

Chapter 2

Actions Considered and Description of Alternatives

2.0 Actions Considered and Description of Alternatives

This chapter describes the full range of actions and alternatives considered in the Penns Neck Area EIS. It explains how the action alternatives were developed and describes, in detail, the full set of action alternatives advanced for full analysis in the DEIS. It also describes the proposed Commute Options package of complementary strategies designed to enhance non-auto travel in the Penns Neck area. Finally, in accordance with NEPA, this chapter includes a summary of the review and comments provided by the NJDOT Value Engineering unit on the proposed alternatives.

2.1 Range of Actions Considered

2.1.1 Introduction

The scoping phase of the EIS process included a review of past project activities, early stakeholder interviews, small group meetings, 19 meetings with the Partners' Roundtable Advisory Committee, and a public scoping forum. This process yielded a comprehensive list of potential road-based, transit and travel demand management (TDM) actions intended to address traffic congestion, mobility constraints and safety concerns in the Penns Neck area. Many new ideas were generated during this process, including implementing a Bus Rapid Transit (BRT) system, constructing a Vaughn Drive connector road, placing a portion of Route 1 in-a-cut under Washington Road, and identifying options for building an east-side connector road across the Sarnoff Corporation property.

The full list of initial strategies or potential actions considered is briefly summarized below. Some possible actions were considered but eliminated from further analysis. The reasons why they were eliminated are explained below. Other potential actions were advanced for further study as components of the action alternatives or as complementary strategies.

2.1.2 No-Action

As required by NEPA, the Penns Neck Area EIS includes the investigation of a No-Action Alternative. This "do-nothing alternative" is included as the benchmark alternative against which all "action" alternatives are compared. See Section 2.3.2 for more detail.

2.1.3 Travel Demand Management (TDM)

As discussed in Chapter 1, Section 1.4.2, a Congestion Management System (CMS) study for proposed Penns Neck Area improvements was conducted in 1998. The study examined a variety of TDM strategies designed to induce behavioral changes that limit single-occupant vehicle (SOV) trips and improve the efficiency of highway/transit operations in the Penns Neck area through demand-side management measures. The CMS study examined strategies that provided disincentives to driving

alone and incentives for using alternative travel modes. Examples include new shuttle bus services, priority carpool/vanpool parking, commuter tax benefits and on-site rideshare coordinators.

Consistent with the findings and recommendations of the 1998 CMS study and in response to public comment received during the scoping process, a variety of TDM strategies were considered and advanced for further study in the EIS. A package of TDM strategies, transit service improvements, and pedestrian and bicycle network enhancements was developed as a complementary strategy to all of the road-based actions considered in the EIS, as described in Section 2.4.1. This package is referred to as a “Commuter Options” package. The EIS assumes that all road-based alternatives would be accompanied by concurrent implementation of a “Commuter Options” package.

2.1.4 Transit-based Actions

2.1.4.1 Creation of a Light Rail or Bus Rapid Transit System

The creation of a light rail transit (LRT) or bus rapid transit (BRT) system was suggested as a possible action to be considered in the EIS. The Delaware Valley Regional Planning Commission (DVRPC) and NJ TRANSIT studied these concepts in 2001-2002 as part of the Central Jersey Transportation Forum (CJTF). As previously described, the CJTF is a long-range transportation and land use planning forum initiated by the NJDOT and the Delaware Valley Regional Planning Commission as a result of the 1998 CMS study.

The LRT system investigated for the CJTF in 2001 was designed to serve the Route 1 Corridor within a study area substantially consistent with that of the Penns Neck Area EIS. The proposed transit alignment extended from the Route 1/I-295 interchange to the vicinity of NJ Turnpike Exit 8A. The alignment also incorporated the “Dinky” rail line right-of-way, by converting it to light rail, and a variety of feeder bus services from residential areas designed to boost transit ridership.

The transit system was tested under two future land use scenarios. The first scenario assumed transit-oriented development patterns, which shifted a percentage of residences and jobs near to the transit alignment’s stations. The second scenario assumed trend development patterns similar to what is in place today. The scenarios also included implementation of TDM strategies, such as parking fees in zones near the LRT, parking “cash-out” programs for transit/carpool/vanpool use at all employment sites in zones with parking fees, priority parking for carpools/vanpools and on-site ridesharing coordinators.

In 2002, NJ TRANSIT and DVRPC investigated for the CJTF the potential of a Bus Rapid Transit (BRT) system in the same study corridor as the LRT study. The CJTF BRT study focused on ridership potential and possible congestion benefits. At the same time, a complementary study was conducted by Greater Mercer Transportation Management Association that examined the technology and alignment components of

the possible BRT corridor. A variety of BRT technologies were examined, including on-street and off-street bus guide-ways, bus priority treatment on existing roadways and local BRT feeder services.

The proposed BRT corridor extended from I-295 in Lawrence Township, along Route 1, to Ridge Road in Plainsboro Township. Both core and extended BRT routes were considered, along with an extensive feeder bus network that included enhancements to currently existing local bus routes. Buses would run on either a dedicated alignment or get priority lanes and priority signal treatment on existing roads to provide for faster, more reliable service. Similar to the LRT study, the BRT investigation considered two future land use scenarios, one with “transit-focused” land use patterns and one without. The study also assumed a similar package of TDM strategies. It should be noted, however, that the ridership projections were based on implementation of land use and TDM strategies not presently supported by many local officials participating in the CJTF.

Under the supportive land use scenario, the projected daily ridership of the proposed LRT system in the year 2020 was 12,500. Under the supportive land use scenario, the projected daily ridership of the proposed BRT system in the year 2020 was 21,000. While the projected ridership of the proposed LRT system fell below NJ TRANSIT’s minimum scoring criteria for further technical analysis, the projected ridership of the BRT system met ridership criteria for further technical evaluation.

The CJTF concluded that “a balanced approach utilizing transit, highway improvements, ‘Smart Growth’ land use strategies, and travel demand management is the only effective strategy to reduce traffic congestion and increase mobility in central New Jersey.” In August 2002, the CJTF recommended further technical analysis of BRT by NJ TRANSIT in the near future.

The results of both studies indicated that projected transit ridership, even under a supportive future land use and TDM scenario, would not yield enough congestion relief in the Penns Neck area to obviate the need for roadway improvements. Based on the findings of the CJTF LRT and BRT studies, the creation of an LRT/BRT system was **eliminated** from further consideration in the EIS.

It should be noted that NJ TRANSIT, in cooperation with NJDOT, DVRPC and the CJTF, is advancing the next phase of BRT feasibility studies in accordance with the Federal Transit Administration’s “New Starts” project development process.

2.1.4.2 Changes to Northeast Corridor Rail Services

Changes to NEC rail line services were suggested and considered to improve rail usage to the Penns Neck area employment sites and expand the utility of the Dinky operation. These changes included: 1) more frequent NJ TRANSIT reverse peak-period rail service (e.g., westbound in the morning) to Princeton Junction station; 2) new rail stations in Plainsboro and/or South Brunswick; 3) the addition of Amtrak Clocker service to the Hamilton train station; and 4) changes to Dinky services between Princeton Junction station and Princeton Borough that would enhance the ability of the rail shuttle to distribute riders to nearby employment destinations.

NJ TRANSIT officials have responded to these suggestions, indicating that although there will be limited increases in reverse peak period service when the Secaucus Transfer Station opens, further expansion “will be limited by the complexity of operations in New York Penn Station.” NJ TRANSIT officials further indicated that a new station between Jersey Avenue and Princeton Junction will not be built until decisions are made about Middlesex-Ocean-Monmouth rail project implementation. As for Amtrak service to the Hamilton train station, according to NJ TRANSIT officials, this suggestion will be affected by NJ TRANSIT’s contract to assume from Amtrak in 2006 the New Jersey operations of the Clocker service. This will most likely result in a higher quality of service for Hamilton station.

In addition, according to NJ TRANSIT staff, consideration of a new eastbound platform and related passenger access for the Jersey Avenue Station in New Brunswick is in the early stages of project development. This, plus increased parking capacity, could enable the station to become a full-service station with reverse peak and off-peak service.

Finally, NJ TRANSIT staff indicated that retrofitting the Dinky rail line with one or more additional stops and one or more rail sidings to facilitate the expansion of bi-directional service would require a significant investment. The staff indicated that potential ridership from such service improvements would not likely meet NJ TRANSIT’s investment criteria. They further suggested that enhanced jitney/shuttle services from the Princeton Junction station could meet the same need at substantially less cost. Based on NJ TRANSIT’s input, these actions were **eliminated** from further consideration in the EIS.

2.1.4.3 Creation of a Comprehensive Jitney/Shuttle System

The creation of a comprehensive jitney/shuttle system to serve Penns Neck area residents and employers was suggested by several members of the public. This action was considered and **advanced** for further consideration as part of the EIS “Commuter Options” package described more fully below. As part of the proposed “Commuter Options” package, existing public and private shuttle/jitney services would be expanded and supplemented. This effort would include service planning, vehicle

purchase/service contracts and operation subsidies. New jitney/shuttle services would be designed to:

- enhance the use of the Northeast Corridor rail line for reverse direction peak period commuting to work sites in the West Windsor and Plainsboro employment cores;
- provide alternative travel modes for targeted commuter markets; and
- enhance daytime access to area retail establishments and restaurants (e.g., noon-time shuttle service).

2.1.4.4 Enhancements to Existing Bus Services

Various modifications and enhancements to existing bus routes operating in the primary study area were suggested by members of the public and the Greater Mercer Transportation Management Association. These actions were considered and advanced for further consideration as part of the proposed "Commute Options" package described more fully below in Section 2.4.1. As part of the "Commute Options" package, expanded and new jitney/shuttle services would be planned. In this context, service modifications to existing bus services would be analyzed, considered and implemented, as warranted.

2.1.5 Road Based Actions

The process for developing road-based actions began with a variety of suggestions by members of the public and local officials. Most of these actions did not represent "stand-alone" alternatives, but rather "pieces" that were later combined to form various road-based alternatives. The alternatives development process is explained more fully in a later section of this chapter (Section 2.2). Below is a brief description of the suggested road-based actions and the disposition of each relative to consideration in the EIS:

- A. Construct Route 1 in-a-cut under Washington Road - This suggested action would involve depressing Route 1 under Washington Road, to allow Route 1 traffic to flow unimpeded through the intersection, while maintaining access across Route 1 for east-west traffic using Washington Road. This action was advanced for further consideration as a potential "piece" of a road-based alternative.
- B. Construct a loop-type interchange at Harrison Street. This suggested action would grade separate the intersection, accommodate all turning movements and provide full access to and from Route 1. This action was advanced for further consideration as a potential "piece" a road-based alternative.
- C. Construct a diamond-type interchange at Harrison Street - This suggested action would also grade separate the intersection, accommodate all turning movements and provide full access to and from Route 1. This action was intended to take up less space than a loop-type interchange and work better with frontage roads. A variation of this suggested action included constructing a diamond interchange

south of the PSE&G substation. Both of these actions were advanced for further consideration as potential “pieces” of a road-based alternative.

- D. Construct a frontage road system parallel and adjacent to Route 1 – The purpose of this suggested action would be to filter traffic on and off Route 1 to side streets and properties fronting on the highway, as well as to facilitate east-west travel across Route 1 if one or more of the Penns Neck area intersections were closed to cross traffic. Several variations of this action were suggested, including a 2-way frontage road system on the west side of Route 1 and a 1-way frontage road system on both sides of Route 1. This action was advanced for further consideration as a potential “piece” of a road-based alternative.
- E. Construct a connector road between Route 1 near Harrison Street and CR 571 – This suggested action would involve the construction of a new roadway from Route 1 in the vicinity of Harrison Street across the Sarnoff Corporation property to CR 571 in the vicinity of the NEC rail line. This new roadway would provide an alternative for traffic now traveling on Washington Road through the Penns Neck neighborhood. This action was advanced for further consideration as a potential “piece” of a road-based alternative.
- F. Construct a connector road from Route 1 west to Harrison Street - This suggested action would involve the construction of a new roadway from Route 1 in the vicinity of the Harrison Street intersection across the Princeton University property west of Route 1 to connect with existing Harrison Street in the vicinity of the Harrison Street crossing of the D&R Canal. This action was advanced for further consideration as a potential “piece” of a road-based alternative.
- G. Construct a connector road from Route 1 to Washington Road – This suggested action would involve the construction of a new north-south roadway from Route 1 in the vicinity of the Harrison Street intersection across Princeton University property to connect to existing Washington Road in the vicinity of the D&R Canal crossing. This action was advanced for further consideration as a potential “piece” of a road-based alternative.
- H. Construct a connector road from Washington Road to Alexander Road – This suggested action would involve the construction of a new north-south roadway across Princeton University property west of Route 1 to connect Washington Road with Alexander Road in the vicinity of Canal Pointe Boulevard. This action was advanced for further consideration as a potential “piece” of a road-based alternative.
- I. Construct a Vaughn Drive connector road – This suggested action would involve the construction of a new north-south roadway connecting Washington Road with existing Vaughn Drive and Alexander Road, in part through the Princeton Junction train station parking lots located west of the NEC rail line. This action was advanced for further consideration as a potential “piece” of a road-based alternative.
- J. Improve Route 1 at its existing grade and eliminate the Penns Neck area traffic signals – This suggested action would involve the widening of Route 1 to

include safety shoulders and the elimination of the Penns Neck area traffic signals, allowing only right turns to and from Route 1 at Washington Road, Fisher Place or Harrison Street. This action was advanced for further consideration as one of the action alternatives considered in the EIS.

- K. Construct an elevated roadway above Route 1 to accommodate express travel lanes – This suggested action would involve the construction of two or more elevated travel lanes above existing Route 1 to accommodate non-local traffic on express lanes. As suggested, this action would retain existing Route 1 travel lanes and designate them for local traffic. Given the magnitude of this action and the likely environmental and community impacts it would entail, this action was deemed inconsistent with the nature of the improvement contemplated as part of the EIS process. For this reason, it was eliminated from further consideration in the EIS.
- L. Interim improvements – Several interim improvement actions were suggested. These included the following:
- a. *Utilize Fisher Place for left turning vehicles at Washington Road* – This action was suggested to provide interim relief for congested conditions at the Penns Neck circle. It would involve requiring southbound Route 1 traffic destined for Washington Road eastbound to use the Fisher Place jug-handle, Fisher Place and Fairview Avenue to reach Washington Road. Given the residential character of Fisher Place and Fairview Avenue and the likely need to signalize the Washington Road/Fairview Avenue intersection to accommodate a significant increase in left turn movements from Fairview Avenue to Washington Road eastbound, this suggested action was eliminated from further consideration in the EIS.
 - b. *Re-stripe Washington Road eastbound for right turn lane* – This suggested action would involve extending the existing striping on Washington Road west of Route 1 to accommodate a designated right-turn lane in the eastbound direction approaching Route 1 to the point where the typical traffic queue begins. This suggested action will be investigated as a potential interim improvement outside of the EIS process.

2.2 Development of Action Alternatives – Process

As explained in Chapter 1, the Partners' Roundtable is a public advisory committee composed of approximately 32 individuals including area residents, elected officials, professionals, local/regional advocacy groups, and other stakeholders. The Partners' Roundtable and the general public played a pivotal role in suggesting and reviewing alternatives throughout the alternatives formulation process. Seven Roundtable meetings were devoted to defining the alternatives and 12 of the 18 alternatives originally advanced for further investigation were suggested by Roundtable members. As noted later in this section, in response to public input, a 19th alternative was added for consideration in February 2003.

Combining the "pieces"

The first step in the alternatives formulation process involved the review of individual road-based "pieces" or components of potential road-based actions (as discussed above). It was assumed that individual "pieces" could be "mixed and matched" to develop road-based alternatives for consideration in the EIS. Step two involved the Partners' Roundtable in a process of combining the pieces to form potential alternatives. Step three involved the review and discussion of the full array of road-based alternatives suggested by the Roundtable, other members of the public and participating agencies.

This review and discussion served two purposes. First, it provided the Roundtable and members of the public a full and complete opportunity to comment and raise issues of concern related to each of the alternatives. Second, the review provided useful insight on the issues of concern to the public. Throughout the alternative formulation process, Roundtable comments were boarded and an issues docket was created for consideration later in the alternatives analysis process.

The final step involved the combination of each road-based alternative with a proposed "Commute Options" package, which is described below (Section 2.4.1). This process resulted in the creation of 18 "action" alternatives that included both road improvements and concurrent investment in complementary strategies intended to enhance mobility for all modes of transportation in the Penns Neck area. These 18 action alternatives were subsequently advanced for further technical analysis in the EIS.

In April 2002, the 18 action alternatives were "bundled" into seven groupings to help organize consideration of the alternatives in the EIS. The seven groupings were based on the circulation function they provided, or similarity of characteristics. Detailed transportation and environmental analyses were then conducted on the alternatives in these seven groupings, with an emphasis on understanding and, to the extent feasible, quantifying the potential impacts of each component of the alternatives. The alternatives were then compared based on the data and findings of the technical analyses in relation to the project purpose and goals and objectives.

In February 2003, in response to public input and requests from members of the Partners' Roundtable, a new alternative was added. The addition of this alternative occurred after presentation of most of the data and analyses from the traffic and technical environmental studies, as well as the evaluation of additional traffic analyses conducted on several key components of the alternatives. With the inclusion of this additional alternative, a total of 19 action alternatives are considered and presented in the EIS.

2.3 Description of Alternatives

This section provides an overview of the No-Action Alternative and the 19 action alternatives considered in the EIS. As mentioned above, to make the examination of the alternatives more manageable for modeling and evaluation purposes, they are presented in seven groupings, lettered A-G. A narrative description and comparative matrix of the major components and distinguishing features of each alternative is presented below. In addition, this section includes maps and detailed descriptions of the physical and circulation characteristics of the 19 alternatives considered in the EIS. Finally, Section 2.4.1 includes a description of the proposed "Commute Options" package component of the action alternatives.

2.3.1 Major Components and Distinguishing Features

Route 1 at-grade

This component would maintain Route 1 at its existing grade in the Penns Neck area with three travel lanes in each direction and safety shoulders. Under some alternatives, Route 1 would remain on its existing alignment. In others, the alignment of Route 1 would shift slightly to the west. Under most alternatives, the Penns Neck area traffic signals would be removed. Finally, under all of the alternatives that include this component, the Route 1 bridge over the Millstone River would be replaced.

Route 1 in-a-cut

This component would place Route 1 below grade at Washington Road and shift its alignment slightly to the west. Washington Road would remain at its existing grade and remain open to east-west traffic. Route 1 would consist of three travel lanes in each direction, auxiliary lanes, as needed, and safety shoulders. In addition, the Route 1 bridge over the Millstone River would be replaced under all of the alternatives that include this component.

Frontage Roads

This component would include the construction of either two one-way frontage roads running parallel to Route 1 between Harrison Street and Washington Road on the east and west sides of Route 1, or one two-way frontage road running parallel to Route 1 on the west side. The frontage roads would collect traffic from the local roadway network and filter it onto the highway with Route 1 at-grade or in-a-cut.

East-side Connector (ESC) Road

This component would include the construction of a connector road east of Route 1 between CR 571 in Princeton Junction and a new grade-separated interchange on Route 1 located between Harrison Street and Fisher Place. The connector road would traverse the Sarnoff property. There are three potential ESC road alignments:

- **ESC 1** – This alignment would run along the northerly edge of the Sarnoff property adjacent to the Millstone River.
- **ESC 2** – This alignment would run parallel to but south of ESC 1 in the vicinity of the northerly circulation road included on the approved Sarnoff General Development Plan.
- **ESC 3** – This alignment would run along the southerly edge of the Sarnoff property in the vicinity of the southerly circulation road included on the approved Sarnoff General Development Plan. This alignment is adjacent to the Penns Neck neighborhood.

For the purpose of environmental and traffic analyses, the ESC road was analyzed as a 4-lane roadway that includes two 11-foot travel lanes in each direction, a 5-foot shoulder striped as a bicycle lane, and a 10-foot landscaped median. This cross-section represents a “worst-case” environmental footprint.

West-side Connector (WSC) Road

This component would include the construction of a connector road west of Route 1 between a new grade-separated interchange on Route 1 and Harrison Street, Washington Road or both. Some alternatives would also provide a connector road between Washington Road and Alexander Road on an alignment that connects with Canal Pointe Boulevard. All WSC roads would include one 11-foot travel lane with a 4-foot shoulder striped as a bicycle lane in each direction.

Vaughn Drive Connector (VDC) Road

This component would extend existing Vaughn Drive north from its current terminus in the Princeton Junction train station parking lot to Washington Road (County Route 571) in the vicinity of the NEC rail line bridge in Princeton Junction. The road would include one 11-foot travel lane and an eight-foot shoulder striped as a bicycle lane in each direction and a 10-foot landscaped median in some segments. There are three potential VDC road alignments:

- **VDC 1** - This easternmost alignment would parallel the NEC rail line and use the right-of-way of existing Station Drive and parking lot circulation roads. It would require a new at-grade crossing of the Dinky rail line or reconfiguration of the Princeton Junction/Dinky station operations.
- **VDC 2** – This alignment would be located just west of the Princeton Junction Train Station and would traverse a small office complex adjacent to Station Drive and station parking lots before connecting with existing Vaughn Drive.

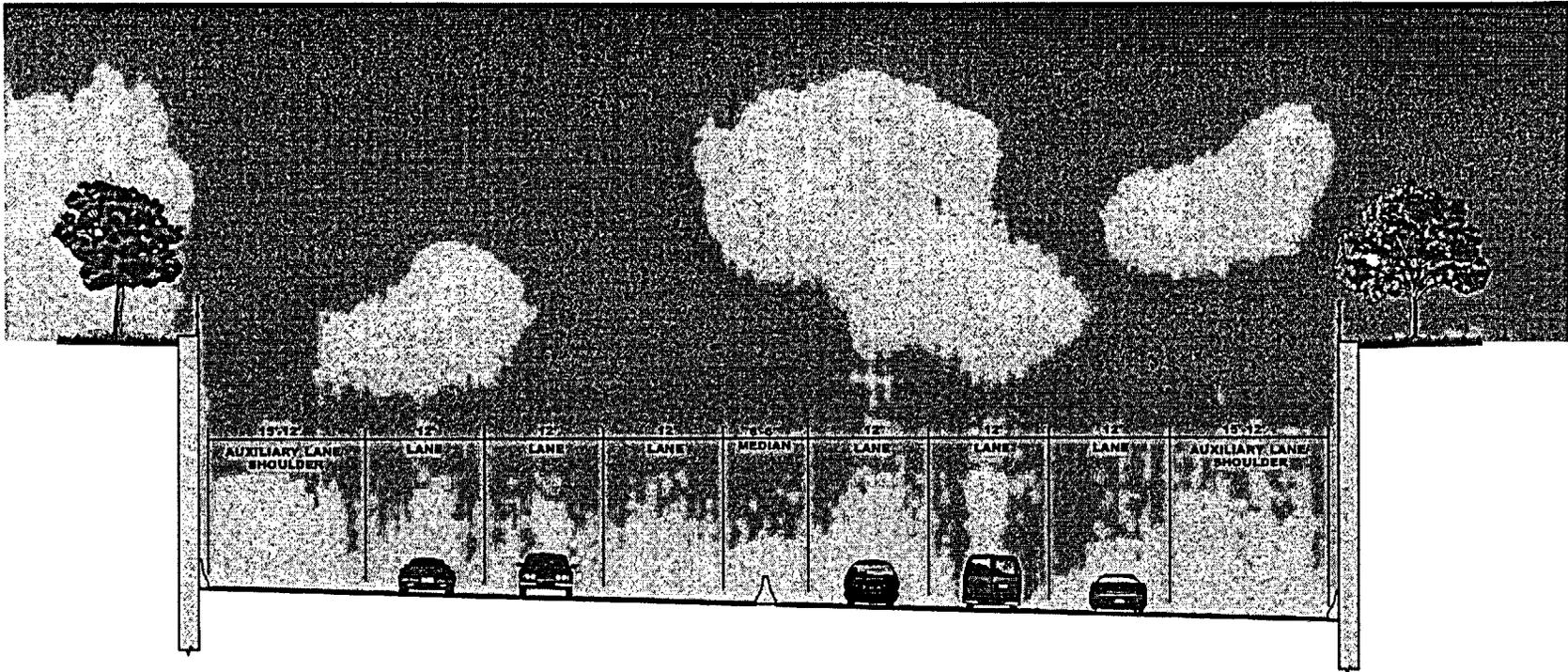
The alignment would utilize the existing at-grade crossing of the Dinky rail line, which connects station area parking lots.

- **VDC 3** – Located west of VDC 2, this alignment would use an existing driveway between two small office complexes and travels through station parking lots before connecting with existing Vaughn Drive. This alignment would utilize the existing at-grade crossing of the Dinky rail line, which connects station area parking lots.

This page intentionally left blank.

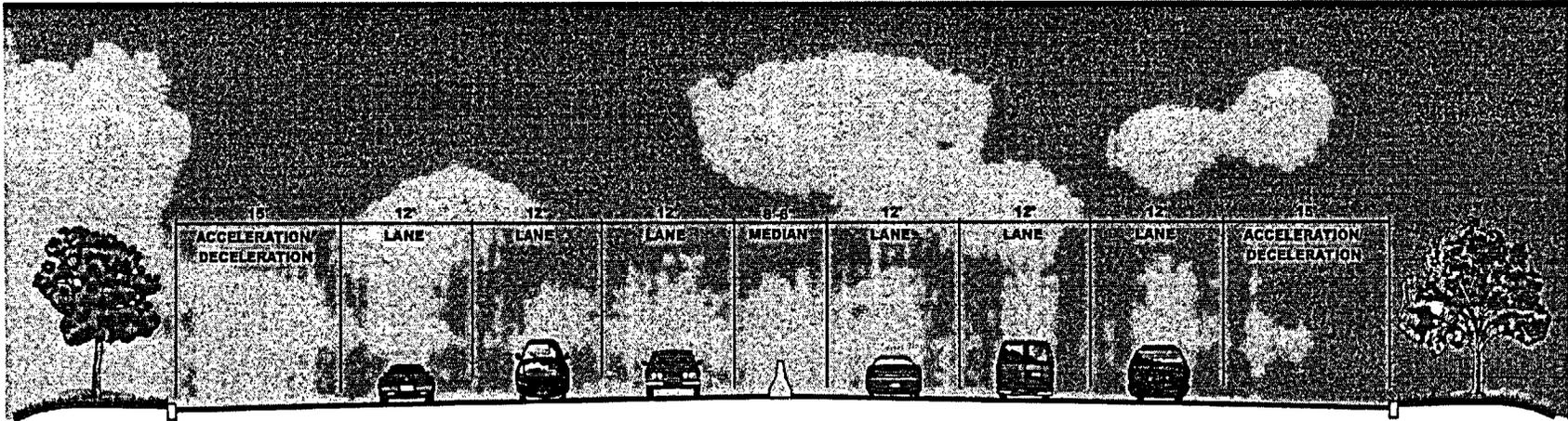


Figure 2-1: Typical Section – Route 1 in-a-cut



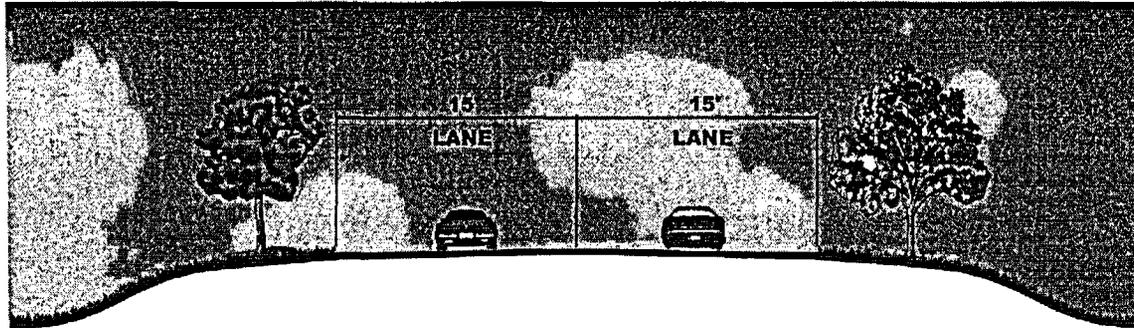
TYPICAL SECTION
ROUTE U.S. 1 CUT-SECTION

Figure 2-2: Typical Section – Route 1 at-grade

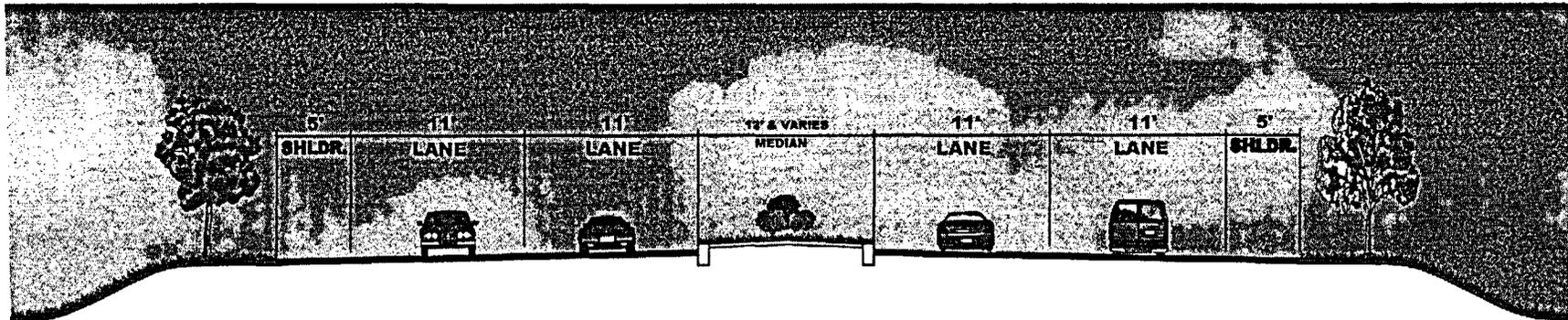


TYPICAL SECTION
ROUTE U.S. 1

Figure 2-3: Typical Sections – West-side Connector Road and East-side Connector Road

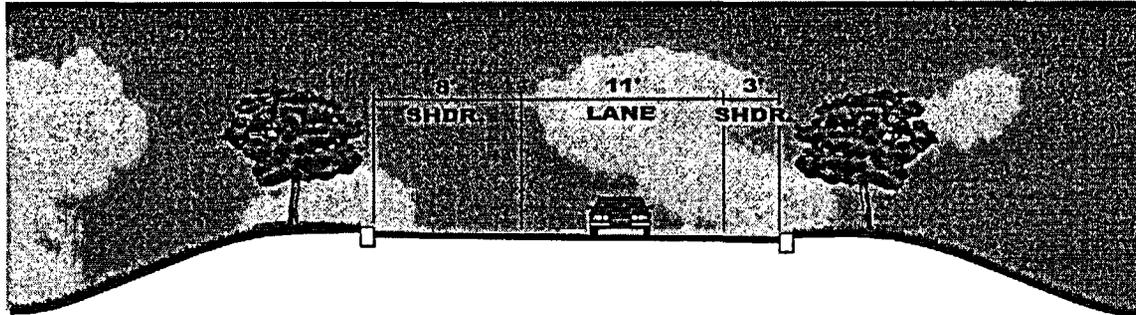


TYPICAL SECTION
WEST SIDE CONNECTOR ROAD (HARRISON ST)

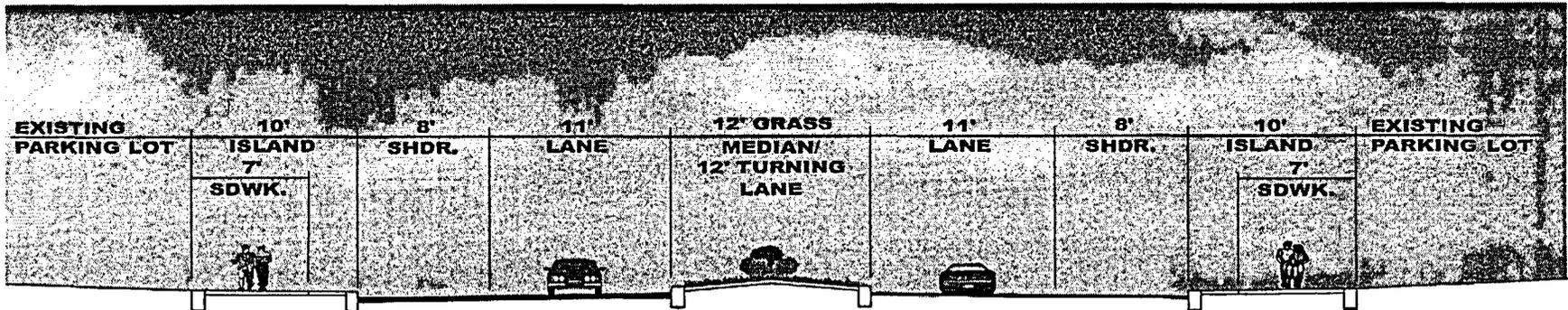


TYPICAL SECTION
EAST SIDE CONNECTOR ROAD (ROUTE 571)

Figure 2-4: Typical Sections – Frontage Road and Vaughn Drive Connector Road



TYPICAL SECTION
FRONTAGE ROAD



TYPICAL SECTION
VAUGHN DRIVE
(STATION ROAD)

2.3.2 No-Action Alternative

As required by NEPA, the Penns Neck Area EIS includes the investigation of a No-Action or “do nothing” alternative. It is included as the benchmark alternative against which all “action” alternatives are 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) FY2003-2005 Transportation Improvement Program (TIP);
- North Jersey Transportation Planning Authority (NJTPA) FY2002-2004 TIP;
- Middlesex County FY2002-2007 Capital Plan;
- Middlesex County FY2001-2005 Capital Transportation Plan (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. Figures 2-5, 2-6, and 2-7 present maps depicting the location of currently planned improvements. Appendix D provides a list and description of all projects included in future roadway network assumptions for the No-Action alternative.

Relationship to proposed Route 92

The future roadway network assumptions under the No-Action Alternative do not include proposed Route 92, a proposed 4 lane regional toll highway designed to connect NJ Turnpike Exit 8A with Route 1 in the vicinity of Ridge Road in South Brunswick Township, Middlesex County. The proposed Route 92/Route 1 interchange would be located north of the Penns Neck area in the vicinity of Ridge Road in South Brunswick Township. Presently, the U.S. Army Corps of Engineers is preparing a Draft Environmental Impact Statement on the proposed facility.

During the scoping phase of the Penns Neck Area EIS process, members of the public raised concerns regarding the potential traffic impacts of Route 92 on the Penns Neck area roadway network. In response to these concerns, traffic modeling was undertaken to determine what changes, if any, proposed Route 92 would have on traffic patterns in the Penns Neck area.

The Penns Neck Area EIS Travel Demand Forecasting Model, which is described in more detail in Chapter 4, was used to forecast year 2028 traffic with Route 92 in

place. The results of this forecast were compared with the 2028 No-Action Alternative to determine the traffic impacts of Route 92 on primary roadways in the EIS core study area.

This analysis indicated that Route 92 would have a minimal impact on Penns Neck area traffic patterns. Although there was significant increase in traffic on Route 1 north of Scudders Mill Road, the increase in traffic on Route 1 between Harrison Street and Washington Road was only one percent (approximately 1,000 vehicles daily). Moreover, traffic changes on Alexander Road, Washington Road and Harrison Street showed less than a two percent change in daily traffic.

Route 92 is projected to have a more significant effect on east-west routes in Plainsboro Township. The analysis indicated that just east of Route 1, daily traffic on Plainsboro Road and Scudders Mill Road would decrease approximately 8% and 1% respectively. Daily traffic on Scudders Mill Road and Plainsboro Road just west of Route 130 would decrease approximately 23%.

Figure 2-5 Future Roadway Network Assumptions Map 1 of 3

Projects to be Implemented by 2008

State Roads

- 1 - Route 1 at Nassau Park Blvd. / Quakerbridge Road
- 2 - Route 33 / Washington Township Bypass
- 3 - Route 206 Widening
- 4 - Hillsborough Bypass
- 5 - Route 206 / Hillsborough Bypass

County / Municipal Roads

South Brunswick:

- 16 - CR 522 (Route 27 to Route 130)
- 17 - CR 522 (Route 130 to Cranbury S. River Road)
- 18 - CR 522 (Monmouth Jct. to Georges Road)

Legend:

-  Intersection Improvements
-  Grade - Separate Interchange Improvement
-  Roadway Improvement - New Alignment
-  Roadway Improvement - Existing Alignment

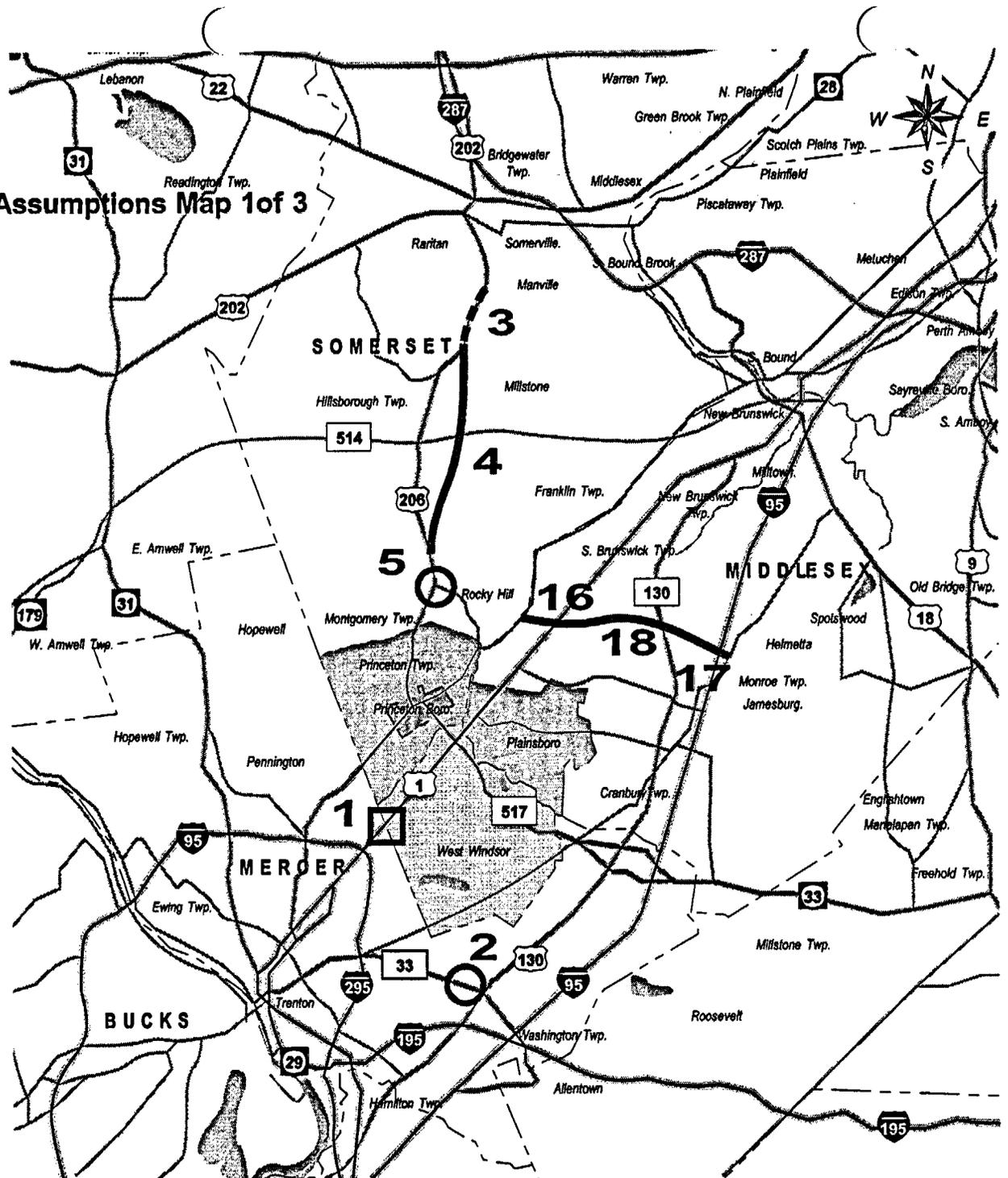


Figure 2-6 Future Roadway Network Assumptions Map 2 of 3

Projects to be Implemented by 2008

State Roads

- 1 - Route 1 Nassau Park Blvd. / Quakerbridge Road

County / Municipal Roads

West Windsor Township:

- 6 - New Meadow Road
- 7 - New Meadow Road / Carnegie Ctr. Connector
- 8 - New Meadow Road / Meadow Road (to Clarksville)
- 9 - Meadow Road / Bear Brook Road
- 10 - Bear Brook Road
- 11 - Alexander Road / N. Post Road (at bridge)
- 12 - Clarksville Road / Meadow Road
- 13 - Alexander Road / Vaughn Drive
- 14 - Alexander Road Railroad Bridge

Princeton Township:

- 15 - Princeton Twp. Roadway Improvements

Plainsboro Township:

- 19 - Mapleton Road (Route 1 to Kingston)
- 20 - Schalks Crossing / Scudders Mill Road
- 21 - Campus Road (Princeton Forrestral Center)
- 22 - Mapleton Road / Seminary Road
- 23 - Plainsboro Road / Enterprise Drive / Middlesex Blvd.
- 24 - Plainsboro Road / Walker Gordon Drive
- 25 - Plainsboro Road / Dey Road / Edgemere Ave.
- 26 - Scudders Mill Road / Dey Road

Legend:

- Intersection Improvements
- Grade - Separate Interchange Improvement
- Roadway Improvement - New Alignment
- - - - - Roadway Improvement - Existing Alignment

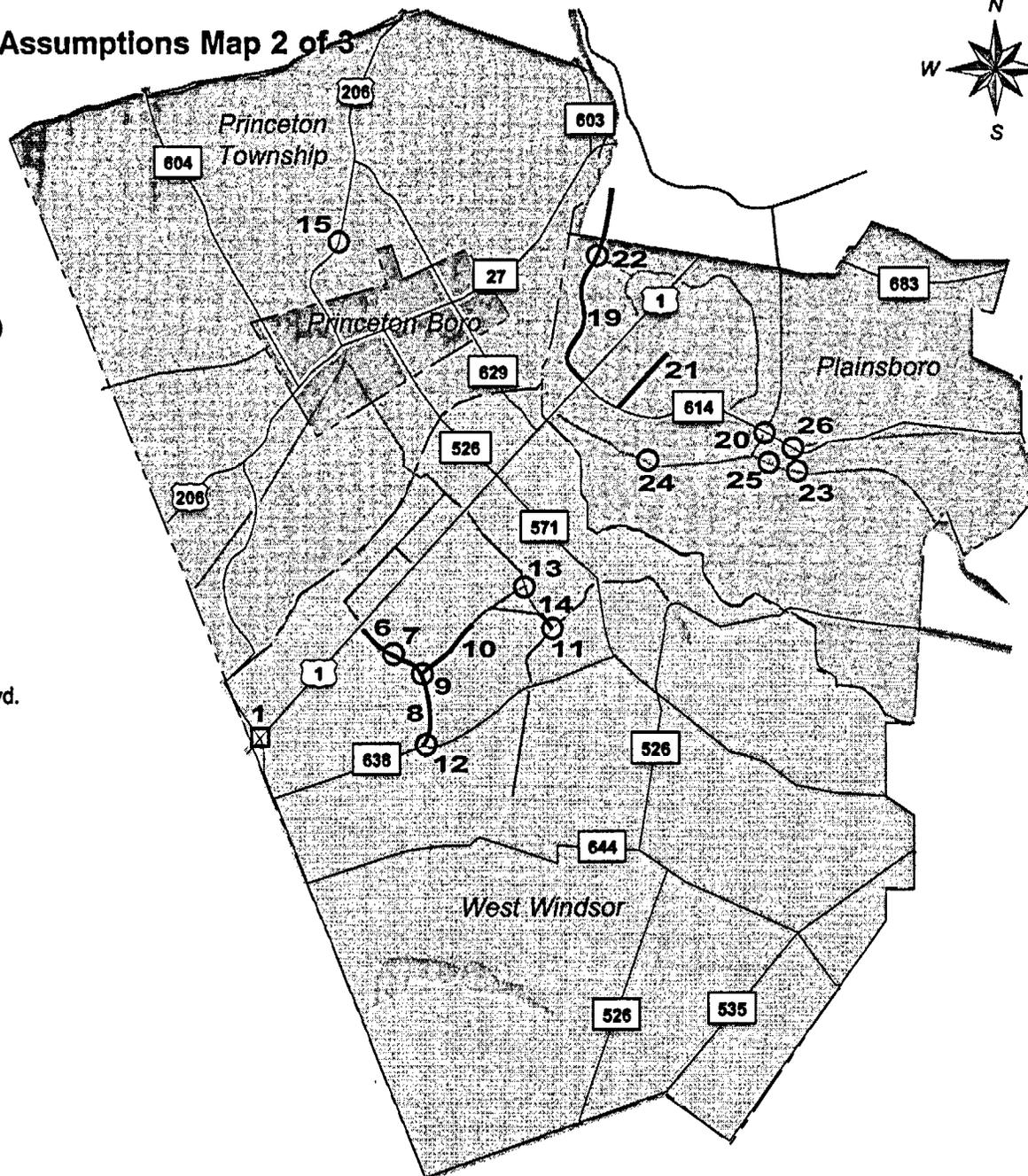


Figure 2-7 Future Roadway Network Assumptions Map 3 of 3

Projects to be Implemented between 2008 and 2028

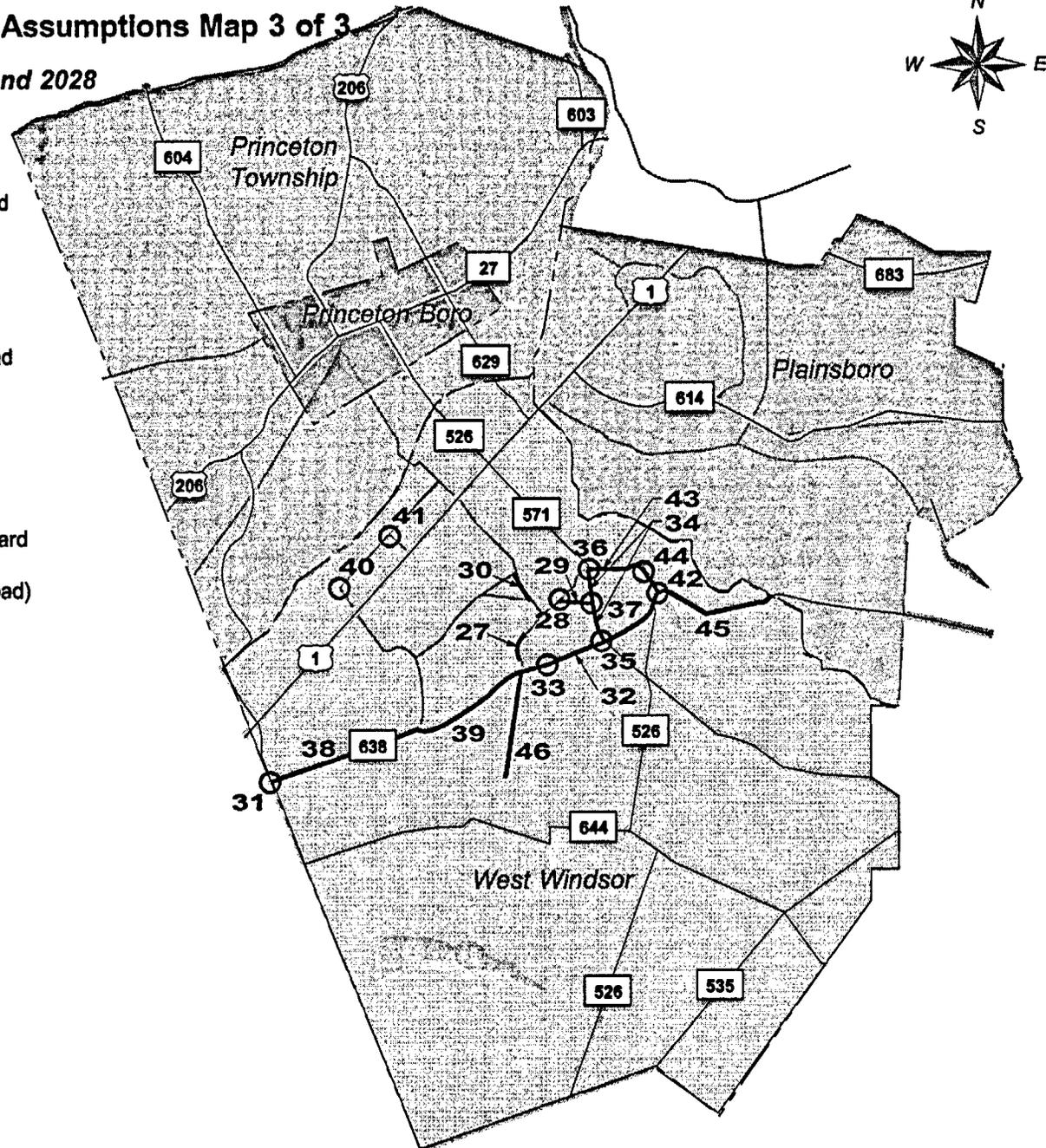
County / Municipal Roads

West Windsor Township:

- 27 - North Post Road at Curve
- 28 - Alexander Road / North Post Road / Wallace Road
- 29 - Alexander Road (East of Railroad)
- 30 - Alexander Road (West of Railroad)
- 31 - Clarksville Road / Quakerbridge Road
- 32 - Clarksville Road (North of North Post Road)
- 33 - Clarksville Road / Penn Lyle Road
- 34 - Route 571 - Clarksville to Wallace / Cranbury Road
- 35 - Route 571 / Clarksville Road
- 36 - Route 571 / Cranbury Neck Road
- 37 - Route 571 / Alexander Road
- 38 - Clarksville Road (Quakerbridge to Meadow Road)
- 39 - Clarksville Road (Meadow to North Post Road)
- 40 - Meadow Road / Canal Pointe Boulevard
- 41 - Carnegie Center Boulevard / Canal Pointe Boulevard
- 42 - Clarksville Road / Cranbury Neck Road
- 43 - Cranbury Neck Road (Route 571 to Clarksville Road)
- 44 - Cranbury Neck Road / Millstone Road
- 45 - Cranbury Neck Road (East of Clarksville Road)
- 46 - North Post Road (South of Clarksville Road)

Legend:

- Intersection Improvements
- Grade - Separate Interchange Improvement
- Roadway Improvement - New Alignment
- - - - - Roadway Improvement - Existing Alignment



2.3.3 Action Alternatives

The following table comparing the major components of each alternatives was prepared as a quick reference guide to the action alternatives investigated in the EIS. Following the table are narrative descriptions of each alternative, including details regarding access to and from Route 1.

This page intentionally left blank.



**Table 2-1
Components of Alternatives**

	Route 1 in-a-cut	Route 1 at-grade	Eastern frontage road	Western frontage road	East-side connector road	West-side connector road	West-side connector road to Harrison St (Direct)	West-side connector road to Harrison St (Indirect)	West-side connector road to Washington Rd	Loop-type interchange between Alex. Rd and Washington Rd	Diamond interchange (vicinity of Harrison)	Diamond interchange (vicinity of Harrison)	Vaughn Drive connector road
Alternative A	■				ESC1	■				■			■
A.1	■		■	■	ESC1	■				■			■
A.2	■			■	ESC1	■				■			■
A.3	■		■	■	ESC1	■					■		■
A.4	■		■	■	ESC1	■				■			■
Alternative B		■			ESC1		■	■		■			
B.1		■			ESC1		■	■		■			■
B.2		■			ESC1		■	■	■	■			■
Alternative C		■		2-way			■		■		■		■
C.1		■		2-way			■				■		■
Alternative D	■		■	■	ESC2	■				■			■
D.1	■		■	■	ESC2		■				■		■
D.2	■		■	■		■					■		■
Alternative E	■		■	■	ESC3		■					■	■
Alternative F	■				ESC1	■				■			■
F.1	■		■	■	ESC1	■				■			■
Alternative G		■											■
G.1		■											■
G.2		■											

Key: 2-way – frontage road accommodates two-way traffic.

ESC1 – northern alignment of the east-side connector road adjacent to Millstone River

ESC2 – central alignment of the east-side connector road

ESC3 – southern alignment of the east-side connector road adjacent to Penns Neck neighborhood

A. Action Alternatives (A, A.1, A.2, A.3, A.4)

All of the A-series alternatives would place Route 1 in a cut, which shifts the alignment of Route 1 slightly to the west, and most provide frontage roads. In addition, all would provide a new grade-separated interchange in the vicinity of Harrison Street, and an east-side connector road at the northern edge of the Sarnoff property along the Millstone River (ESC1), and a Harrison Street connector road west of Route 1 between the D&R Canal and Route 1. The primary differences between the A alternatives involves the presence and design of frontage roads and interchanges. These differences would affect access between Route 1 and Washington Road, but have no effect on the direct access provided to and from Route 1 at Harrison Street. The A alternatives all include a Vaughn Drive connector road.

Route 1 Access at Harrison Street

All A alternatives would provide direct access to and from Route 1 through either loop (A, A.1, and A.2) or diamond (A.3 and A.4) interchanges in the vicinity of Harrison Street.

Route 1 Access at Washington Road

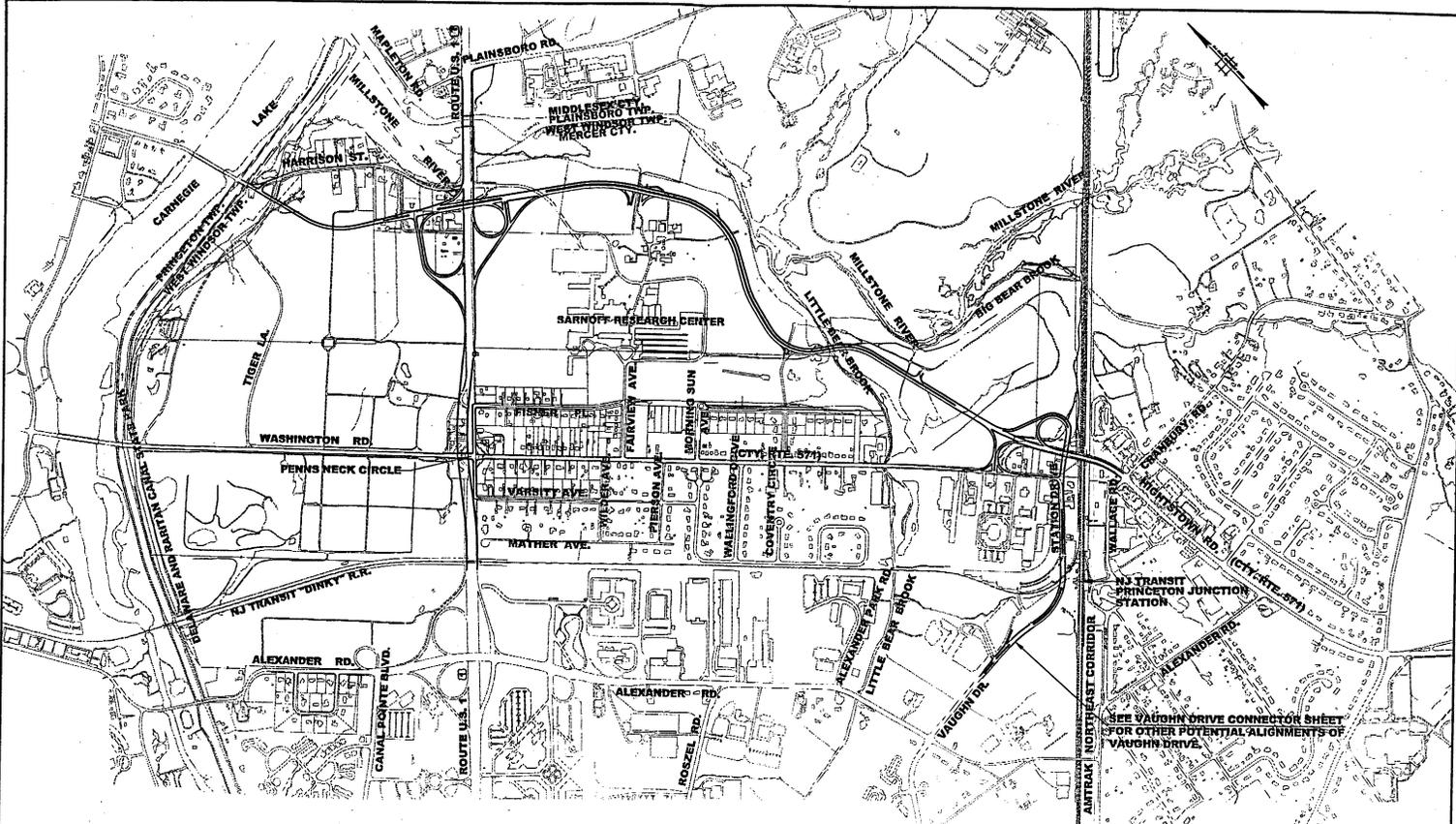
A – would remove all access between Washington Road and Route 1. There are no frontage roads.

A.1, A.2 and A.3 – would provide direct access from Washington Road to Route 1 southbound; access from Route 1 northbound and southbound to Washington Road and to Route 1 northbound from Washington Road would be provided via frontage road connections to the Harrison Street interchange.

A.4 – would provide direct access from Route 1 northbound to Washington Road and to Route 1 southbound from Washington Road; access would be provided from Route 1 southbound to Washington Road and to Route 1 northbound from Washington Road via frontage road connections to the Harrison Street interchange.

This page intentionally left blank.





LEGEND:

- PROPOSED IMPROVEMENTS
- - - EXISTING CONDITIONS

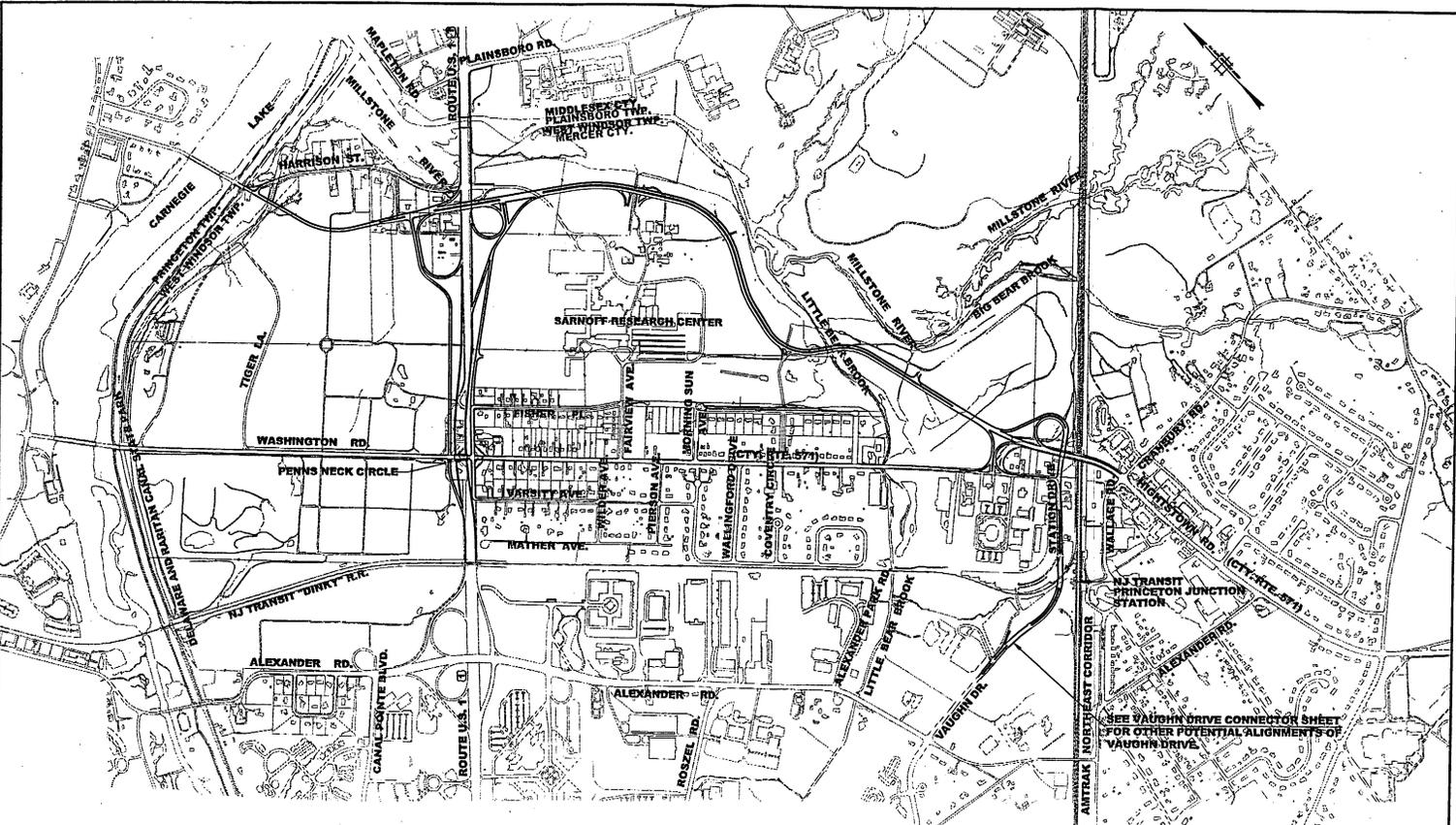
NEW JERSEY DEPARTMENT OF TRANSPORTATION
 PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACTION A1 FERNALDIVE A

DATE: NOV. 2002
 SCALE: 1"=1000'

FIGURE 2-8

SEE VAUGHN DRIVE CONNECTOR SHEET
 FOR OTHER POTENTIAL ALIGNMENTS OF
 VAUGHN DRIVE

DATE: 10/1/02 - 10:14 A. 2-37



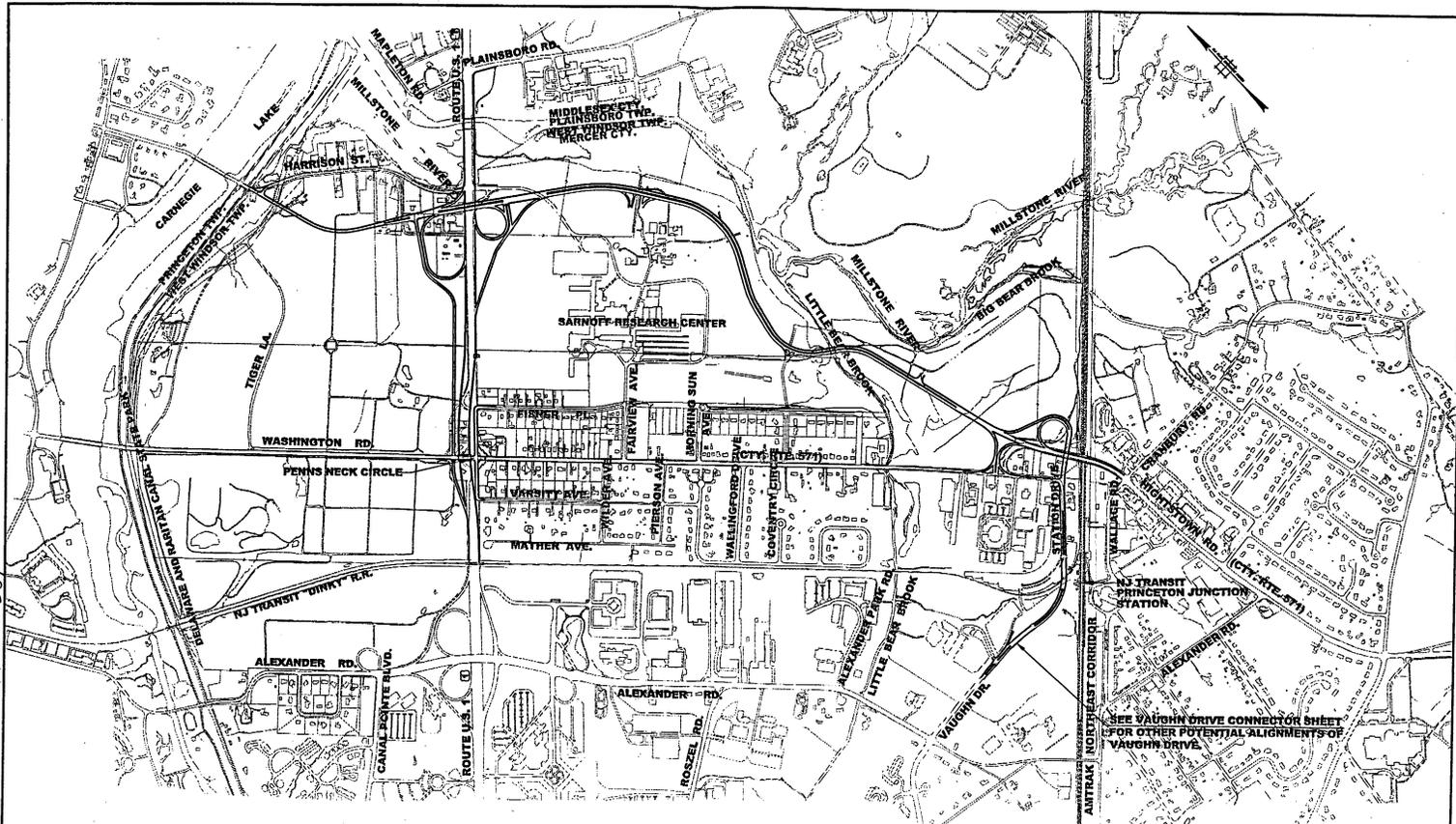
LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

SEE VAUGHN DRIVE CONNECTOR SHEET FOR OTHER POTENTIAL ALIGNMENTS OF VAUGHN DRIVE

NEW JERSEY DEPARTMENT OF TRANSPORTATION
 PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACTION ALTERNATIVE A.1

DATE: NOV. 2002
 SCALE: 1"=1000'
 FIGURE 2-9



LEGEND:

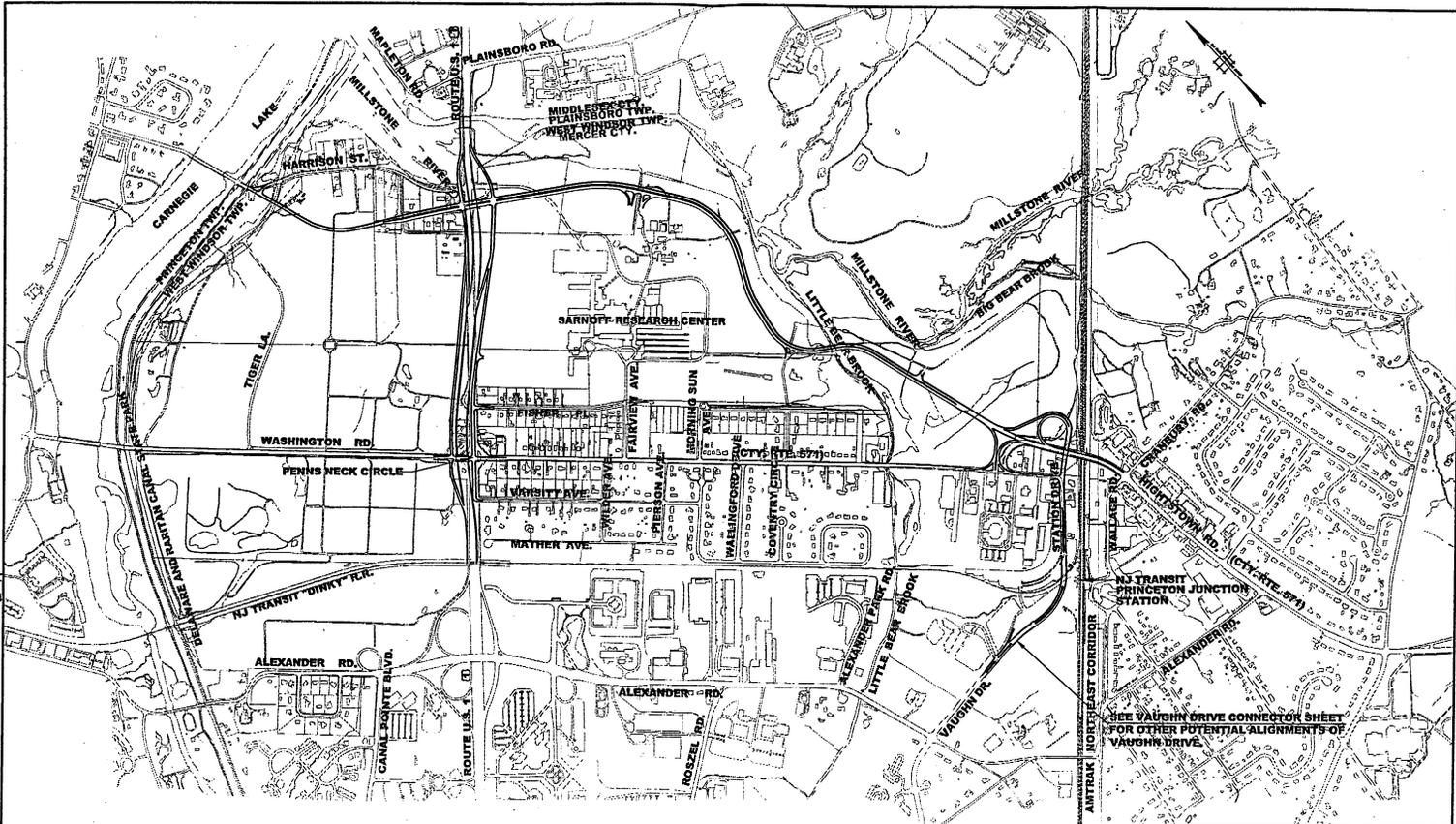
- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

SEE VAUGHN DRIVE CONNECTOR SHEET FOR OTHER POTENTIAL ALIGNMENTS OF VAUGHN DRIVE

NEW JERSEY DEPARTMENT OF TRANSPORTATION
 PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACTION ALTERNATIVE A.2

DATE: NOV. 2002
 SCALE: 1"=1000'

FIGURE 2-10



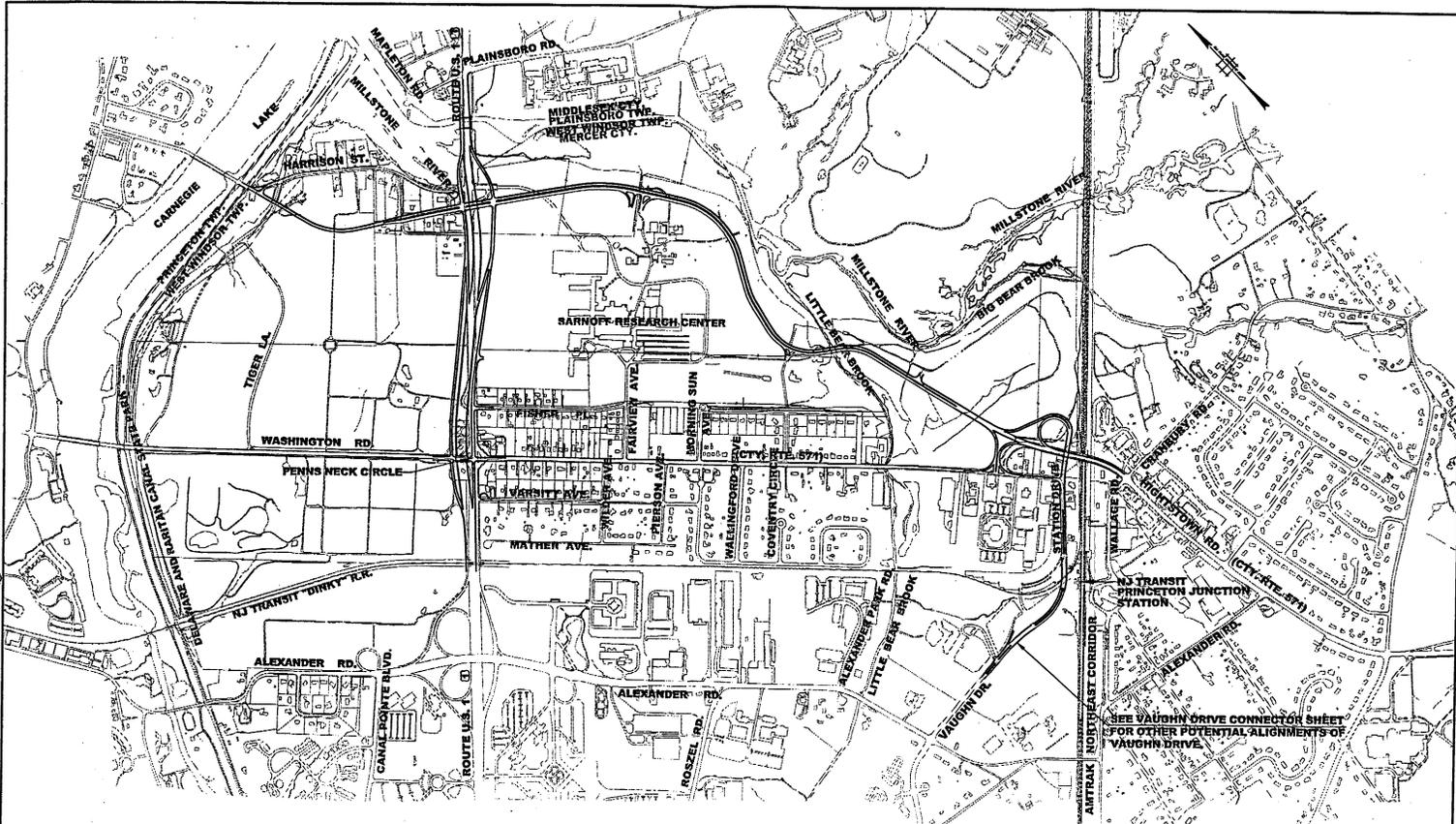
LEGEND:

- PROPOSED IMPROVEMENTS
- - - - - EXISTING CONDITIONS

NEW JERSEY DEPARTMENT OF TRANSPORTATION
 PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACTION ALTERNATIVE A.3

DATE: NOV. 2002
 SCALE: 1"=1000'

FIGURE 2-11



LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

NEW JERSEY DEPARTMENT OF TRANSPORTATION
 PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACTION ALTERNATIVE A.4

DATE: NOV. 2002
 SCALE: 1"=1000'

FIGURE 2-12

B. Action Alternatives (B, B.1, B.2)

The B-series alternatives are similar to the former preferred alignment for the "Millstone Bypass." Route 1 would remain at-grade on its existing alignment and the traffic signals at Washington Road, Fisher Place and Harrison Street would be removed and replaced with a grade-separated loop interchange in the vicinity of Harrison Street. East-west access across Route 1 at Washington Road would be eliminated. The B alternatives do not include frontage roads between Harrison Street and Washington Road. Instead, B and B.1 would connect Harrison Street to Washington Road with a west-side connector road across Princeton University property in the vicinity of the Delaware and Raritan (D&R) Canal. In B.2, a similar connector road between Harrison Street and Washington Road would be aligned further to the east and extend south to Alexander Road. All B alternatives include an east-side connector road (ESC1). Alternative B does not include a Vaughn Drive connector road, but B.1 and B.2 do.

Route 1 Access at Harrison Street

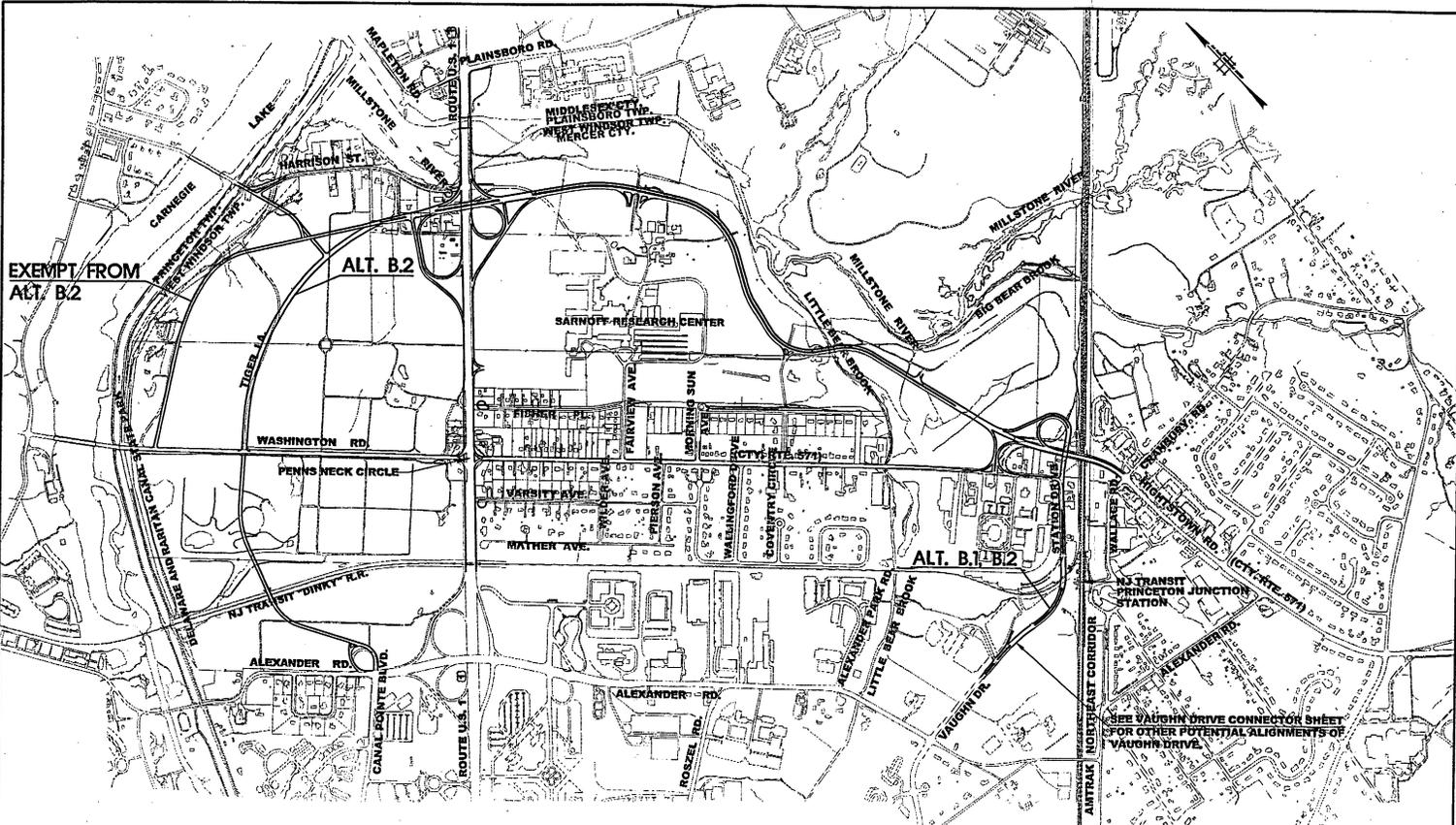
All B alternatives would provide access to Harrison Street via the west-side connector road and the Harrison Street interchange.

Route 1 Access at Washington Road

All B alternatives would remove the traffic signals at the Route 1 and Washington Road intersection and limit access to and from Route 1 at Washington Road to right-turn movements.

This page intentionally left blank.





LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

SEE VAUGHN DRIVE CONNECTOR SHEET FOR OTHER POTENTIAL ALIGNMENTS OF VAUGHN DRIVE

NEW JERSEY DEPARTMENT OF TRANSPORTATION
 PENNS NECK AREA
 ENVIRONMENTAL IMPACT STATEMENT
 ACTION ALTERNATIVE B, B.1, B.2

DATE: NOV. 2002
 SCALE: 1"=1000'

FIGURE 12-13

C. Action Alternatives (C, C.1)

The C alternatives would maintain Route 1 at-grade, shift the alignment of Route 1 slightly to the west, and remove the traffic signals at Washington Road, Fisher Place, and Harrison Street. The C alternatives include a diamond interchange in the vicinity of Harrison Street and a 2-way frontage road running parallel to Route 1 on the west side, between Washington Road and Harrison Street. Alternative C also includes a west-side connector road between Alexander and Washington Roads, while C.1 does not. Neither includes an east-side connector road, but both include a Vaughn Drive connector road.

Route 1 Access at Harrison Street

Alternative C would allow direct access to Harrison Street from Route 1 southbound; however, access to Route 1 southbound would only be available at Washington Road, via the frontage road. Indirect access to and from Route 1 northbound would be available by means of the frontage road and the Harrison Street interchange.

Route 1 Access at Washington Road

Direct access to Route 1 northbound from Washington Road westbound and from Route 1 northbound to Washington Road east of Route 1 would be permitted by right turns. Access from Washington Road west of Route 1 to northbound Route 1 would be available via the frontage road and the Harrison Street interchange. Access from Route 1 northbound to Washington Road westbound would be via Route 1 north to the Harrison Street interchange and southbound via the frontage road. Direct access to Route 1 southbound from Washington Road west of Route 1 would be permitted via an entrance ramp. Access to Route 1 southbound from the east side of Washington Road would be provided by using Route 1 northbound to make a U-turn at the Harrison Street interchange.

This page intentionally left blank.

