9 | F 106.8 | F 108.7 | F 143.8 | F 119.6 | F 141.5 | F 152.5 | F 152.5 | F 113.0 | F 139.0 | F 189.3 | F 81.3 | E 70.8 |
| 8 | North Post Road | Alexander Road | LOS Delay | D 47.7 | C 34.3 | C 23.5 | C 32.2 | C 22.9 | D 39.6 | D 36.6 | E 75.4 | C 23.4 | C 33.9 | D 47.9 | C 29.3 | D 35.2 | D 35.2 | C 22.3 | C 27.6 | B 19.2 | C 32.4 | F 113.9 |
| 9* | Wallace Road | Alexander Road | LOS Delay | F . | F 650.2 | F . | F . | F . | F 617.8 | F . | F 280.1 | F . | F 395 | F 614.2 | F 691 | F 809 | F 809 | F . | F . | F . | F 449 | F . |
| 10 | Wallace / Cranbury | CR 571 | LOS Delay | F 82.7 | F 87.4 | F 86.5 | E 79.4 | F 114.6 | F 99.5 | F 126.6 | F 87.7 | F 100.4 | F 82.5 | F 71.9 | F 92.6 | F 99.7 | F 99.7 | F 96.3 | F 99.5 | F 112.1 | E 77.1 | E 64.8 |
| 11 | Alexander Road | CR 571 | LOS Delay | F 125.3 | F 146.8 | F 155.4 | F 153.1 | F 177.2 | F 146.4 | F 178.7 | F 159.3 | F 177.5 | E 67.0 | F 94.2 | F 159.9 | F 169.0 | F 109.4 | F 155.2 | F 156.3 | F 152.9 | F 124.0 | F 111.8 |
| 12 | Clarksville Road | North Post Road | LOS Delay | F 191.9 | F 148.9 | F 152.5 | F 102.8 | F 132.8 | F 116.6 | F 155.8 | F 80.7 | F 134.7 | F 123.8 | F 125.2 | F 150.7 | F 162 | F 144.8 | F 139.2 | F 110.6 | F 130.6 | F 129.8 | F 264.5 |
| 13 | Clarksville Road | CR 571 | LOS Delay | F 95.3 | F 108.8 | F 122.8 | F 111.0 | F 117.3 | F 102.9 | F 120.2 | F 106.8 | F 102.1 | E 72.7 | E 72.7 | F 101.5 | F 104.3 | F 219.9 | F 107.1 | F 96.6 | F 93.7 | F 114.2 | F 167.6 |
| 14 | Canal Pointe Bld | Alexander Road | LOS Delay | C 25.5 | C 24.8 | C 27.5 | C 25.8 | C 25.5 | C 26.6 | C 24.9 | C 25.7 | E 59.3 | D 49.4 | D 40.1 | C 32 | C 33.4 | C 33.4 | C 34.3 | C 24.9 | C 24.3 | C 25.1 | D 44.7 |
| 15 | Faculty Road | Alexander Road | LOS Delay | C 32.5 | C 28.0 | C 32.6 | C 29.6 | C 27.1 | C 25.7 | C 26.0 | C 24.9 | C 28.3 | C 33.1 | D 53.3 | C 27.6 | C 30.7 | C 30.7 | D 36.6 | C 24.7 | C 22.2 | C 25.5 | C 32.3 |
| 16 | Faculty Road | Washington Road | LOS Delay | F 124.9 | E 63.8 | E 62.9 | D 43.3 | E 69.3 | D 40.1 | F 97.9 | F 105.8 | E 58.8 | F 85.7 | F 85.3 | D 36.8 | D 39.7 | D 39.7 | E 55.8 | C 27.9 | C 28.3 | F 115 | E 70.9 |
| 17 | Faculty Road | Harrison Street | LOS Delay | C 30.4 | D 46.4 | D 38.1 | F 80.8 | F 94.2 | E 79.9 | C 23.5 | C 24.0 | C 24.4 | B 18.2 | B 18.2 | F 86.9 | E 55.7 | E 55.7 | E 57.0 | F 157.1 | F 123.9 | C 23.8 | C 28.3 |
| 18 | NJ-27 | Bayard Lane | LOS Delay | F 126.4 | F 150.8 | F 132.8 | F 137 | F 146.0 | F 140.7 | F 170.1 | F 223.4 | F 176.5 | F 140.6 | F 140.6 | F 158.7 | F 153.8 | F 153.8 | F 189.1 | F 128.7 | F 120.5 | F 111.3 | F 212.9 |
| 19* | NJ-27 | Mercer Street | LOS Delay | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . |
| 20 | NJ-27 | University Pl | LOS Delay | C 23.1 | B 18.5 | B 19.0 | B 21.4 | B 17.3 | B 16.9 | B 19.6 | B 19.4 | B 18.7 | B 18.5 | B 17.7 | C 23.4 | C 21.4 | C 21.4 | C 22.8 | C 23.3 | C 26.2 | C 23.4 | B 19.8 |
| 21 | NJ-27 | Washington Road | LOS Delay | F 322.5 | E 69.4 | F 152.0 | F 159.8 | F 90.9 | E 67.8 | F 180.2 | F 156.1 | F 149.6 | F 198.5 | F 165.4 | F 85.7 | F 85.7 | F 102.5 | F 155.3 | F 82.8 | D 43.3 | F 183.8 | F 108.3 |
| 22 | NJ-27 | Harrison Street | LOS Delay | F 197.6 | F 136.9 | F 139.7 | F 129.6 | F 114.8 | F 139.3 | F 113.3 | F 134.7 | F 137.8 | F 175 | F 131.3 | F 126.5 | F 103.3 | F 93.1 | F 123.6 | F 140.1 | F 142.0 | F 238.9 | F 158.1 |

* Unsignalized Intersection

Note: For Unsignalized Intersection, LOS represents the critical movement on side street

PENNS NECK AREA EIS
Summary of Intersection Level-of-Service
Alternative Comparison- 2028 PM PEAK HOUR

| NO. | N/S Street | E/W Street | | NoBuild | Alt-A | Alt-A1 | Alt-A2 | Alt-A3 | Alt-A4 | Alt-B | Alt-B1 | Alt-B2 | Alt-C | Alt-C1 | Alt-D | Alt-D1 | Alt-D2 | Alt-E | Alt-F | Alt-F1 | Alt-G/G1 | Alt-G2 |
|-----|-----------------------|--------------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------------|------------|
| 1 | Route 1 NB Ramp | Alexander Road | LOS Delay | C 28.1 | C 21.9 | C 21.4 | B 19.8 | C 21.4 | C 22.9 | C 23.5 | C 22.5 | C 30.8 | C 28.2 | C 23.0 | C 21.8 | C 22.0 | C 28.0 | C 21.4 | C 23.6 | C 23.5 | C 28.1 | C 28.4 |
| 2 | Route 1 | Washington Road | LOS Delay | F 411.8 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | F / F 440/415 | N/A |
| 3 | Route 1 | Fisher Pl | LOS Delay | F 282.3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | Route 1 | Harrison Street | LOS Delay | F 339.7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | F / F 324/230 | N/A |
| 5 | Carnegie Way | Alexander Road | LOS Delay | B 19.5 | B 18.8 | B 19.0 | B 18.9 | B 19.2 | B 19.4 | B 19.8 | B 18.9 | B 19.8 | B 19.1 | C 20.8 | B 19.3 | B 19.3 | B 19.3 | B 19.6 | B 19.0 | B 19.3 | B 19.5 | B 19.3 |
| 6 | Roszel Road | Alexander Road | LOS Delay | F 239.5 | D 42.9 | D 53.3 | D 43.3 | E 64.9 | D 49.8 | D 42.0 | D 50.6 | D 48.2 | E 66.3 | E 68.0 | D 45.1 | D 45.7 | E 80.0 | D 49.4 | E 58.9 | D 44.1 | D 47.7 | D 49.4 |
| 7 | Bear Brook /Vaughn | Alexander Road | LOS Delay | C 30.9 | C 26.9 | E 48.9 | D 36.7 | D 54.3 | D 48.2 | D 38.2 | E 78.6 | D 47.8 | D 45.2 | E 56.7 | D 35.8 | D 35.5 | D 45.0 | D 39.5 | D 45.2 | D 41.5 | C 53.3 | D 50.8 |
| 8 | North Post Road | Alexander Road | LOS Delay | F 97.1 | D 44.9 | E 55.0 | D 48.3 | E 70.6 | D 51.8 | F 91.4 | D 37.1 | D 46.9 | C 32.4 | D 41.8 | E 56 | E 56.8 | D 46.1 | E 79.8 | D 48.7 | F 81.4 | D 50.9 | F 117.2 |
| 9* | Wallace Road | Alexander Road | LOS Delay | F . | F 499.9 | F 249.2 | F 212.9 | F 375.3 | F 223.4 | F . | F 113.0 | F 73.1 | F 103.6 | F 126.5 | F 312.1 | F 210.3 | F 210.3 | F 384.8 | F . | F 225.1 | F 879 | F . |
| 10 | Wallace / Cranbury | CR 571 | LOS Delay | F 130.1 | F 126.5 | F 122.8 | F 123.9 | F 105.3 | F 116.6 | F 155.1 | F 137.7 | F 140.1 | F 97.5 | F 85.1 | F 114.4 | F 110.5 | F 122.4 | F 111.2 | F 136.2 | F 133.3 | E 71.7 | F 93.2 |
| 11 | Alexander Road | CR 571 | LOS Delay | F 127.2 | F 96.1 | F 104.7 | F 102.8 | F 106.8 | F 104.1 | F 100.2 | F 117.7 | F 108.7 | F 87.2 | F 85.0 | F 96.4 | F 101.8 | F 101.8 | F 84.4 | F 109.1 | F 104.1 | F 98.9 | E 77.9 |
| 12 | Clarksville Road | North Post Road | LOS Delay | F 159.4 | F 113.3 | F 130.9 | F 128.4 | F 139.7 | F 91.7 | F 183.2 | F 85.7 | F 138.4 | F 147.3 | F 155.9 | F 156.5 | F 142.6 | F 149 | F 129.7 | F 208.5 | F 163.3 | F 132.4 | F 218.6 |
| 13 | Clarksville Road | CR 571 | LOS Delay | F 134.9 | F 110.4 | F 106.6 | F 107.5 | F 102.1 | F 110.4 | F 124.2 | F 110.0 | F 109.3 | F 81.8 | F 84.8 | F 100.9 | F 100.9 | F 100.9 | F 107.7 | F 127.7 | F 113.9 | F 101.5 | F 119.6 |
| 14 | Canal Pointe Blvd | Alexander Road | LOS Delay | E 80 | D 39.5 | D 40.4 | D 41.9 | D 39.3 | D 43.1 | C 35.0 | C 32.3 | F 96.5 | E 76.9 | F 81.0 | D 41 | D 42.6 | D 42.6 | D 43.7 | D 36.5 | D 37.2 | E 55.4 | F 89.2 |
| 15 | Faculty Road | Alexander Road | LOS Delay | C 24.4 | B 19.9 | B 19.4 | B 20.0 | B 18.6 | B 19.1 | B 18.2 | B 18.1 | B 17.6 | C 26.0 | C 26.2 | C 23.0 | C 21.2 | C 21.2 | C 22.3 | C 28.2 | C 22.3 | B 19.3 | C 21.9 |
| 16 | Faculty Road | Washington Road | LOS Delay | D 41.8 | C 23.9 | C 23.5 | C 23.1 | C 22.8 | C 25.7 | C 25.7 | C 24.4 | C 30.4 | C 38.5 | C 25.7 | C 24.7 | C 25.6 | C 25.6 | C 26.9 | C 21.4 | C 28.2 | C 30.8 | D 38.6 |
| 17 | Faculty Road | Harrison Street | LOS Delay | C 30.8 | E 68.5 | E 56.5 | E 77.7 | D 52.3 | F 113.3 | C 32.7 | C 33.9 | D 44.1 | C 25.3 | D 38.1 | E 75.8 | E 56.6 | E 56.6 | C 30.5 | F 106.3 | F 175.7 | D 36.0 | C 26.9 |
| 18 | NJ-27 | Bayard Lane | LOS Delay | F 149.3 | F 206.2 | F 175.2 | F 158.4 | F 172.5 | F 151.6 | F 179.8 | F 148.2 | F 228.4 | F 106.9 | F 217.0 | F 168.1 | F 152.5 | F 152.5 | F 140.8 | F 163.7 | F 188.9 | F 120.3 | F 232.5 |
| 19* | NJ-27 | Mercer Street | LOS Delay | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . | F . |
| 20 | NJ-27 | University Pl | LOS Delay | C 23.4 | B 18.2 | B 18.1 | B 16.9 | B 17.2 | B 19.1 | B 18.1 | B 18.7 | B 18.4 | B 17.4 | B 17.6 | B 18.4 | B 18.1 | B 18.1 | B 17.5 | C 20.1 | B 19.7 | C 22.5 | C 21.9 |
| 21 | NJ-27 | Washington Road | LOS Delay | F 150.4 | E 69.0 | E 60.6 | D 35.0 | D 36.8 | D 44.9 | C 34.0 | D 40.4 | C 34.7 | C 28.3 | D 43.9 | C 34.0 | D 36.9 | D 36.9 | C 34.5 | D 39.7 | D 36.4 | D 54.9 | E 58.7 |
| 22 | NJ-27 | Harrison Street | LOS Delay | F 152.2 | F 149.9 | F 139.6 | F 147.2 | F 159.5 | F 144.0 | F 143.5 | F 121.6 | F 176.8 | F 152.0 | F 137.8 | F 147.0 | F 137.5 | F 137.5 | F 124.5 | F 163.5 | F 144.1 | F 184.5 | F 139.7 |

* Unsignalized Intersection

Note: For Unsignalized Intersection, LOS represents the critical movement on side street

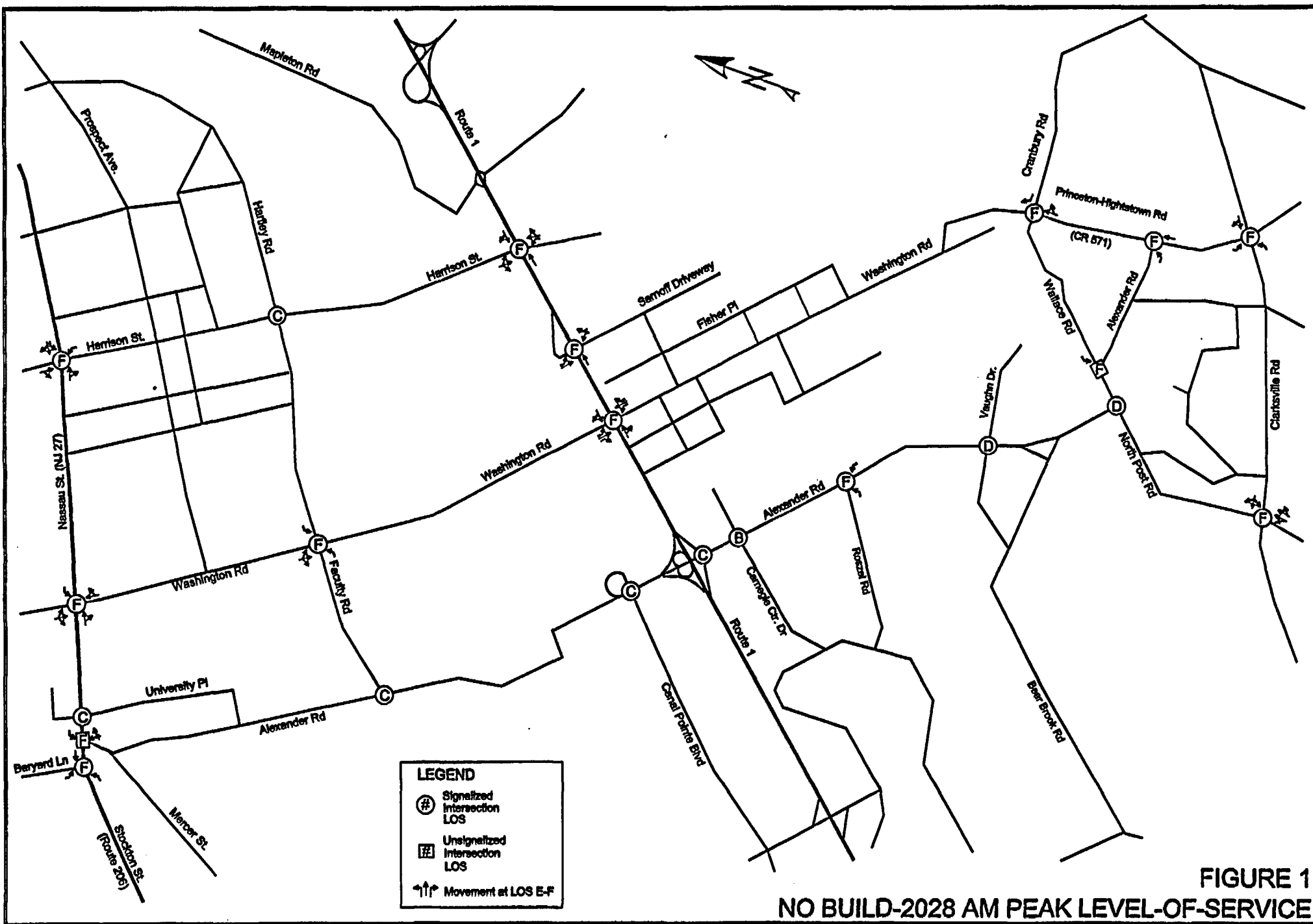
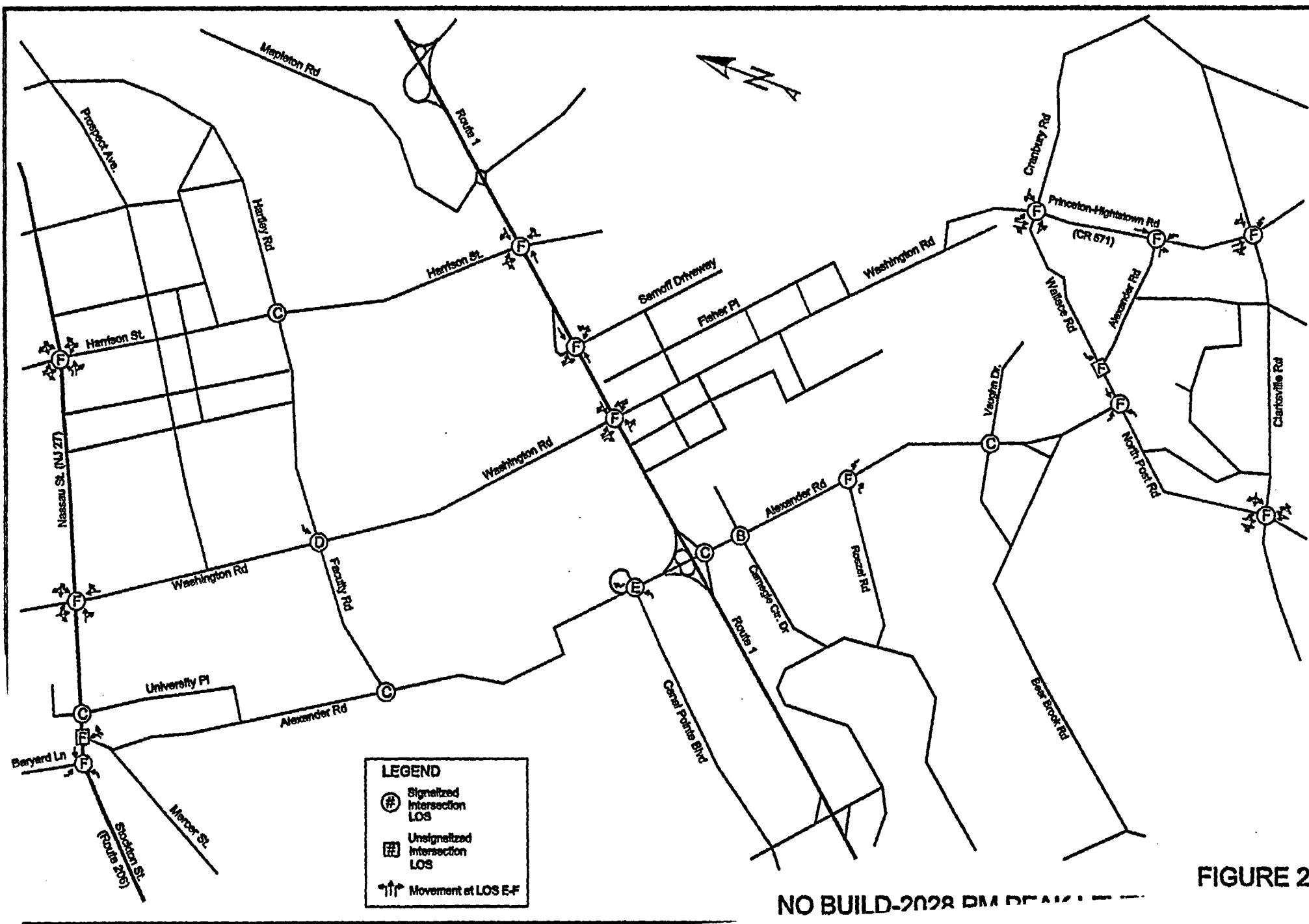
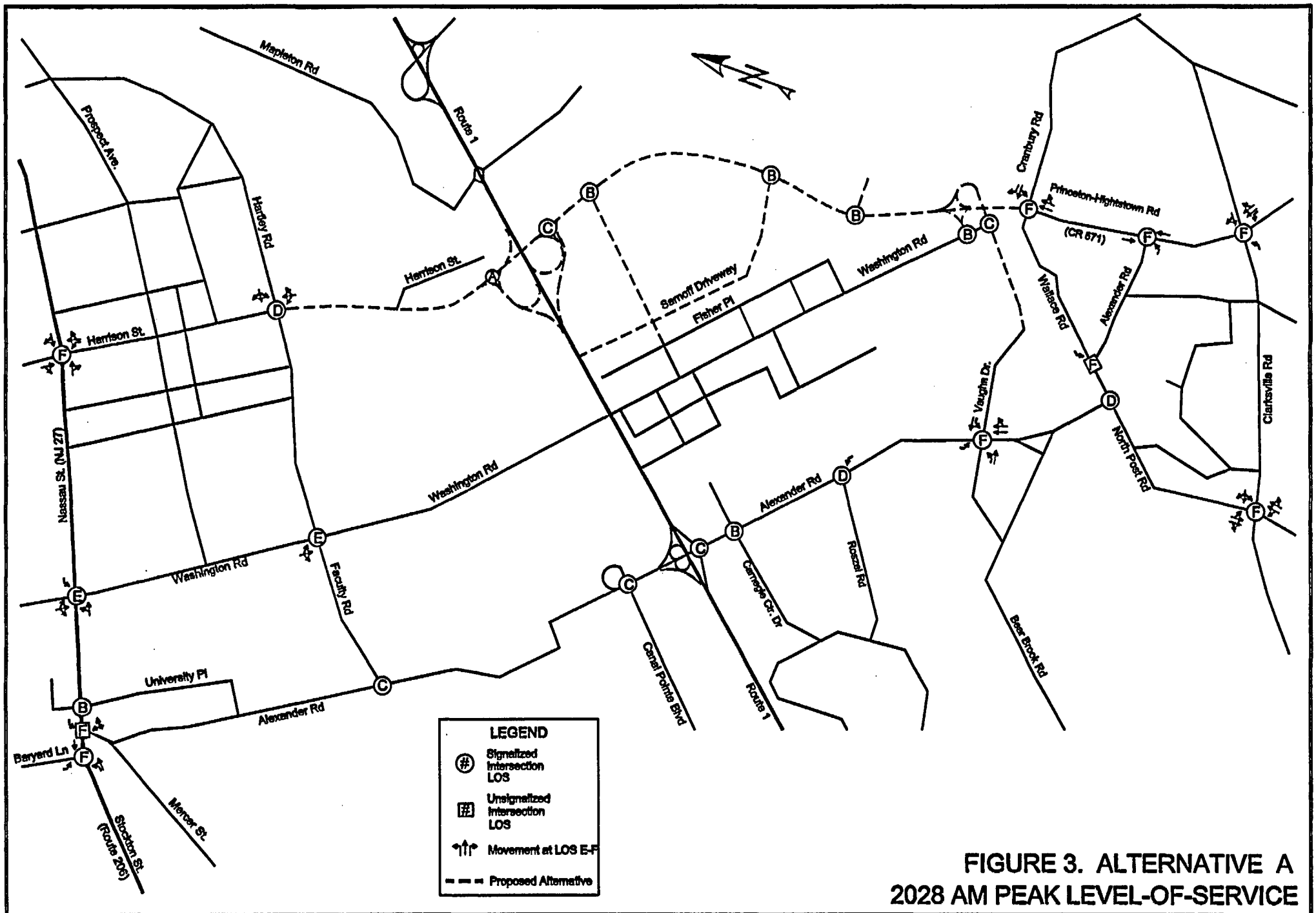


FIGURE 1

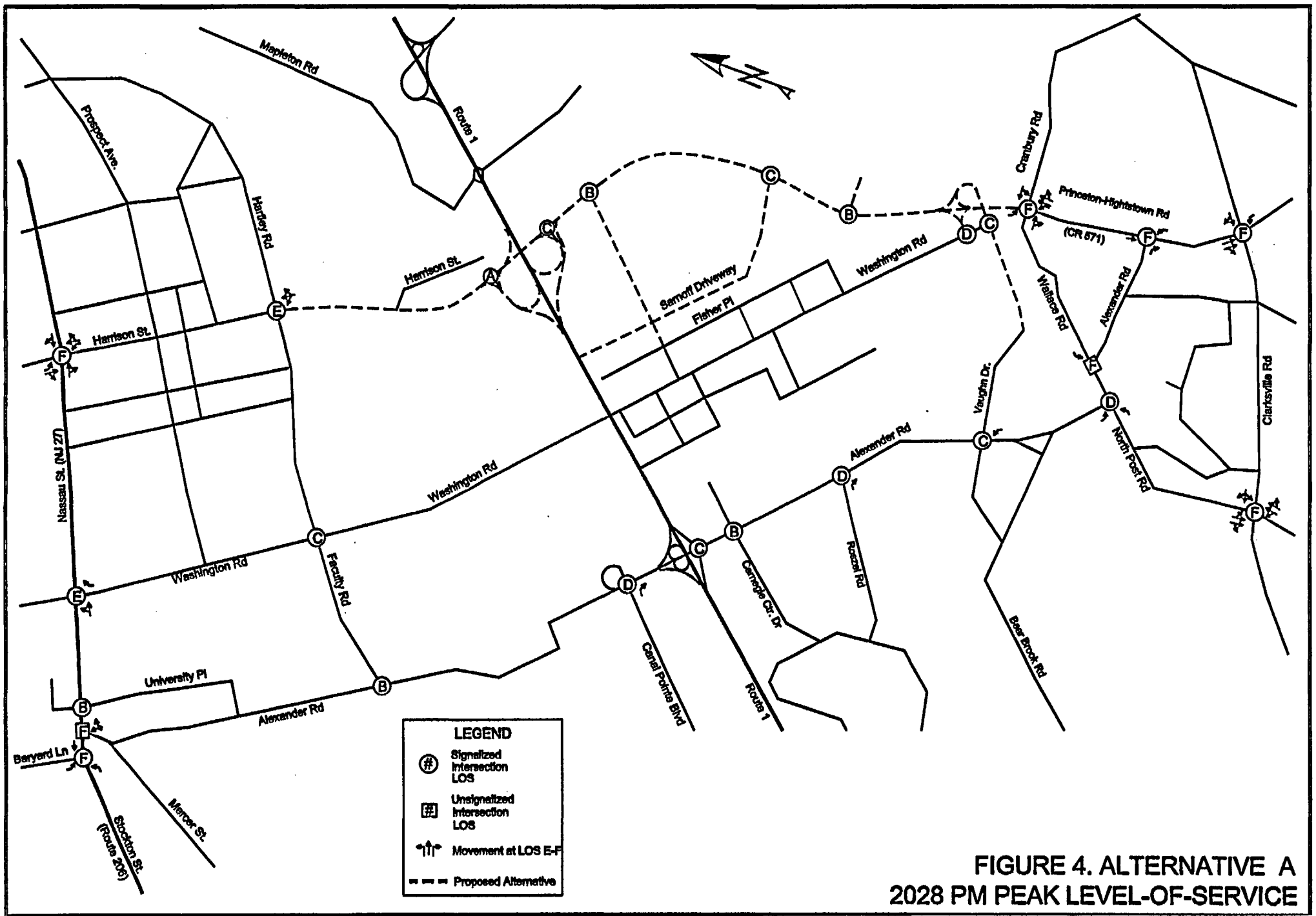


NO BUILD-2028 DM DEAK

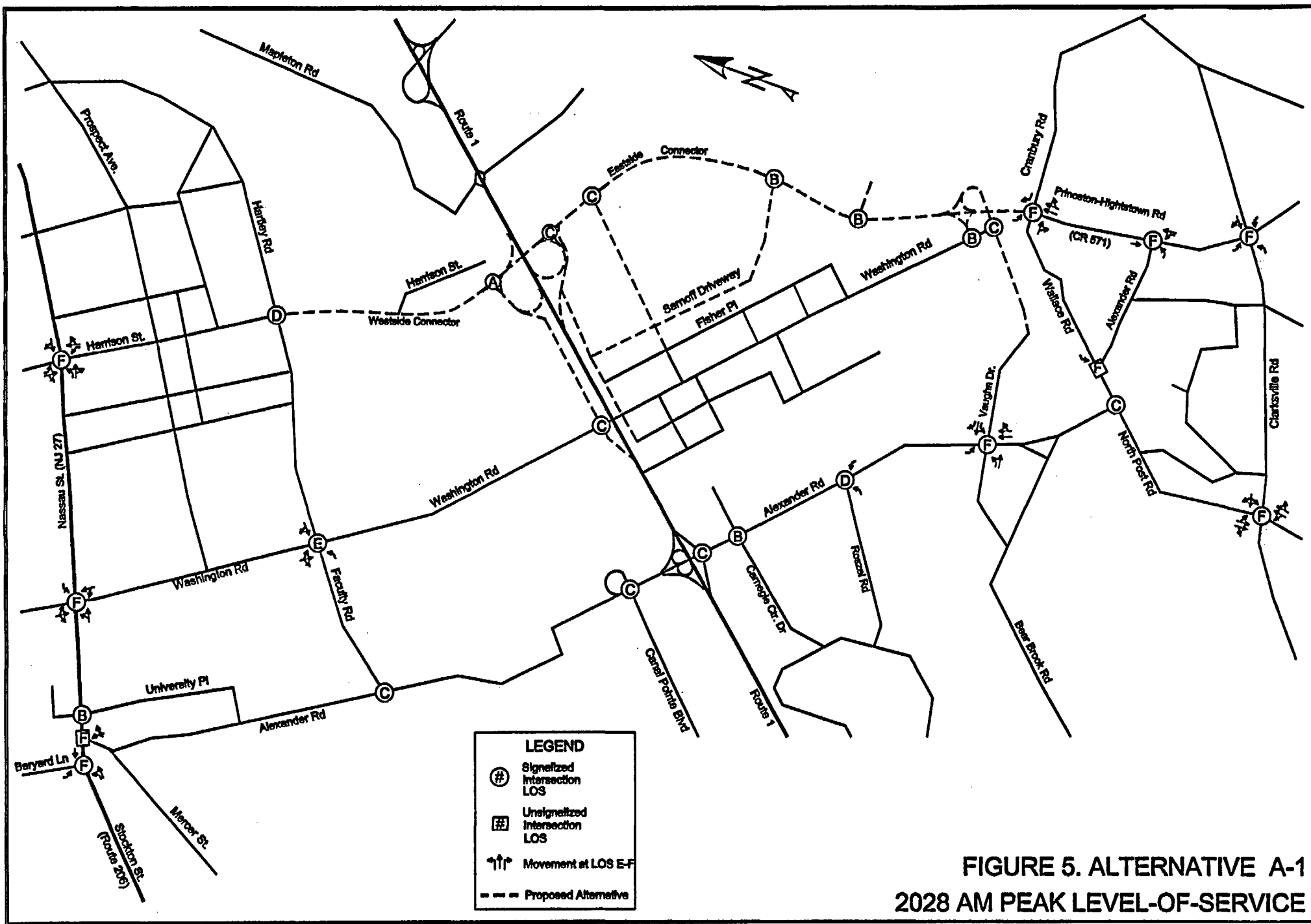
FIGURE 2

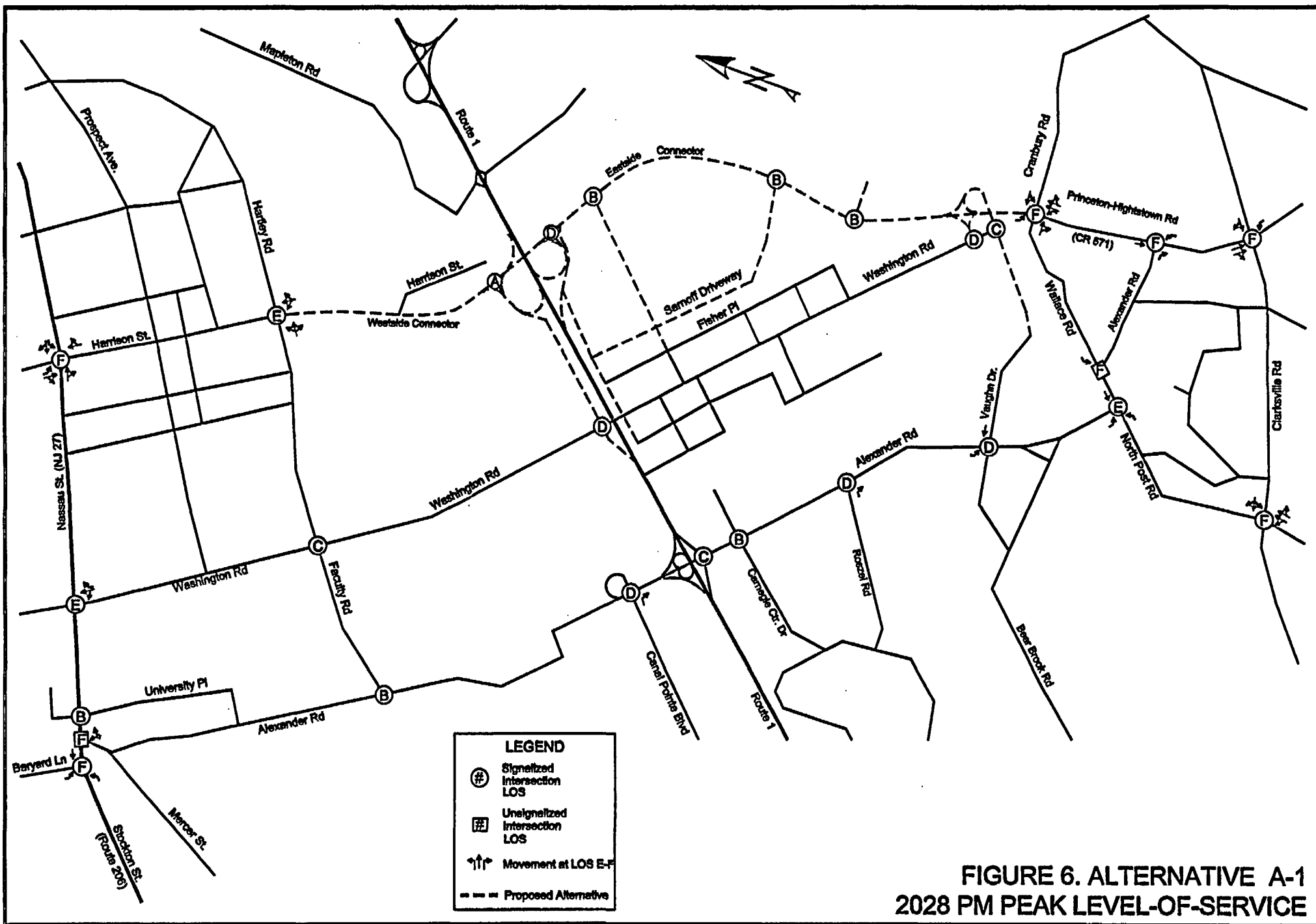


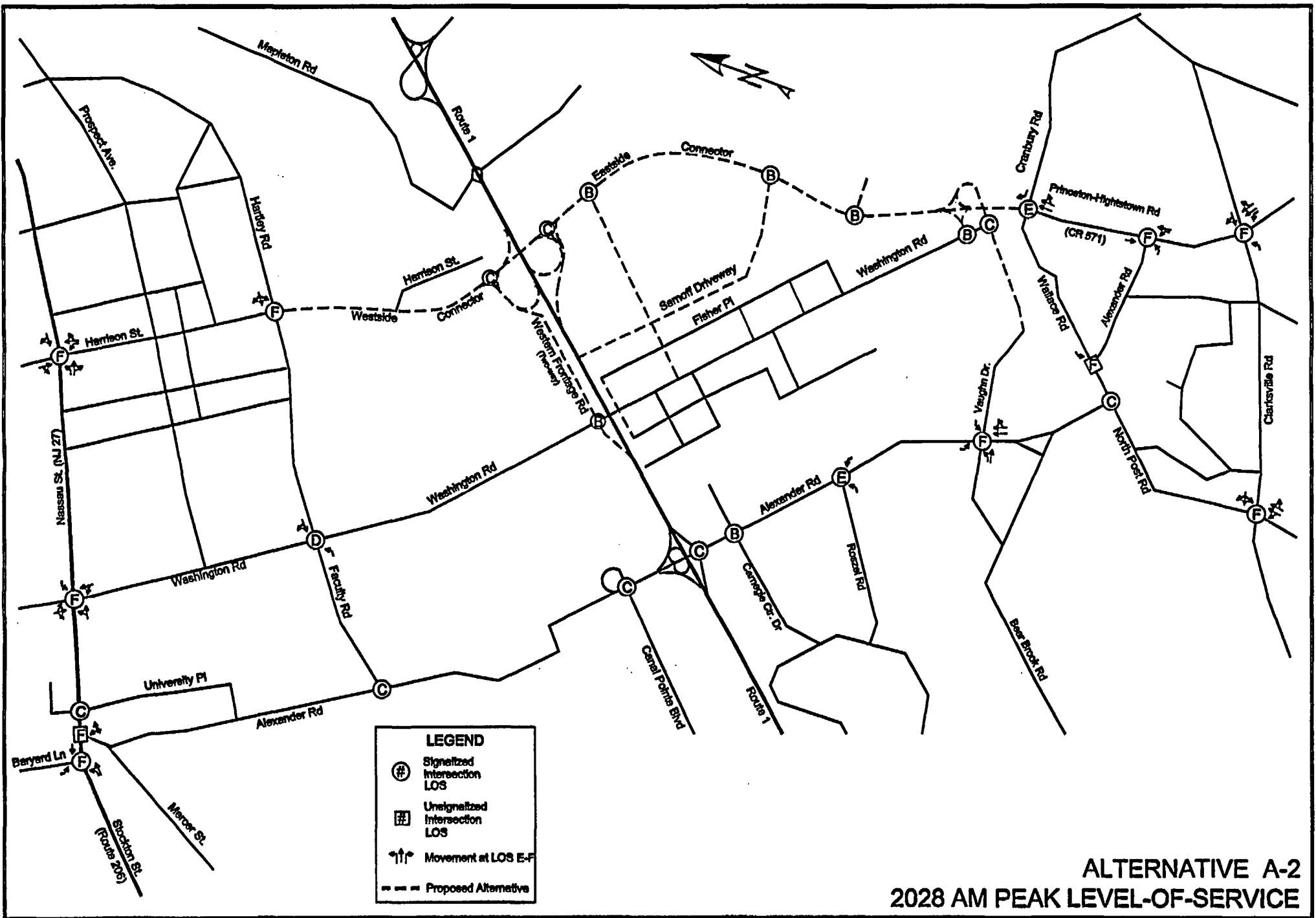
**FIGURE 3. ALTERNATIVE A
2028 AM PEAK LEVEL-OF-SERVICE**

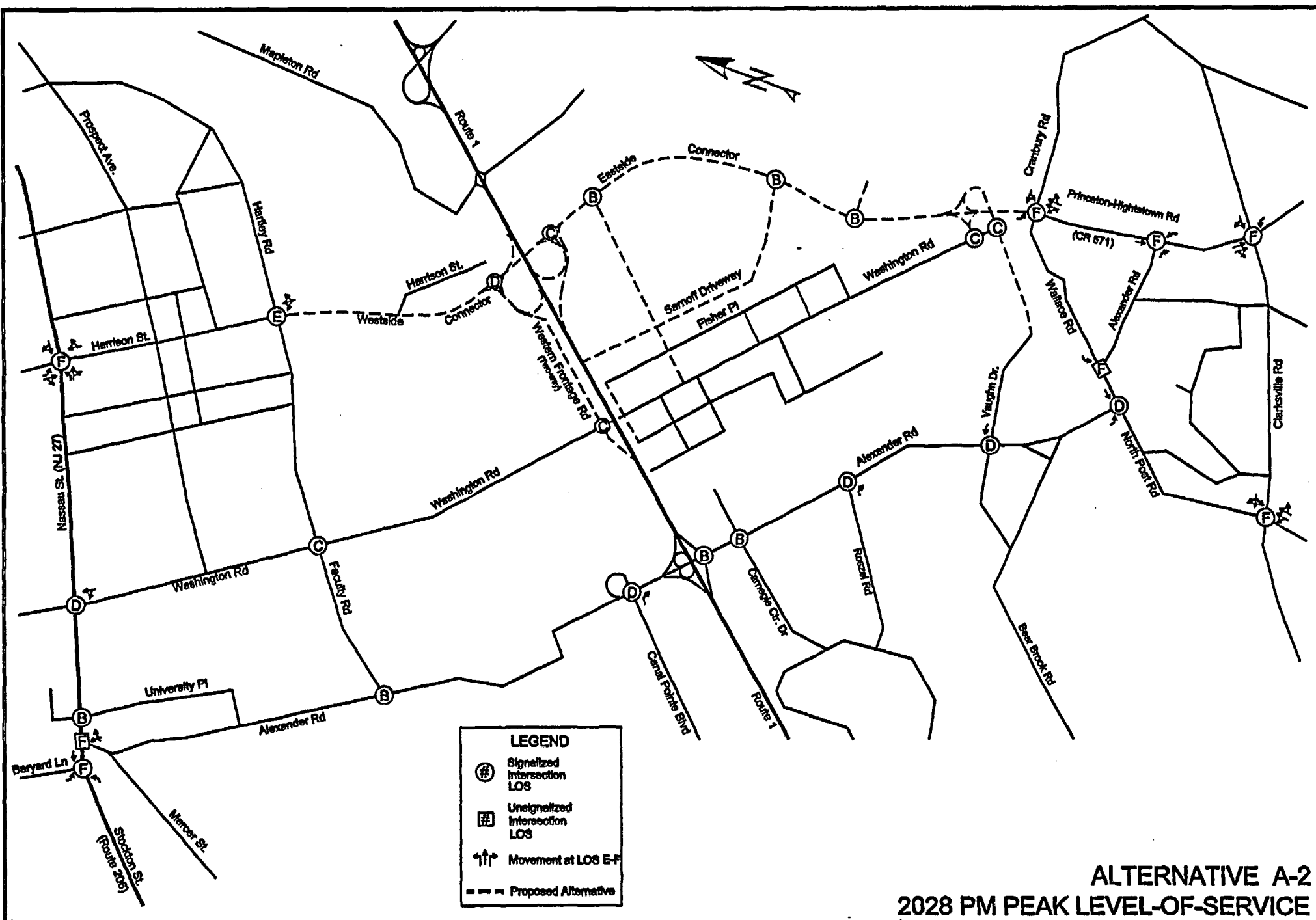


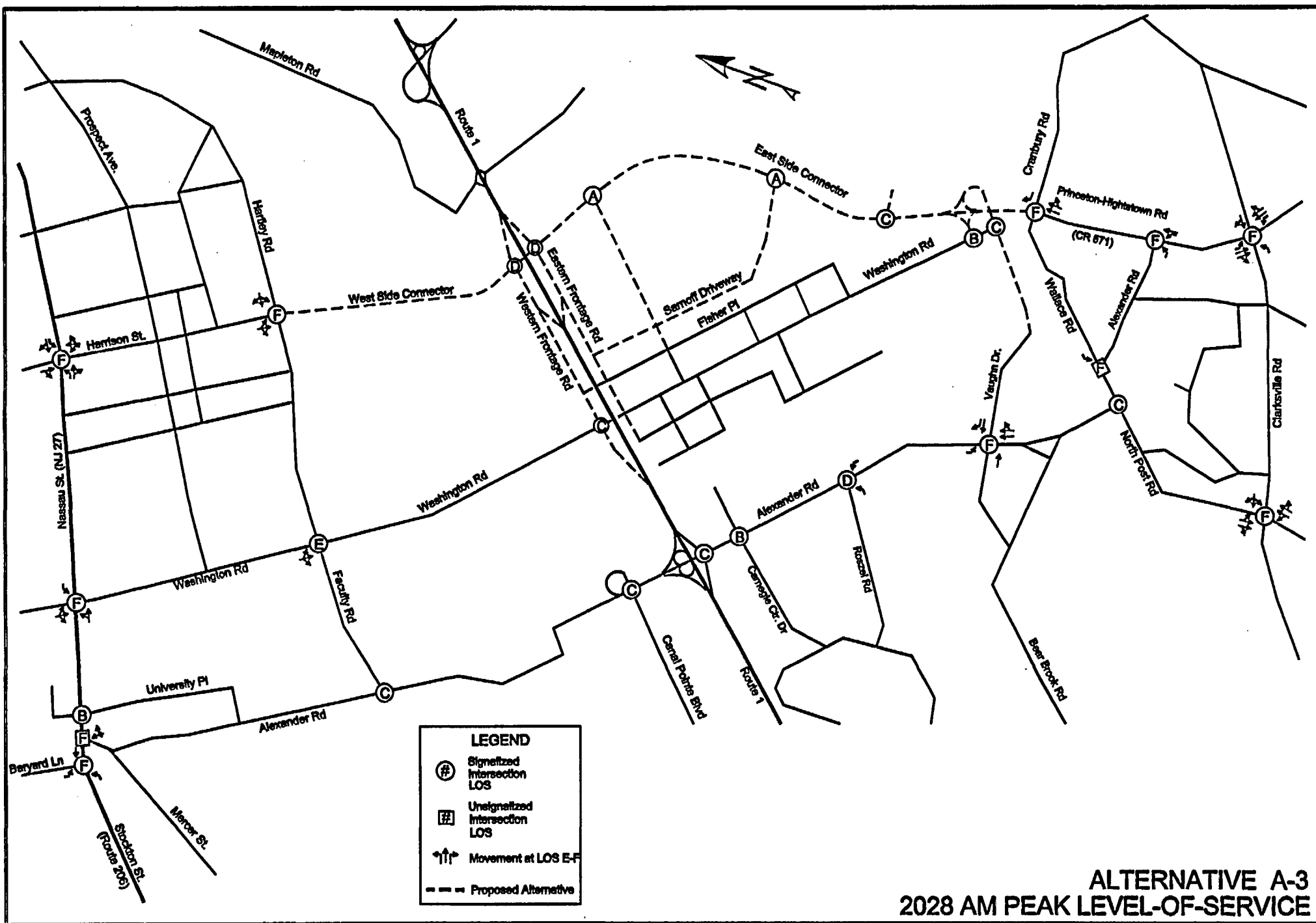
**FIGURE 4. ALTERNATIVE A
2028 PM PEAK LEVEL-OF-SERVICE**



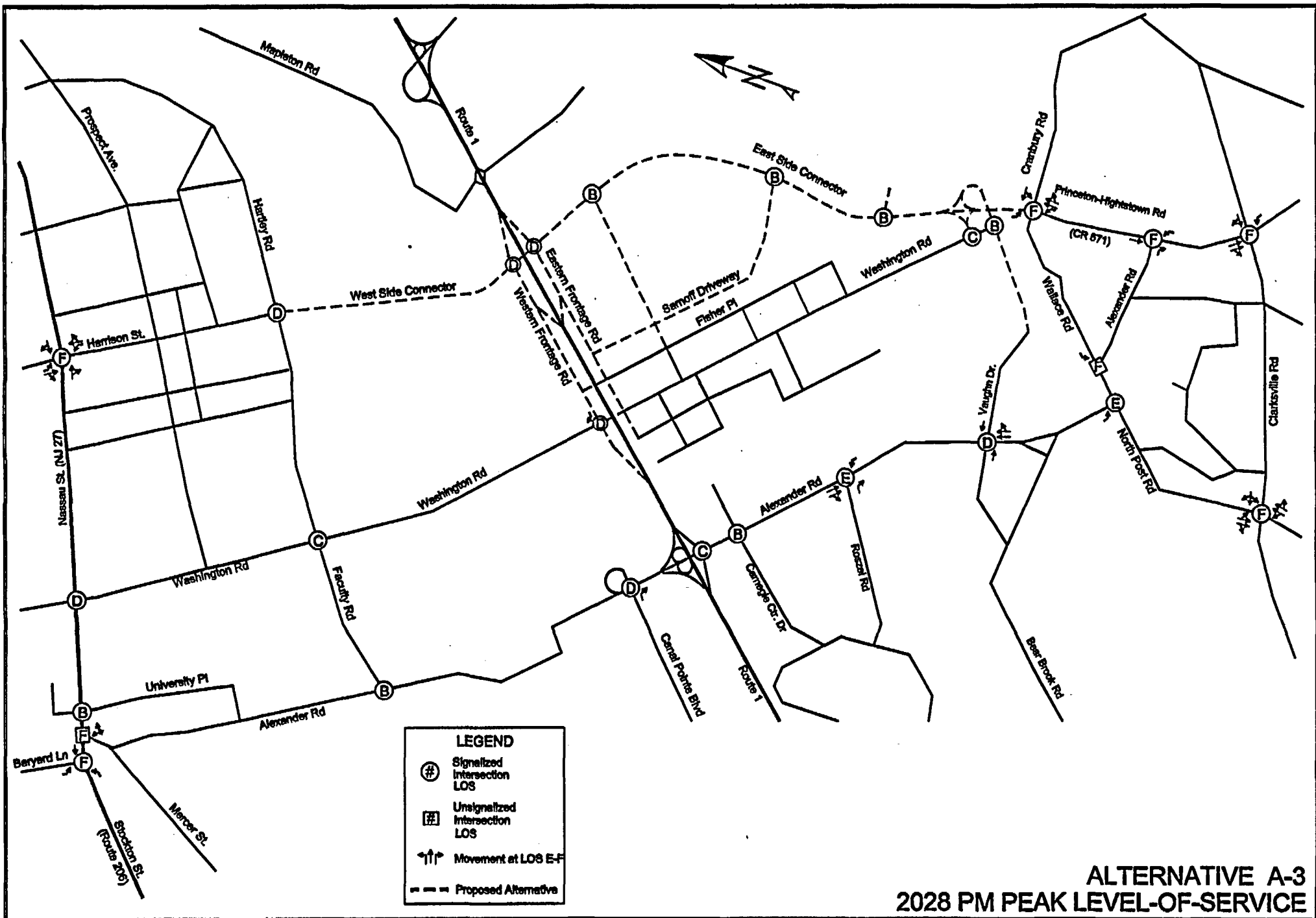




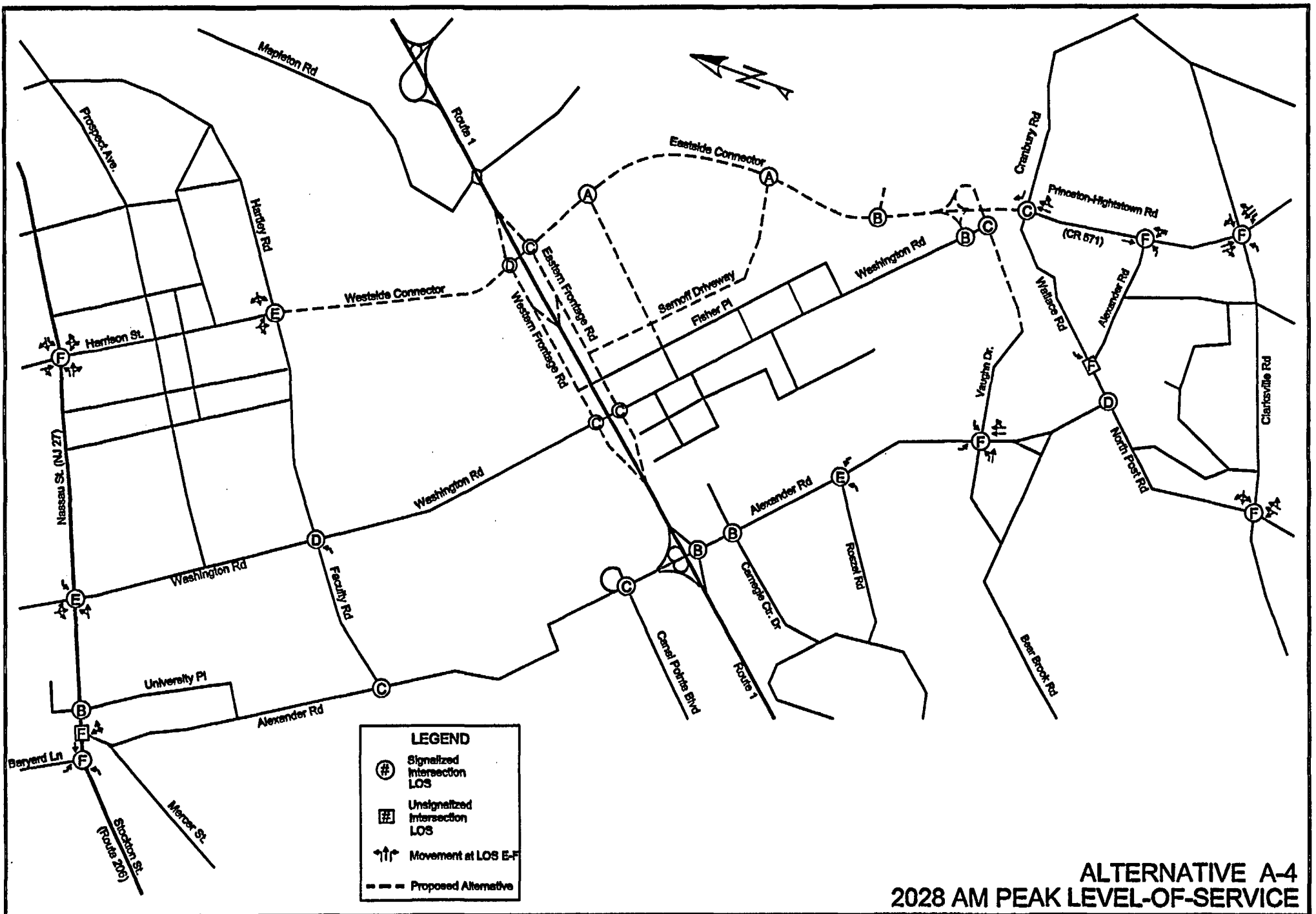




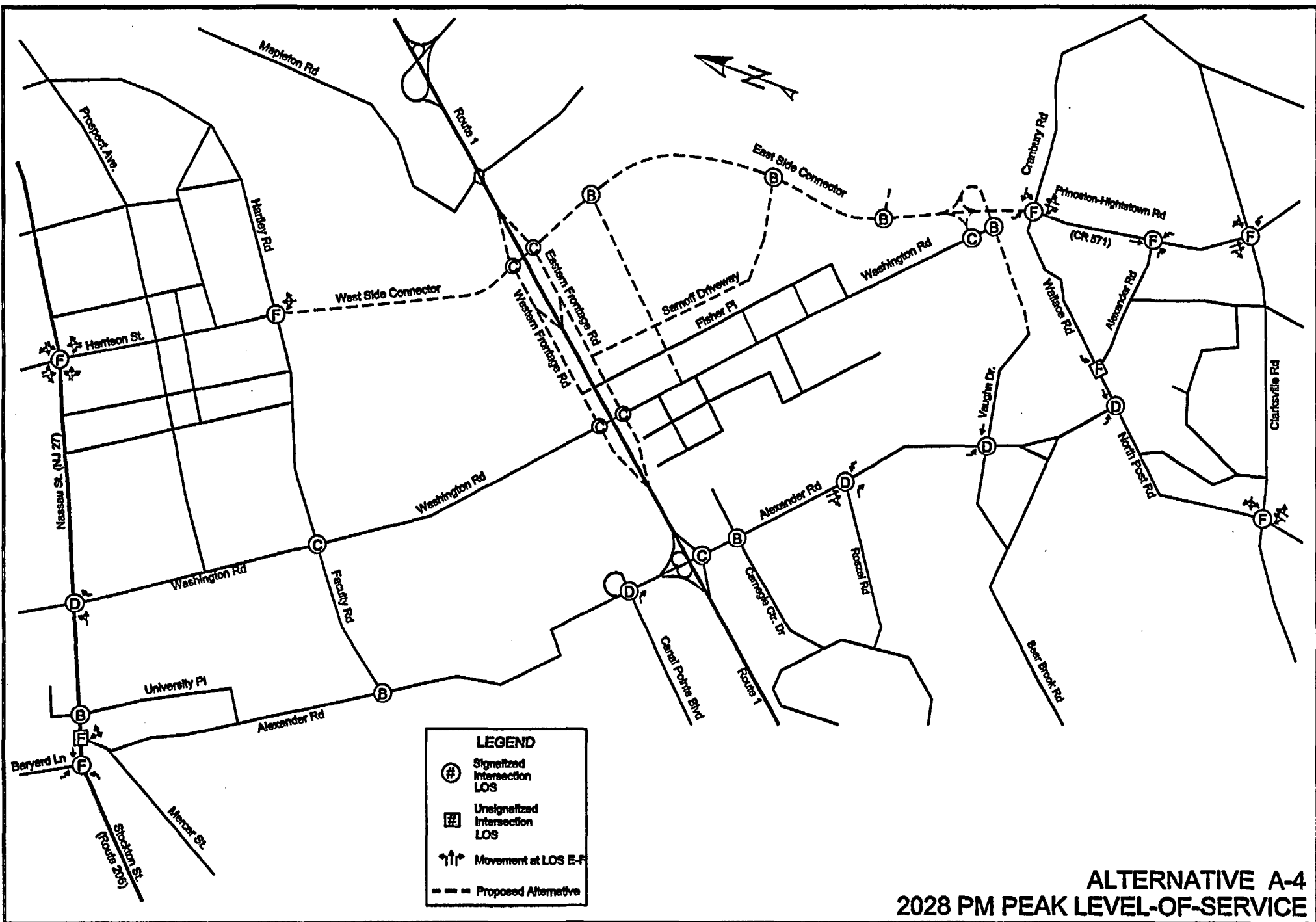
ALTERNATIVE A-3
2028 AM PEAK LEVEL-OF-SERVICE



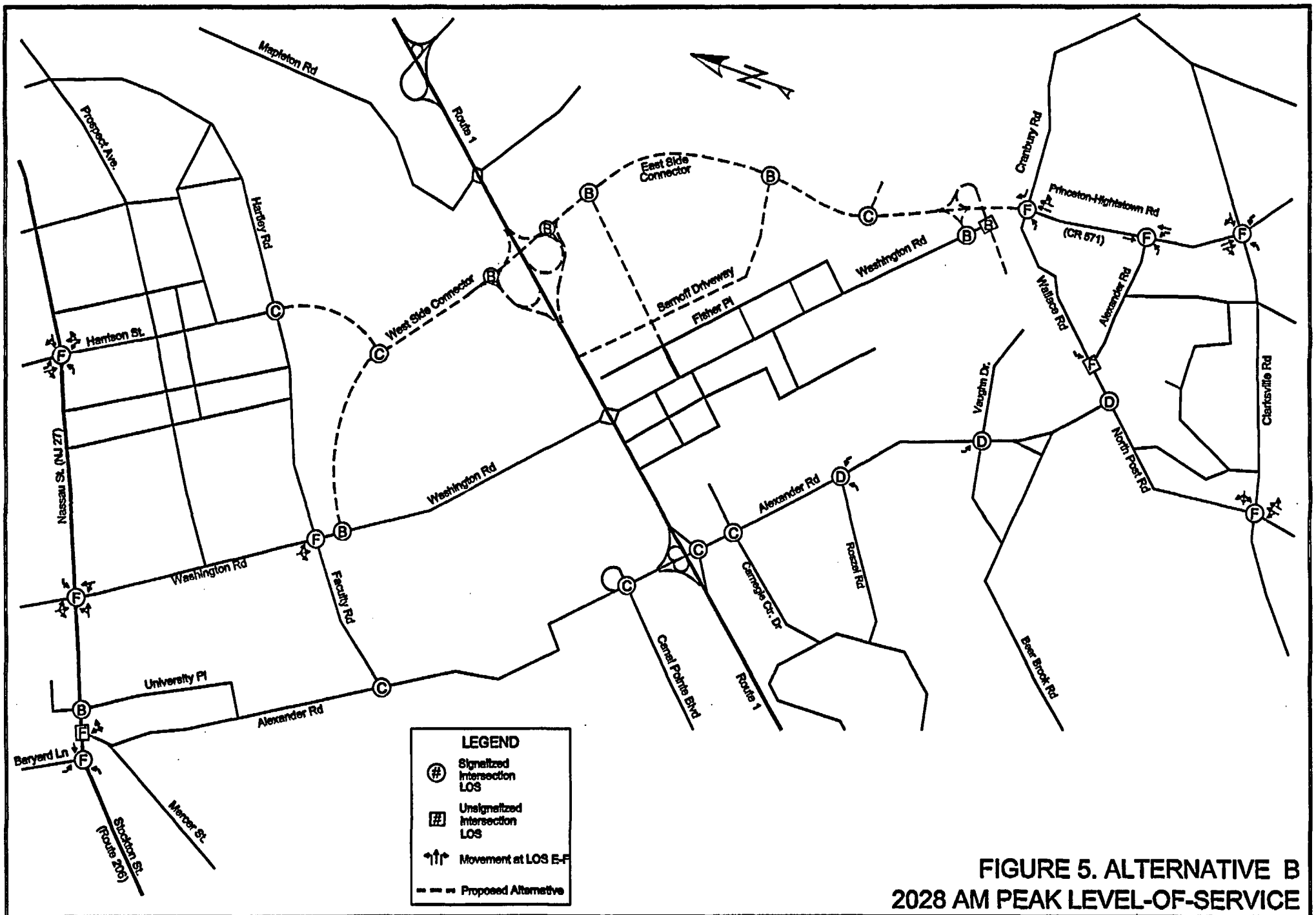
ALTERNATIVE A-3
2028 PM PEAK LEVEL-OF-SERVICE



ALTERNATIVE A-4
2028 AM PEAK LEVEL-OF-SERVICE



ALTERNATIVE A-4
2028 PM PEAK LEVEL-OF-SERVICE



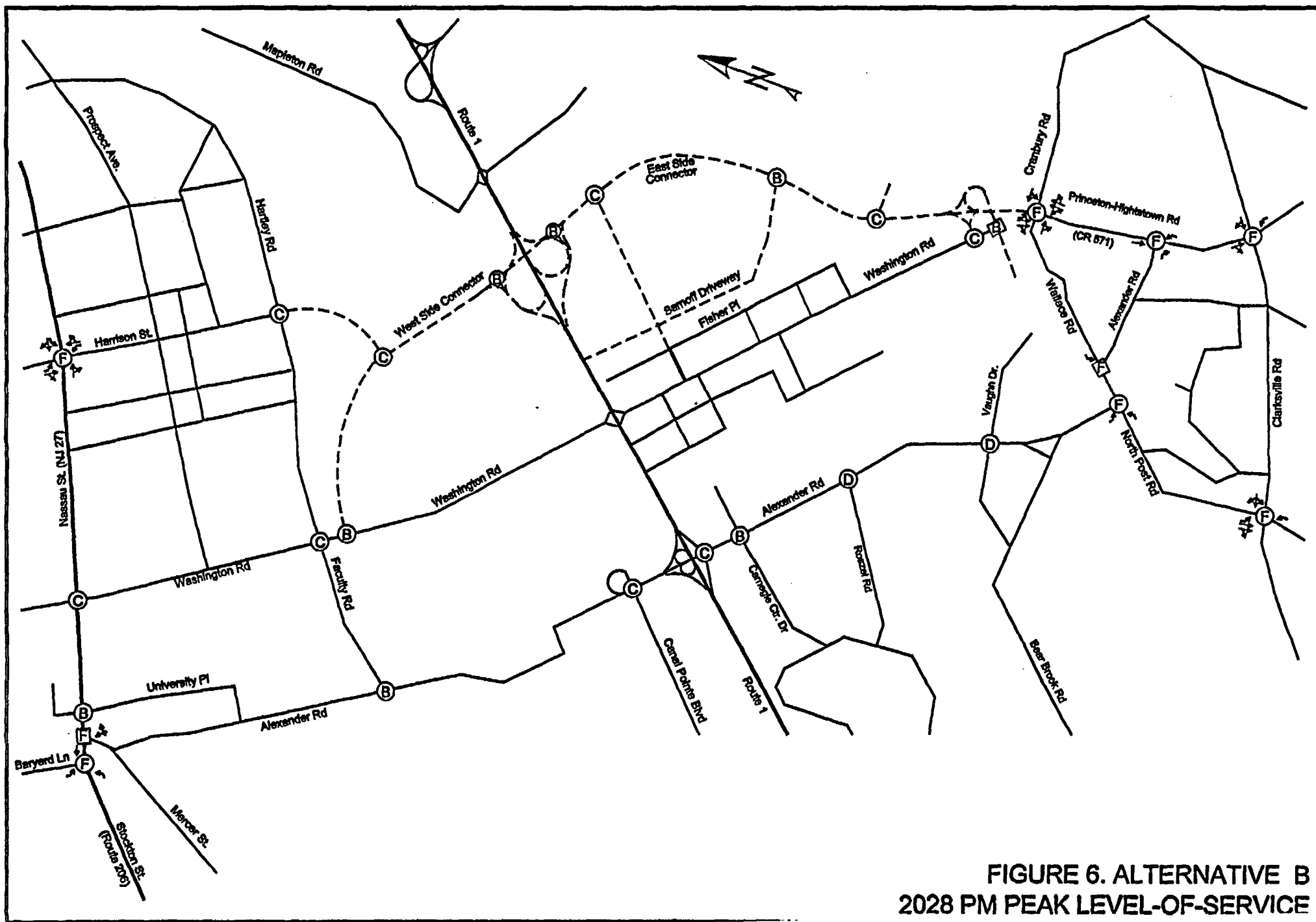
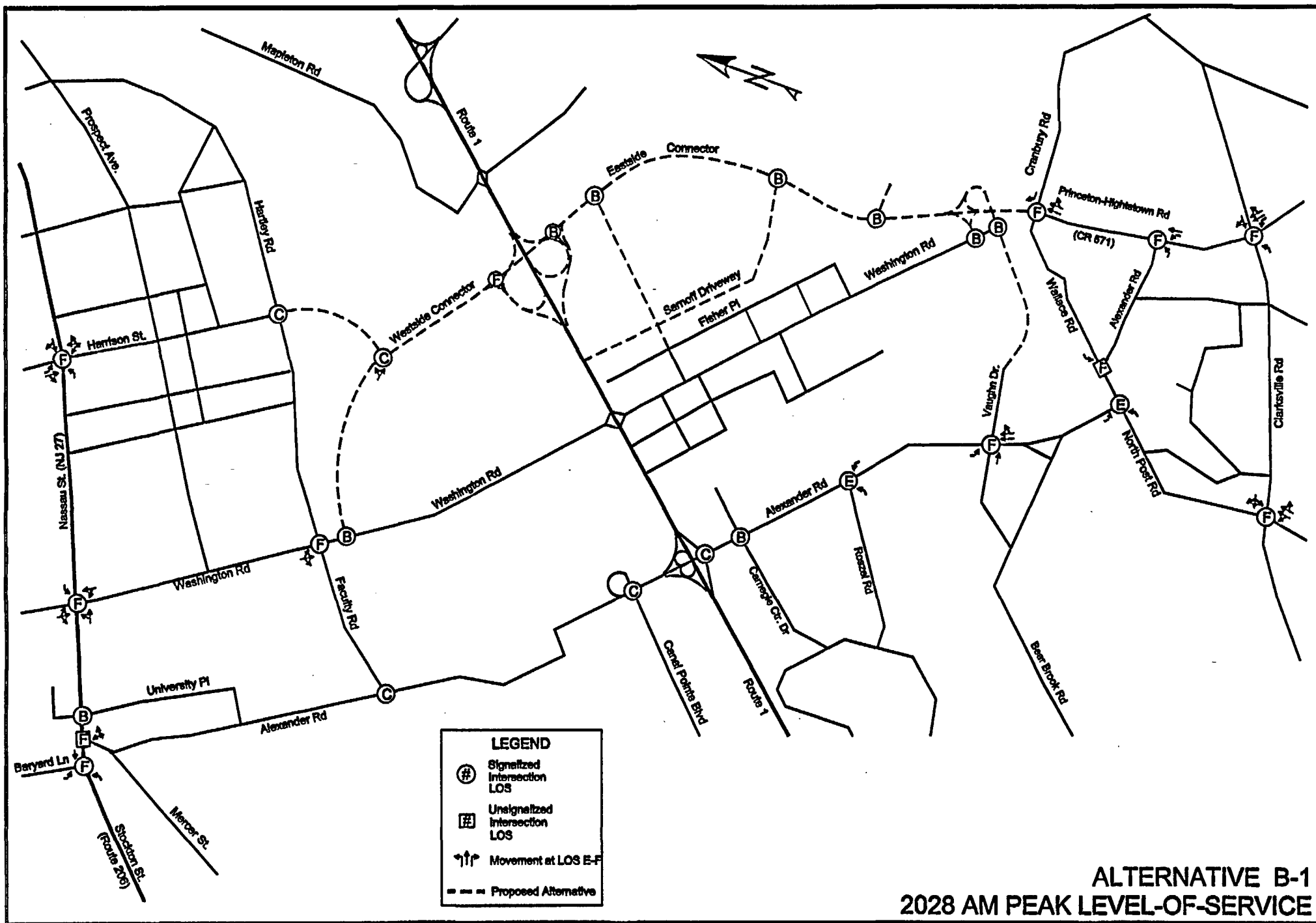
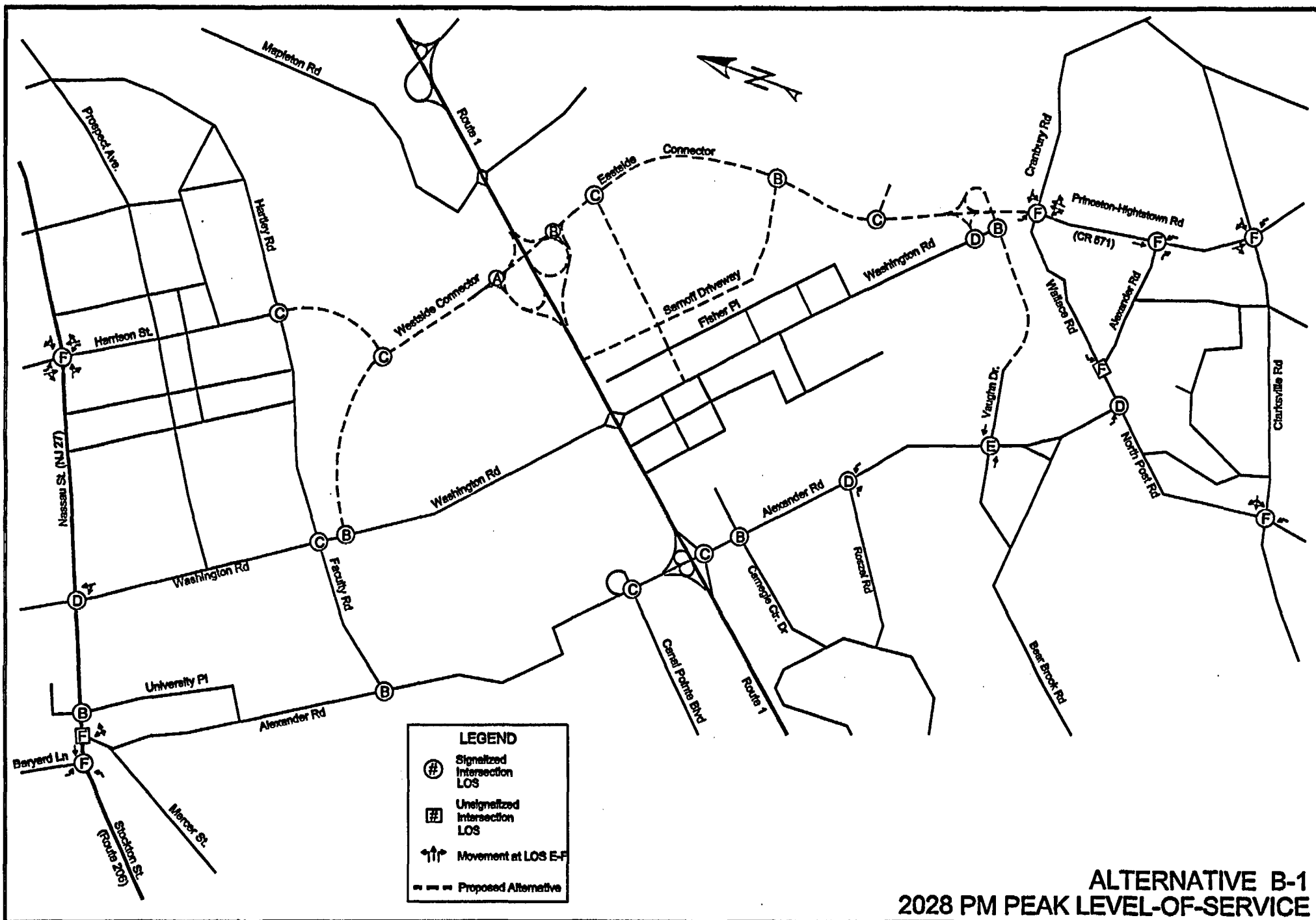


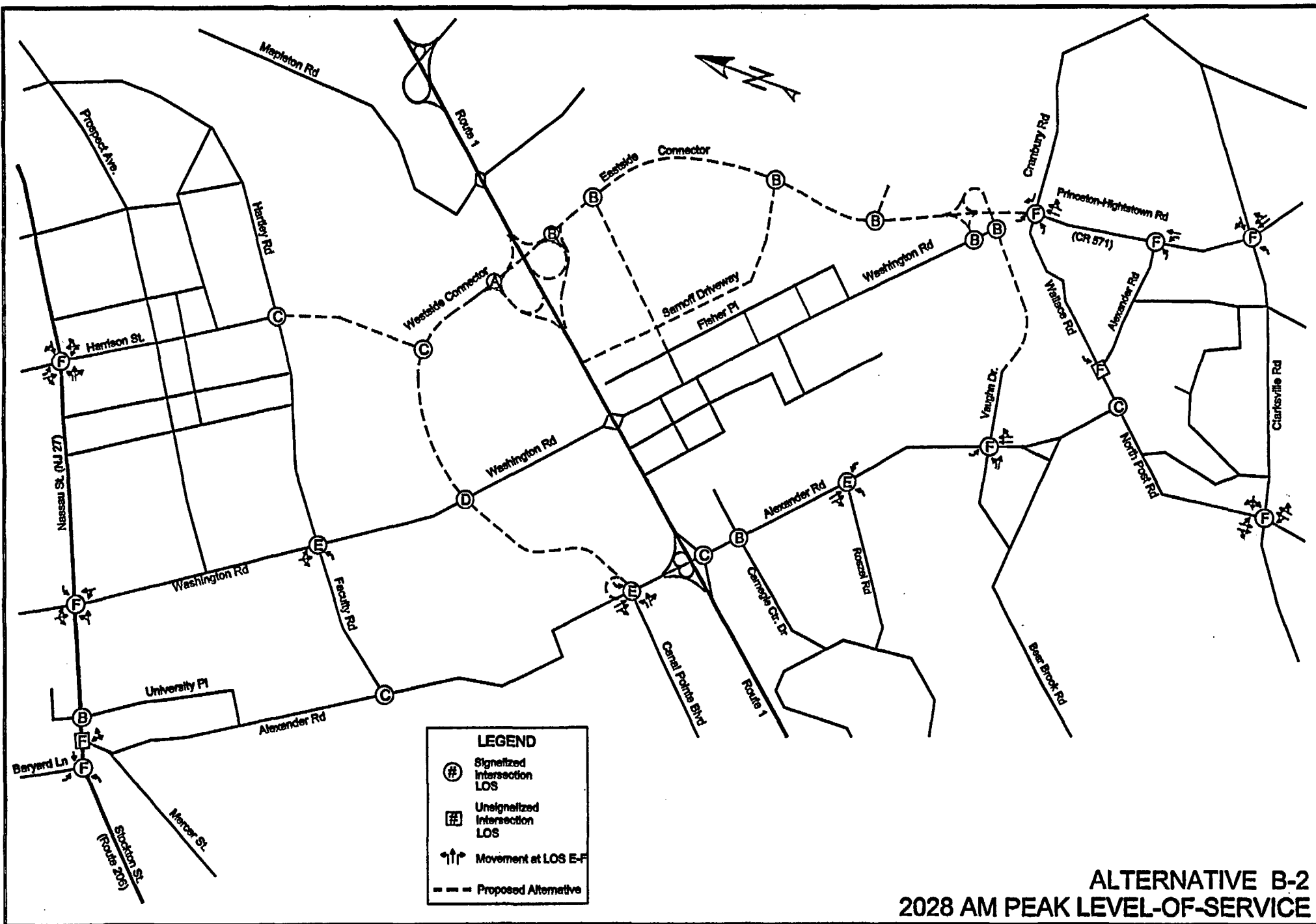
FIGURE 6. ALTERNATIVE B
2028 PM PEAK LEVEL-OF-SERVICE

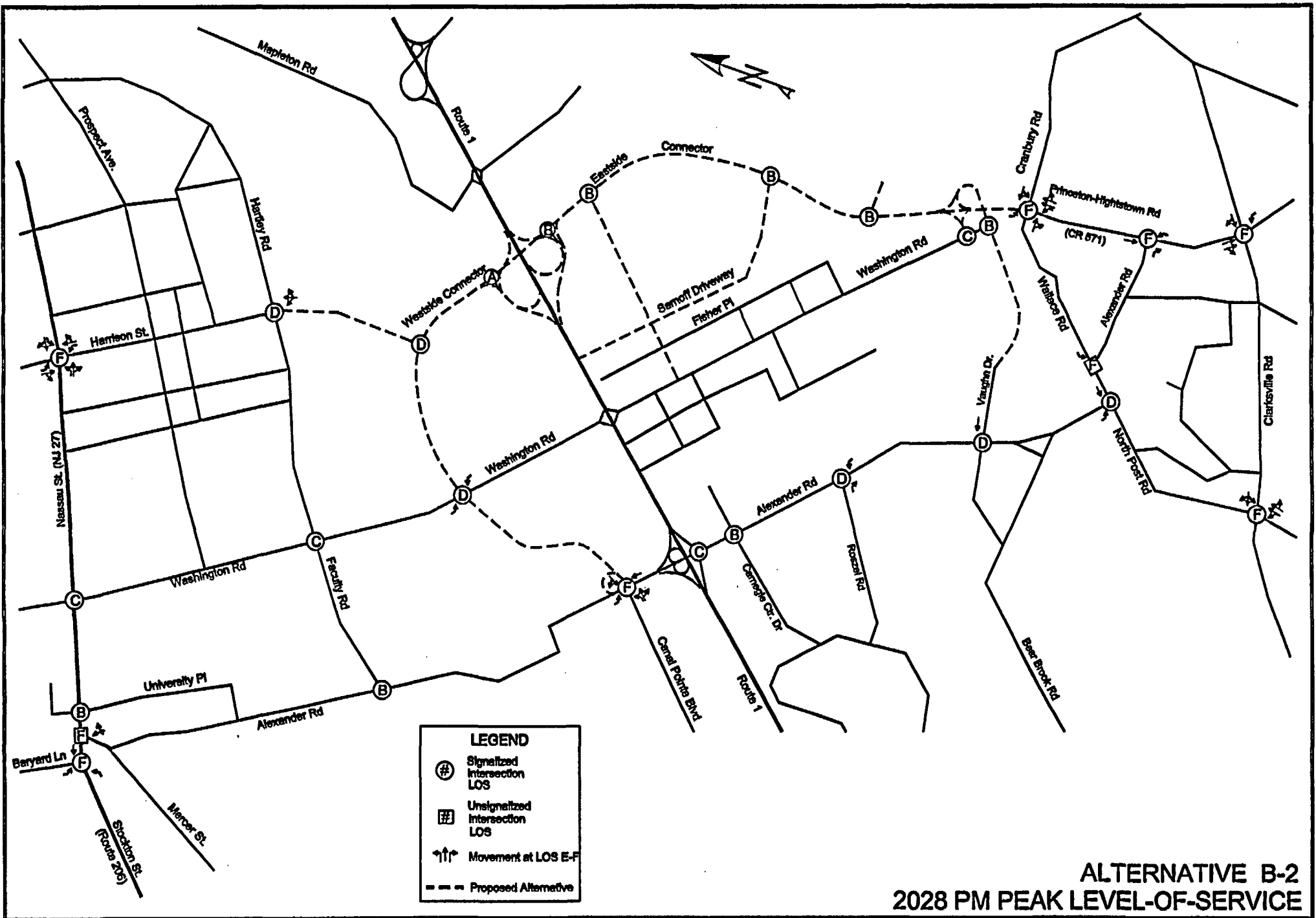


ALTERNATIVE B-1
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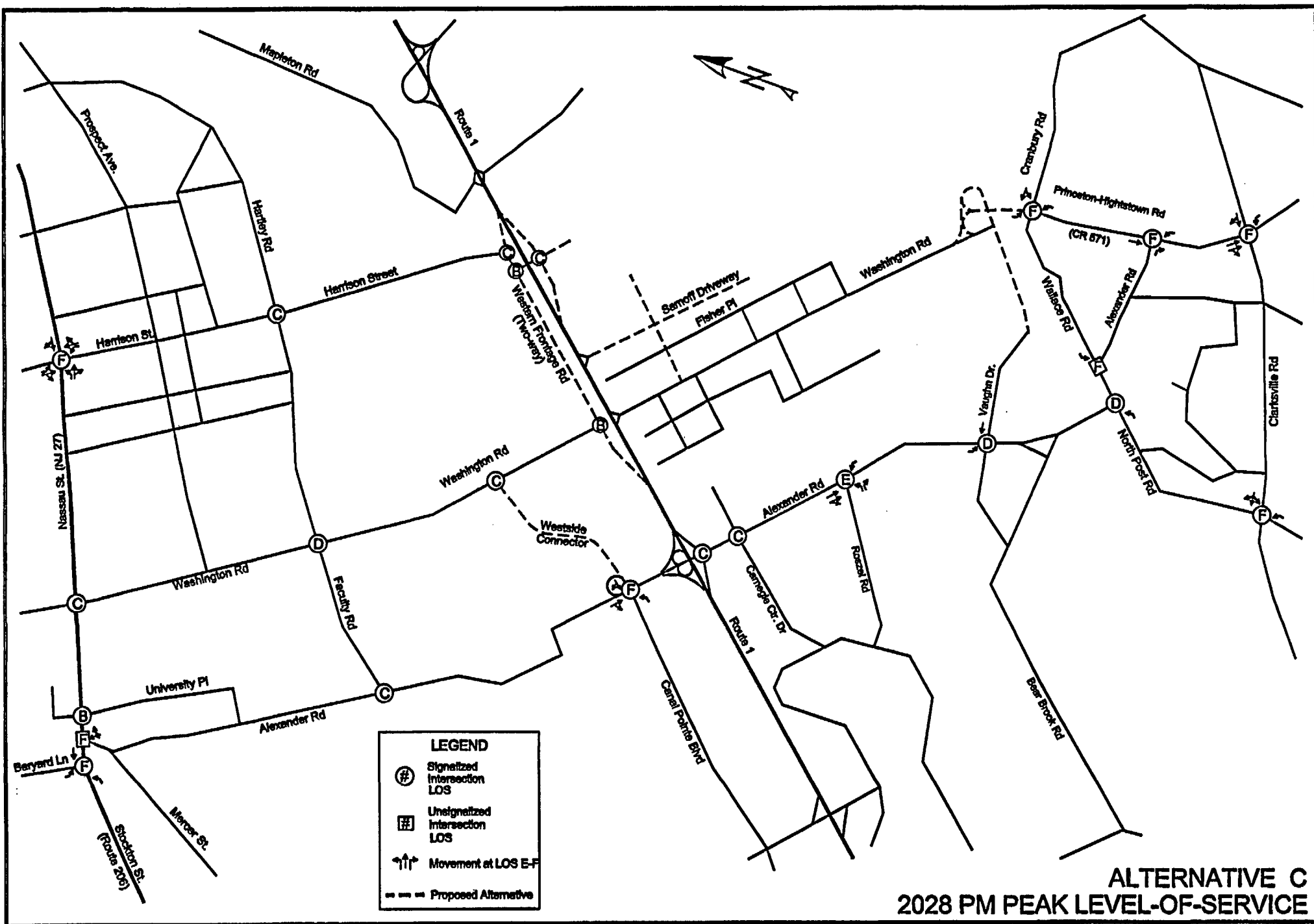


ALTERNATIVE B-1
2028 PM PEAK LEVEL-OF-SERVICE

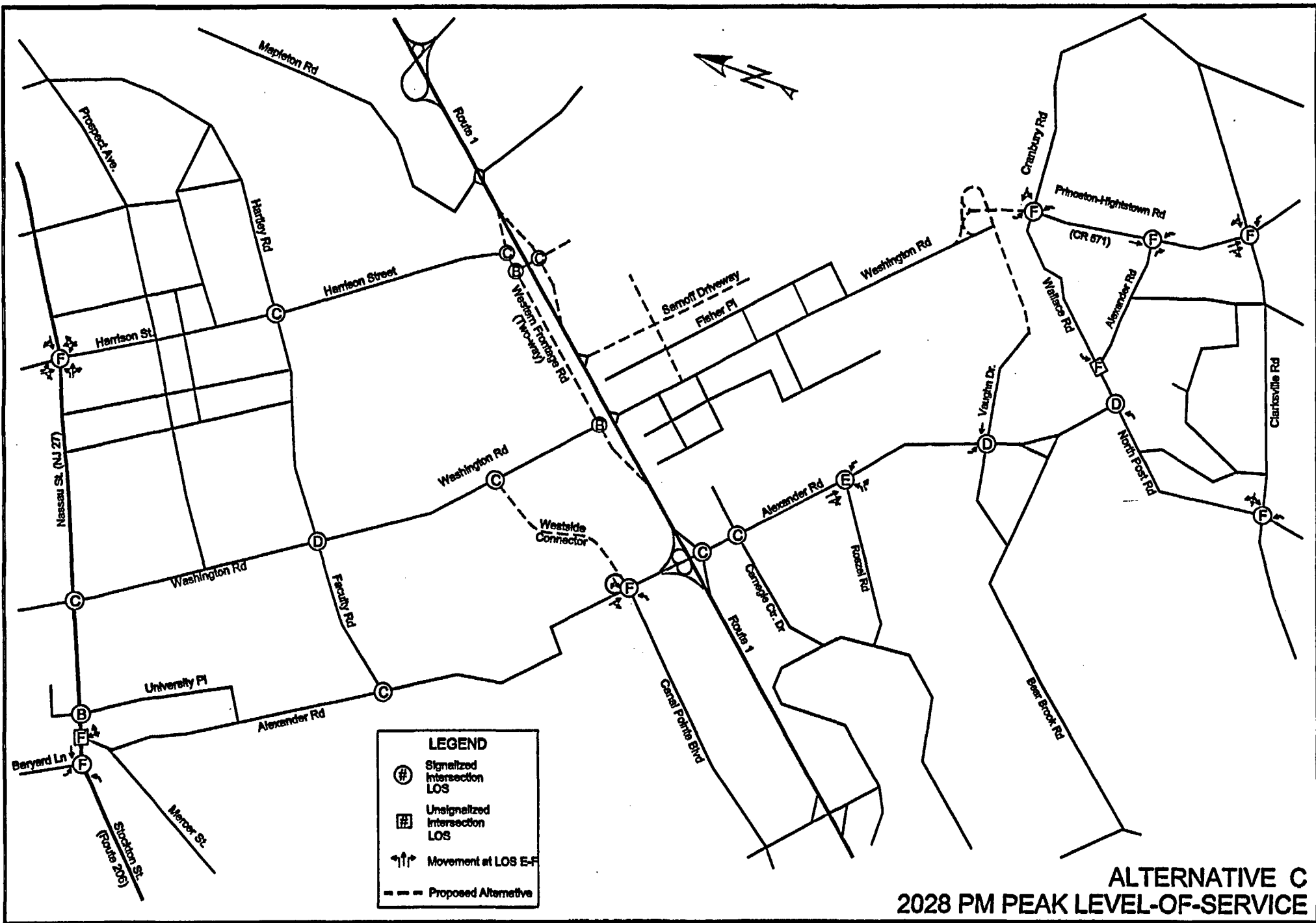




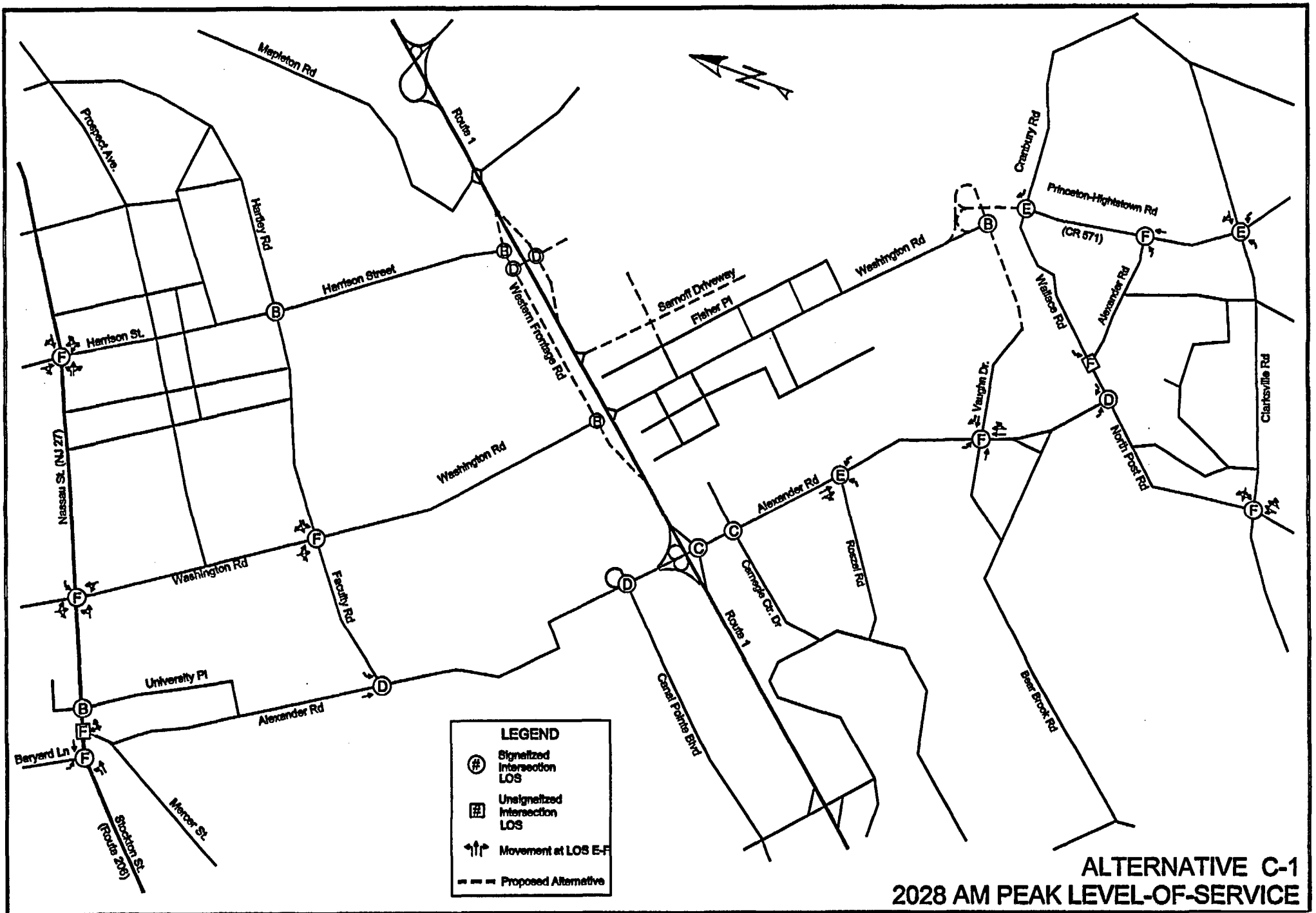
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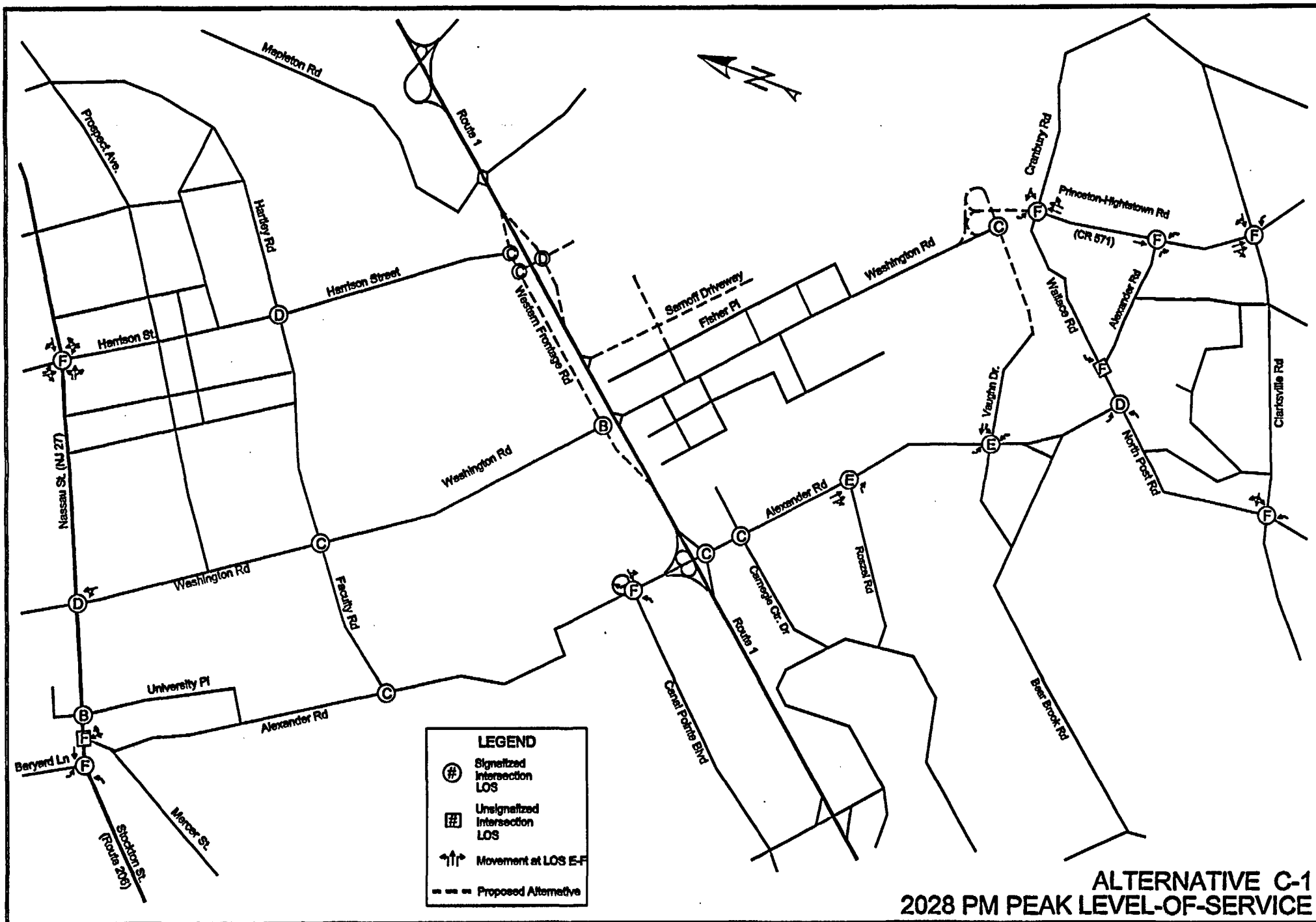


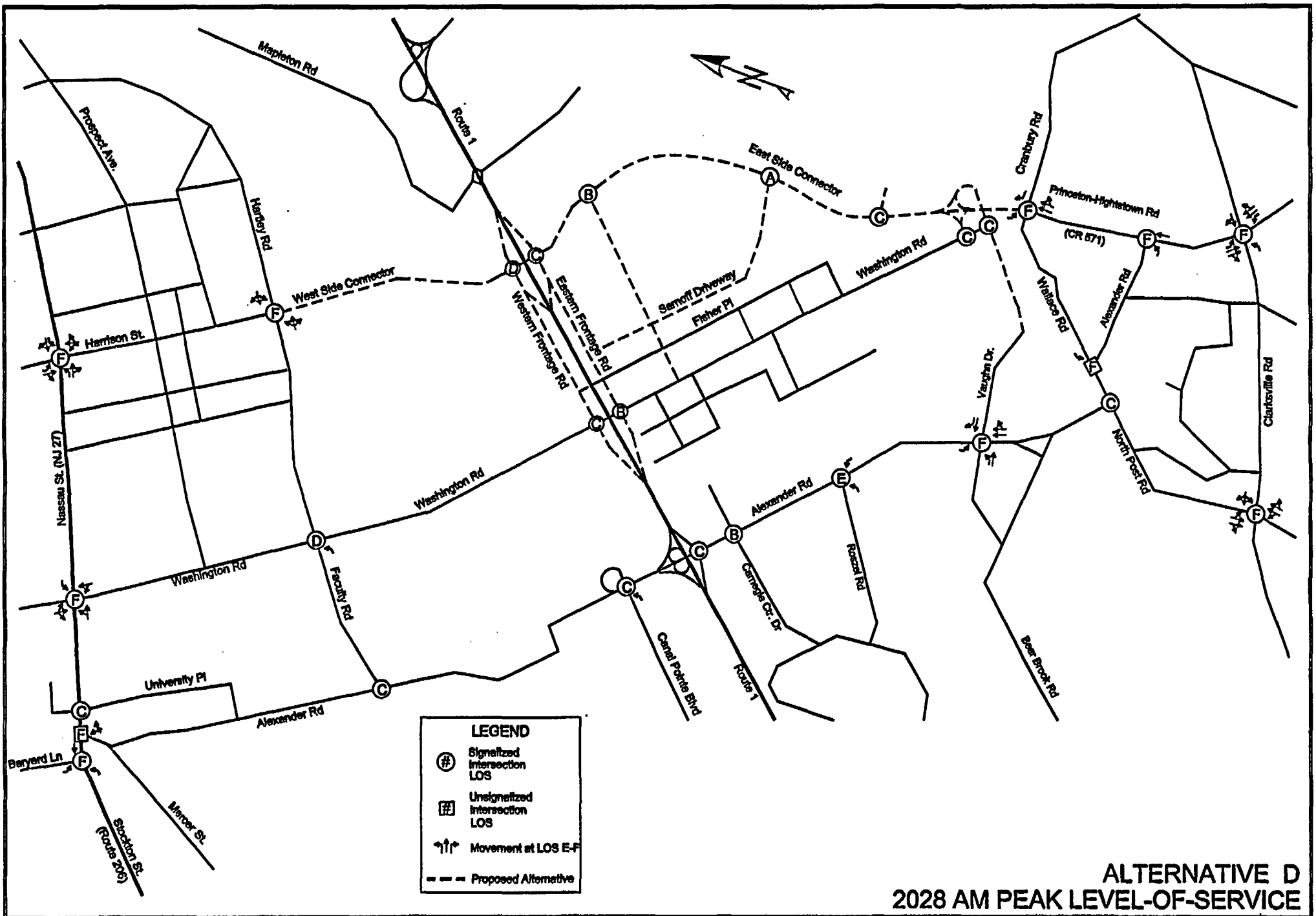
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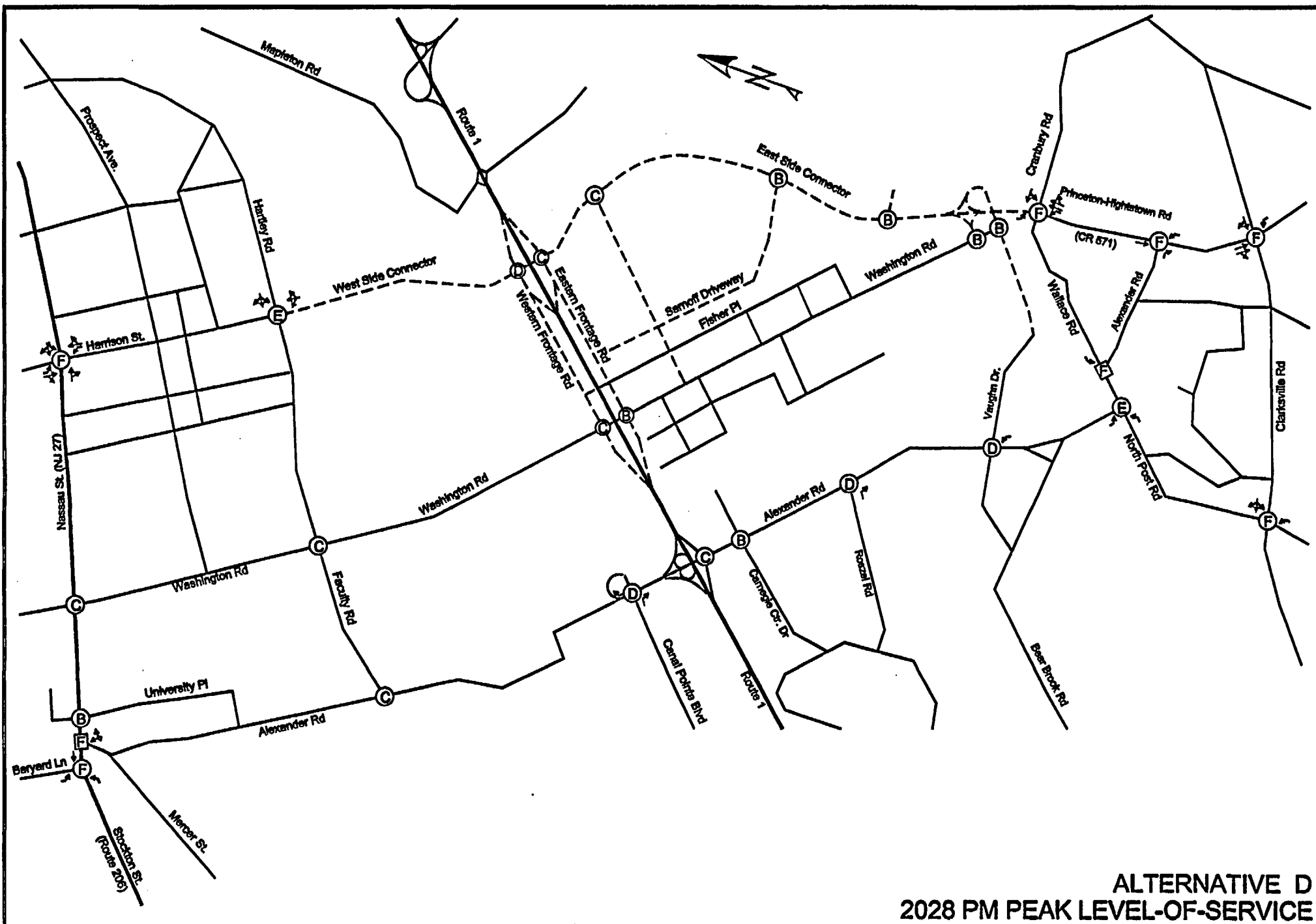


ALTERNATIVE C
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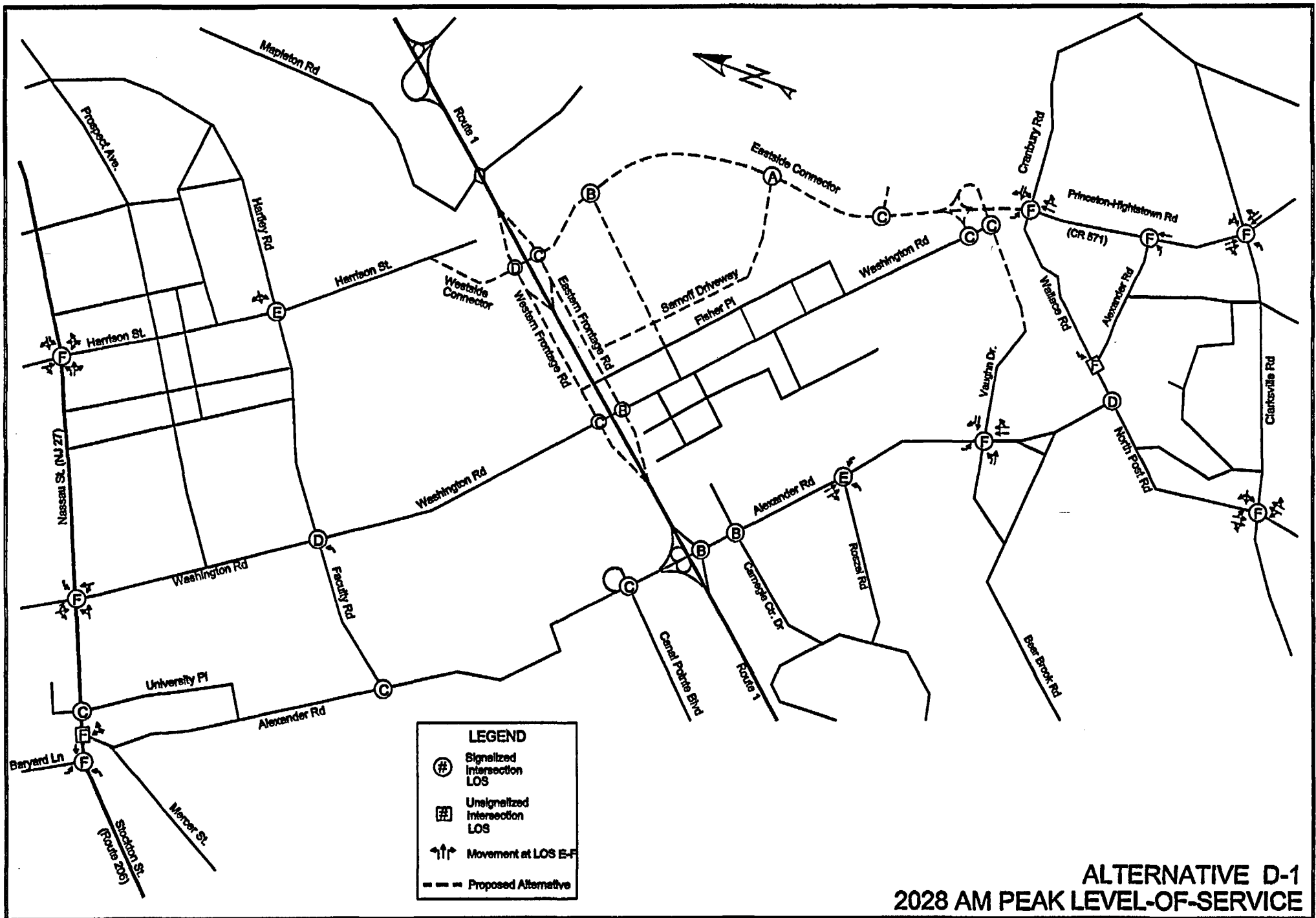


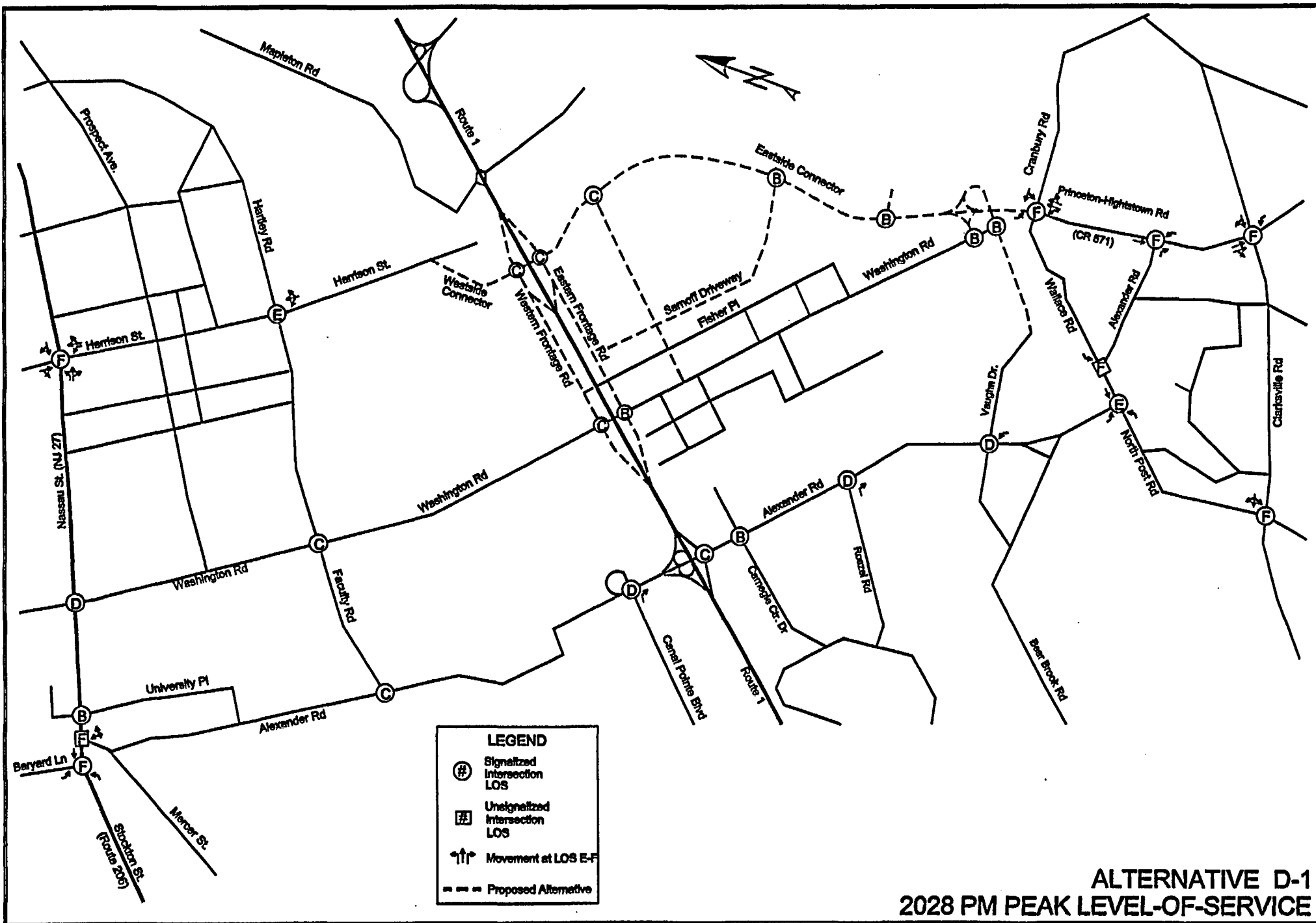




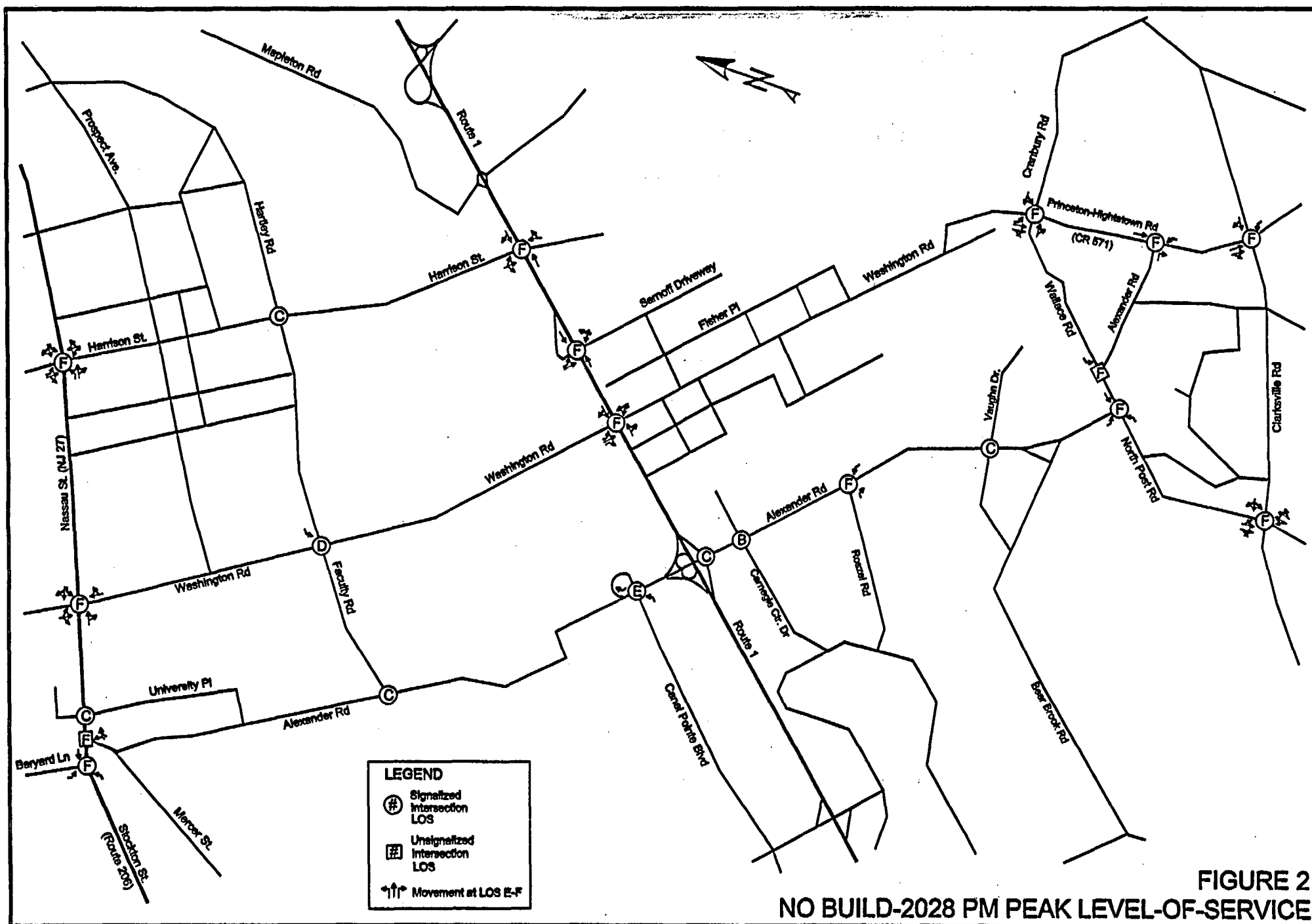


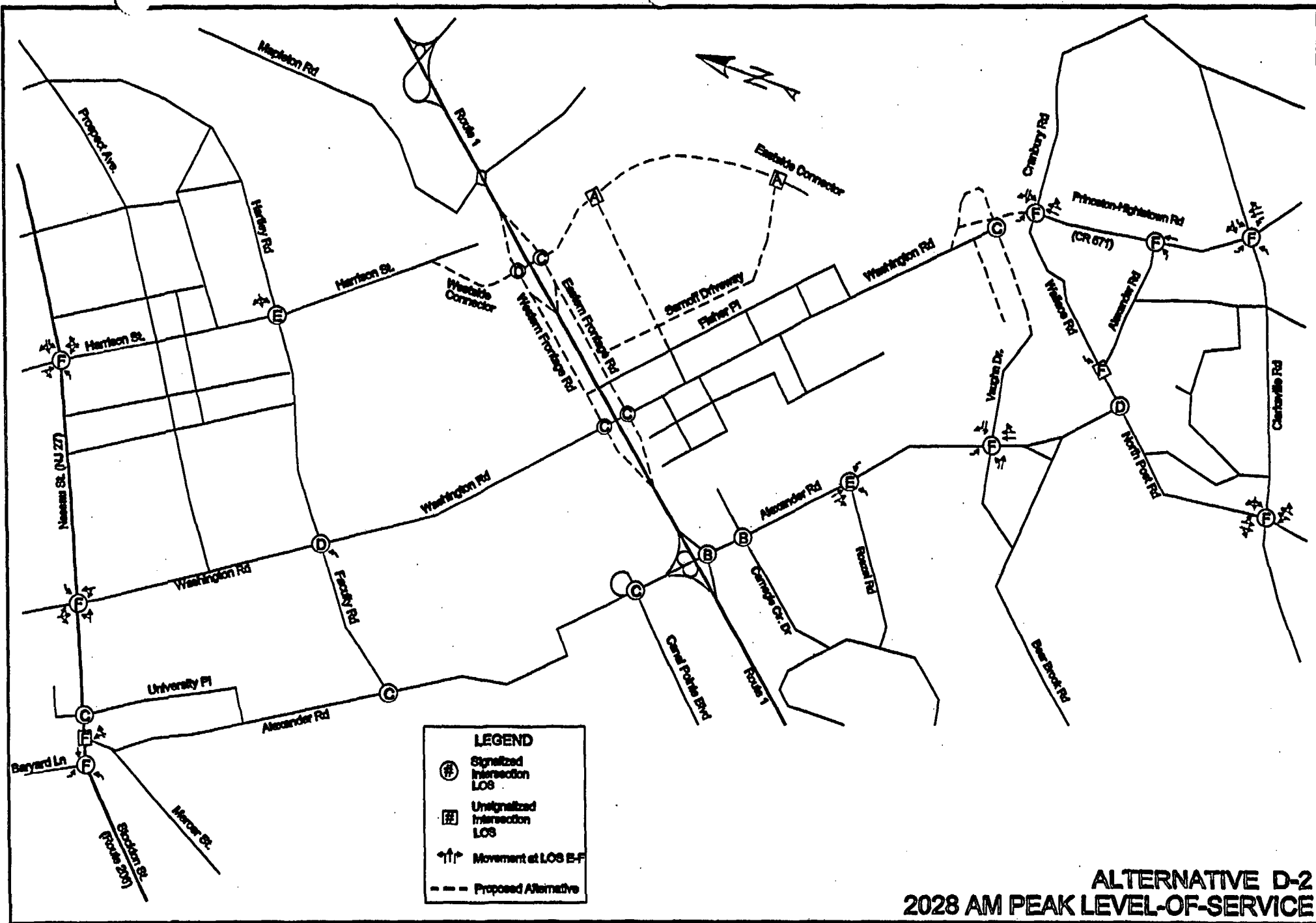
ALTERNATIVE D
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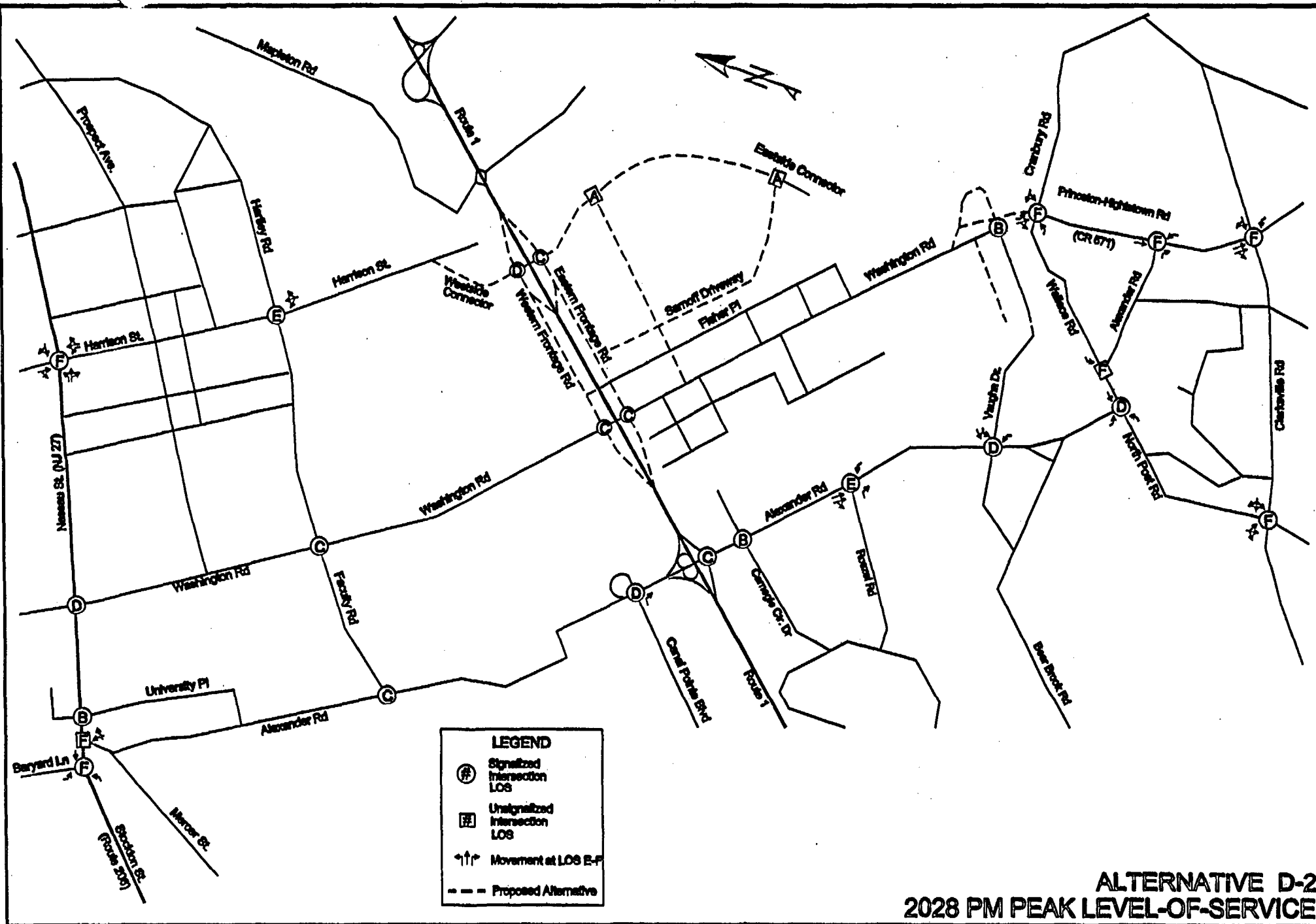


ALTERNATIVE D-1
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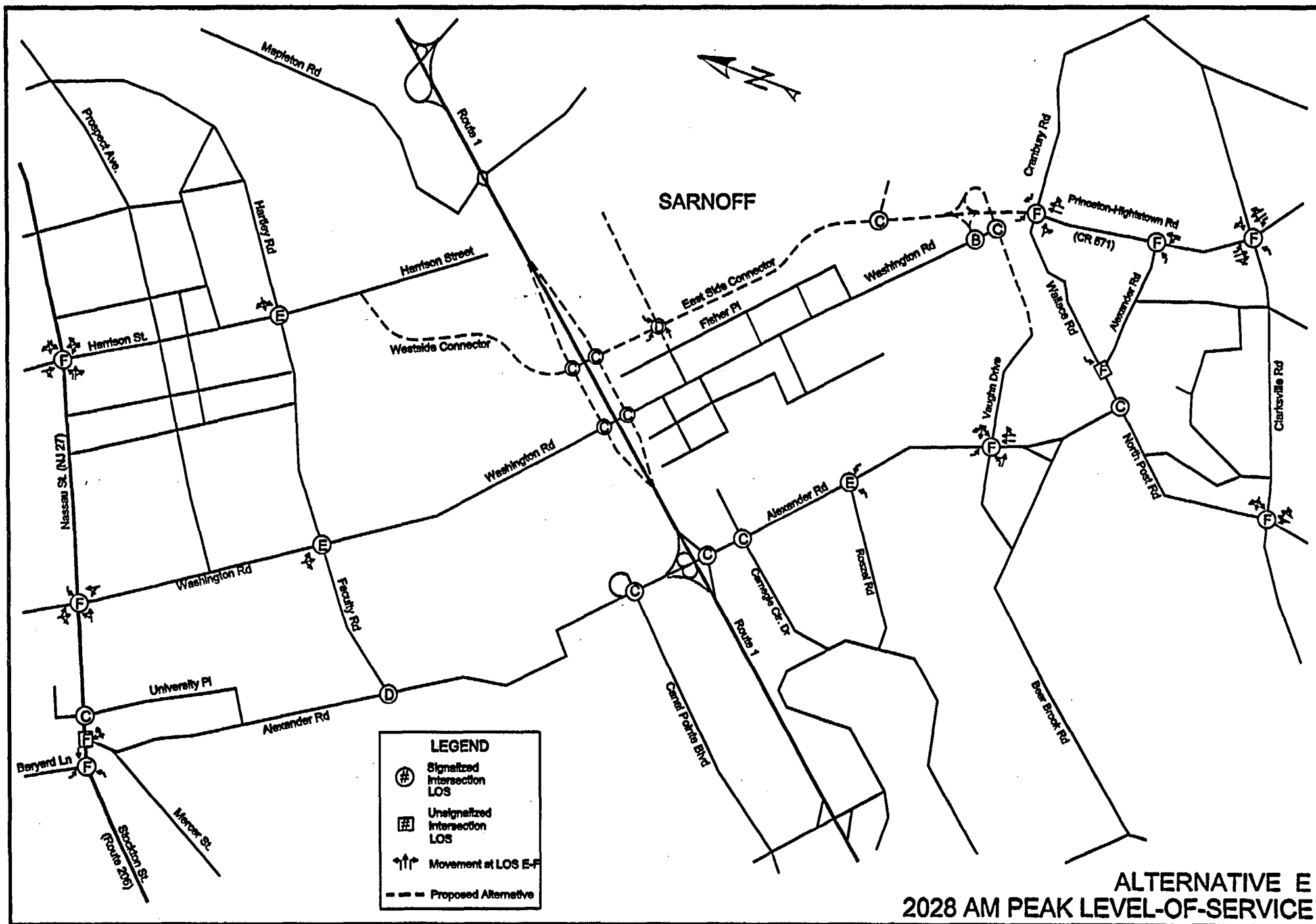


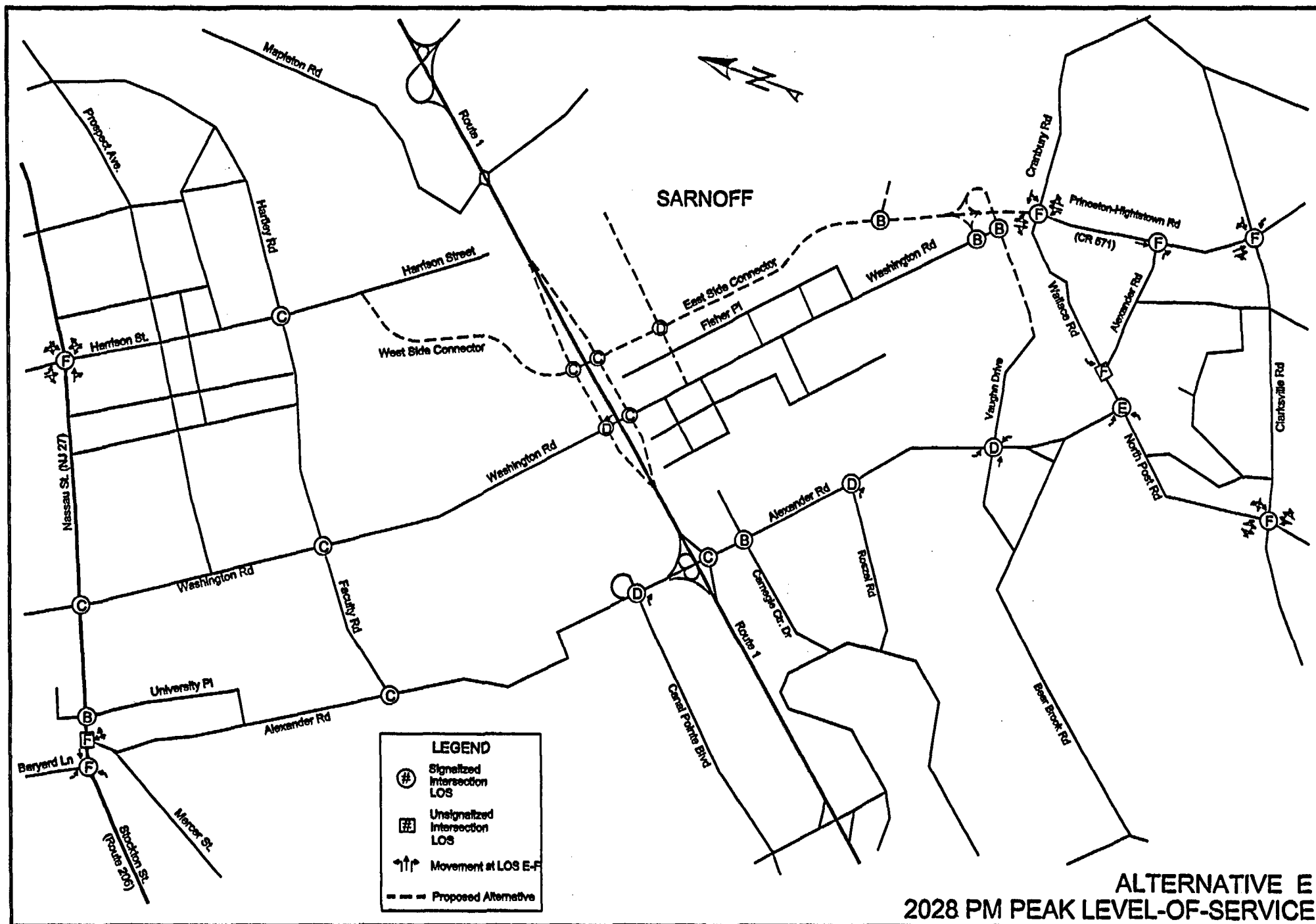


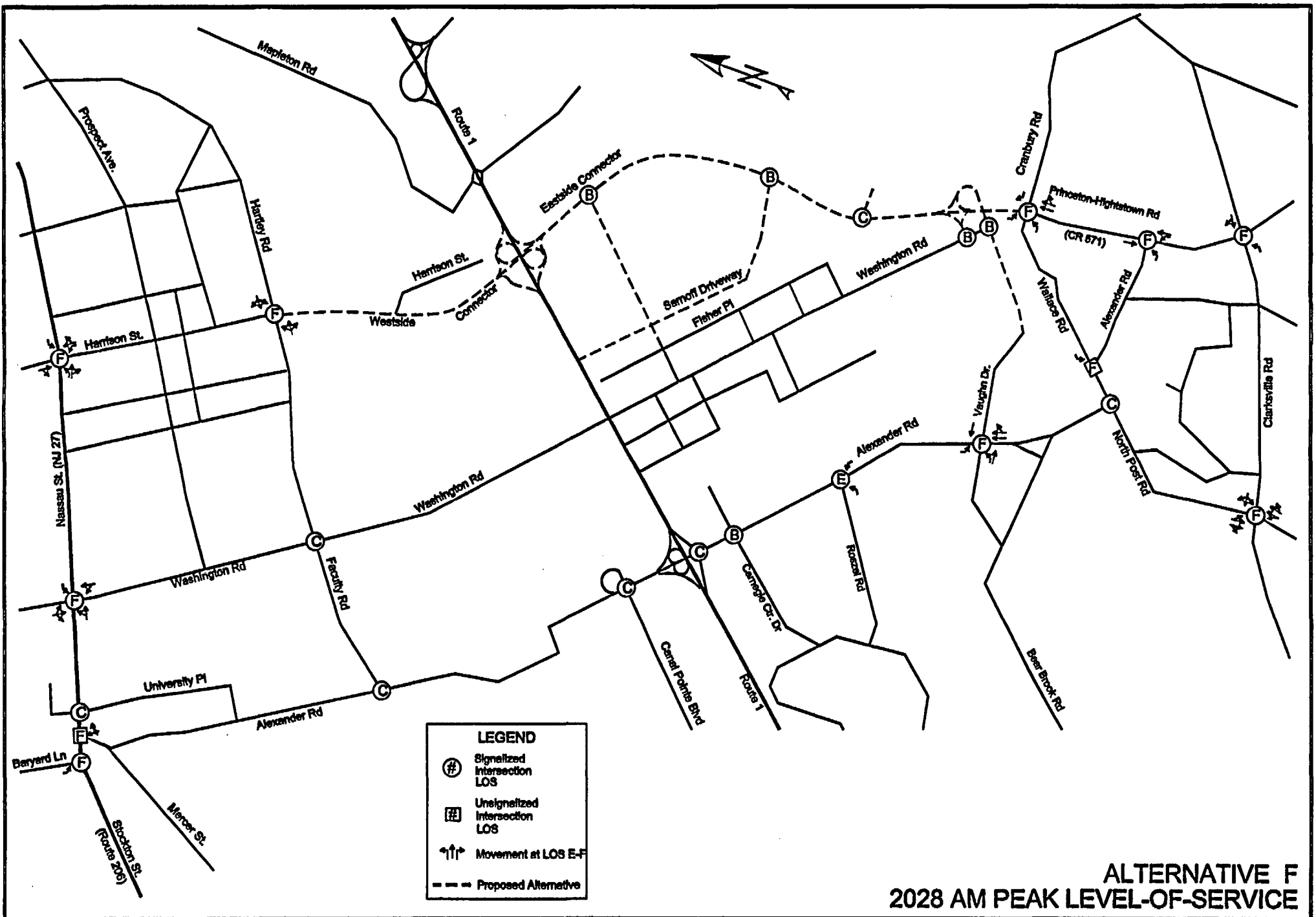
ALTERNATIVE D-2
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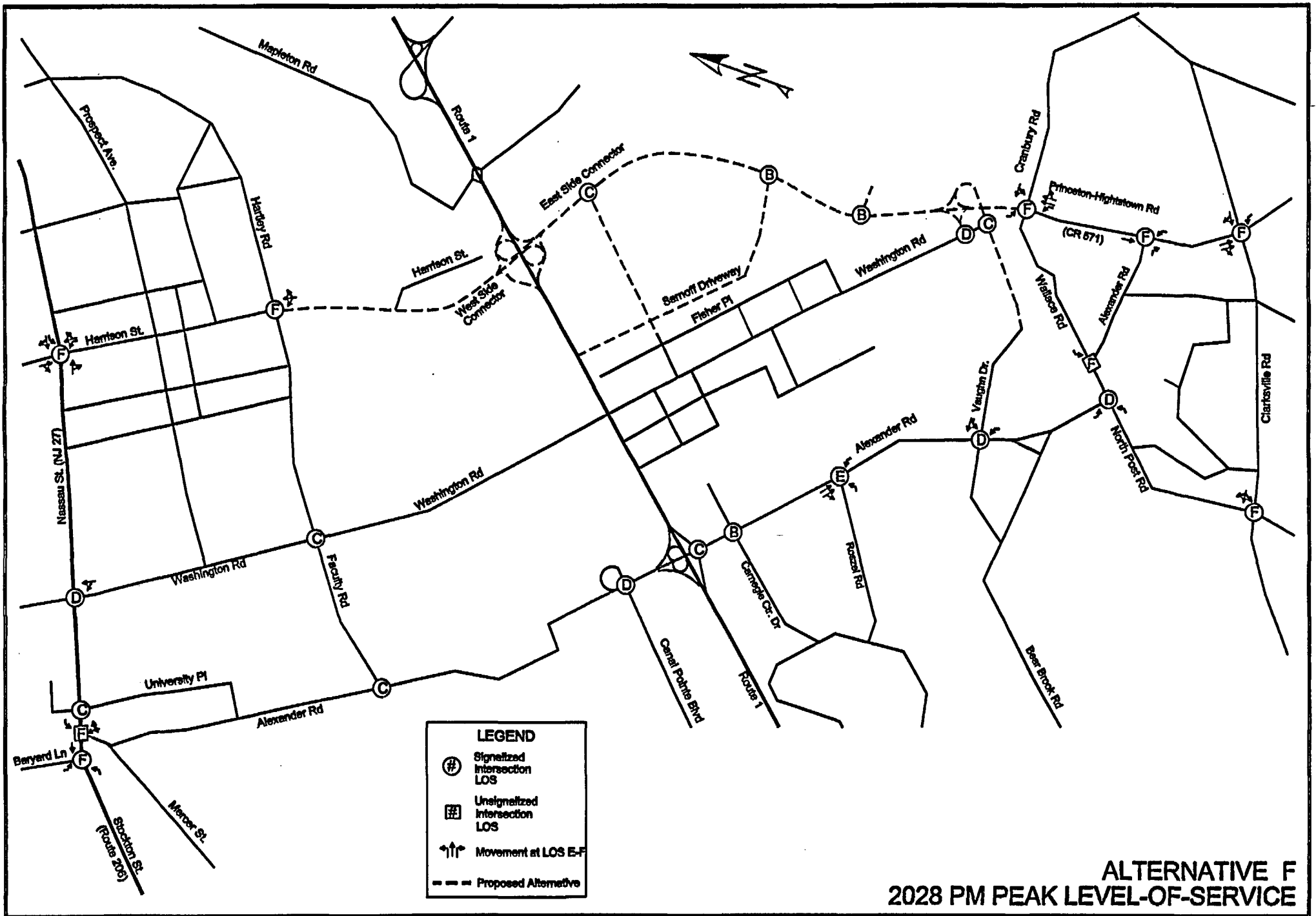
ALTERNATIVE D-2
2028 PM PEAK LEVEL-OF-SERVICE

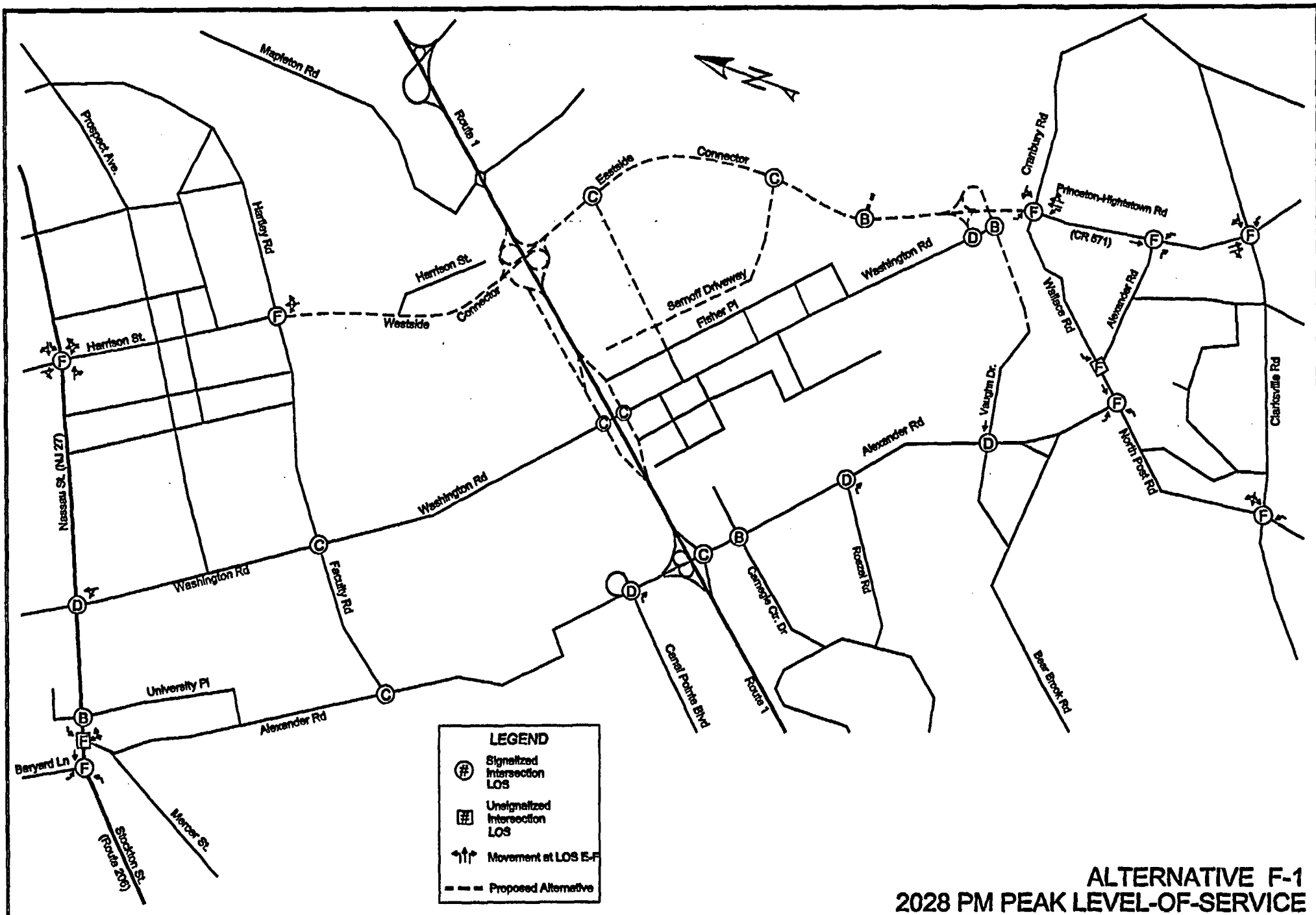




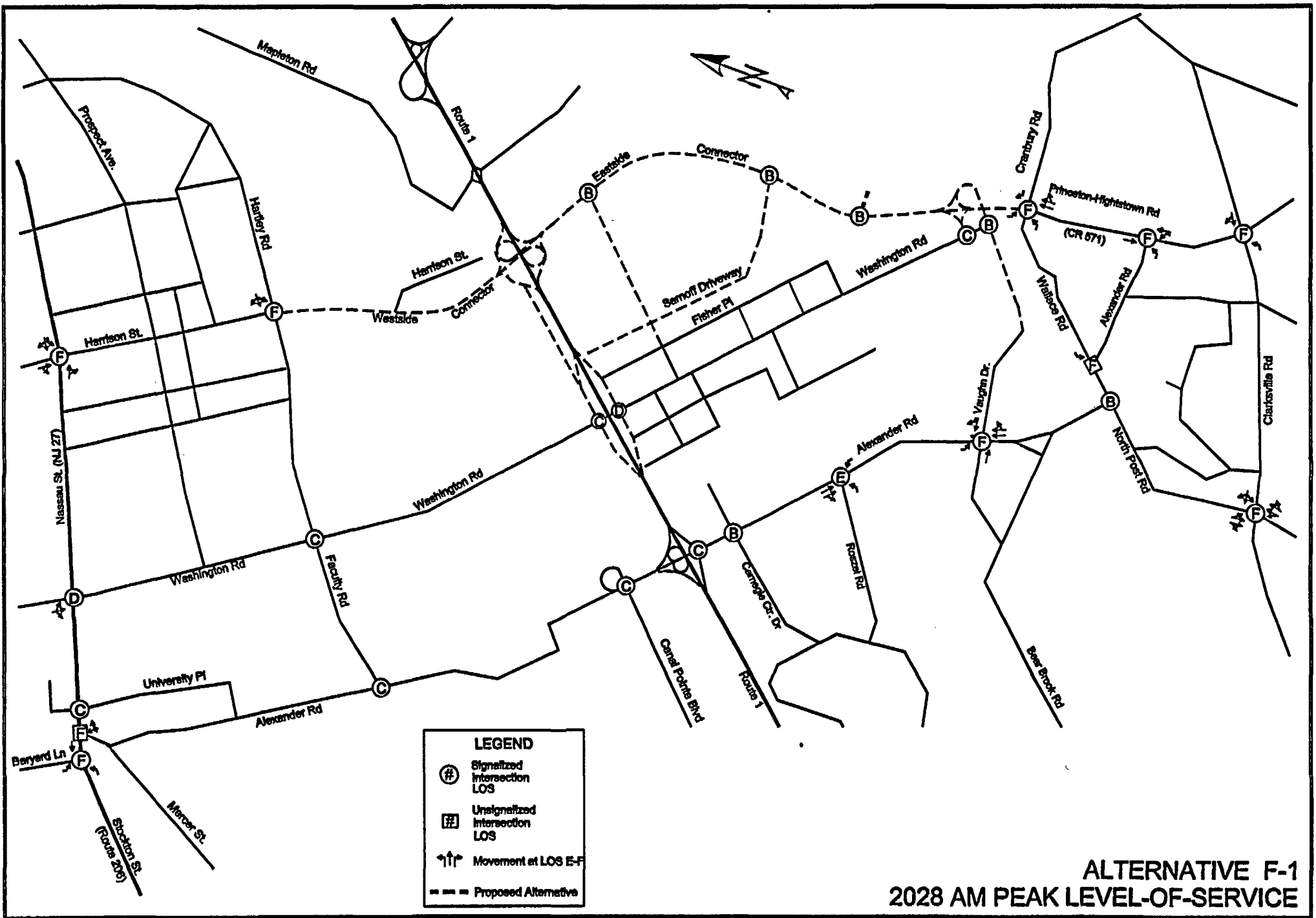


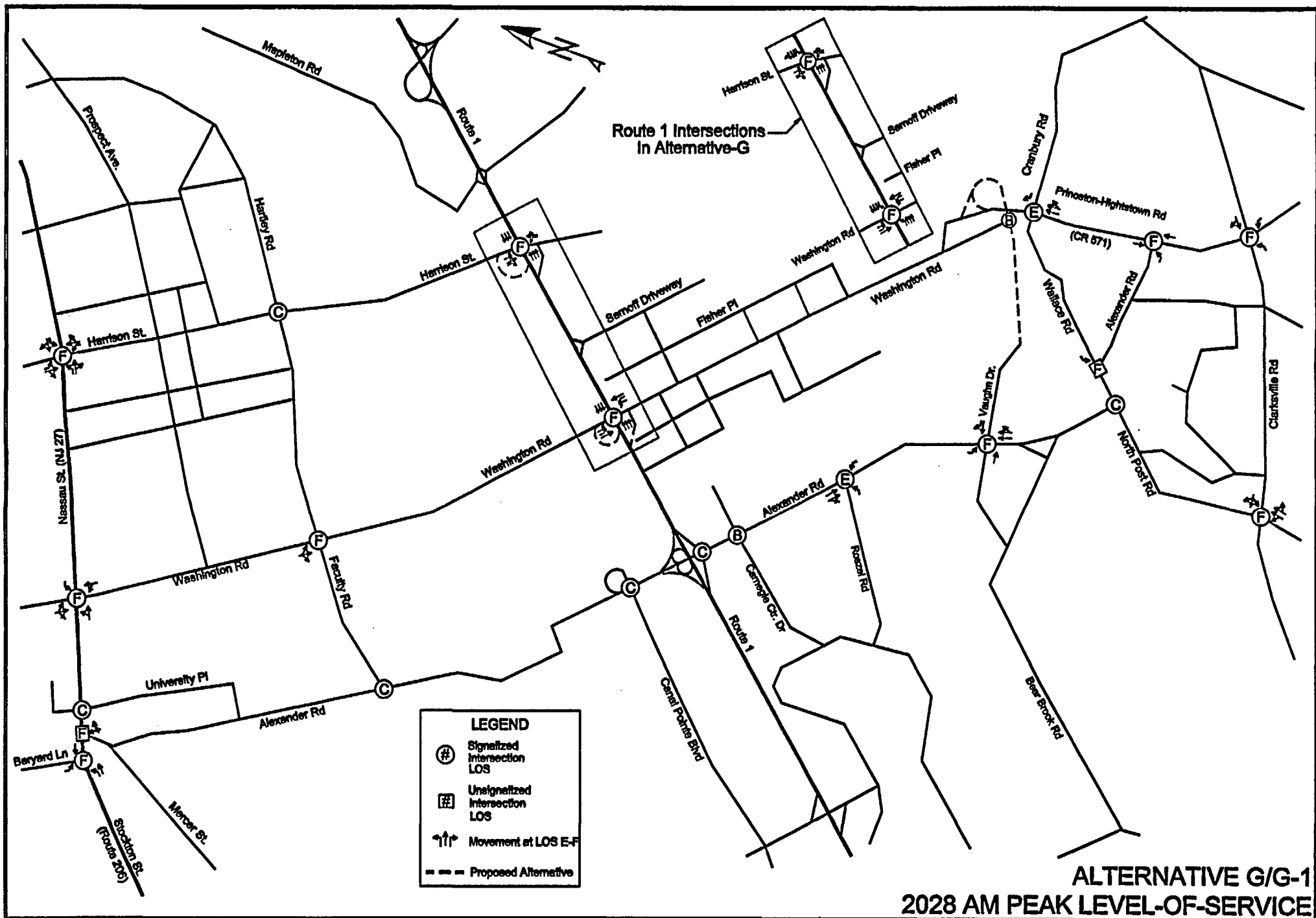
ALTERNATIVE F
2028 AM PEAK LEVEL-OF-SERVICE

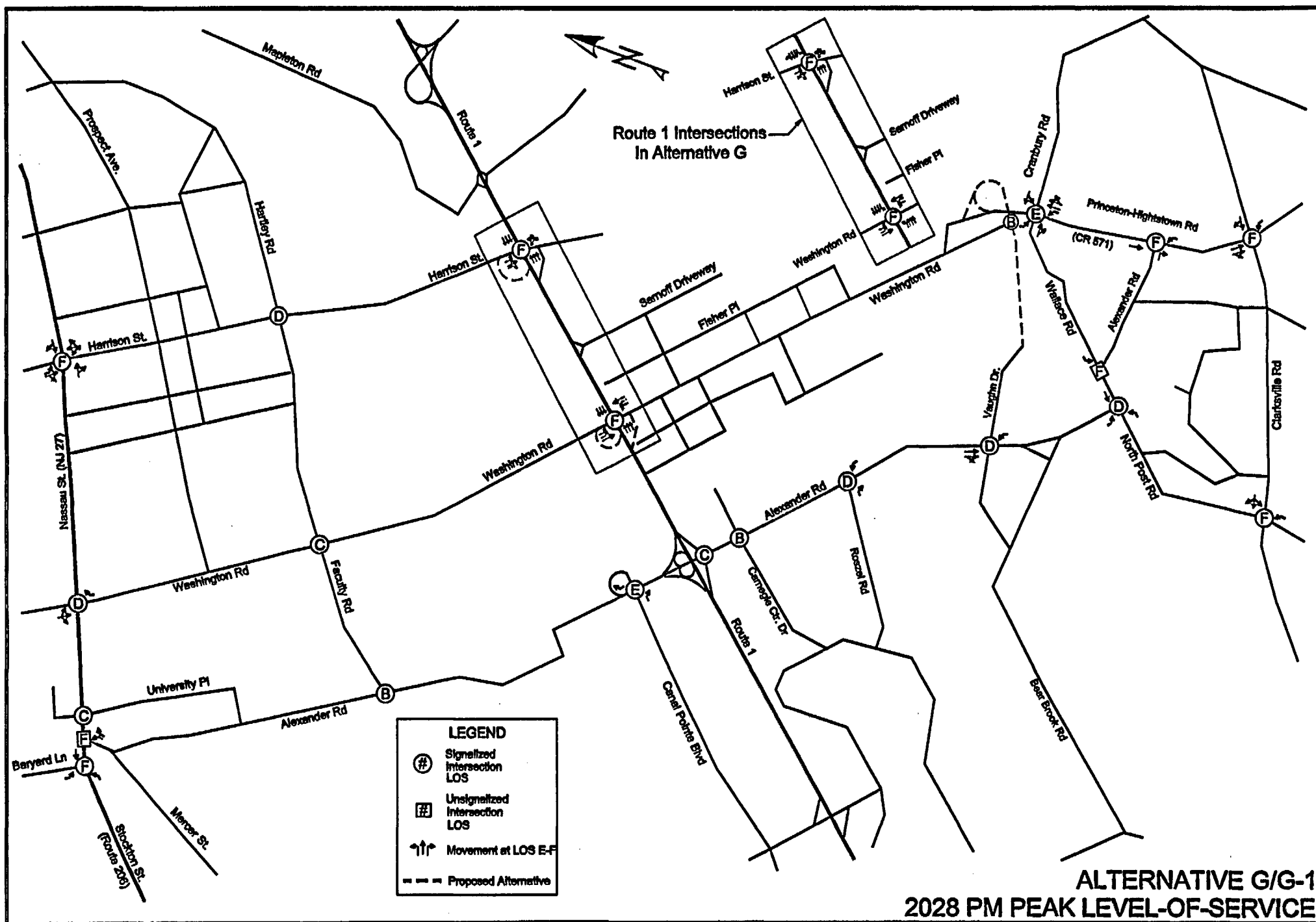


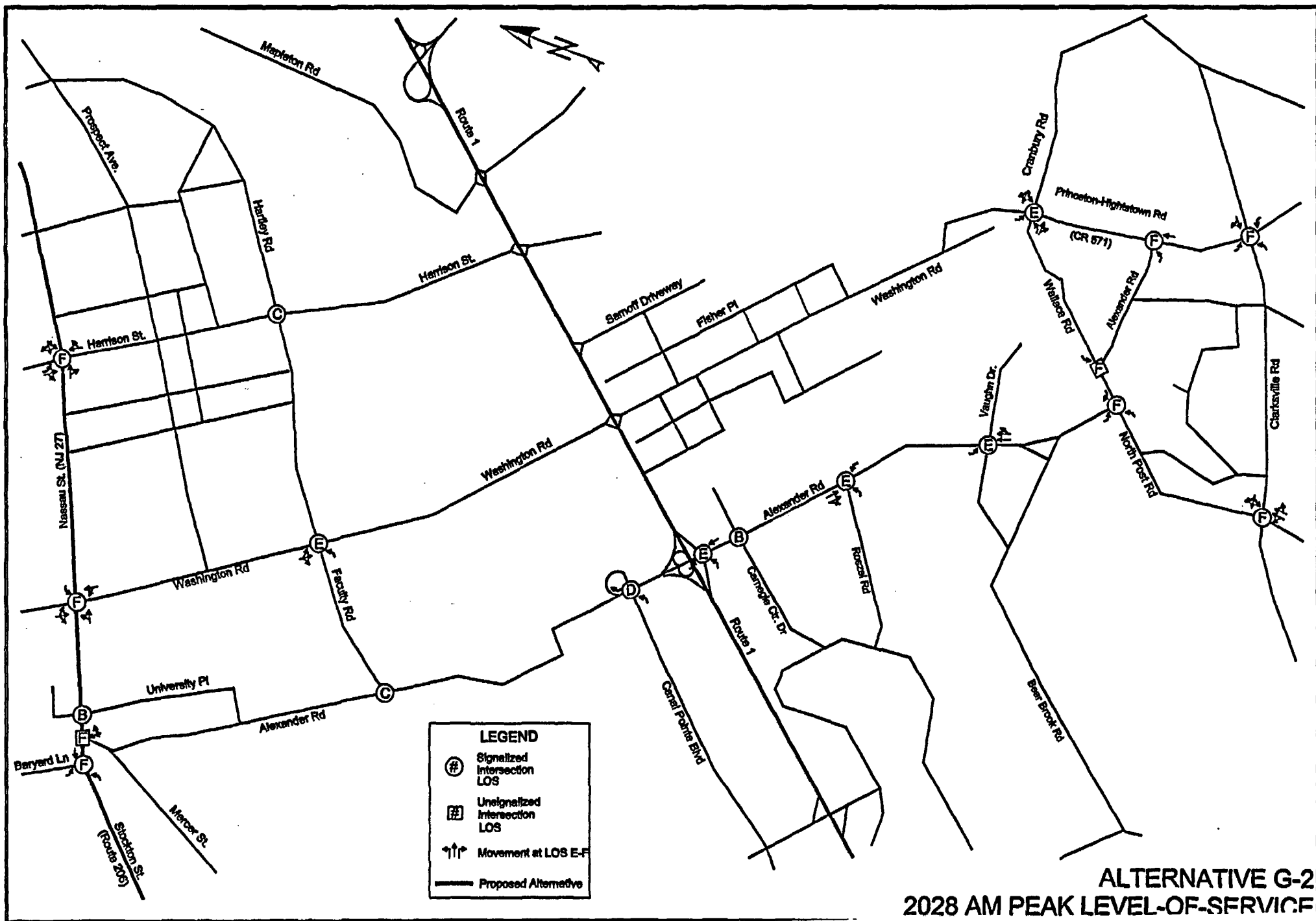


ALTERNATIVE F-1
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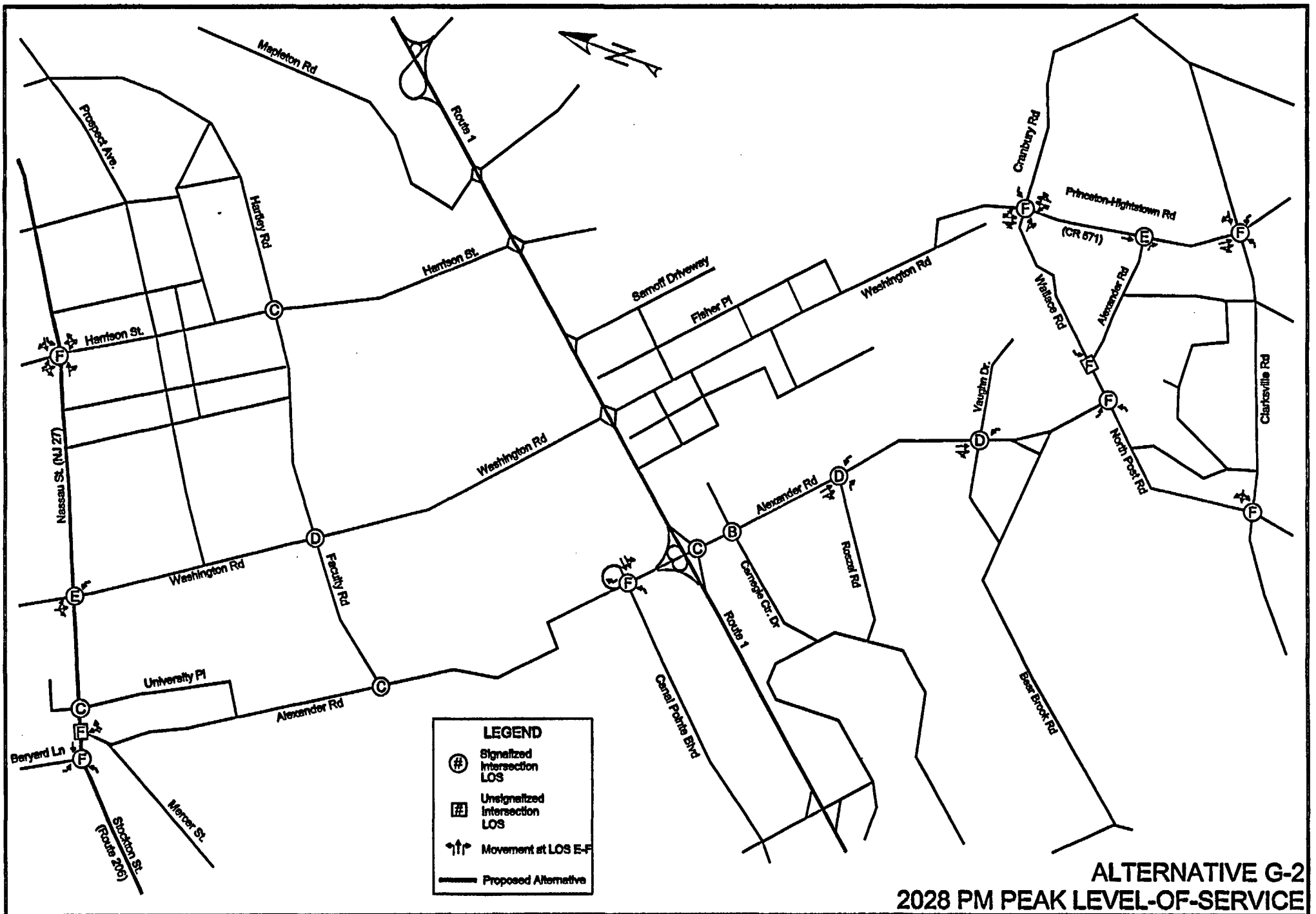








ALTERNATIVE G-2
2028 AM PEAK LEVEL-OF-SERVICE



ALTERNATIVE G-2
2028 PM PEAK LEVEL-OF-SERVICE

PENNS NECK AREA EIS
Future Roadway Network Assumptions
(Last revised: August 23, 2002)

As required by the National Environmental Policy Act, the Penns Neck Area EIS will include the investigation of a **No-build Alternative**. This is a "do-nothing alternative." It is included as the benchmark alternative against which all "build" alternatives will be compared. This alternative includes routine maintenance and *currently planned improvements* in the study area. For the purposes of the Penns Neck Area EIS, *currently planned improvements* were defined as roadway widening and roadways on new alignment in the primary and secondary study area, and capacity increasing intersection improvements in the primary study area. Only those projects programmed for funding in one of the following capital improvement programs/plans were included in the list of future roadway network assumptions:

- Delaware Valley Regional Planning Commission (DVRPC) FY2003-05 Transportation Improvement Program (TIP);
- North Jersey Transportation Planning Authority (NJTPA) FY2002-2004 TIP;
- Middlesex County FY2002-07 Capital Plan;
- Middlesex County FY2001-05 Capital Transportation Program (State Aid);
- Plainsboro Township Capital Improvement Plan; and
- West Windsor Township Capital Improvement Plan.

Capital improvement plans/programs for Mercer County, Somerset County, Princeton Borough and Princeton Township were also reviewed; however, no projects were deemed appropriate for inclusion according to the above described parameters. The attached tables describe the location, description and source of all projects included in future roadway network assumptions. The assumptions are presented in two tables. The first includes projects to be implemented by 2008. The second includes projects to be implemented between 2008 and 2028.

Penns Neck Area EIS – Future Roadway Network Assumptions
(Last revised: 8/23/02)

TABLE 1: Projects to be implemented by 2008

| Location | Type | Description | Source | Future Condition |
|--|----------------------------|---|--|---|
| State Roads | | | | |
| Route 1 @ Nassau Park Blvd / Quakerbridge Rd Interchange | Intersection & Interchange | Remove traffic signal and jughandle; reconstruct for right-in / right-out operation; implement mitigation measures at Route 1 / Quakerbridge Rd interchange and at Quakerbridge Rd / Nassau Park Blvd intersection. | DVRPC FY 2003-05 TIP; Project ID# 01329/TIP #01329 | Signal removed; Median closed; Rt 1 SB rt-in/rt-out operation only; collector-distributor lanes added to Rt 1 NB at Q-bridge Rd interchange; completion of auxiliary lane along Rte. 1 NB between the GM Auto Mall and McIntosh Inn; additional approach lane added to Quakerbridge Rd. WB at Nassau Park Blvd. intersection. |
| Route 33/Washington Twp. Bypass | Roadway | Construct new roadway on new alignment from Rt 33 west of Washington Blvd. to Rt 130 in the vicinity of South Gold Drive | DVRPC FY 2003-05 TIP; Project ID#99368A/TIP#4346 | 2 lanes, full shoulders, curb, left turn lanes at intersections. |
| Route 206 widening | Roadway | Widen to 4 lanes between Doctors Way and Brown Ave in Hillsborough Township, Somerset County | NJTPA FY 2002-2004 TIP; DB#780 | 4 lanes, with shoulders. Jughandles and new signals at Brown Ave., Valley Road, & Triangle Rd. intersections; New intersection to be located between Valley Rd. & Camplain Rd.. |
| Route 206 - Hillsborough Bypass | Roadway | Construct new roadway on new alignment from Belle Mead-Griggstown Road in Montgomery Twp. to Old Somerville Road in Hillsborough Township, Somerset County | NJTPA FY 2002-2004 TIP; DB#779 | 4 lanes, limited access, with shoulders. |
| Route 206/Cherry Valley Road | Intersection | Intersection improvements, including the construction of local service roads/jug-handles. | DVRPC FY2003-05 TIP Amendment; Project ID#01320 | Intersection improvements, including the construction of local service roads/jug-handles in NW and SE quadrants. |
| County/Municipal Roads | | | | |
| West Windsor Township | | | | |
| New Meadow Road Connector | Roadway | Construct to 50 feet for 4 lanes, curb, drainage, sidewalk | West Windsor Twp CIP | Roadway on new alignment from Meadow Rd curve to the Carnegie Center Connector. |

Penns Neck Area EIS – Future Roadway Network Assumptions
(Last revised: 8/23/02)

| | | | | |
|--|--------------------|---|--|---|
| New Meadow Rd / Carnegie Ctr Connector | Intersection | Construct new intersection with traffic signal | West Windsor Twp CIP | Intersection improved w/dedicated left turn lanes, thru and thru-right lanes on each approach; NEW Meadow Rd dominant movement at signal. |
| New Meadow Rd / Meadow Rd (to Clarksville) | Roadway | Realign, widen to 50 feet for 4 lanes, curb, sidewalk | West Windsor Twp CIP | 4 lanes, no shoulders, curb and sidewalk |
| Meadow Rd / Bear Brook Rd | Intersection | Widen for turn lanes, sidewalk, traffic signal | West Windsor Twp CIP | T-intersection, dedicated left and thru on Meadow Rd EB approach; thru and right lanes on Meadow Rd WB; dedicated left and dedicated right lanes on Bear Brook Rd approach |
| Bear Brook Rd | Roadway | Widen to 40 feet for 2 lanes, shoulders, curb, drainage, sidewalk | West Windsor Twp CIP | 2 lanes, full shoulders, curb, auxiliary lanes at intersections with Toll Brothers development. |
| Alexander Rd / N. Post Rd (at the bridge) | Intersection | Widen for turn lanes, traffic signal | West Windsor Twp CIP | Dedicated right and thru on Alex Rd approach east of bridge; dedicated left and thru on N. Post Rd approach; dedicated left and right lanes on Alex Rd EB approach on the bridge |
| Clarksville Rd / Meadow Rd | Intersection | Realign, widen for turn lanes, curb, sidewalk, install traffic signal | West Windsor Twp CIP | Realign T-intersection with new traffic signal to allow Meadow Rd. to operate as thru movement; New approach configurations to include 2 thru lanes and a right lane on NB Clarksville and EB Meadow; SB Clarksville approach to be configured with one thru lane and one right lane. |
| Alexander Rd / Vaughn Dr | Intersection | Widen for turn lanes, improve traffic signal | West Windsor Twp CIP | Dedicated left, thru and thru-right on Alexander Rd WB; dedicated left, double thru and right on Alexander Rd EB approach; double left, thru and right on Bear Brook Rd; dedicated left, thru and right on Vaughn Dr |
| Alexander Rd railroad bridge | Bridge replacement | Replace at current location, realign, and widen for two lanes, turn lanes, shoulders, sidewalk, and bike lane | DVRPC FY 2003-05 TIP; Project ID#99414/TIP#99414 | One lane each direction w/ dedicated left on Alexander Rd EB approach |

Penns Neck Area EIS – Future Roadway Network Assumptions
(Last revised: 8/23/02)

| | | | | |
|---|--------------|---|--|--|
| <u>Princeton Township</u> | | | | |
| Princeton Township Roadway Improvements | Intersection | Roadway improvements in the vicinity of the Princeton Township municipal complex, including changes to Valley, Mt. Lucas, Terhune and Cherry Hill Roads | DVRPC FY 2003-05 TIP; Project ID#HP01010/TIP#HP01010 | Minor widening approaches; signal retiming/phasing |
| <u>South Brunswick</u> | | | | |
| CR 522 (Rt 27 to Rt 130) | Roadway | Widen for 4-lanes with shoulders | Middlesex County FY2002-07 Capital Plan | 2 lanes in each direction with shoulders and auxiliary lanes at intersections |
| CR 522 (Rt 130 to Cranbury-South River Road) | | New roadway on new alignment along Pigeon Swamp Park and across NJ Turnpike connecting to CR535 | Middlesex County FY2002-07 Capital Plan | 2 lanes in each direction with shoulders and auxiliary lanes at intersections |
| CR 522, Section 2, Monmouth Jct to Georges Road | Roadway | Widen for 4-lanes with shoulders | Middlesex County FY2001-05 Capital Transportation Program (State Aid) | 2 lanes in each direction with shoulders and auxiliary lanes at intersections |
| <u>Plainsboro Township</u> | | | | |
| Mapleton Road (Rt. 1 to Kingston) | Roadway | Drainage and reconstruction; no capacity increase | Middlesex County FY2002-07 Capital Plan | No capacity increase. |
| Schalks Crossing/Scudders Mill Road | Intersection | Widen for turn lanes, new signal | Completed 2002 | Double left, thru, and thru-right on Schalks Xing SB approach; double left, 2 thru, and 1 right on Schalks Xing NB approach; dedicated left, 3 thru, 1 right on Scudders Mill Rd EB approach w/reverse jug-handle for access to Schalks Crossing SB; 3 thru, 1 thru-right, and 1 right on Scudders Mill Rd WB approach |
| Campus Road (Princeton Forrestal Center) | Roadway | New roadway on new alignment between Scudders Mill Road (opposite Connector Road) and Stelerator Road on Forrestal Campus | Developer constructed project, completed in 2001, provides circulation road connection within Forrestal Center development | 1 lane in each direction with center median. Traffic signal at the intersection of Scudders Mill Road/Connector Road and Campus Road. |

Penns Neck Area EIS – Future Roadway Network Assumptions
(Last revised: 8/23/02)

| | | | | |
|--|------------------------|---|--|--|
| Mapleton Road/Seminary Rd | Intersection | Reconstruct intersection on new alignment and install new signal. Mapleton Rd north of Seminary will be realigned to connect with Seminary Rd and Mapleton Rd south of Seminary will be realigned to connect with Barclay Rd (new) into Barclay Square residential development to form a new 4-way signalized intersection. | Plainsboro Township FY 2002 Capital Budget | Dedicated left and 1 thru lane on Mapleton Road approach; 1 thru lane w/ no auxiliary lanes on Mapleton Rd South approach; dedicated left and thru-right on Seminary WB approach; 1 thru lane w/no auxiliary lanes on Barclay approach. |
| Plainsboro Road/Enterprise Drive/Middlesex Blvd. | Intersection / roadway | Construct small extension of Enterprise Drive across Plainsboro Road to Old Plainsboro Road. Install new signal at Enterprise Drive and Plainsboro Road. | Plainsboro Township FY 2002 Capital Budget | 1 lane in each direction with no auxiliary lanes |
| Plainsboro Road /Walker Gordon Drive | Intersection | New signal | Developer's agreement | 1 lane in each direction with no auxiliary lanes |
| Plainsboro Road/Dey Road/Edgemere Avenue | Intersection | New signal | Plainsboro Township FY 2002 Capital Budget | 1 lane in each direction with no auxiliary lanes |
| Scudders Mill Road/Dey Road | Intersection | Widen for turn lanes. | Middlesex County FY2001-05 Capital Transportation Program (State Aid) | Dedicated left, thru and right on Dey Road SB approach; double left, 2 thru, and right on Scudders Mill Road EB approach; dedicated left, and thru-right on Old Plainsboro Road approach; 1 lane thru and no auxiliary lanes on Edgemere approach. |

TABLE 2: Projects to be implemented between 2008 and 2028

| Location | Type | Description | Source | Future Condition |
|---|-----------------------------|---|-------------------------|--|
| County/Municipal Roads | | | | |
| West Windsor Township North Post Rd at curve | Roadway | Realign, curb, sidewalk | West Windsor Twp CIP | No change to capacity |
| Alexander Rd / N Post Rd / Wallace Dr | Intersection and Roadway | Realign, widen for turn lanes, curb, sidewalk as needed to service new bridge over the railroad | West Windsor Twp CIP | Realignment of intersection with designation of turn lanes and transitioning to new bridge over NEC. |

Penns Neck Area EIS – Future Roadway Network Assumptions
(Last revised: 8/23/02)

| | | | | |
|---|--------------|--|----------------------|---|
| Alexander Rd (E of Railroad) | Roadway | Traffic calming and pedestrian crossings | West Windsor Twp CIP | No change to capacity |
| Alexander Rd (W of railroad) | Roadway | Widen to coordinate with Alexander Rd bridge replacement, curb, drainage, sidewalk | West Windsor Twp CIP | 2 lanes on Alexander Rd WB coming off the bridge; 2 lanes transitioning to left only/right only on approach to bridge. |
| Clarksville Rd / Quakerbridge Rd | Intersection | Widen for turn lanes, revise traffic signal | West Windsor Twp CIP | Double left, double thru and right on Quakerbridge Rd EB & WB approach; double left, thru and right on Clarksville Rd SB approach; double left, double thru and right on Bakers Basin NB approach. |
| Clarksville Rd (North of N Post Rd) | Roadway | Curbs, drainage, sidewalk, pedestrian crossings | West Windsor Twp CIP | No change to capacity |
| Clarksville Rd / Penn Lyle Rd | Intersection | Improve pedestrian crossings | West Windsor Twp CIP | No change to capacity |
| Route 571 – Clarksville Rd. to Wallace/Cranbury Rd. | Roadway | Widen to 60 feet: two lanes, center left turn lane/median, shoulders, curbing, drainage | West Windsor Twp CIP | 1 lane in each direction with shoulders; center left turn lane; and right turn lane at intersections |
| Route 571/Clarksville Rd. | Intersection | Widen for turn lanes, curbs, drainage, sidewalk | West Windsor Twp CIP | Dedicated left, thru and right turn lanes on NB Clarksville Rd. approach. Dedicated left plus a thru/right lane on SB Clarksville Rd. approach. Add head-to-head dedicated left turn lanes on EB and WB approaches, with 1 thru and 1 shared thru/right lane in each direction. |
| Route 571/Cranbury Neck Rd. | Intersection | Widen for turn lanes, curbs, sidewalk, traffic signal timing revisions; coordinate with the Penns Neck area improvements | West Windsor Twp CIP | Route 571 EB approach to Cranbury/Wallace – 2 lanes each direction with left turn lane at approach; Route 571 WB approach to Cranbury/Wallace – 2 lanes each direction with center turn lane; Add left turn lanes to Wallace & Cranbury Rd. approaches. |
| Route 571 / Alexander Rd. | Intersection | Widen for turn lanes, curbs, sidewalk, modify traffic signal | West Windsor Twp CIP | T-intersection with dedicated left and right on Alexander Rd approach; dedicated left and thru on 571 WB; dedicated thru and right on 571 EB. |

Penns Neck Area EIS – Future Roadway Network Assumptions
(Last revised: 8/23/02)

| | | | | |
|--|--------------|---|----------------------|--|
| Clarksville Rd (Quakerbridge to Meadow Rd) | Roadway | Widen to 50 feet for 4 lanes, curb, drainage, sidewalk. | West Windsor Twp CIP | 4 lanes, no shoulders |
| Clarksville Rd (Meadow to North Post Rd) | Roadway | Improve with shoulders and turning lanes, curbs, drainage, sidewalk | West Windsor Twp CIP | 1 lane in each direction with shoulders; dedicated left turn lane; and right turn lanes at intersections and major developments |
| Meadow Rd / Canal Pointe Blvd | Intersection | Widen for turn lanes, install traffic signal, | West Windsor Twp CIP | T-intersection, dedicated left and right on Meadow Rd approach; dedicated left and thru on Canal Pt Blvd SB approach; thru and right on Canal Pt Blvd NB approach |
| Carnegie Center Blvd / Canal Pointe Blvd | Intersection | Widen for turn lanes, install traffic signal, | West Windsor Twp CIP | T-intersection, dedicated left and right on Carnegie Center Blvd approach; dedicated left and double thru on Canal Pt Blvd SB approach; double thru and right on Canal Pt Blvd NB approach |
| Clarksville Rd / Cranbury Neck Rd | Roadway | Widen for turn lanes, curbs, drainage, traffic signal | West Windsor Twp CIP | New traffic signal and minor approach widening for designated turn lanes. EB Cranbury Rd. thru & right lanes; WB Cranbury Rd. thru and left turn lanes; NB Clarksville Rd. left turn & right turn lanes. |
| Cranbury Neck Rd (Rte 571 to Clarksville Rd) | Roadway | Widen to 30 feet for 2 lanes, curbs, drainage, sidewalk | West Windsor Twp CIP | No change to capacity |
| Cranbury Neck Rd / Millstone Rd | Intersection | Widen for turn lanes, curb, sidewalk, traffic signal | West Windsor Twp CIP | New traffic signal and minor approach widening for designated turn lanes |
| Cranbury Neck Rd (East of Clarksville Rd) | Roadway | Widen to 30 feet for 2 lanes, curbs, drainage, sidewalk | West Windsor Twp CIP | No change to capacity |
| N Post Rd (South of Clarksville Rd) | Roadway | Widen to 50 feet, curb, drainage, sidewalk, reconstruct Duck Pond culvert | West Windsor Twp CIP | No change to capacity. 1 lane each direction with shoulder, sidewalk and curbing added. |

Appendix D: PM Peak Hour Traffic Data - Various Performance Measures

| | | Existing 2001 | NO BUILD* | Route 1 In-Cut | | | | | | Route 1 at-grade | | | | | | Route 1 In-Cut | | | | | | Route 1 at-grade | | |
|--|--|------------------|-----------|----------------|----------|----------|----------|----------|----------|------------------|----------|----------|----------|----------|----------|----------------|----------|----------|----------|----------|----------|------------------|----------|-------|
| | | | | A | A.1 | A.2 | A.3 | A.4 | | B | B.1 | B.2 | C* | C.1* | D | D.1 | D.2 | E | F | F.1 | | G* | G.1* | G.2* |
| 1. Travel delay and rate of growth in congestion (Various measures) | | | | | | | | | | | | | | | | | | | | | | | | |
| Reduces Vehicle hours traveled | | 2,292 | 11,559 | 7,702 | 7,475 | 7,275 | 7,769 | 7,803 | | 9,193 | 8,455 | 7,281 | 7,772 | 8,673 | 7,742 | 7,999 | 7,929 | 7,742 | 8,024 | 7,601 | 10,239 | 10,239 | 10,607 | |
| Reduces Vehicle hours traveled under congested conditions | | 753 | 9,985 | 6,184 | 5,859 | 5,634 | 6,258 | 6,318 | | 7,556 | 6,731 | 5,645 | 6,238 | 7,124 | 5,961 | 5,837 | 6,388 | 6,007 | 6,443 | 6,065 | 8,519 | 8,519 | 9,113 | |
| Reduces Vehicle Miles Traveled under congested conditions | | 3,445 | 21,137 | 21,799 | 17,806 | 18,809 | 19,271 | 20,068 | | 22,194 | 19,995 | 18,849 | 20,892 | 21,191 | 19,002 | 19,257 | 19,354 | 18,535 | 20,462 | 19,932 | 21,334 | 21,334 | 22,685 | |
| 2. Travel time on Route 1 (Travel time in minutes - PM peak hour) | | | | | | | | | | | | | | | | | | | | | | | | |
| Northbound | | 3.65 | 5.07 | 3.82 | 3.66 | 3.80 | 3.58 | 3.61 | | 4.02 | 3.80 | 3.54 | 3.43 | 3.69 | 3.69 | 3.69 | 3.40 | 3.52 | 3.89 | 3.70 | 4.23 | 4.23 | 4.14 | |
| Southbound | | 5.78 | 15.32 | 11.00 | 9.99 | 10.12 | 10.80 | 10.53 | | 12.18 | 11.60 | 9.51 | 9.67 | 10.51 | 10.97 | 11.11 | 10.34 | 10.77 | 10.73 | 10.45 | 13.69 | 13.69 | 13.67 | |
| 3. Travel time on E-W streets (Average 2-way travel time in minutes - PM peak hour) | | | | | | | | | | | | | | | | | | | | | | | | |
| Travel from Clarksville Road/CR 571 Intersection in W. Windsor to Nassau Street in the vicinity of: | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexander Rd | | 14.27 | 19.58 | 17.19 | 17.68 | 17.40 | 17.39 | 17.40 | | 18.76 | 17.93 | 16.85 | 17.07 | 18.83 | 17.85 | 18.00 | 17.81 | 17.97 | 17.97 | 17.08 | 18.10 | 18.10 | 21.12 | |
| Washington Rd | | 12.04 | 16.06 | 12.75 | 12.98 | 12.99 | 12.69 | 13.79 | | 15.48 | 15.13 | 15.87 | 17.85 | 20.48 | 13.70 | 13.63 | 13.74 | 13.48 | 13.67 | 15.54 | 16.50 | 16.50 | 23.14 | |
| Harrison St | | 13.15 | 17.76 | 14.05 | 13.72 | 13.59 | 13.35 | 13.58 | | 15.49 | 14.88 | 15.23 | 17.66 | 21.87 | 13.38 | 13.76 | 14.94 | 12.80 | 14.97 | 15.77 | 17.63 | 17.63 | 23.97 | |
| 4. Intersection delays crossing Route 1 (Total average E-W approach delay in minutes - PM peak hour) | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexander Rd crossing Route 1 | | <1 (0.5) | <1 (0.4) | <1 (0.4) | <1 (0.3) | <1 (0.3) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.5) | <1 (0.5) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.4) | <1 (0.3) | <1 (0.3) | <1 (0.5) | |
| Washington Rd crossing Route 1 | | 3.7 | 14* | 0 | <1 (0.3) | <1 (0.5) | <1 (0.6) | <1 (0.6) | <1 (0.6) | <1 (0.4) | N/A | N/A | N/A | N/A | <1 (0.4) | <1 (0.4) | <1 (0.5) | <1 (0.5) | <1 (0.5) | <1 (0.5) | 3.8 | 7.4 | N/A | |
| Harrison St crossing Route 1 | | 3.8 | 6* | <1 (0.2) | <1 (0.3) | <1 (0.5) | <1 (0.6) | <1 (0.5) | <1 (0.5) | <1 (0.2) | <1 (0.2) | <1 (0.1) | <1 (0.5) | <1 (0.9) | <1 (0.5) | <1 (0.5) | <1 (0.4) | N/A | N/A | N/A | 6.9 | 2.6 | N/A | |
| 5. Balance of traffic on E-W routes | | | | | | | | | | | | | | | | | | | | | | | | |
| a) Distribution of traffic west of Faculty Road (% of total E-W traffic) | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexander Rd | | 45% | 43% | 44% | 44% | 43% | 43% | 43% | | 44% | 44% | 41% | 43% | 46% | 43% | 44% | 43% | 45% | 44% | 42% | 42% | 42% | 45% | |
| Washington Rd | | 31% | 34% | 28% | 29% | 28% | 28% | 28% | | 31% | 31% | 32% | 35% | 30% | 28% | 28% | 29% | 29% | 27% | 30% | 34% | 34% | 31% | |
| Harrison St | | 24% | 23% | 28% | 27% | 29% | 29% | 28% | | 25% | 26% | 27% | 22% | 24% | 28% | 28% | 27% | 28% | 29% | 29% | 24% | 24% | 24% | |
| b) Distribution of traffic b/w NEC rail line and Route 1 (% of total 2-way E-W traffic) | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexander Rd | | 52% | 55% | 38% | 37% | 36% | 37% | 38% | | 37% | 39% | 38% | 62% | 63% | 39% | 39% | 56% | 41% | 36% | 35% | 55% | 55% | 60% | |
| Washington Rd | | 48% | 45% | 15% | 15% | 16% | 14% | 13% | | 12% | 14% | 11% | 38% | 37% | 11% | 12% | 11% | 44% | 6% | 14% | 45% | 45% | 40% | |
| East-side Connector Road | | 0% | 0% | 48% | 48% | 48% | 49% | 50% | | 52% | 47% | 51% | 0% | 0% | 50% | 50% | 0% | 51% | 48% | 50% | 0% | 0% | 0% | |
| 6. Traffic volume on key routes (Two-way traffic volume - PM peak hour) | | | | | | | | | | | | | | | | | | | | | | | | |
| a) Core area b/w D&R Canal and NEC rail line | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexander Rd b/w Canal & Route 1 | | 1,554 | 1,988 | 2,011 | 1,956 | 1,937 | 1,880 | 1,951 | | 1,931 | 1,897 | 1,899 | 1,940 | 2,057 | 1,989 | 1,963 | 1,918 | 2,002 | 1,949 | 1,878 | 1,933 | 1,933 | 2,100 | |
| Alexander Rd crossing D&R Canal | | 1,929 | 2,303 | 2,297 | 2,280 | 2,258 | 2,179 | 2,196 | | 2,241 | 2,198 | 2,008 | 2,094 | 2,389 | 2,225 | 2,217 | 1,820 | 2,314 | 2,237 | 2,119 | 2,234 | 2,234 | 2,436 | |
| Washington Rd b/w Canal and Route 1 | | 1,416 | 2,143 | 1,544 | 1,649 | 1,569 | 1,570 | 1,692 | | 1,682 | 1,536 | 950 | 1,111 | 1,586 | 1,693 | 1,694 | 1,790 | 1,979 | 1,520 | 1,800 | 2,123 | 2,123 | 1,503 | |
| Washington Road crossing D&R Canal | | 1,400 | 1,891 | 1,348 | 1,318 | 1,320 | 1,328 | 1,446 | | 1,574 | 1,589 | 1,813 | 1,959 | 1,545 | 1,440 | 1,441 | 1,550 | 1,741 | 1,339 | 1,565 | 1,886 | 1,886 | 1,300 | |
| Harrison St b/w Canal and Route 1 (Lower Harrison St) | | 1,003 | 1,441 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | 1,451 | |
| Harrison St crossing D&R Canal | | 1,003 | 1,441 | 2,044 | 1,978 | 2,052 | 2,091 | 2,132 | | 1,790 | 1,792 | 1,990 | 1,423 | 1,496 | 2,142 | 1,957 | 1,800 | 1,732 | 2,284 | 2,130 | 1,616 | 1,616 | 1,515 | |
| Mapleton Rd in Plainsboro | | 447 | 979 | 1,004 | 1,014 | 1,016 | 1,058 | 1,022 | | 1,031 | 1,012 | 1,030 | 994 | 1,058 | 1,010 | 1,005 | 900 | 1,063 | 993 | 1,019 | 970 | 970 | 995 | |
| Washington Rd in Penns Neck | | 1,580 | 2,250 | 1,075 | 1,068 | 1,119 | 1,028 | 1,083 | | 788 | 799 | 1,858 | 1,823 | 787 | 787 | 791 | 1,131 | 557 | 1,181 | 1,072 | 2,245 | 2,245 | 1,939 | |
| Fisher Place b/w Route 1 and Fairview Ave | | 267 | 0 | 299 | 234 | 328 | 231 | 3 | | 0 | 0 | 0 | 0 | 0 | 344 | 344 | 264 | 0 | 274 | 182 | 0 | 0 | 0 | |
| Canal Pointe Blvd south of Alexander Rd | | 1,620 | 2,412 | 2,144 | 2,179 | 2,207 | 2,160 | 2,179 | | 2,005 | 2,052 | 3,194 | 2,481 | 2,390 | 2,228 | 2,267 | 2,269 | 2,335 | 2,106 | 2,112 | 2,351 | 2,351 | 2,285 | |
| b) West of D&R Canal | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexander Rd b/w Faculty Rd & University Place | | 1,707 | 2,260 | 2,280 | 2,235 | 2,227 | 2,191 | 2,229 | | 2,257 | 2,260 | 2,162 | 2,193 | 2,298 | 2,249 | 2,247 | 2,284 | 2,293 | 2,277 | 2,175 | 2,235 | 2,235 | 2,293 | |
| Alexander Rd b/w University Place and Mercer St | | 1,150 | 1,391 | 1,432 | 1,422 | 1,413 | 1,388 | 1,402 | | 1,416 | 1,389 | 1,288 | 1,363 | 1,383 | 1,384 | 1,410 | 1,399 | 1,434 | 1,350 | 1,225 | 1,456 | 1,456 | 1,430 | |
| Washington Rd b/w Nassau St & Faculty Rd | | 1,182 | 1,766 | 1,422 | 1,456 | 1,442 | 1,439 | 1,453 | | 1,583 | 1,577 | 1,682 | 1,791 | 1,489 | 1,472 | 1,434 | 1,539 | 1,497 | 1,389 | 1,555 | 1,789 | 1,789 | 1,582 | |
| Harrison St b/w Nassau St & Faculty Rd (Upper Harrison St) | | 935 | 1,229 | 1,438 | 1,393 | 1,471 | 1,468 | 1,462 | | 1,310 | 1,318 | 1,392 | 1,136 | 1,213 | 1,468 | 1,462 | 1,440 | 1,345 | 1,488 | 1,475 | 1,281 | 1,281 | 1,256 | |
| Nassau St b/w Mercer St & Washington Rd | | 1,507 | 1,720 | 1,764 | 1,683 | 1,672 | 1,617 | 1,636 | | 1,781 | 1,771 | 1,648 | 1,652 | 1,742 | 1,709 | 1,742 | 1,631 | 1,649 | 1,732 | 1,620 | 1,682 | 1,682 | 1,798 | |
| Nassau St b/w Washington Rd & Harrison St | | 1,300 | 2,354 | 2,115 | 2,057 | 1,971 | 2,036 | 2,060 | | 2,067 | 1,947 | 2,224 | 2,152 | 2,049 | 1,972 | 1,962 | 1,919 | 1,842 | 1,993 | 1,568 | 2,320 | 2,320 | 2,003 | |
| Faculty Rd b/w Alexander Rd & Washington Rd | | 902 | 1,030 | 1,060 | 1,058 | 1,060 | 1,011 | 997 | | 1,075 | 1,057 | 890 | 916 | 1,201 | 968 | 1,010 | 982 | 1,069 | 1,036 | 995 | 1,000 | 1,000 | 1,080 | |
| Faculty Rd b/w Washington Rd & Harrison St | | 341 | 714 | 506 | 495 | 454 | 450 | 508 | | 468 | 431 | 536 | 643 | 437 | 503 | 542 | 473 | 481 | 466 | 560 | 607 | 607 | 430 | |
| c) East of NEC rail line | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexander Road b/w Roszel Rd & Vaughn Dr | | 1,690 | 2,719 | 2,721 | 2,683 | 2,576 | 2,653 | 2,648 | | 2,534 | 2,737 | 2,829 | 3,013 | 3,072 | 2,822 | 2,834 | 2,799 | 2,890 | 2,679 | 2,822 | 2,794 | 2,794 | 2,928 | |
| Alexander Rd east of NEC rail line | | 817 | 1,908 | 1,856 | 1,581 | 1,587 | 1,644 | 1,580 | | 2,017 | 1,894 | 1,804 | 1,801 | 1,667 | 1,697 | 1,634 | 1,831 | 1,882 | 1,843 | 1,720 | 1,807 | 1,759 | 1,759 | 2,111 |
| Wallace Rd | | 426 | 595 | 484 | 506 | 493 | 458 | 461 | | 641 | 461 | 380 | 345 | 378 | 478 | 453 | 329 | 554 | 547 | 458 | 511 | 511 | 629 | |
| North Post Rd | | 791 | 1,076 | 1,047 | 1,025 | 992 | 970 | 982 | | 982 | 965 | 1,042 | 965 | 1,005 | 1,007 | 1,005 | 1,007 | 1,010 | 1,017 | 1,025 | 1,052 | 973 | 973 | 1,047 |
| Bear Brook Road | | 481 | 1,501 | 1,734 | 1,779 | 1,716 | 1,786 | 1,666 | | 1,533 | 1,782 | 1,614 | 1,605 | 1,698 | 1,674 | 1,655 | 1,748 | 1,691 | 1,753 | 1,689 | 1,589 | 1,589 | 1,442 | |
| CR 571 b/w Alexander Rd and Wallace Rd | | 2,981 | 2,191 | 2,333 | 2,296 | 2,300 | 2,371 | 2,341 | | 2,592 | 2,411 | 1,338 | 2,078 | 2,070 | 2,229 | 2,245 | 2,135 | 2,277 | 2,461 | 2,418 | 2,138 | 2,138 | 2,284 | |
| Clarksville Rd b/w No. Post Road and CR 571 | | 2,066 | 1,951 | 1,951 | 1,901 | 1,849 | 1,914 | 2,056 | | 1,924 | 1,840 | 1,804 | 1,804 | 1,902 | 1,909 | 1,949 | 1,720 | 1,937 | 1,930 | 2,060 | 2,060 | 2,184 | | |

APPENDIX E

PUBLIC INVOLVEMENT

It is the Regional Council's practice to provide an opportunity for members of the public to make oral public comments at its meetings. Public comment session is scheduled from 11:00 a.m.—noon CST. Members of the public who wish to make oral public comments may do so during the Public comments portion of the agenda. Up to one hour will be allotted for the Public comments with participation available on a first-come, first-served basis. Speakers addressing the Council are requested to limit their remarks to no more than 5 minutes. Persons wishing to speak register at the door and are then called on by the Council Chair during the public comment period. Hand-out materials should be limited to one printed page. Written comments are also invited and may be mailed to the Regional Resource Stewardship Council, Tennessee Valley Authority, 400 West Summit Hill Drive, WT 11A, Knoxville, Tennessee 37902.

DATE: The meeting will be held on Thursday, January 18, 2001, from 8:30 a.m. to 5 p.m. CST.

ADDRESS: The meeting will be held in Nashville, Tennessee, at the Sheraton Downtown Hotel, 623 Union Street, Nashville, Tennessee 37219, and will be open to the public. Anyone needing special access or accommodations should let the contact below know at least a week in advance.

FOR FURTHER INFORMATION CONTACT: Sandra L Hill, 400 West Summit Hill Drive, WT 11A, Knoxville, Tennessee 37902, (865) 632-2333.

Dated: December 19, 2000.

Kathryn J. Jackson,

Executive Vice President, River System Operations & Environment, Tennessee Valley Authority.

[FR Doc. 01-425 Filed 1-5-01; 8:45 am]

BILLING CODE \$120-08-P

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement:
Mercer and Middlesex Counties, New Jersey

AGENCY: Federal Highway Administration (FHWA), USDOT.

ACTION: Notice of intent.

SUMMARY: The FHWA is issuing this notice to advise the public that an Environmental Impact Statement (EIS) will be prepared for changes being considered to Route 1 and intersecting roadways in the greater Penn's Neck Area to improve transportation service.

FOR FURTHER INFORMATION CONTACT: Robin Schroeder, Program Operations Director or Amy Fox, Environmental Coordinator, Federal Highway Administration, 840 Bear Tavern Road, Suite 310, West Trenton, NJ 08628.

SUPPLEMENTARY INFORMATION: Pursuant to Title 23, Code of Federal Regulations, Part 771, Environmental Impact and Related Procedures, the FHWA, in cooperation with the New Jersey Department of Transportation (NJDOT), will prepare an environmental impact statement in accordance with the National Environmental Policy Act (NEPA), on alternatives for modifications to Route 1 and intersecting roadways in the Penn's Neck Area, to improve transportation service. Generally, the section of Route 1 under evaluation extends from Alexander Road Interchange in West Windsor Township in Mercer County to Scudders Mill Road Interchange in Middlesex County. The EIS will evaluate the No-Action and Build Alternatives to determine potential impacts and costs associated with each.

An Environmental Assessment (EA)/Section 4(F) Evaluation of some alternative solutions for mobility and congestion problems in the Penn's Neck area of Route 1 was developed by FHWA and NJDOT and made available to the public and review agencies during October 2000. Subsequently, a decision was made by Governor Christine Todd Whitman to prepare an EIS to allow broader public participation in the process and a fuller evaluation of alternatives and impacts. After publication of this Notice, the FHWA in cooperation with NJDOT will continue the scoping process begun during the preparation of the EA to evaluate alternatives already under review and to identify additional possible alternatives. This process will also identify significant issues to be addressed in the EIS.

To ensure that issues involving this proposed action are addressed fully and significant concerns are identified, written comments, suggestions or questions should be directed to the FHWA at the address provided above or directed to: Mr. Andras Fekete, Manager, Bureau of Environmental Services, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, NJ 08625-0600, Telephone: 609-530-2824.

The public will receive notices on location and time of future opportunities for participation at meetings and public hearings through newspaper advertisements and other means. If you wish to be placed on the

mailing list to receive further information as the project develops, contact Mr. Andras Fekete at the address above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Research, Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation of Federal programs and activities apply to this program)

Issued on: December 28, 2000.

Robin Schroeder,

Program Operations Director, FHWA—New Jersey Division, Trenton.

[FR Doc. 01-406 Filed 1-5-01; 8:45 am]

BILLING CODE 4910-22-M

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket Number NHTSA-2000-8273]

Reports, Forms, and Recordkeeping Requirements

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Request for public comment on proposed collections of information.

SUMMARY: Before a Federal agency can collect certain information from the public, it must receive approval from the Office of Management and Budget (OMB). Under procedures established by the Paperwork Reduction Act of 1995, before seeking OMB approval, Federal agencies must solicit public comment on proposed collections of information, including extensions and reinstatements of previously approved collections.

This document describes two collections of information for which NHTSA intends to seek OMB approval.

DATES: Comments must be received on or before March 9, 2001.

ADDRESSES: Comments must refer to the docket and notice number cited at the beginning of this notice and be submitted to U.S. Department of Transportation Dockets, Room PL-401, 400 Seventh Street, SW., Washington, DC 20590. Please identify the proposed collection of information for which a comment is provided, by referencing its OMB Control Number. It is requested, but not required, that one original plus two copies of the comments be provided. The Docket Section is open on weekdays from 10:00 a.m. to 5:00 p.m.

FOR FURTHER INFORMATION CONTACT: Complete copies of each request for

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PENNS NECK AREA EIS

"WORKING" PROBLEM STATEMENT (VERSION 5)

The following problem statement is a "working" document intended to communicate the general nature of the mobility issues facing the Penns Neck area. The issues and perceptions contained in the problem statement are intended to form the basis for a detailed analysis and statement regarding the "purpose and need" for some action or actions to address these mobility issues. Further detailed study and documentation of existing conditions will quantify the extent to which the issues contribute to or are affected by mobility constraints in the Penns Neck area. It is anticipated that the "working problem statement" will evolve as detailed data becomes available.

STUDY AREA

The study area for the Penns Neck Area EIS has been structured into overlapping regions. The primary study area is composed of the municipalities of Plainsboro Township, Princeton Borough, Princeton Township, and West Windsor Township. This area approximates a five-mile radius from the intersection of Route 1 and Washington Road in West Windsor Township. The primary study area boundary is defined flexibly, so as to permit the inclusion of significant origins and destinations located on the fringe of the five-mile radius and to respond to the technical needs of the EIS study. The secondary study area, which is composed of twenty municipalities in Mercer, Middlesex and Somerset Counties ¹, provides a regional context regarding demographics and travel patterns. Unless specifically noted otherwise, references to the study area should be understood to mean the primary study area. Finally, the study area for considering specific impacts from actions/alternatives investigated in the EIS will be determined by the nature of the action/alternative under consideration and the potentially impacted resource.

STATEMENT OF PROBLEM

Context – The context in which the Penns Neck Area EIS is undertaken represents a complex policy framework that requires a balancing of transportation, environmental, community, and development needs. The study area contains many unique and important natural, cultural, historic, community, and economic resources that should be protected and enhanced. As demonstrated by population and employment trends, the study area is also a focal point for growth and development. Since 1990, the primary study area has added approximately 17,000 people and 13,500 jobs. Table 1 illustrates population and employment trends in the primary study area. Appendix A provides a regional context for these trends by illustrating demographic changes in the secondary study area.

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According to the Local Area Land Use Inventory and Forecast study ² (land use study) completed for the EIS in July 2002, there are approximately 57,500 workers employed in the primary study area. With the exception of the approximately 11,500 jobs concentrated in the Princeton Borough central business district, these jobs are located in worksites on or near the Route 1 corridor. Eighty percent (80%) of the primary study area's employment, or approximately 46,000 jobs, are located in West Windsor and Plainsboro Townships, mainly between Route 1 and the Northeast Corridor rail line. There are two primary nodes of employment. One employment node is located in West Windsor Township and includes work sites on Alexander Road and in the Carnegie Center office complex. A second node is located in Plainsboro Township and includes work sites on Plainsboro Road and Scudders Mill Road, as well as in the Forrestal Center office complex. The number of workers employed in West Windsor and Plainsboro is almost equal to that of the City of Newark, which has approximately 50,000 jobs. In addition, according the land use study, 39,000 new jobs are expected in the primary study area by the year 2028. This represents a sixty-eight (68%) increase over the next 27 years.

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The pattern of development in the study area is decentralized and auto-oriented. The dominant land use pattern throughout the study area is single-use commercial and office development, built at low density, with free parking, and residential subdivisions. In addition, the pedestrian and bicycle network in the primary study area is incomplete. These conditions result in low usage and mode share for transit, pedestrian and bicycle travel to and from employment and other destinations in the primary study area. While the transit and walking mode share for residents of West Windsor and Princeton Borough is higher than in many surrounding municipalities, the dominant mode of travel to and from employment and other destinations in the study area is single-occupant automobile. The average occupancy of vehicles accessing employment destinations in the primary study area is 1.21 persons per vehicle. This reliance on single occupant

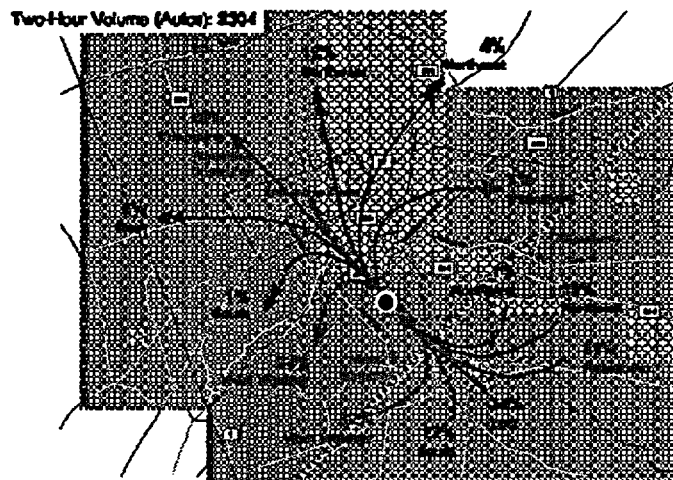
TABLE 1 – DEMOGRAPHIC TRENDS IN THE PRIMARY STUDY AREA

| | | Population Change | | |
|----------------|--------|-------------------|-----------|--------|
| | | 1990-2000 | 1990-2000 | |
| | | Abs. | Percent | |
| | 1990 | 2000 | Change | Change |
| Plainsboro | 14,213 | 20,215 | 6,002 | 42% |
| Princeton Boro | 12,016 | 14,203 | 2,187 | 18% |
| Princeton Twp | 13,198 | 16,027 | 2,829 | 21% |
| West Windsor | 16,021 | 21,907 | 5,886 | 37% |
| Total | 55,448 | 72,352 | 16,904 | 30% |

| | | Employment Change | | |
|----------------|--------|-------------------|-----------|--------|
| | | 1990-1999 | 1990-1999 | |
| | | Abs. | Percent | |
| | 1990 | 1999 | Change | Change |
| Plainsboro | 8,033 | 13,999 | 5,966 | 74% |
| Princeton Boro | 18,857 | 16,670 | (2,187) | -12% |
| Princeton Twp | 4,417 | 8,264 | 3,847 | 87% |
| West Windsor | 11,114 | 17,086 | 5,972 | 54% |
| Total | 42,421 | 56,019 | 13,598 | 32% |

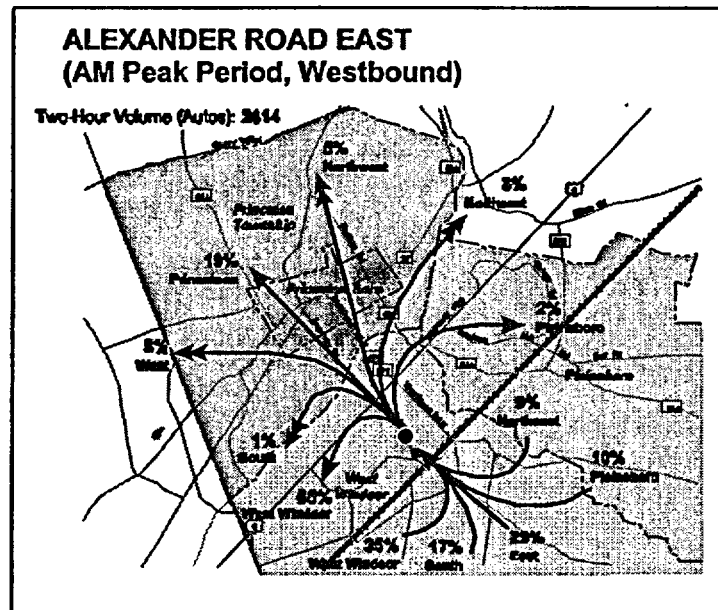
Sources: US Census Bureau, NJ Dept. of Labor

WASHINGTON ROAD EAST (AM Peak Period, Westbound)



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automobile use to access work sites in the study area on existing transportation infrastructure has impaired mobility across all modes of travel, and delays due to traffic congestion occur in many locations. This has frustrated residents, employees and visitors in the primary study area. With construction of 12,750,000 sq. ft. of additional single-use, low-density, campus-style office space, already approved by local planning boards, it is reasonable to anticipate that travel conditions will worsen.



Origin and Destination data³ collected for the EIS indicates that the distribution of existing traffic on Washington Road and Alexander Road reflects the importance of the previously described employment nodes and the Princetons as major destinations. In the morning peak period, 71% of existing westbound traffic on Washington Road is destined for the Princetons and points northeast, northwest and west; 24% is destined for West Windsor; 1% is destined for locations south of the primary study area and 4% is destined for Plainsboro. On Alexander Road, 65% of existing morning peak period westbound traffic is destined for locations within West Windsor, including Carnegie Center and work sites along Alexander Road; 1% is destined for locations south of the primary study area; 32% is destined for the Princetons and points northeast, northwest and west; and 2% is destined for Plainsboro.

Road-related issues – Employment and other destinations along or near Route 1 are major peak period traffic generators. The existing roadway system lacks the connectivity of a grid system and funnels traffic onto a few principal roads. The major north-south transportation artery in the study area, Route 1, is classified in NJDOT's State Highway Access Management Code as an "accessible principal arterial." It functions both as an inter-regional auto and truck corridor and as a local access road for properties fronting the highway. While capital investments made in the past two decades attempted to improve traffic flow along Route 1, much of the benefits were offset by additional access points. In addition, the few parallel connector roads adjacent to either side of Route 1 are

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ineffective alternatives to the use of Route 1 for reaching employment and other destinations in the primary study area.

The east-west road system does not efficiently distribute traffic to and from employment centers in the primary study area, due to varying road widths, lane drops, lack of turning lanes, and discontinuities. Many routes pass through residential and college neighborhoods and business districts, do not meet existing peak period traffic demand, and function at impaired levels of service. These roads include: Harrison Street/Ewing Street from Route 1 to U.S. 206; CR571/Washington Road from the Hightstown By-pass to Nassau Street; Alexander Road from C.R. 571 via the railroad bridge to Mercer Street; and Meadow Road from Clarksville Road to Route 1/Canal Pointe Boulevard.

Traffic traveling north-south on Route 1 and east-west, accessing and crossing Route 1 at the Washington Road, Fisher Place, Harrison Street intersections and other signalized intersections in the primary and secondary study area, creates traffic queues during peak travel periods. Motorists also use local residential streets to avoid the congestion. Aerial surveillance⁴ conducted in October 2001 revealed that traffic queues on Route 1 in the Penns Neck area range from 20-40 vehicles per lane (3 lanes) in the morning peak period. Southbound congestion in the evening peak period typically extended back onto the Route 1 entrance ramp from Scudders Mill Road in Plainsboro. The Route 1 intersections at Harrison Street and Washington Road function above capacity [Level of Service (LOS) E-F] during the AM and PM peak period, while the Route 1 intersection with Fisher Place functions above capacity (LOS E-F) during the AM peak period and is approaching capacity (LOS C-D) during the PM peak period. Average travel delays on Route 1 range from 0.4 to 2.1 minutes at the Washington Road intersection and 0.8 to 1.9 minutes at the Harrison Street intersection. These conditions impair effective performance of both its through traffic and local access functions during peak hours.

Similarly, the aerial surveillance documented east-west traffic congestion on both Washington Road and Harrison Street. In the morning peak period, westbound traffic queues on Washington Road were observed to range from 20 to 85 vehicles. The maximum observed queue extended from Route 1 east to the intersection of Wallingford Drive, approximately ½ mile away. On Harrison Street, eastbound traffic queues approaching Route 1 were observed to range from 20 to 30 vehicles. In the evening peak period, eastbound traffic queues on Washington Road were observed to range

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from 35 to 70 vehicles. Eastbound traffic queues on Harrison Street in the evening peak period were observed to range from 20 to 75 vehicles. At the maximum observed extent, the queue extended back to Lake Carnegie. Average travel delays on Washington Road range from 2.0 to 5.0 minutes and 1.4 to 8.2 minutes on Harrison Street during peak periods; however, the minimum and maximum observed delays varied widely from 0.7 to 11.2 minutes on Washington Road and 0.4 to 11.8 minutes on Harrison Street, under typical conditions.

In addition to causing travel delays for motorists and truck drivers, traffic queues during peak hours on both local roads and Route 1 deteriorate local air quality; pose safety hazards for motorists, pedestrians, and bicyclists; and are believed by local officials to impede the ability of emergency personnel to respond effectively. Data provided by Plainsboro Township indicates that transport time from an emergency call in Plainsboro Township to the Princeton Medical Center takes an additional 3 minutes during the evening peak period. This represents a 20% increase in travel time.

Infrastructure condition issues – There are two structurally deficient bridges in the study area that must be repaired or replaced. One of these bridges is the Route 1 bridge over the Millstone River located just north of the Route 1/Harrison Street intersection which has a sufficiency rating of 55 on a scale of 0 to 100. This bridge carries 80,000 vehicles per day on Route 1 and is a critical link in the regional highway network. The second of these bridges is the Alexander Road bridge over the Northeast Corridor rail line in Princeton Junction, which has a sufficiency rating of 3.3. Alexander Road is a key travel corridor to major employment and retail destinations. NJDOT has accepted responsibility for replacing this structure on its current alignment.

Transit-related issues – The pattern of development in the study area encourages dependency on auto use and imposes constraints on providing a comprehensive network of public transportation services. The existing public transit network includes commuter rail service on the Northeast Corridor rail line with a stop at the Princeton Junction train station, rail shuttle service via the “Dinky” from the Princeton Junction station to Princeton Borough, express commuter bus service to New York City, three local bus routes and a variety of public and private shuttle services providing access to and from the Princeton Junction train station.

While the public transportation network includes most major transit modes, the characteristics of service, including number of routes, frequency of service, hours of operation, required transfers and

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travel times, are less than optimal due primarily to the pattern of development in the study area. The major transit facility, the Princeton Junction train station on the Northeast Corridor rail line, serves a dual function. First, it is heavily used by commuters traveling out of the area to destinations north and south. While use of the station for this purpose is high, waiting lists for parking permits and over-capacity conditions on some peak hour trains indicates that existing demand is greater than current system capacity. The second function served by the station is to distribute commuters and visitors traveling into the study area to a variety of purposes. Because the origins and destinations of employees and visitors coming into the study area are dispersed, use of the NEC rail line and Princeton Junction station by those traveling to destinations in the study area is limited.

The Dinky operation, which serves residential markets in Princeton Borough and Township, downtown commercial development in Princeton Borough and Princeton University has limited parking capacity in Princeton Borough. In addition, service in both directions is constrained by its single-stop, single-track, single-train infrastructure, which does not meet every Northeast

| Bus and Shuttle Services in the Primary Study Area | |
|--|--|
| Bus/Shuttle | Service Characteristics |
| 600 Bus | Route: North-South Along Route 1 from Trenton to Frequency: 30 min. - 6AM to 8PM Destinations served: Quakerbridge Mall, Nassau Park shopping center, Marketfair Mall, Carnegie Center office complex, P. Junction train station, Princeton Meadows shopping center (Plainsboro), Forrestal Center office complex, Princeton Forrestal ¹ Transfer required to travel E -W Ridership: 1000 daily weekday riders |
| 605 Bus | Route: From Quakerbridge Mall to Montgomery Shopping Center Frequency: 75 min. - 7:30AM to 8PM Destinations served: Montgomery Shopping Center, Princeton Shopping Center, Princeton Senior housing, Griggs Farm residences, Palmer Square (Princeton Borough), Princeton Dinky station, Marketfair Mall, Nassau Park shopping center, Mercer Mall, Quakerbridge Mall Ridership: 450 daily weekday riders |
| 606 Bus | Route: From Washington Township to Princeton Borough via Hamilton, Lawrence and Trenton Frequency: variable, approx. 30 min. - 6AM to midnight Destinations served: serves destinations in Hamilton Township, Hopewell Township, Lawrence Township, Princeton Borough and Township, the City of Trenton and Washington Township, including: Hamilton Square, Hamilton Rail Station, Mercerville, Ames Shopping Center, Palmer Square, Lucent Technologies in Hopewell Township (1 AM trip & 1 PM trip) ETS, Bristol Myers Squibb, Mercer County Community College, Princeton Seniors housing and Project Freedom (Washington Twp.) Ridership: averages 30 riders per trip |
| 976 "Wheels" Shuttle | Route: Various residential developments in Lawrence and West Windsor Townships to Princeton Junction train station Frequency: Timed to meet outbound peak hour trains from 8:30AM and 5:30-8:30PM Destinations served: Residential developments along Province Line, Quakerbridge and Clarksville Roads Ridership: 120 daily riders |
| "Train Link" Shuttle | Route: Private employer shuttle to and from Princeton Junction train station Frequency: Timed to meet peak hour trains Destinations served: Various employment destinations in Princeton Forrestal Center Ridership: 80 daily riders |
| East Windsor Shuttle | Route: Municipally-operated shuttle between East Windsor and Princeton Junction train station Frequency: Timed to meet peak hour Destinations served: Twin Rivers, Hightstown and other East Windsor residential neighborhoods Ridership: N/A |
| Note: There are a variety of smaller private and public shuttles that provide service to and from the Princeton Junction train | |

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Corridor train stopping at Princeton Junction. The Dinky is used primarily by study area residents traveling to destinations outside of the study area.

There are three local bus routes and three primary shuttle services operating in the study area. The local bus routes are long and sometimes circuitous. Frequency of service on these routes varies from approximately every 30 minute on the 600 and 606 bus to every 75 minutes on the 605 bus. Bicycles may be carried on all local bus services. The three shuttle services operating in the primary study area serve residential and employment destinations in the primary and secondary study area and are scheduled to meet peak period trains at Princeton Junction train station.

Pedestrian and bicycle issues – According to the 1990 Census, 51% of workers living in Princeton Borough walk or bike to work. In Princeton Township, 14% walk or bike to work. In Plainsboro and West Windsor, the percentage is only slightly more than 1%. There are various reasons why pedestrian and bicycle travel is not more widely used to access employment and other destinations in the study area. While the terrain and local topography of the primary study area are conducive to pedestrian and bicycle travel, infrastructure is lacking. The sidewalk network, including cross walks, in the Penns Neck, Princeton Junction, and the train station area is incomplete and many pedestrian routes are unsafe. There are few striped bicycle lanes and separate bike paths in the primary study area. The bicycle network is disconnected and travel between major origins and destinations is difficult.

There is also a lack of safe and convenient pedestrian and bicycle routes for students to walk and bike to schools and recreational facilities. Furthermore, while the existing intersection at Washington Road provides at-grade access across Route 1, heavy auto traffic and frequent turning movements make traveling by foot or by bicycle across Route 1, to inter-municipal destinations within five miles, neither easy nor safe. Finally, there are few bicycle amenities to serve those who choose to travel by this means. For instance, according to the Greater Mercer Transportation Management Association, there is a thirty person waiting list for bicycle lockers at the Princeton Junction train station. These conditions impair pedestrian and bicycle mobility in the primary study area.

Demand Management Issues – As in other comparable suburban areas, travel demand management strategies are not widely used. There are few incentives or impositions to foster alternative commute patterns. Alternative work arrangements such as telecommuting and

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compressed work week arrangements are limited. Employer-sponsored flex-time policies do exist, but are not early and late enough to shift travel out of peak periods; and flex-time makes car and van-pooling more difficult. Presently, there are a limited number of car and van-pool programs operating in the study area. Finally, government agencies offer few incentives to employers to support the initiation of travel demand management strategies, and the incentives that do exist require extensive record-keeping.

Community resources – The above-referenced transportation-related problems affect neighborhood character and the integrity of the study area's many natural, cultural, historic, community, and economic resources. These resources include, but are not limited to:

1. The Millstone River and its watershed;
2. Little Bear Brook;
3. The Delaware and Raritan Canal State Park;
4. The Delaware and Raritan Canal;
5. Lake Carnegie;
6. The Washington Road Elm Allée (extending from Route 1 to the Delaware and Raritan Canal);
7. The Princeton Baptist Church of Penns Neck;
8. The Red Lion Inn on Washington Road in Penns Neck;
9. The Cemetery at the Princeton Baptist Church of Penns Neck and the Schenck-Covenhoven Cemetery in the Princeton University fields off Washington Road, in West Windsor;
10. Natural areas, including forests and wetlands in the study area;
11. Archaeological sites in the study area;
12. The Aqueduct Mills Historic District in West Windsor and Plainsboro;
13. The Covenhoven-Silvers-Logan House in West Windsor;
14. The Princeton Operating Station in West Windsor;
15. Residential neighborhoods throughout the study area;
16. Princeton University; and
17. Businesses and institutions located in the study area.

Because these resources are held dear, they present a limitation on the range and design of solutions to address the identified transportation problems.

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Notes:

1. The secondary study area municipalities include: East Windsor Township, Hightstown Borough, Hopewell Borough, Hopewell Township, Lawrence Township, Pennington Borough, Princeton Borough, Princeton Township, Washington Township, and West Windsor Township in Mercer County; Cranbury Township, Jamesburg Borough, Monroe Township, Plainsboro Township, and South Brunswick Township in Middlesex County; and Franklin Township, Hillsborough Township, Millstone Borough, Montgomery Township and Rocky Hill Borough in Somerset County.
2. Penns Neck Area EIS: Local Area Land Use Inventory and Forecast Study, Urbitran Associates, July 2002
3. Penns Neck Area EIS: Summary of Findings Origin/Destination Survey, Urbitran Associates, May 2002
4. Highway Traffic Quality on the US Route 1 Corridor in the vicinity of Penns Neck, West Windsor, New Jersey, Skycomp, Inc., October 2001

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Appendix A

Penns Neck Area EIS "Working" Problem Statement

Population and Employment Trends in Penns Neck Area EIS Secondary Study Area

| | Population | | | | Employment | | | |
|-------------------------|----------------|----------------|---------------|----------------|----------------|----------------|---------------|----------------|
| | 1990 | 2000 | 1990-2000 | | 1990 | 1999 | 1990-1999 | |
| | | | Abs. Change | Percent Change | | | Abs. Change | Percent Change |
| Mercer | | | | | | | | |
| East Windsor | 22,353 | 24,919 | 2,566 | 11% | 6,516 | 5,141 | (1,375) | -21% |
| Hightstown Borough | 5,126 | 5,216 | 90 | 2% | 2,746 | 3,309 | 563 | 21% |
| Hopewell Borough | 1,968 | 2,035 | 67 | 3% | 451 | 469 | 18 | 4% |
| Hopewell Township | 11,590 | 16,105 | 4,515 | 39% | 3,014 | 1,474 | (1,540) | -51% |
| Lawrence Township | 25,787 | 29,159 | 3,372 | 13% | 21,496 | 23,103 | 1,607 | 7% |
| Pennington Borough | 2,537 | 2,696 | 159 | 6% | 1,105 | 2,513 | 1,408 | 127% |
| Princeton Borough | 12,016 | 14,203 | 2,187 | 18% | 18,857 | 16,670 | (2,187) | -12% |
| Princeton Township | 13,198 | 16,027 | 2,829 | 21% | 4,417 | 8,264 | 3,847 | 87% |
| Washington Township | 5,815 | 10,275 | 4,460 | 77% | 1,961 | 2,491 | 530 | 27% |
| West Windsor Township | 16,021 | 21,907 | 5,886 | 37% | 11,114 | 17,086 | 5,972 | 54% |
| Middlesex County | | | | | | | | |
| Cranbury Township | 2,500 | 3,227 | 727 | 29% | 7,715 | 14,758 | 7,043 | 91% |
| Jamesburg Borough | 5,294 | 6,025 | 731 | 14% | 1,336 | 3,312 | 1,976 | 148% |
| Monroe Township | 22,255 | 27,999 | 5,744 | 26% | 1,697 | 2,963 | 1,266 | 75% |
| Plainsboro Township | 14,213 | 20,215 | 6,002 | 42% | 8,033 | 13,999 | 5,966 | 74% |
| South Brunswick Twp | 25,792 | 37,734 | 11,942 | 46% | 13,443 | 20,904 | 7,461 | 56% |
| Somerset County | | | | | | | | |
| Franklin Township | 42,780 | 50,903 | 8,123 | 19% | 24,328 | 33,345 | 9,017 | 37% |
| Hillsborough Township | 28,808 | 36,634 | 7,826 | 27% | 3,497 | 5,358 | 1,861 | 53% |
| Millstone Borough | 450 | 410 | (40) | -9% | 46 | 53 | 7 | 15% |
| Montgomery Township | 9,612 | 17,481 | 7,869 | 82% | 5,951 | 8,647 | 2,696 | 45% |
| Rocky Hill Borough | 693 | 662 | (31) | -4% | 493 | 373 | (120) | -24% |
| Regional Total | 260,493 | 327,689 | 67,196 | 26% | 133,762 | 177,211 | 43,449 | 32% |
| City of Trenton | 88,675 | 85,403 | (3,272) | -4% | 23,225 | 24,652 | 1,427 | 6% |
| City of New Brunswick | 41,711 | 48,573 | 6,862 | 16% | 22,971 | 24,331 | 1,360 | 6% |

Sources: US Census Bureau, NJDOL

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Appendix B

Penns Neck Area EIS Working Problem Statement

Population & Employment Estimates/Forecasts 2001 to 2028

| | POPULATION | | | | EMPLOYMENT | | | |
|--------------------------------------|------------------|------------------|--------------------|-------------------|------------------|------------------|--------------------|-------------------|
| | 2001 Estimate | 2028 Forecast | Absolute Change | Percent Change | 2001 Estimate | 2028 Forecast | Absolute Change | Percent Change |
| PRIMARY STUDY AREA (PSA) | | | | | | | | |
| Plainsboro Township | 21,665 | 23,070 | 1,205 | 6% | 27,266 | 28,530 | 1,264 | 46% |
| Princeton Borough | 15,044 | 15,137 | 93 | 1% | 4,561 | 4,680 | 119 | 2% |
| Princeton Township | 16,347 | 17,143 | 796 | 4% | 5,854 | 6,917 | 1,063 | 18% |
| West Windsor Township | 22,611 | 30,343 | 7,732 | 32% | 18,991 | 23,818 | 4,827 | 25% |
| Primary Study Area Subtotal | 75,777 | 85,693 | 9,916 | 12% | 57,672 | 67,947 | 10,275 | 18% |
| SECONDARY STUDY AREA (SSA) | | | | | | | | |
| Mercer | | | | | | | | |
| East Windsor Township | 25,328 | 35,378 | 11,049 | 44% | 6,141 | 8,160 | 2,019 | 33% |
| Hightstown Borough | 15,218 | 15,220 | 2 | 0% | 4,309 | 4,324 | 15 | 0% |
| Hopewell Borough | 2,035 | 2,041 | 6 | 0% | 469 | 468 | -1 | -0% |
| Hopewell Township | 16,383 | 23,803 | 7,420 | 46% | 6,574 | 18,015 | 11,441 | 174% |
| Lawrence Township | 29,633 | 42,432 | 12,799 | 43% | 23,103 | 29,463 | 6,360 | 28% |
| Pennington Borough | 2,702 | 2,868 | 166 | 6% | 2,513 | 3,292 | 779 | 31% |
| Washington Township | 10,467 | 15,657 | 5,189 | 50% | 2,491 | 3,400 | 909 | 37% |
| Middlesex County | | | | | | | | |
| Cranbury Township | 3,231 | 3,348 | 117 | 4% | 6,621 | 10,511 | 3,890 | 59% |
| Jamesburg Borough | 4,031 | 4,185 | 154 | 4% | 2,009 | 2,992 | 983 | 49% |
| Monroe Township | 28,513 | 42,378 | 13,865 | 49% | 7,974 | 17,935 | 9,961 | 125% |
| South Brunswick Township | 38,214 | 51,188 | 12,972 | 34% | 37,121 | 51,848 | 14,727 | 40% |
| Somerset County | | | | | | | | |
| Franklin Township | 31,386 | 34,114 | 2,728 | 9% | 36,596 | 37,339 | 743 | 2% |
| Hillsborough Township | 27,033 | 27,809 | 776 | 3% | 7,543 | 15,846 | 8,303 | 110% |
| Millstone Borough | 412 | 465 | 53 | 13% | 149 | 178 | 29 | 19% |
| Montgomery Township | 17,718 | 24,124 | 6,405 | 36% | 9,435 | 18,496 | 9,061 | 96% |
| Rocky Hill Borough | 666 | 777 | 111 | 17% | 499 | 1,231 | 732 | 147% |
| Secondary Study Area Subtotal | 274,869 | 389,185 | 114,316 | 42% | 148,347 | 254,953 | 106,606 | 72% |
| Study Area Total (PSA+SSA) | 350,646 | 474,878 | 124,232 | 35% | 206,019 | 322,900 | 116,881 | 57% |

Notes:

Population - 2001 population estimates for PSA municipalities were derived from the Local Area Land Use Inventory and Forecast Study. 2001 population estimates for SSA municipalities interpolated using 2000 census and MPO-derived 2025 population forecasts. 2028 population forecasts for SSA municipalities extrapolated using 2000 census and 2025 MPO forecasts.

Employment - 2001 employment estimates for PSA municipalities were derived from the Local Area Land Use Inventory and Forecast Study. 2001 employment estimates for Middlesex and Somerset County municipalities interpolated using 2000 and 2025 NJTPA-derived employment forecasts. 2028 employment forecasts for Middlesex and Somerset County municipalities extrapolated using 2000 and 2025 NJTPA-derived employment forecasts. Modified 2025 employment forecasts for Mercer County were developed by applying the MPO-derived 2025 municipal growth rate to 1999 NJDOT estimates. 2001 employment estimates for Mercer County municipalities were interpolated using 1999 NJDOT employment estimates and the modified 2025 employment forecasts. The 2001 Hopewell Township estimate was derived by adding the 1999 NJDOT employment estimate and employee counts reported by Janssen, Bristol-Myers Squibb and Merrill Lynch via phone contact with on-site human resources personnel. 2028 employment forecasts for Mercer County municipalities were extrapolated using 2001 employment estimates and 2025 modified employment forecasts.

Original Sources: US Census Bureau, DVRPC, NJTPA, NJDOT, Penns Neck Area EIS: Local Area Land Use Inventory and Forecast Study, Urban Associates, July 2002

PENNS NECK AREA EIS

***Working* GOALS & OBJECTIVES**

As agreed by the Penns Neck Area EIS Partners' Roundtable
(last revised 4.10.02)

GOAL: Provide an open, inclusive, transparent and responsive EIS process.

Objectives:

- ❖ Create a process that embraces the principles of context sensitive design, fosters innovation and considers all ideas.
- ❖ Create a process that meets or exceeds Federal requirements.
- ❖ Ensure that important but tangential issues raised in the EIS process that cannot be addressed by the EIS process are directed to the appropriate entity for action.
- ❖ Create a process in which data are accessible and in which the models used are understandable and the assumptions are clearly defined.

GOAL: Provide a proactive, comprehensive and ongoing public participation program.

Objectives:

- ❖ Provide a variety of forums to solicit broad public participation from a wide variety of perspectives.
- ❖ Ensure that opportunities for public input are widely communicated.
- ❖ Facilitate cross-communication between agencies, groups and individuals.

GOAL: Protect and enhance the integrity of residential neighborhoods.

Objectives:

- ❖ Enhance pedestrian/bicycle amenities, access and safety to schools and other community facilities.
- ❖ Enhance vehicular access and safety to schools and other community facilities.
- ❖ Ensure that impacts are appropriate for the character of the existing roads and neighborhoods.
- ❖ Ensure that transportation (pedestrian/bicycle/transit/road) impacts do not disproportionately affect one neighborhood over another.
- ❖ Be aware of unintended consequences (e.g. diverted traffic).
- ❖ Minimize adverse impacts on the integrity of neighborhoods.

GOAL: Maintain the viability of institutional and business communities

Objectives:

- ❖ Enhance pedestrian/bicycle amenities, access, and safety to institutions and businesses.
- ❖ Enhance vehicular access and safety to institutions and businesses.
- ❖ Minimize adverse effects on development of campuses.
- ❖ Be aware of unintended consequences (e.g. diverted traffic).

GOAL: Protect and enhance the environment, including natural resources and open space.

Objectives:

- ❖ Preserve or improve water quality in the Millstone River watershed and the Delaware and Raritan Canal.
- ❖ Protect against flooding and encourage stormwater recharge, where appropriate.
- ❖ Protect against adverse noise impacts and meet federal and state air quality standards.
- ❖ Protect wetlands and avoid impacts to federal and state rare, threatened, and endangered species.
- ❖ Consider underlying geological conditions (i.e., bedrock, groundwater, etc.).
- ❖ Avoid habitat fragmentation.
- ❖ Protect and enhance access and use of recreational facilities.
- ❖ Protect open space as defined by Green Acres.
- ❖ Protect against adverse visual and light impacts.

GOAL: Protect and enhance historic and archeological resources.

Objectives:

- ❖ Protect and enhance historic resources that have been:
 - locally designated;
 - identified as eligible for State or Federal Register;
 - listed on State Register; or
 - listed on Federal Register.(See list in Appendix.)
- ❖ Avoid disturbances to archeological resources.

GOAL: Recognize the interrelationships between land use and transportation.

Objectives:

- ❖ Consider impact on land use induced by any transportation improvement.
- ❖ Ensure that improvements are sustainable.
- ❖ Maximize the compatibility of actions with the goals and objectives of municipal Master Plans and the NJ State Development and Redevelopment Plan.

GOAL: For all modes of transportation, improve access, mobility and safety and reduce congestion.

Objectives:

- ❖ Discourage through traffic on residential streets and direct non-local traffic to appropriate transportation facilities.
- ❖ Reduce the number of curb cuts along Route 1, and make use of collector/distributor lanes on Route 1, where consistent with other objectives.
- ❖ Discourage heavy truck through movements on local east-west roads.
- ❖ Improve the flow of traffic on Route 1.
- ❖ Improve the flow of east-west traffic on both sides of Route 1, and reduce intersection delays when crossing north-south highways.
- ❖ Ensure an equitable balance of traffic on various east-west routes on both sides of Route 1.
- ❖ Encourage alternate transportation choices for trips to employment sites, train stations and other destinations, in order to reduce auto dependence and single occupant vehicles (SOVs).
- ❖ Encourage regional use of transportation demand management (TDM) strategies.
- ❖ Provide better access and safety for pedestrians and bicyclists.
- ❖ Address the needs of emergency response personnel and vehicles.
- ❖ Provide effective transportation options for underserved populations.
- ❖ Reduce travel delay and rate of growth in congestion throughout the primary study area, as measured by vehicle miles traveled (VMT), vehicle hours traveled (VHT), volume/capacity ratio (v/c), and level of service (LOS).

PENNS NECK AREA EIS

SUMMARY REPORT

Meeting Description: Penns Neck Area EIS Partners' Roundtable Synthesis Workshops

Date: April 9, 2003
April 14, 2003

Location: Sarnoff Corporation
201 Washington Road
West Windsor, New Jersey

Prepared by: Voorhees Transportation Policy Institute
Rutgers, The State University of New Jersey

NOTES:

- The Synthesis Workshops were the 34th and 35th meetings of the Partners' Roundtable.
- The attendance lists are attached.

INTRODUCTION AND OVERVIEW OF THE WORKSHOPS:

- Martin Robins, Director, Voorhees Transportation Policy Institute (VTPI), welcomed Roundtable members to the synthesis workshops and thanked the Sarnoff Corporation for hosting the event. He reminded the Roundtable that the workshops represent the culmination of 22 months of work and assured the group that the information gathered at these meetings will help reviewers of the DEIS understand the impacts of the alternatives under consideration.

Mr. Robins reported that the format of the workshops was designed to provide the project team with an opportunity to observe how Roundtable members have come to evaluate the information provided throughout the EIS process. He emphasized that participants should be conscious of issues they want the NJDOT and FHWA to consider, and identify and record these issues. He indicated that the outcomes of the synthesis workshops will be given a considerable amount of weight in the EIS decision making process.

- Ms. Weiss thanked the members of the synthesis planning committee for their hard work and dedication in planning the workshops. She stressed that the synthesis workshops are designed

for those who have regularly attended Roundtable meetings and are familiar with the findings presented at those sessions. Ms. Weiss described the purpose of the synthesis workshops as follows:

1. To review project goals and objectives
2. To discuss the findings in reference to the project goals and objectives
3. To identify areas of possible agreement
4. To explore trade-offs and mitigations for areas of possible agreement
5. To determine areas of agreement

She noted the project team's hope that even if agreements are not reached at the workshops, the Roundtable and project team will, at a minimum, emerge with a better understanding of the various interests and points of view expressed thus far in the EIS process.

- Jon Carnegie, Senior Project Manager, VTPI, reviewed a flow chart of the EIS process (*see workshop handouts*). He explained that publication of the DEIS will be the next milestone in the EIS process and reminded the group that the DEIS is an information document and not a decision document. Critical elements of the DEIS will include descriptions and evaluations of the alternatives under consideration, findings of the environmental studies and other information discussed over the past two years with the Roundtable. Mr. Carnegie stressed that the Roundtable's advise and input has helped to shape the content of the DEIS and noted that every effort will be made to incorporate the outcomes of the synthesis workshops in the DEIS. He stressed the fact that the outcome of the workshops will play an important role in the selection of a preferred alternative and ultimately in the preparation of the Final EIS.

With regard to schedule, Mr. Carnegie reported that the project team anticipates forwarding the DEIS to FHWA for final review by the end of April 2003, with the goal of publishing the document in May 2003. Based on this schedule, a public hearing to receive testimony and comment on the DEIS will be held in June 2003. Publication of the FEIS is now expected in September 2003.

LISTENING "PRACTICE" EXERCISE

- Amy Steffen, Weiss Consulting, stressed the importance and value of understanding one another's opinions and perspectives. She then reviewed the workshop ground rules and

guiding principles (*see workshop handouts*) and introduced the “practice” exercise. Participants were asked to pair up into groups of two to discuss the project goals and objectives and acknowledge individual preferences related to them. For this exercise, participants were directed to select a partner whose views or perspective were perceived to be different from one another. The exercise was designed to demonstrate the importance of listening and understanding another individual’s opinion or position and the underlying interests that support that opinion.

DISCUSS FINDINGS IN REFERENCE TO GOALS & OBJECTIVES

- Following completion of the “practice” exercise, Ms. Weiss and Ms. Steffen requested that participants organize themselves into five groups and emphasized the importance of creating groups with divergent perspectives. These small groups were instructed to circulate through five stations, each focused on a different project goal. At each station, participants were instructed to exchange opinions and explore varying interests related to how various components of the alternatives addressed a specific project goal/objectives. Participants were encouraged to ask themselves the question *“Based on all the findings and your opinion, which options (s) best satisfy this goal and its underlying objectives, and why?”*

OPTIONS FOR ROUTE 1

The first component(s) discussed by the groups were options for Route 1:

Primary Options

- Do-nothing (No-Action)
- Route 1 at-grade with signals (Alts. G and G.1)
- Route 1 at-grade without signals – Right turn only at Washington Road and Fisher Place (B-series, C-series, and Alt G.2)
- Route 1 in-a-cut (A-series, D-series, E, and F-series)

Secondary Components:

- Interchanges
 - Loop-type interchange at Harrison Street (Alts. A, A.1, A.2, B-series, and F-series)
 - Diamond interchange at Harrison Street (Alts. A.3, A.4, and C-series)
 - Diamond interchanges south of PSE&G substation (D-series)
 - Diamond interchange in the vicinity of Fisher Place (Alt. E)
- Access ramps at Washington Road (with Route 1 in-a-cut only)

- Center turn lanes (Route 1 at-grade with signals only; Alt. G)
- Jug-handles (Route 1 at-grade with signals only; Alt. G.1)

Other considerations:

- Cross-section (three 12 foot travel lanes with 15 foot shoulders/auxiliary lanes in each direction)
- Cut-and-cover plaza (Alts D and D.2)
- Route 1 options include replacement of the bridge over Millstone River

Participants were asked to focus their discussions on the Primary Options described above and instructed that the items listed under secondary components and other considerations might factor into trade-off and mitigation conversations later in the workshop. The following opinions/comments were boarded by the groups with regard to the options for Route 1. It should be noted that references to "tally marks" indicates the number of participants that expressed concurrence with the statement.

Neighborhood Goal: *Protect and enhance the integrity of residential neighborhoods*

- Route 1 at-grade without signals and with interchange at Harrison Street is favored. (1 tally mark)
- The "do-nothing" option is not acceptable for this goal. (1 tally mark)
- Route 1 in-a-cut works best for objective 1, which related to enhancing pedestrian/bicycle access and safety. This option also best serves through traffic on Washington Road and minimizes adverse impacts on the integrity of neighborhoods. (2 tally marks)
- Route 1 in-a-cut would result in short-term neighborhood disruption, especially to Penns Neck, but this option would be better for neighborhoods in the long term. (2 tally marks)
- The biggest concerns regarding Route 1 in-a-cut relate to potential impacts that may occur during construction. Potential disturbances must be minimized. (2 tally marks)
- Route 1 in-a-cut facilitates pedestrian and bicyclist flow across Route 1. (2 tally marks)
- Pedestrian and bicycle facilities should be provided along Route 1. (2 tally marks)
- There is concern that Route 1 in-a-cut will increase traffic on Washington Road because it will allow easier access across Route 1. (2 tally marks)
- Route 1 in-a-cut without the ESC and Harrison Street overpass adversely affects the Penns Neck neighborhood. (6 tally marks) Conversely, the ESC and Harrison Street overpass, without Route 1 in-a-cut adversely affect Princeton. (7 tally marks)

- Construction of Route 1 in-a-cut could have a permanent adverse effect on the Penns Neck neighborhood.
- Route 1 in-a-cut, which provides the most east-west crossings possible, enhances the open fabric of community, removes physical barriers, minimizes traffic impacts and does not favor one neighborhood over another. (14 tally marks)
- Route 1 in-a-cut with: traffic calming on Washington Road and Harrison Street; signage that directs traffic/trucks away from residential neighborhoods; and provisions for bicycle/pedestrian activity is favored. (11 tally marks)
- Route 1 in-a-cut with an additional Route 1 crossing at Fisher Place is desirable.
- Route 1 in-a-cut ensures that the facility respects neighborhoods with fewer diversions. (1 tally mark)
- Route 1 in-a-cut has an equitable impact on all neighborhoods. (1 tally mark)
- Route 1 in-a-cut is better for pedestrians and bicyclists. (10 tally marks)
- Concerns regarding Route 1 in-a-cut include:
 - Construction impacts: the roadway needs to be designed carefully
 - Cost
 - Context Sensitive Design is important (i.e. sidewalks necessary and all modes of transportation need to be provided for in the design)

Business Goal: *Maintain the viability of institutional and business communities*

- The “do-nothing” option is not viable relative to this goal. It will negatively affect businesses.
- Removing the Penns Neck area traffic signals will discourage traffic through residential neighborhoods. (7 tally marks)
- Route 1 at-grade with signals provides east-west movement on Washington Road.
- Route 1 at-grade with signals does not work.
- Route 1 at-grade with no signals would have less negative impacts than Route 1 in-a-cut on access to local businesses.
- Route 1 at-grade with no signals will not affect access to businesses, as there will be no retail along Route 1 in this area.

- Route 1 at-grade with no signals enhances mobility on Route 1 (north/south). (1 tally mark)
- Route 1 in-a-cut best addresses this goal. (6 tally marks)
- Route 1 in-a-cut enhances bicycle/pedestrian accessibility, increases access and increases mobility. (13 tally marks)
- Route 1 in-a-cut enhances vehicular access. (14 tally marks)
- Route 1 in-a-cut has unintended consequences. (3 tally marks)
- Route 1 in-a-cut protects campuses. (9 tally marks)
- Route 1 in-a-cut coupled with frontage roads, will have a smaller physical footprint.
- The construction period for Route 1 in-a-cut will dramatically affect businesses. As such, construction duration must be minimized.
- The secondary components/options are critical in order to evenly distribute traffic.
- The Princeton central business district (CBD) should not be overburdened if Washington Road becomes too desirable for a travel route.
- The Route 1 options work best for the business community with an ESC. (6 tally marks)
- The affect on Princeton University must be further discussed.

Environment Goal: *Protect and enhance the environment, including natural resources and open space*

- Separating environmental data for the Route 1 options alone is difficult, given that the data provided includes the impacts of other components. (8 tally marks)
- Given that we are examining only options for Route 1, from an environmental perspective, there does not appear to be much difference between the options. (1 tally mark)
- Route 1 in-a-cut would result in less light and noise impacts. (11 tally marks)
- Route 1 in-a-cut, which provides access across Route 1 at Washington Road, is better for pedestrian/bicycle access to parks. (1 tally mark)
- Route 1 in-a-cut protects and enhances access and use of recreational facilities. (10 tally marks)

- The design of Route 1 in-a-cut must consider all objectives to minimize impacts (stormwater control could be more costly if need to pump, etc.). (7 tally marks).
- Route 1 in-a-cut is a better option if appropriate Context Sensitive Design elements are included:
 - Reduces noise (6 tally marks)
 - Better air quality (6 tally marks)
 - If shale is underlying geology then easy to remove (2 tally marks)
 - Reduces adverse light impacts (5 tally marks)
- The B and C-series alternatives are the best with regard to noise and air impacts.
- The diamond interchanges included in Alternatives A.3 and A.4, have greater environmental impacts than do the other loop and diamond interchanges.
- Given the lack of data, we can not tell how any of the alternatives affect habitat.
- The data on sub-surface geology is inadequate to fully evaluate the potential impact of Route 1 in-a-cut.
- Flooding must be addressed in all options. (2 tally marks)
- If adopted as proposed, DEP's new stormwater regulations will require that polluted runoff from existing roads be addressed through a regional stormwater management plan. As such, potential pollutant impacts from existing roads should not be considered.

Historic Resources Goal: *Protect and enhance historic and archaeological resources*

- All options for Route 1 should move east to avoid Eden Institute and the Aqueduct Mills Historic District and District Extension, and to the west to avoid the Penns Neck Baptist Church. (2 tally marks)
- Route 1 at-grade without signals is best because it would have fewer construction-related impacts (vibration/adverse effects) on historic structures.
- Route 1 in-a-cut is best for historic and archaeological resources. (7 tally marks)
- Route 1 in-a-cut with the diamond interchange south of the PSE&G station best protects and enhances historic resources. (5 tally marks)
- Route 1 in-a-cut best protects Elm Allée as a gateway.
- Route 1 in-a-cut reduces traffic near the Penns Neck Baptist Church, and a plaza in front of it would be even better. (4 tally marks)

- The design of Route 1 in-a-cut is important in achieving the Goals & Objectives. (i.e. blasting incorrectly could crack foundations) (7 tally marks)
- The cut-and-cover plaza would be positive because it would achieve the goal and minimize long term impact. (6 tally marks)
- The cut-and-cover plaza would create more disturbance to the built environment.
- The additional cost of the cut-and-cover plaza is too high. (2 tally marks)
- Diamond interchanges are better than loops—less footprint. (3 tally marks)
- The validity of the historic resources data/criteria is questionable.
- More detailed objectives are needed.

Transportation Goal: *For all modes of transportation improve access, mobility and safety and reduce congestion*

- It is difficult to evaluate the effect of Route 1 options without considering the other components of the alternatives.
- For this goal, the “do-nothing” option is not acceptable. (10 tally marks)
- Route 1 at-grade with signals does nothing to improve traffic flow. (7 tally marks)
- Route 1 at-grade with no access across Route 1 at Washington Road is bad for east-west access and does not meet the needs of emergency services. (4 tally marks)
- Route 1 in-a-cut would best meet the transportation goal: (14 tally marks)
 - With traffic calming on Washington Road, it addresses bicycle/pedestrian access and mobility (8 tally marks);
 - It reduces travel delay and congestion;
 - It discourages through traffic on residential streets;
 - It reduces the number of curb cuts along Route 1 (7 tally marks);
 - It discourages heavy truck through movements on local east-west roads; however, it needs to be packaged with other components (7 tally marks);
 - It improves traffic flow on Route 1;
 - It improves the flow of east-west traffic and reduces intersection delays when crossing north-south highways; and
 - It provides more east-west crossings, resulting in a better balance of traffic on east west routes and more options for emergency vehicles.

- Route 1 in-a-cut without an ESC provides three access points to Princeton and West Windsor because it addresses flow on Route 1 and allows east/west traffic to distribute on the three access routes to Princeton. (1 tally mark)
- Route 1 in-a-cut when combined with an ESC, best meets this goal. (4 tally marks)
- Route 1 in-a-cut combined with an ESC:
 - Keeps all three east/west corridors open (1 tally mark)
 - Addresses the balance of traffic concern (1 tally mark)
 - Addresses emergency service needs (2 tally marks)
 - Discourages traffic through neighborhoods (1 tally mark)
 - Improves Route 1 traffic flow (1 tally mark)
 - Improves east/west flow (1 tally mark)
 - Reduces delay (1 tally mark)
- The design of the Route 1 options should accommodate future construction of Bus Rapid Transit.
- The transportation goal/objectives must reflect secondary components.

Areas of potential agreement:

The following areas of potential agreement emerged from the discussions on Route 1 options:

Neighborhood goal:

- The “do-nothing” option would adversely affect neighborhoods.
- Route 1 in-a-cut enhances the open fabric of community, removes physical barriers, improves pedestrian/bicycle access and mobility, minimizes traffic impacts and does not favor one neighborhood over another.
- Route 1 in-a-cut is the preferred option, provided that it is combined with:
 - traffic calming on Washington Road through the Penns Neck neighborhood and on Upper Harrison Street;
 - signage to direct traffic/trucks away from residential neighborhoods; and
 - appropriate facilities for bicycles and pedestrians.
- Attention to detail in final design will be critical to ensuring positive effects.

Business goal:

- The “do-nothing” option would adversely affect area businesses and institutions.

- Although Route 1 at-grade without signals would have the greatest benefit in terms of north-south travel time, Route 1 in-a-cut is the preferred option because it would have the greatest benefits in terms of improving overall vehicular, bicycle and pedestrian access to area businesses and protecting of future campus development.

Environment goal:

- Discerning the environmental effects of the Route 1 options is difficult because the data provided includes the effects of other components; however, Route 1 in-a-cut is the preferred option as long as appropriate attention is paid to ensuring that final design addresses all of the environmental objectives.

Historic resources goal:

- Route 1 in-a-cut is the preferred option; however, ensuring protection during final design will be very important. In addition, it would be preferable to combine Route 1 in-a-cut with a diamond interchange located south of the PSE&G substation to protect resources located near Harrison Street.
- Route 1 in-a-cut with an extended cut-and-cover plaza provides added benefits in terms of enhancing certain resources.

Transportation goal:

- The "do-nothing" and Route 1 at-grade with traffic signal options are not acceptable.
- It is difficult to evaluate the effect of Route 1 options without considering the other components of the alternatives; however, Route 1 in-a-cut is the preferred option because:
 - With traffic calming on Washington Road, it addresses bicycle/pedestrian access and mobility;
 - It reduces travel delay and congestion;
 - It discourages through traffic on residential streets;
 - It reduces the number of curb cuts along Route 1;
 - It discourages heavy truck through movements on local east-west roads; however, it needs to be packaged with other components;
 - It improves traffic flow on Route 1;
 - It improves the flow of east-west traffic and reduces intersection delays when crossing north-south highways; and
 - It provides more east-west crossings, resulting in a better balance of traffic on east west routes and more options for emergency vehicles.

WEST-SIDE CONNECTOR (WSC) ROADS & FRONTAGE ROADS

The next component(s) considered and discussed were the WSC road and frontage road options:

Primary Options

- No West-side Connector (WSC) road and no Frontage roads (No-Action Alternative, G-series)
- WSC road between Route 1 and Washington Road parallel to D&R Canal (B-series)

Secondary Considerations:

- WSC road adjacent to Canal (Alts. B and B.1)
- WSC road centrally located through Princeton University property (Alt. B.2)
- Frontage Road System (A, C, D, E and F-series)
 - Secondary Considerations:
 - One-way frontage road system east and west of Route 1 (Alts. A.1, A.3, A.4, D-series, E and F-series)
 - One-way frontage road west of Route 1 (Alt. F.1)
 - Two-way frontage road west of Route 1 (Alt. A.2 and C-series)

- WSC road between Route 1 and Harrison Street (A, C, D, E and F-series)

Secondary Considerations:

- Connecting to Harrison Street at the D&R Canal (A-series, D-series, and F-series)
- Connecting Harrison Street just east of the D&R Canal (Alt. E)
- Connecting to Harrison Street at Logan Drive (Alt. D.1)
- Connecting to Harrison Street at Route 1 (C-series)
- WSC road between Washington Road and Alexander Road (Alts. B.2 and C)

Other considerations:

- One-lane vs. multi-lane frontage roads (Alt. D.2 only)
- WSC road cross-section (one 11 foot travel lane in each direction with 4 foot shoulders striped as a bike lane)

The following comments/opinions were boarded by the groups with regard to the WSC roads and frontage roads options:

Neighborhood Goal: *Protect and enhance the integrity of residential neighborhoods*

- The issue of a multi-lane vs. a one-lane frontage road should be left up to the design engineers.
- Frontage roads are visually large and have too much pavement.
- The centrally located WSC road included in Alternative B.2 balances traffic through neighborhoods and is away from the canal. This option best meets this goal/objectives.

- Frontage roads combined with a WSC road connecting to Harrison Street near the canal as in the A and D-series alternatives best meets these objectives. (3 tally marks)
- Adding frontage roads does not detract from the neighborhoods as it provides a way to make connections.
- Frontage roads will have a negative impact on Penns Neck. Too much traffic that is too close to the homes. (3 tally marks)
- The WSC between Route 1 and Washington Road will have a negative impact on the Harrison Street neighborhood (Harrison Street would receive a disproportionate amount of traffic).

Business Goal: *Maintain the viability of institutional and business communities*

- Service roads are central to any positive or negative impacts on area businesses.
- Frontage roads work well for Route 1 businesses.
- Frontage roads maximize land use options.
- Design should incorporate pedestrian/bicycles along Route 1 and east/west routes.
- Frontage roads combined with a WSC road connecting to Harrison Street near the canal as in the A series alternatives meet most of the objectives for this goal. (2 tally marks)
- Frontage roads best meet this goal/objectives. (7 tally marks)
- The WSC road near the canal as included in Alternatives B and B.1 should not be considered; however, the centrally located WSC road as included in Alternative B.2 could work.

Environment Goal: *Protect and enhance the environment, including natural resources and open space*

- The WSC roads fragments habitat.
- The WSC road included in alternatives B and B.1 are too close to the D&R canal resulting in noise and visual impacts. (2 tally marks)
- The WSC road connecting to Harrison Street near the canal (A and D-series alternatives) causes the least amount of environmental impact. (1 tally mark)
- A wildlife survey is needed.
- The WSC road between Harrison Street and Washington Road will provide better traffic flow into Princeton. This could reduce air quality impacts.

- Frontage roads reduce habitat fragmentation. (2 tally marks)
- Frontage roads provide adequate access to parks, while reducing noise, visual and light impacts. (2 tally marks)

Historic Resources Goal: *Protect and enhance historic and archaeological resources*

- A one-way frontage road system east and west of Route 1 is preferred because it would not impact the Elm Allée, archaeological sites or the canal. (9 tally marks)
- The WSC between Route 1 and Harrison Street, as included in the D-series alternatives is preferred. It has a small footprint and it is further away from the historic resources near Logan Drive and Harrison Street and archaeological sites along the Millstone River. (4 tally marks)
- The WSC road to Harrison Street included in Alternatives D and D.2 is preferable to the one used in Alternative D.1 because of potential impacts to the Covenhoven-Logan-Silvers house and the Aqueduct Mills Historic District extension.

Transportation Goal: *For all modes of transportation improve access, mobility and safety and reduce congestion*

- For mobility purposes on the west side, either a frontage road or west-side connector is needed. (An overpass by itself doesn't work).
- The WSC road near the canal as included in Alternatives B and B.1 has some merit. (400 feet from the canal).
- There is concern regarding potential safety issues related to frontage roads.
- One-way frontage road on either side is better than two-way frontage road west of Route 1.
- A full interchange at Harrison Street with both east and west-side connectors (no frontage roads) provides the best mobility, access and distribution of traffic. (1 tally mark)
- Frontage roads east and west of Route 1 would improve traffic flow on Route 1 by removing that traffic from Route 1 earlier (D-series). It also would improve access between Washington Road and Harrison Street, provide an equitable balance of traffic, address emergency response needs and improve congestion. (3 tally marks)
- The WSC between Harrison Street and Route 1 (alternative D) with Route 1 in-a-cut would provide an equitable distribution of traffic, improve traffic flow, reduce congestion and provide route choice. (4 tally marks)
- If Route 1 in-a-cut is selected, frontage roads will be necessary.

- Frontage roads should be designed to accommodate the most possible east-west and north-south connections.
- A WSC road between Washington Road and Alexander Road better distributes traffic into and out of Princeton.

Areas of potential agreement:

The following areas of potential agreement emerged from the discussions on the WSC road and frontage road options:

Neighborhood goal:

- Frontage roads combined with a WSC road to Harrison Street is the preferred option; however, potential traffic impacts on the Upper Harrison Street neighborhood must be mitigated.

Business goal:

- Frontage roads combined with a WSC road to Harrison Street is the preferred option.

Environment goal:

- Frontage roads are preferred over a WSC road between Route 1 and Washington Road because they would result in less habitat fragmentation and reduce visual and noise impacts to the D&R Canal.

Historic resources goal:

- Frontage roads combined with the southern-most WSC road between Route 1 and Harrison Street (e.g., as included Alternatives D and D.2) is the preferred option because it has a smaller physical footprint, which results in no impact to the Elm Allée and fewer impacts to the D&R Canal and historic resources located in the vicinity of Logan Drive/Eden Way and Lower Harrison Street.

Transportation goal:

- Frontage roads combined with a WSC road connecting Route 1 and Harrison Street in the vicinity of the D&R Canal is the preferred option because it provides an equitable balance of traffic, improves traffic flow, reduces congestion, provides route choices and addresses emergency response needs.

EAST-SIDE CONNECTOR (ESC) ROAD

The next component(s) considered and discussed by the groups were the ESC road options:

Primary Options

- No ESC (C-series, D.2, and G-series, No-Action)
- ESC 1 – northerly alignment along the Millstone River (A-series, B-series and F-series)
- ESC 2 – central alignment in the vicinity of Sarnoff's northern circulation road (Alts. D and D.1)
- ESC 3 – southerly alignment adjacent to Penns Neck neighborhood (Alt. E)

Other considerations:

- 4-lane cross-section (two 11 foot travel lanes with a 5 foot shoulder striped as a bike lane in each direction and a 12 foot landscaped median) vs. 2-lane cross-section (one 11 foot travel lane in each direction with 4 foot shoulders striped as a bike lane)

The following opinions/comments were boarded by the groups regarding options for the ESC road:

Neighborhood Goal: *Protect and enhance the integrity of residential neighborhoods*

- The no ESC road option is desired because the road does not meet any of the neighborhood objectives. (4 tally marks)
- The ESC road options would not affect vehicular, pedestrian or bicycle access and safety to schools and community facilities.
- The no ESC road option would negatively impact neighborhoods. (4 tally marks)
- With traffic calming, Washington Road can handle additional traffic without an ESC road. (1 tally mark)
- Any ESC road would induce more traffic east of the NEC rail line and is therefore bad for neighborhoods east of the rail line. (2 tally marks)
- Any ESC road would be bad for the Upper Harrison Street neighborhood. (5 tally marks)
- Given the location of the ESC road crossing of the Little Bear Brook, all of the ESC alignments would negatively impact residents living along Lower Fisher Place. (2 tally marks)
- Another major road, in addition to the crossing of Route 1 at Washington Road will destroy the Penns Neck neighborhood. (1 tally mark)
- The ESC road would divert and reduce Washington Road traffic. (6 tally marks)

- The ESC road is essential for protecting the Penns Neck neighborhood. Protecting Princeton is more dependent on the interchange and the WSC road options. (4 tally marks)
- The ESC road is important to expand the grid of local connectors to distribute traffic. (2 tally marks)
- There must be three ways to get in/out of West Windsor. The ESC road provides this. (2 tally marks)
- An ESC means less traffic on Washington Road and therefore improves safety for bikes/pedestrians. (4 tally marks)
- Building an ESC may require a WSC road to maintain the distribution of traffic. The WSC road would have negative impacts.
- The ESC road could induce more traffic.
- ESC 1 is preferred because it is furthest away from the neighborhoods. (1 tally mark)
- ESC 1 would be one of three main roads into Princeton. This represents an opportunity to prepare for future increases in traffic on Harrison Street through mitigating actions. (3 tally marks)
- The northern (ESC 1) and central (ESC 2) alignments best meet Objective 4 – ensure that transportation impacts do not disproportionately affect one neighborhood over another, and Objective 6 – minimize adverse impact on neighborhoods. The no ESC road option would not meet Objective 4 (see above) and 5 – be aware of unintended consequences such as diverted traffic. (4 tally marks)
- ESC 3 has the most significant negative impact on Fisher Place residents. (3 tally marks)
- ESC 2 is a compromise between ESC 1 and ESC 3. (2 tally marks)
- Support for the various ESC options relative to the neighborhood goal was expressed in the following manner:
 - No ESC – Negative impact on Penns Neck neighborhood. (2 tally marks)
 - ESC 1 – Away from neighborhoods, but need to mitigate Harrison Street traffic and keep traffic away from Penns Neck. (8 tally marks)
 - ESC 2 – Build away from neighborhoods with bike/pedestrian path. Allows sharing of the regional burden. (8 tally marks)
 - ESC 3 – This option would work if there is no re-designation of the ESC as CR 571. (6 tally marks)

Business Goal: *Maintain the viability of institutional and business communities*

- The ESC road is not necessary to achieve this goal.
- The no ESC road option is preferable because it would discourage traffic through local streets, an unintended consequence. (1 tally mark)
- The no ESC road option is preferable to avoid unintended consequences of building the ESC road (e.g., additional development on the Sarnoff site). (5 tally marks)
- The no ESC road option is not acceptable. (14 tally marks)
- All three ESC road options would enhance bike/pedestrian access if the ESC is designed to be compatible with bikes/pedestrians. (2 tally marks)
- All ESC road options improve vehicular access. (2 tally marks)
- All ESC road options adequately protect future campus development. (2 tally marks)
- ESC 1 is best because it keeps Sarnoff's campus intact. (9 tally marks)
- ESC 2 minimizes through traffic on the campus and results in less diverted traffic.
- ESC 2 would have a negative impact on the Sarnoff campus. (1 tally mark)
- ESC 1 and 2 would enhance bike and pedestrian access while ESC 3 would not.
- The Princeton Shopping Center and downtown Princeton need to be accessible. An ESC road is therefore needed. (7 tally marks)
- An ESC road should benefit existing businesses. Future growth could then fall into place. (5 tally marks)
- The ESC road would not significantly affect Sarnoff's ability to build on its campus. (4 tally marks)
- Bicycles and pedestrians should not have to cross the ESC road unnecessarily (e.g., those traveling between buildings on the future Sarnoff campus). (7 tally marks)
- Sarnoff Corporation should pay for the ESC road. (4 tally marks)
- Do not provide "corporate welfare" – a private driveway to the Sarnoff property – at public expense. Sarnoff should pay its fair share in cash and/or in-kind services, e.g., sidewalks, BRT, donation of land.
- Support for the various ESC road options relative to the business goal was expressed in the following manner:

- The no ESC option is preferable because it would limit potential impacts to "Jugtown" businesses. (3 tally marks)
 - ESC 1 is preferable because it would result in the least fragmentation of the existing and future Sarnoff campus and protects the integrity of existing businesses.
 - ESC 2 is preferable because it would provide better access for bikes/pedestrians; fewer unintended consequences; and improved access to the Sarnoff site. (2 tally marks)
 - ESC 3 – No specific comments.
- Moving ESC 1 farther away from the river, but north of the ESC 2 alignment would help Sarnoff, because compared to ESC 2, less infrastructure would be damaged.

Environment Goal: *Protect and enhance the environment, including natural resources and open space*

- It is not possible to predict what will be built on the Sarnoff campus, so, one cannot assume an ESC road will be needed.
- The ESC road is a road near a river and it cannot be expected to improve the environment. It will fragment habitat, etc.
- The no ESC road option would be best for the environment because it does not disturb habitat of threatened owls and other wildlife. It also would minimize development on the Sarnoff property. (13 tally marks)
- Although the no ESC road option may be best with regard to environmental impacts, this option is unrealistic because Sarnoff has approval to develop their property, creating more traffic and demand for new roads. (3 tally marks)
- The ESC road (especially ESC 1) is the most damaging component of the alternatives and should not be built. (1 tally mark)
- All of the ESC road options protect the river adequately.
- The ESC road alignments would have similar environmental impacts.
- The ESC road can be supported if construction of the road is linked to environmental protections related to development on the Sarnoff property – better flood control, recharge and pollution control from development and from the roadway. (5 tally marks)
- ESC 1 is the best option if it is built as far as possible away from the river, in order to protect the environment. (3 tally marks)

- ESC 2 is best from an environmental point of view, as long as mitigation measures are undertaken to protect the Sarnoff campus.
- ESC 2 would most likely meet all objectives. Tradeoffs involved make it the most desirable option if an ESC road is built. (2 tally marks)
- The ESC road should be built farther from the river, which is better for water quality and prevents flooding. (2 tally marks)
- An ESC road closer to the river is not good for recreation. (2 tally marks)
- ESC 3 has the least impact on the environment. (1 tally mark)
- Building the ESC road could provide better access to natural/recreational areas. (4 tally marks)
- The ESC road should be built by DOT, because there would be more protections for wildlife and wetlands. (2 tally marks)
- There is a need for more relevant data, including a wildlife survey. This would show that the ESC is bad for the environment. (1 tally mark)
- A wildlife survey is needed to fully assess the potential impacts of the ESC road. (6 tally marks)
- It is difficult to discern what role the ESC road plays in water quality changes. (2 tally marks)
- A balance between neighborhoods and the environment is necessary.
- An additional roadway may decrease air pollution. (2 tally marks)
- An additional roadway may not decrease air pollution.
- If there needs to be an ESC, then there needs to be massive mitigation to protect the environment. (11 tally marks)

Historic Resources Goal: *Protect and enhance historic and archaeological resources*

- The no ESC road option would have the least impact on historic resources, especially to archeology. (14 tally marks)
- The no ESC option would result in additional stress on elms due to more air pollution and polluted stormwater runoff. (1 tally mark)
- The ESC roads would benefit historic resources in Penns Neck, including the Penns Neck Baptist Church complex. (8 tally marks)

- All three ESC road options adversely impact archeology. (2 tally marks)
- All three ESC road options should provide adequate buffer space to the area known locally as the "Sheep Wash." (3 tally marks)
- ESC 2 has minimal impact on historic sites and helps sites in the vicinity of Harrison Street because it locates the Route 1 interchange further south. (12 tally marks)
- Impacts to archeology from the ESC road options can be mitigated by digging up artifacts and displaying them. (2 tally marks)
- Representatives from the Leni Lenape Indian tribe have indicated that they would prefer keeping their ancestral artifacts undisturbed. (3 tally marks)
- Including an ESC road would mean the government will build the road (rather than Sarnoff) so archeological resources will be better protected. A publicly supported road would promote archeological preservation. (3 tally marks)
- The Route 1 interchange with Route 1 can also affect archeological sites and historic resources – diamond interchange options are preferred. (2 tally marks).
- An archeological district should be recognized to better protect the resources. (2 tally marks)
- Careful design could significantly diminish the impacts on archeological resources. (5 tally marks)
- Pillage of archeological sites is now probable since these sites have been pinpointed on public documents. They should be uncovered, documented, and displayed.

Transportation Goal: *For all modes of transportation improve access, mobility and safety and reduce congestion.*

- The no ESC road option is favored because of potential impacts on Harrison Street neighborhoods. (4 tally marks)
- The no ESC road option would ensure an equitable balance of traffic. (1 tally mark)
- The ESC road would ensure equitable balance of traffic on both sides of Route 1. (11 tally marks)
- The ESC road is needed to address emergency response needs. (3 tally marks)
- The ESC road would discourage traffic on residential streets. (4 tally marks)

- The ESC has the potential to disrupt the balance of traffic on the three routes into/out of Princeton.
- Any of the ESC road alignments would meet the transportation objectives.
- If an ESC is required then ESC 2 is favored.
- The ESC road might create a bottleneck in Princeton Junction. (6 tally marks)
- ESC 1 would give the appearance of a straight shot to Harrison Street for people looking at a map. This might encourage drivers unfamiliar with the area, but the model data show no difference in traffic between the alignments.
- The ESC road should be constructed as long as it does not affect Sarnoff's ability to build. ESC 1 and ESC 3 are preferable. (1 tally mark)
- ESC 2 would provide transportation benefits while protecting both the river and the Penns Neck neighborhood. (1 tally mark)
- The ESC road would alleviate congestion, especially traffic on CR 571. ESC 1 and ESC 2 are favored.
- ESC 2 is preferred because it would decrease truck traffic.
- ESC 3 is located too close to Fisher Place. (4 tally marks)
- ESC 1 or 2 would provide better pedestrian/bike access. (2 tally marks)
- The ESC road would help future transportation options such as BRT. (2 tally marks)
- ESC 1 and 2 are good for transportation if the Vaughn Drive Connector is built, but bad for transportation if the VDC is not built.

Areas of potential agreement:

The following areas of potential agreement emerged from the discussions on the ESC road options:

Neighborhood Goal

- The no ESC road option would have a negative impact on neighborhoods.
- Any ESC road alignment would reduce traffic on Washington Road in Penns Neck. As a result, the ESC road would have a positive effect on the Penns Neck neighborhood; however, ESC 3 would negatively impact residents along Fisher Place.

- Any ESC road alignment would result in additional traffic on Upper Harrison Street. As a result, mitigation will be needed.
- ESC alignments 1 and 2 are preferred.

Business Goal

- For this goal, the no ESC road option is unacceptable.
- Any ESC alignment would enhance vehicular, bike and pedestrian access to area businesses.
- The location of the ESC road should balance neighborhood impacts, environmental impacts and impacts to the Sarnoff property.

Environment Goal

- The no ESC road option is best for the environment.
- If an ESC road is built, significant mitigation is needed.
- A wildlife survey is needed to fully determine the impacts of an ESC road before a final decision can be made.

Historic Resources Goal

- The no ESC road option would have the least overall impact on historic resources; however, building an ESC road would have a positive impact on the Penns Neck Baptist Church complex.
- Of the three ESC road options, the ESC 2 would result in fewer impacts to historic resources.

Transportation Goal

- The ESC road provides three travel routes in and out of West Windsor and Princeton, this would result in the most equitable balance of traffic on east-west routes on both sides of Route 1.
- ESC 1 and ESC 2 are preferred and there is very little support for ESC 3.

VAUGHN DRIVE CONNECTOR ROAD

The next component discussed was the Vaughn Drive Connector (VDC) Road:

Primary Options:

- No VDC (No-Action Alternative, G.2 and B Alternatives)

- VDC 1 – eastern alignment connecting Station Drive to Vaughn Drive
- VDC 2 – central alignment
- VDC 3 – western alignment

Other considerations:

- Cross-section (one 11 foot travel lane in each direction with 8 foot shoulders striped as a bike lane or parking and a 12 foot landscaped median)

For this component, a small group of workshop participants were assembled in a small circle in front of the remaining workshop participants. The following perspectives were represented in this small group:

- West Windsor Township
- NJ TRANSIT
- Berrien City
- Chamber of Commerce of the Princeton Area

Ms. Steffen facilitated a conversation in which each small group member took turns expressing their opinions and interests related to the VDC road options. In addition, other workshop participants were invited to join the circle to share their thoughts, comments and concerns. Representatives from Princeton University, Princeton Borough, West Windsor Citizens for Transportation Alternatives, West Windsor Township Environmental Commission, and the West Windsor Division- Greater Mercer County Chamber of Commerce expressed their views in this fashion. All comments were recorded on flipcharts by Ms. Weiss. Following this discussion, Mr. Carnegie synthesized what had been said and suggested an alternative alignment that sought to balance the various concerns and interests. This alignment, which was referred to as “VDC 2½,” would be located between alignments 2 and 3. The exercise was intended to demonstrate how potentially divergent interests and concerns could be balanced and addressed through mitigation and modifications to a proposed alignment so that agreement on a preferred approach could be reached.

Comments boarded during the discussion of VDC road options included the following:

General

- Circulation around and within the train station area are very important and pedestrian safety in the station parking lots is a critical concern.
- The VDC road would provide simple, safe and convenient access to the station.
- The VDC road should not reduce the number of parking spaces at the station.
- The VDC road should be used to create opportunities for a “village center.”
- The VDC road should be designed to enhance bicycle and pedestrian access to the station.
- The VDC road would provide another way to cross the railroad tracks near the station and provide a route for traffic from CR571 to Route 1 south away from Berrien City and Penns Neck neighborhoods.
- The Alexander Road bridge should be used as a means of distributing traffic east of Route 1.
- The VDC road would reduce traffic east and south of Route 1 in and around Berrien City, Sherbrooke Estates, Benford Estates and Wellington Estates.
- The VDC road would increase traffic on Bear Brook Road adjacent to the Windsor Haven neighborhood. It should only be considered in conjunction with an ESC road.
- The VDC road should be designed to accommodate a future BRT system connecting the station to developments west of the station.
- The VDC road should be designed to respect environmental and historic resources, including the Little Bear Brook stream corridor.
- The no VDC road option is not viable. The VDC road makes this project work.
- Consider using the West Windsor compost station site located on Alexander Road for additional station parking.

VDC 1

- VDC 1 would be the most disruptive to station area operations and would isolate a significant portion of station area parking on the opposite side of the road from the station.
- VDC 1 would have the most impact on historic resources.

VDC 2

- Although VDC 2 would impact the existing two-story brick office buildings adjacent to Station Drive, these buildings are perceived to be functionally obsolete.
- VDC 2 would keep station area operations intact; however, it would still isolate some parking areas.
- Consider moving VDC 2 further west to further consolidate parking areas on the station side of the road. This would also provide an opportunity for the future development of a transit-oriented village between the road and the station.

VDC 3

- VDC 3 provides the most distance from the station.
- VDC 3 affects circulation patterns, isolates some parking and impacts what is perceived to be a newer/higher quality office building.

VDC 2 ½ (modified alignment between alignments 2 and 3)

- VDC 2 ½ would:
 - allow consolidation of surface parking on the station side of the road and at the same time permit the expansion of the Little Bear Brook greenway by returning existing parking area to green space and provide opportunities for future “village center” development;
 - avoid impacts to historic resources;
 - provides additional buffer area for the “newer” office building located west of Station Drive;
 - enhance pedestrian/vehicular safety in parking lots; and (2 tally marks)
 - avoid residential displacement. (1 tally mark)
- The following concerns were expressed:
 - forested area adjacent to the VDC interchange with CR 571 (e.g., woodlands; mature trees in the ramp area) should be protected;
 - identified archeological sites near the interchange should be protected; and
 - consideration should be given to purchasing Washington Road residences near the proposed interchange because they will still be impacted.

AREAS OF AGREEMENT

Following the discussion of the VDC road component, workshop participants were convened around a board displaying the areas of potential agreement compiled during the two workshop sessions. Ms. Steffen briefly reviewed the areas of potential agreement listed on the board and asked participants to identify items on which the majority of the group could agree. It should be noted that not all Roundtable members were present for this discussion and that the agreements cited below do not necessarily represent the position of all participants. Based on the discussion, the following areas of consensus were agreed to by the majority of those participating in the April 14, 2003 workshop:

- There was support for Route 1 in-a-cut.
- There was support for Vaughn Drive connector (VDC) modified alignment "2 ½".
- There was support for a one-way frontage road system on both sides of Route 1 with no WSC road between Route 1 and Washington Road. Participants agreed that the frontage roads should be located as far west as possible at Washington Road, without impacting the Elm Allée or the Princeton University campus while also helping to protect the Penns Neck Baptist Church and neighborhood. *(Note: The frontage road on the east side of Route 1 would accommodate northbound traffic and the frontage road on the west side of Route 1 would accommodate southbound traffic).*
- There was support for an extended cut-and-cover/plaza over Route 1 in-a-cut. Participants acknowledged the costly nature of this option but supported the community enhancement benefits it would provide.
- There was support for a Harrison Street interchange and WSC road between Route 1 and Harrison Street. Participants acknowledged the importance of designing this component to mitigate potential traffic impacts to the Upper and Lower Harrison Street neighborhoods.
- There was interest in ensuring that there is enough wildlife information so that the EIS is not called into question and so that needed mitigation can be identified and decisions fine-tuned. *(Note: A West Windsor survey was mentioned and it was also commented that it is not yet known what additional information is needed).*

- There was agreement that any and all roads/alignments require design and mitigation to ensure context sensitive design. In this regard, there was support for continued voluntary citizen involvement in project design decisions.
- There was NO agreement among the group regarding the ESC road; however, participants agreed that among the three alignment options, ESC 3 was not acceptable.

CONCLUSION

Mr. Robins concluded the workshop by thanking everyone for sustaining their interest over the past 22 months. He noted that he has never been involved with a more challenging, yet intelligent and invigorating public involvement process. He opined that the process has created a great deal of goodwill among various constituencies and he commended all of those who have participated to date.

APRIL 9 AND APRIL 14 SYNTHESIS MEETING REPORT –
ADDENDUM 1

From: Sandy Shapiro
Sent: Tuesday, June 03, 2003 3:25 PM
To: Jon Carnegie
Subject: Correction to Synthesis Workshops Summary Report

Jon,

I should like to enter the following correction to the Summary Report of the Penns Neck Area EIS Synthesis Workshops, and I trust that it will be included in an addendum to the DEIS:

On the last page, under the header "Areas of Agreement," the following statement appears:

There was NO agreement among the group regarding the ESC road; however, participants agreed that among the three alignment options, ESC 3 was not acceptable.

It is my firm recollection (confirmed by others in attendance) that there was not any agreement on any of the ESC alignments. The statement should simply read "There was NO agreement among the group regarding the ESC road." Indeed, there was not agreement as to whether there should be an ESC nor about any one being or not being acceptable.

Thank you for your dedication and commitment to the Roundtable and the EIS process!

Sandy Shapiro

PENNS NECK AREA ENVIRONMENTAL IMPACT STATEMENT IN-PROGRESS REVIEW

The Voorhees Transportation Policy Institute at Rutgers University, on behalf of the New Jersey Department of Transportation, has scheduled a second In-Progress Review to update the public on the status of work on the Penns Neck Area Environmental Impact Statement (EIS) Study and the work undertaken to comply with Section 106 of the National Historic Preservation Act. The EIS, which was initiated in April 2001, is designed to identify and evaluate potential actions to address traffic, mobility, and safety concerns on Route 1 and east-west cross streets in the Penns Neck area of West Windsor Township. Section 106 work identifies historic properties, assesses their eligibility for listing in the National Register of Historic Places, evaluates the impacts of each alternative under consideration on eligible or listed properties, and considers alternatives to avoid or minimize any adverse effects.

The purpose of the In-Progress Review is to provide the community with an opportunity to informally discuss technical studies relating to transportation and circulation (congestion, growth, travel delay, east-west traffic flow, traffic pattern changes, etc.) as well as potential impacts to the natural (wetlands, flood plains, vegetation, wildlife, etc.) and built (cultural and historic resources, residential neighborhoods, open space, institutions, businesses, etc.) environments. The project team will be available throughout the evening to assist the public in reviewing narrative and graphic materials, including maps, charts and reports. A brief presentation (see schedule below) will provide an overview of the work conducted to date and a summary of the impact assessments.

The In-Progress Review will be held:

| | | |
|------------------|---|--------------------------------|
| DATE: | Wednesday March 5, 2003 | |
| TIME: | 6:00 PM - 11:00 PM | Informal Review and Discussion |
| | 7:30 PM | Presentation |
| LOCATION: | New Jersey Hospital Association Conference Center 760 Alexander Road, West Windsor | |

Availability of Information: Documents relating to the project can be reviewed on the project website at www.pennsneckareaeis.org. They are also available at the following project repositories (please call for hours):

- West Windsor Public Library, 333 N. Post Road, West Windsor (609) 799-0462
- Plainsboro Public Library, 641 Plainsboro Road, Plainsboro (609) 275-2898
- Princeton Township Clerk's Office, 169 Witherspoon Street, Princeton Township (609) 924-5176
- Princeton Borough Clerk's Office, Borough Hall, 1 Mountaint Drive, Princeton (609) 497-7622
- Rutgers University Transportation Policy Institute, 33 Livingston Avenue, New Brunswick (732) 932-6812 Ext. 593
- New Jersey Department of Transportation, 1035 Parkway Avenue, Ewing (609) 530-2989

For further information concerning the In-Progress Review or the overall project, contact Helen Neuhaus & Associates at (212) 532-4175.

Ad appeared in the following newspapers:

Princeton Packet (2/18/03)
Princeton Town Topics (2/19/03)
Trenton Times (2/19/03)
US 1 (2/19/03)
West Windsor and Plainsboro News (2/21/03)

PENNS NECK AREA ENVIRONMENTAL IMPACT STATEMENT IN-PROGRESS REVIEW

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The purpose of the In-Progress Review is to provide the community with an opportunity to informally discuss the alternatives under consideration, as well as the traffic and environmental studies that are being conducted for the EIS. The project team will be available throughout the day to assist the public in reviewing narrative and graphic materials, including maps, charts and reports. Two brief presentations (see schedule below) will provide an overview of the work conducted to date and a summary of the alternatives under consideration.

The In-Progress Review will be held:

DATE: Monday, September 30, 2002

TIME: 10:00 AM – 10:00 PM

Informal Review and Discussion

11:00 AM and 7:00 PM

Presentation

A videotape of the 11:00 AM presentation will be available for viewing throughout the day and evening for those unable to attend at 11:00 AM or 7:00 PM.

PLACE: New Jersey Hospital Association Conference Center
760 Alexander Road
Princeton, NJ

Availability of Information: Documents relating to the project can be reviewed on the project website at www.pennsneckareaeis.org. They are also available at the following project repositories (please call for hours):

- West Windsor Public Library, 333 N. Post Road, West Windsor (609) 799-0462
- Plainsboro Public Library, 641 Plainsboro Road, Plainsboro (609) 275-2898
- Princeton Township Clerk's Office, 369 Witherspoon Street, Princeton Township (609) 924-5176
- Princeton Borough Clerk's Office, Borough Hall, 1 Monument Drive, Princeton (609) 497-7622
- Rutgers University Transportation Policy Institute, 33 Livingston Avenue, New Brunswick (732) 932-6812 Ext. 593
- New Jersey Department of Transportation, 1035 Parkway Avenue, Ewing (609) 530-2989

For further information concerning the In-Progress Review or the overall project, contact Helen Neuhaus & Associates at (212) 532-4175.

Ad appeared in the following newspapers:

Princeton Packet (9/17/02)

Princeton Town Topics (9/18/02)

Trenton Times (9/18/02)

US 1 (9/18/02)

West Windsor and Plainsboro News (9/20/02)

The Princeton Packet 15A**Friday, November 2, 2001**

PENNS NECK AREA ENVIRONMENTAL IMPACT STATEMENT **SCOPING FORUM AND OPEN HOUSE**

The Transportation Policy Institute of Rutgers University, on behalf of the New Jersey Department of Transportation, will hold an Environmental Scoping Forum and Open House to introduce the public to the engineering and environmental studies being performed for an Environmental Impact Statement (EIS). The EIS, which is prepared for all federally-funded projects and must comply with the National Environmental Policy Act of 1969, as amended, will examine potential solutions to the problem of mobility in the Route 1/Penns Neck Area and its environs, and the respective impacts of these solutions. The specific purpose of the Scoping Forum is to receive public comments on the appropriate scope of work of the EIS.

The formal Environmental Scoping Forum will include brief presentations to introduce the overall study and the project team; describe the study's background and objectives; review the process that will be followed to evaluate all potential alternatives; and introduce the technical studies, categories of possible actions, and range of impacts that the EIS will assess for all potential options. The remainder of the session will provide an opportunity for the public to offer input on the study's scope of work and on the range of solutions to be considered in the EIS. The proceedings will be recorded by a stenographer, and all public comments will become part of the official record.

The Open House will be an informal session to provide opportunities for the public to review documents and displays and to discuss the EIS process on a one-to-one basis with members of the project team.

DATE: Tuesday, December 4, 2001

TIME: Open House

10:00 A.M. – 11:00 P.M.

Scoping Forum

Begins at 11:00 A.M.

presentation, to be followed by
continuous public comment period

Scoping Forum

7:00 P.M.

repeat of presentation, followed by
continuation of public comment period

PLACE: West Windsor Township Municipal Building
271 Clarksville Road, West Windsor, NJ

If needed, a supplemental public comment period will be held on Thursday, December 6th at the West Windsor Municipal Complex, from 7:00 P.M. to 11:00 P.M., to accommodate additional speakers who could not be scheduled due to time limitations.

COMMENTS AND RECOMMENDATIONS: Persons wishing to provide comments and recommendations for the official record will have opportunities to do so during the Scoping Forum. Each person will be given 5 minutes of speaking time.

In addition, written comments relating to the scope of the environmental studies will be accepted until January 7, 2002. All comments should be sent to: Helen Neuhaus & Associates, 432 Park Avenue South, New York, NY 10016.

AVAILABILITY OF INFORMATION: Documents relating to the project and the Scoping Forum can be reviewed on the project website at www.pennsneckareaeis.org. They are also available at any of the following project repositories (please call for hours):

West Windsor Public Library, 333 N. Post Road, West Windsor (609) 799-0462
Princeton Township Clerk's Office, 359 Witherspoon Street, Princeton Township (609) 924-5178
Princeton Borough Clerk's Office, Borough Hall, 1 Monument Drive, Princeton (609) 497-7622
Plainsboro Public Library, 641 Plainsboro Road, Plainsboro (609) 375-2898
Rutgers University Transportation Policy Institute, 33 Livingston Avenue, New Brunswick (732) 832-6512 Ext. 593
New Jersey Department of Transportation, 1035 Parkway Avenue, Ewing (609) 830-2824 (Ask for Andy Fekete)

For additional information concerning the Penns Neck Area EIS, or to reserve a speaking time at the Scoping Forum, please contact Helen Neuhaus by phone: (212) 532-4175; mail: 432 Park Avenue South, New York, NY 10016; email: hna1977@aol.com or fax: (212) 532-7479.

Ad also appeared in:

Trenton Times (11/2/01)

Town Topics (10/31/01)

US 1 (10/31/01)

Newark Star-Ledger (11/2/01)

West Windsor & Plainsboro News (11/2/01)

New Hope Gazette (11/8/01)

Yardley News (11/8/01)

Newtown Advance (11/8/01)

PENNS NECK AREA ENVIRONMENTAL IMPACT STATEMENT SCOPING FORUM AND OPEN HOUSE

The Transportation Policy Institute of Rutgers University, on behalf of the New Jersey Department of Transportation, Invites you to attend an Environmental Scoping Forum and Open House to discuss the problem of mobility in the Route 1/Penns Neck area and its effect on neighboring communities.

DATE: Tuesday, December 4th

**PLACE: West Windsor Township Municipal Building
271 Clarksville Road, West Windsor**

**TIME: 10:00 A.M. to 11:00 P.M. - Open House
11:00 A.M. and 7:00 P.M. - Presentation
Following Each Presentation - Public Comment Period**

The purpose of the Scoping Forum is to share information with you about the study and to get your comments on the problem and the scope of work you think should be performed. Speakers will be given five minutes to present their views, and all comments will become a part of the official record of this project.

The Open House will be a chance for you to ask questions and discuss the project with members of our study team. Displays and handouts will be available.

If you would like to reserve a time to speak at the Forum, or to get more information about the project, please call Helen Neuhaus at (212) 532-4175.

Information about the project is also available on our website at www.pennsneckareaeis.org, or at any of our project repositories (call above number for hours and locations).

5.3.2.2 Evaluation of the Alternatives

Objective 1: Protects wetlands and avoids habitat fragmentation

a) Aquatic habitat (wetlands & water bodies)

- i. There are 245 acres of wetlands located within the primary study area. Given the characteristics of these wetlands, most are likely to be categorized as intermediate wetlands according to the NJDEP's classification system.
- ii. All of the Action Alternatives would result in permanent wetland disturbance ranging from 0.06 acres to 0.31 acres. This represents a reduction in study area wetlands of between 0.02% to 0.13%.
- iii. The C and G-series would be the best performers with 0.06 and 0.10 acres of disturbance, respectively. This represents a 0.02% and 0.04% reduction in study area wetlands.
- iv. Alternatives B, B.1 and B.2 would be the worst performers with 0.31 acres of total disturbance, which represents a 0.13% reduction in study area wetlands.
- v. All of the action alternatives except the C and G-series alternatives and Alternative D.2, which do not include an ESC road, would impact wetlands associated with the Little Bear Brook stream corridor.

b) Upland vegetation and habitat

- i. There are three primary types of upland vegetation habitat present within the study area – upland forest, agricultural fields and landscaped lawn/athletic fields.
- ii. Within the study area, upland forest provides the highest quality wildlife habitat, agricultural fields are of moderate habitat value and landscaped lawn/athletic fields are of the lowest value wildlife habitat.
- iii. All of the action alternatives would result in permanent upland vegetation disturbance ranging from 1.34 acres (Alt. G.2) to 19.54 acres (Alt B.2).
 - (a) The best performing alternative relative to disturbance of upland forest would be G.2 which disturbs no acres. The worst performing alternatives would be Alternatives E and F.1 which disturb 5.8 and 5.83 acres, respectively. All alternatives except the C and G-series alternatives and Alternative D.2, which include an ESC road, would disturb approximately 2.4 acres of upland forest adjacent to the Little Bear Brook stream corridor.
 - (b) The best performing alternatives relative to disturbance of agricultural fields would be the G-series and C.1, which disturb 0.36 acres and 0.76 acres, respectively. These alternatives would avoid disturbance of the agricultural fields located west of Route 1 on Princeton University-owned land. The worst performing alternative would be B.2 which disturbs 5.61

Repository List

Project repositories have been established at the following locations to provide the public with updated information about the Penns Neck Area EIS Study on an ongoing basis.

Plainsboro Public Library
641 Plainsboro Road
(609) 275 – 2898

Princeton Borough Clerk's Office
Borough Hall
1 Monument Drive
(609) 497 – 7622

Princeton Township Clerk's Office
Municipal Building
400 Witherspoon Street
(609) 924 – 5175

West Windsor Public Library
333 North Post Road
(609) 799 – 0462

Rutgers University – Voorhees Transportation Policy Institute
Voorhees Transportation Center
Bloustein School of Planning and Public Policy
33 Livingston Avenue, Room 445
New Brunswick, New Jersey
Contact Andrea Lubin for an appointment at (732) 932 – 6812 Ext. 593

New Jersey Department of Transportation
1035 Parkway Avenue
Ewing, New Jersey
Contact Tony Sabidussi for an appointment at (609) 530 – 2989