4.4 Socioeconomics and Land Use

4.4.1 Demographics

The following discussion of demographics has been extracted from the report entitled, *Local Area Land Use Inventory and Forecast, Penns Neck Area Local Traffic Forecast Model* (Urbitran, July 2002).

The PSA has experienced rapid population and employment growth over the last two decades and there is good reason to anticipate that this growth will continue. One of the significant factors that will continue to propel this trend is the availability of vacant land with appropriate zoning and with planning approvals already in place. Virtually all significant non-residential properties in the PSA have some form of General Development Plan (GDP) approval, site plan approval, or are actively involved in obtaining the necessary approvals.

Future development is categorized into two growth types:

"Committed development" is that for which the developer is known, the property has an approval in place, or is actively pursuing approvals and they can be assumed to be forthcoming. As a starting point, for these properties it can be assumed that within a 20- to 30-year time frame the project will be built.

"Uncommitted development" does not have approvals in place and often does not have a known, active developer. The municipality may be resisting development of the property, or plans for the property have not been determined. Development within the 20- to 30-year time frame is less defined but still probable.

No specific time frame is attached to the Committed and Uncommitted totals; instead they reflect known development conditions that could potentially occur. Committed development is likely to occur within a 20-year time frame or so, because the developments that comprise it have approvals in place and are actively being marketed. The Uncommitted development could take longer – or it could happen more quickly because of development and marketing conditions. In any event the combination of existing, Committed, and Uncommitted development represents close to a full-build land use condition. Under-developed properties and small vacant properties are likely not reflected in the databases and therefore are missing from what would otherwise be a full-build condition.

The growth totals shown in Table 4-7 have been developed for the PSA from the land use inventories.

Table 4-7
Anticipated Municipal Growth Potentials

	2001	Committed Growth	Uncommitted Growth	Total	Change
HOUSEHOLDS: Plainsboro Township	9,438	455	--	9,893	+5%
Princeton Borough	3,465	37	--	3,502	+1%
Princeton Township	6,018	83	5	6,106	1%
West Windsor Township	2,443	2,838	707	10,988	+48%
PSA TOTAL	**26,364**	**3,413**	**712**	**30,489**	**+17%**
POPULATION: Plainsboro Township	21,865	1,205	--	23,070	+6%
Princeton Borough	15,054	83	--	15,137	+1%
Princeton Township	16,947	186	10	17,143	+1%
West Windsor Township	22,911	5,949	1,483	30,343	+32%
PSA TOTAL	**76,777**	**7,423**	**1,493**	**85,693**	**+12%**
EMPLOYMENT: Plainsboro Township	27,266	22,174	650	50,090	+84%
Princeton Borough	5,561	205	--	5,766	+4%
Princeton Township	5,854	1,180	649	7,683	+31%
West Windsor Township	18,991	22,646	20,242	61,879	+226%
PSA TOTAL	**57,672**	**46,205**	**21,541**	**125,418**	**+117%**

Population and household growth in the PSA will be quite modest. Altogether households could potentially increase by as much as 17 percent, with the highest growth concentrated in West Windsor Township. Potential population growth will be less, about 12 percent. This reduced rate is due to the preponderance of senior and multi-family housing in the future growth, both of which have a smaller household size than the current average.

Non-residential development, by contrast, has the potential to more than double the employment of the PSA. The overall number of jobs could increase by about 117 percent, from 57,672 in 2001 to potentially 125,418 with both Committed and Uncommitted growth. About two thirds of the area's job growth could occur in West Windsor Township. There is sufficient zoned land available in that municipality that employment is likely to more than triple in West Windsor.

The pace of job growth in the Route 1 corridor has historically been fast due to the influence of Princeton University and the so-called "Princeton Zip" phenomenon. In 1975 there were 19,760 jobs in the PSA[1], and that total grew quickly to 29,786 jobs by 1980[2]. As evidenced by NJDOL employment estimates in the two decades since 1980, employment in the 4-municipality PSA has grown steadily and consistently. Currently (2001) there are 57,672 jobs in the PSA, a three-fold increase in the 26 years since 1975. This trend is illustrated in Figure 3-18.

[1] I-95/I-695 Environmental Studies, Economic Impacts Technical Support Document, New Jersey Department of Transportation, 1978

[2] Route 1 Corridor Transportation Study, Technical Report, New Jersey Department of Transportation, 1986

By extrapolating that growth on a straight-line basis to the year 2028, it can be expected that there will be about 97,000 jobs in the PSA, an increase of about 39,400 jobs or 68 percent from 2001. This trended growth in jobs is similar to what would occur if the Committed development described above were to occur by 2028. The Committed growth total of 46,200 jobs is a clear indication that there is ample developable land to support continuation of the historic trend.

By contrast, adding in the Uncommitted development would produce an additional 21,500 jobs in the area. Figure 4-18 shows that the combination of Committed and Uncommitted growth is substantially higher than would be achieved by the simple trend line.

The experience in the Route 1 corridor has been that development is affected by economic and market conditions, and that there have been lengthy periods of sluggishness offset by other periods of fast growth. It is reasonable to anticipate that on an overall basis the next 27 years (2001 to 2028) will be similar to the past 26 years (1975 to 2001). Therefore it is suggested that the trended growth level is a reasonable estimate of future employment growth in the PSA.

Because the composite of Committed and Uncommitted growth results in a spread of development across the entire PSA, it is also suggested that the sum of Committed and Uncommitted growth be allocated to the trend total. This will result in some level of development on major sites that have been designated as Uncommitted (i.e. Wyeth / Cyanamid) and that would not show any development activity if Uncommitted growth were ignored. Table 4-8 shows the resulting job growth that will occur if Committed and Uncommitted development are allocated together to the trended total. Also indicated are employment levels for the intermediate years (2008 and 2018) assuming a straight-line interpolation.

Table 4-8
PSA Job Growth

	2008	2018	2028
Portion of Development	15%	37%	58%
Committed Growth	6,962	16,907	26,852
Uncommitted Growth	3,245	7,882	12,518
Total Growth	10,207	24,789	39,370
Total Employment	67,879	82,461	97,042
Change from 2001	+18%	+43%	+68%

This allocation process estimates that about 58 percent of potential Committed and Uncommitted growth is likely to occur by 2028. For example, of the 7.6 million square feet of office remaining to be developed at Princeton Forrestal Center, about 4.4 million would be complete by 2028 according to this formula. At Sarnoff, about 1.3 million of the 2.2 million total square feet would be complete by 2028. And at Wyeth (Cyanamid) about 2.6 million of the 4.4 million square foot total would be complete by 2028. Overall, it is estimated that employment will increase by about

68% from 2001 to 2028 in the PSA. The remaining 28,400 jobs identified by the Committed and Uncommitted growth – equivalent to an additional 49% growth -- will occur sometime after 2028.

With respect to population and household growth, it is clear that the rate of job growth described above (68%) will far exceed the total Committed and Uncommitted population growth of 12%. Consequently the available labor force within the PSA will be insufficient to supply even a part of the new job demand. It is suggested, therefore, that these pressures of high job growth and limited labor force will pressurize the housing market within the PSA. As a result it is estimated that all of the Committed and Uncommitted population and household development will occur by 2028. The resulting population and job growth for the PSA is summarized in Table 4-9.

In Table 4-10, the same household, population, and job growth is shown disaggregated to each of the four towns. Over the 27-year forecast period, West Windsor will surpass Plainsboro as having the highest employment of the four towns. West Windsor employment is expected to increase from 18,991 jobs in 2001 to about 43,900 jobs in 2028, an increase of 131 percent. During the same period Plainsboro's employment will increase from 27,266 to about 40,530 jobs, or 49 percent.

Table 4-9
PSA Population and Employment Growth

	2001	2008	2018	2028
Households	26,364	27,434	28,960	30,489
Change from 2001		+4%	+10%	+16%
Population	76,777	79,089	82,390	85,693
Change from 2001		+3%	+7%	+12%
Employment	57,672	67,880	82,460	97,042
Change from 2001		+18%	+43%	+68%

West Windsor will also have the highest population growth, increasing from 22,911 to about 30,340 persons from 2001 to 2028 (Table 4-10). This is an increase of about 32 percent. Plainsboro and the Princetons will experience considerably less population growth; total population in those three towns will increase from 53,866 to about 55,350 persons, an increase of only about 3 percent.

Table 4-10
Municipal Population and Employment Growth

	2001	2008	2018	2028
Households:				
Plainsboro Township	9,438	9,556	9,724	9,893
Princeton Borough	3,465	3,475	3,488	3,502
Princeton Township	6,018	6,041	6,073	6,106
West Windsor Township	7,443	8,362	9,675	10,988
PSA Total	**26,364**	**27,434**	**28,960**	**30,489**
Population:				
Plainsboro Township	21,865	22,177	22,624	23,070
Princeton Borough	15,054	15,076	15,106	15,137
Princeton Township	16,947	16,998	17,070	17,143
West Windsor Township	22,911	24,838	27,590	30,343
PSA Total	**76,777**	**79,089**	**82,390**	**85,693**
Employment:				
Plainsboro Township	27,266	30,705	35,617	40,530
Princeton Borough	5,561	5,592	5,636	5,680
Princeton Township	5,854	6,130	6,523	6,917
West Windsor Township	18,991	25,453	34,684	43,915
PSA Total	**57,672**	**67,880**	**82,460**	**97,042**

4.4.1.1 Action and No-Action Alternatives, Demographics

The Action and No-Action Alternatives would have no impact on local area demographic forecasts. As indicated in the foregoing discussion, development is expected to occur irrespective of the alternative selected as a result of this EIS. As further indicated in Section 4.1, the capability of the Action and No-Action Alternatives to accommodate the traffic that will accompany the expected development varies.

4.4.2 Environmental Justice

Analyses of the potential for impacts on minority and low-income communities due to the Action and No-Action Alternatives were conducted to adhere to several federal orders that amplify Title VI of the Civil Rights Act of 1964 by providing protections on the basis of income as well as race. Executive Order (EO) 12898, issued in 1994, requires "each Federal agency [to] make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority population and low-income population...."[3] The Department of Transportation (DOT) published its Final Order in 1997, setting forth a process by

[3] Adverse impacts to minority and/or low-income persons are considered "high and disproportionate" if: (a) the adverse impact is predominantly borne by a minority population and/or the adverse effects on a low-income population are more severe or greater in magnitude than the adverse impact that would be imposed on the non-minority population and/or non-low-income persons. The Final US DOT Order directs government agencies to determine disproportionate impact, taking into account mitigation, enhancement measures, and all off-setting benefits to the affected populations, as well as the design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non-low-income areas.

which DOT and its operating administration would integrate the goals of EO 12898 with its existing regulation and guidance. The Final US DOT Order defines key terms and provides guidance for identifying and addressing disproportionately high adverse impacts to low-income and minority populations. Additional directive for implementing EO 12898 within the context of the NEPA process is provided by the Council on Environmental Quality (CEQ) in Environmental Justice Guidance under the National Environmental Policy Act.

These federal orders and directives require considering social, economic, and environmental factors in the evaluation of proposed project actions. Therefore, the potential for direct and indirect impacts on minority and low-income populations was evaluated for the Action and No-Action Alternatives. Year 2000 U.S. Census Bureau socioeconomic data were used to determine if impacted areas contain proportions of minority and/or low-income persons that are significantly greater than the proportion of minority and/or low-income persons in the study area communities.

Minority Persons

A minority person is defined as an individual of Black (not of Hispanic origin), Hispanic, Asian, Native American, and Other origins. According to the Final US DOT Order, a minority population means any readily identifiable groups of minority persons that live in geographic proximity. CEQ guidelines state that minority population should be identified where either (a) the minority population of the affected area exceeds fifty percent, or (b) the minority population percentage of the affected area is measurably greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. Information on race and ethnicity was analyzed at the Census block group level using the 2000 U.S. Census population and housing data. The block group level was chosen as the unit of analysis to maintain consistency with analyses of the study area's low-income population.

Racial and ethnic minorities in the PSA and SSA comprised 31.5 percent and 27.3 percent, respectively. These were lower percentages than New Jersey's 34 percent, Mercer County's 35.8 percent, and Middlesex County's 38.1 percent. Within the PSA, Plainsboro had a higher percentage of minority persons than the state and study area counties, at 44.5 percent. In the PSA and SSA, Asian and Pacific Islander was the largest concentration of minorities, followed by African Americans and Hispanics.

Low-Income Persons

The Final US DOT Order defines low-income persons as those whose median household income is below the United States Department of Health and Humans Services poverty guidelines. CEQ Guidelines use the Bureau of the Census definition that identifies low-income populations with the annual statistical poverty thresholds. This federal definition of poverty level varies by the number of related children under 18 years and family size. Average poverty thresholds in 1999 ranged from $8,501 for one person to $34,417 for households with nine or more family members. This

environmental justice analysis used the 2000 U.S. Census population and housing data at the block group level.

4.4.2.1 Project Effect Discussion, Environmental Justice

The Census Tract boundaries are shown graphically in Figure 4-18. Table 4-11 summarizes the findings of the Census Tract research.

Racial and ethnic minorities in the PSA and SSA comprise 31.5 percent and 27.3 percent, respectively. These are lower percentages than New Jersey's 34 percent, Mercer County's 35.8 percent, and Middlesex County's 38.1 percent. Within the PSA, Plainsboro had a higher percentage of minority persons than the state and study area counties, at 44.5 percent. In the PSA and SSA, Asian/Pacific Islander was the largest category of minority, followed by African Americans and Hispanics.

The minority and low-income populations represented in the following Census Block Groups are comparable to or lower than the minority or low-income population in the PSA municipalities:

- Census Tract 43.01 – Block Group 1 (West Windsor Township);
- Census Tract 43.01 – Block Group 9 (West Windsor Township);
- Census Tract 43.07 – Block Group 1 (West Windsor Township); and
- Census Tract 42.04 – Block Group 4 (Princeton Township)
- Census Tract 41 – Block Group 5 (Princeton Borough)

The minority and low-income populations represented in these Block Groups do not exceed fifty percent of the total population and are not materially greater than the proportion of minority or low-income populations represented in the PSA municipalities, surrounding counties, or New Jersey.

The minority and low-income populations represented in Census Tract 41 – Block Group 2 located in Princeton Borough are 57% and 0% respectively. Although the minority population of this Block Group exceeds 50%, persons living in this Block Group are not expected to be disproportionately impacted. Compared to the No-action alternative, all of the action alternatives would be neutral or reduce traffic on Alexander Road adjacent to this area.

The minority and low-income populations represented in Census Tract 42.04 – Block Group 3, located in Princeton Township are 30% and 12% respectively. Although the low-income population represented in this Block Group is comparatively higher than other areas, adverse impacts would not be predominantly borne by low-income persons living in this Block Group. Potential impacts from increased traffic on Upper Harrison Street under all of the action alternatives except the C-series alternatives would not be more severe to these persons than to non-low-income populations affected by the alternatives. The C-series alternatives would be neutral in terms of traffic-related impacts along Upper Harrison Street.

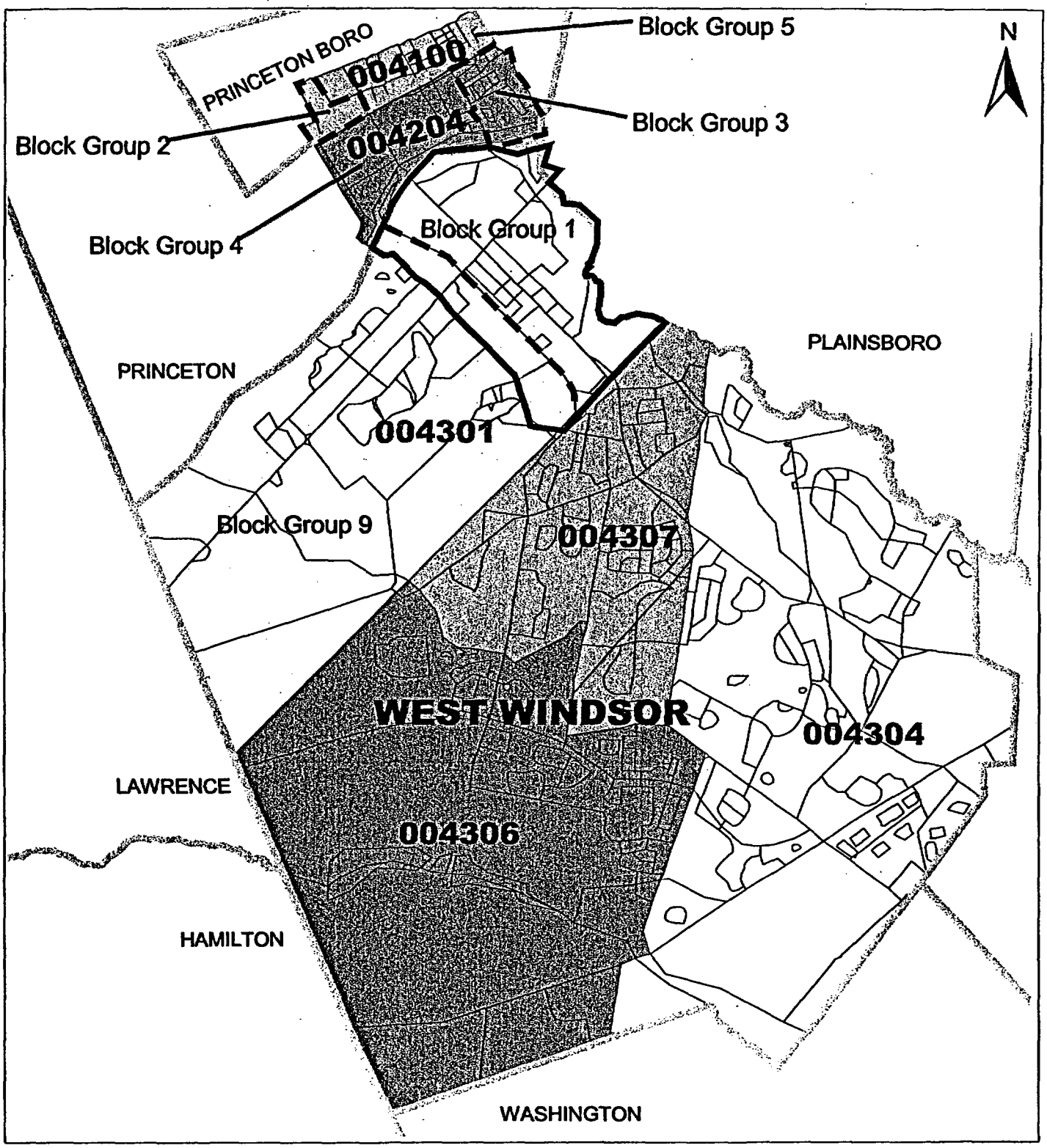
Table 4-11
Minority Population and Percent in Poverty

Geographic Area	Percent Minority	Percent in Poverty
Census Tract 43.01 – Block Group 1 (Portions of the Penns Neck neighborhood and areas to the west bounded by the Millstone River, Washington Rd, the D&R Canal and the NEC rail line)	18.0	0.9
Census Tract 43.01 – Block Group 9 (Remainder of Penns Neck neighborhood and areas to the south and west bounded by Washington Rd, Quakerbridge Rd, the D&R Canal and the NEC rail line)	38.0 (Asians comprise 22 percent of the total population)	2.8
Census Tract 43.07 – Block Group 1 (Portions of Princeton Junction neighborhoods, including areas bounded by the Millstone River/Millstone Rd, North Post Rd, the NEC rail line and Clarksville Rd)	17.0	2.0
Census Tract 42.04 – Block Group 3 (Portions of the Upper Harrison St neighborhood in Princeton Township, bounded by Longview Dr, Upper Harrison St, the D&R Canal and the Princeton Borough line)	30.0	12.0
Census Tract 42.04 – Block Group 4 (Portions of the Upper Harrison St neighborhood in Princeton Township and areas south bounded by Upper Harrison St, Alexander Rd, the D&R Canal, and the Princeton Borough line)	39.0	6.0
Census Tract 41 – Block Group 2 (Portions of Princeton Borough bounded by Washington Rd, University Place/Alexander Rd, the Princeton Borough line and Nassau St)	57.0 (Total population of this Block Group is 23)	0
Census Tract 41 – Block Group 5 (Portions of Princeton Borough bounded by Riverside Dr, Washington Rd, the Princeton Borough line and Nassau St)	7.0	5.0
West Windsor Township	31.0	2.5
Plainsboro Township	44.5	3.0
Princeton Township	23.0	5.7
Princeton Borough	24.0	9.0
Mercer County	35.8	8.6
Middlesex County	38.1	6.6
New Jersey	34.0	8.5

Source: 2000 U.S. Census

Notes:

1. The Gables, a subsidized senior living facility located just outside the study area, is within Census Tract 43.07, Block Group 1.
2. Poverty status was determined by the U.S. Census for all people except institutionalized people, people in military group quarters, people in college dormitories, and unrelated individuals under 15 years old. These groups were excluded when calculating poverty rates. They are considered neither "poor" nor "nonpoor."



Legend

Municipal Boundaries
Census Blocks Boundaries
Study Area

Census Tracts
Block Group Division Line
004204
004100
004301
004304
004306
004307

Source: United States Census Bureau
Census Tracts bordering West Windsor: 002904, 003006, 003302, 004308, 004406, and 004407.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
ENVIRONMENTAL IMPACT STATEMENT
PRINCETON & WEST WINDSOR
CENSUS TRACTS

DATE: NOVEMBER 2002
Scale: 1:63,360

FIGURE 4-18

4.4.3 Consistency with State and Local Plans

This section analyzes the consistency of Action and No-Action Alternatives with local, regional and state planning documents. Each Alternative was compared against the goals, objectives and policies of these plans. Alternatives were considered either consistent, inconsistent or neutral. Table 4-12 summarizes the status of Action and No-Action Alternatives with regard to consistency with local, regional and state planning documents. Alternatives that address the goals, objectives and policies of these plans are considered consistent (rated 1) and alternatives that are contrary to the goals, objectives and policies of these plans are considered inconsistent (rated -1). When an alternative has the potential to be inconsistent, but could be appropriately mitigated, or when an alternative is not clearly consistent or inconsistent, it is considered neutral (rated 0).

4.4.3.1 West Windsor Master Plan

The Township of West Windsor's Master Plan contains a circulation element that identifies a need for action to address congestion and mobility issues in Penns Neck. The township states that its overall circulation plan is to divert regional and county traffic away from local roadways and residential areas. The plan states that, although implementing solutions to this problem is not universally favored, solutions are needed to reduce traffic congestion on Route 1 and to divert traffic away from Washington Road.

The project's goals of improving access along Route 1 while diverting traffic from local neighborhoods are consistent with the township's land use and circulation goals.

Table 4-12
Summary of Project's Consistency with Local, Regional and State Planning Documents

Alternative	West Windsor Master Plan	Plainsboro Master Plan	Princeton Master Plan	Mercer County Growth Management Plan	Delaware Valley Regional Planning Commission Horizons 2025	New Jersey State Development and Redevelopment Plan	Regulations for the Review Zone of the Delaware and Raritan Canal State Park	New Jersey Long Range Transportation Plan – Transportation Choices 2025
A	1	1	0	1	1	0	1	1
A.1	1	1	0	1	1	1	1	1
A.2	1	1	0	1	1	1	1	1
A.3	1	1	0	1	1	1	1	1
A.4	1	1	0	1	1	1	1	1
B	1	1	0	1	1	0	0	1
B.1	1	1	0	1	1	0	0	1
B.2	1	1	0	1	1	0	1	1
C	0	1	1	1	0	1	1	1
C.1	0	1	1	1	1	-1	1	1
D	1	1	0	1	1	1	1	1
D.1	1	1	0	1	1	1	1	1
D.2	0	1	0	1	0	-1	0	1
E	1	1	0	1	1	1	1	1
F	1	1	0	1	1	1	1	1
F.1	1	1	0	1	1	1	1	1
G	-1	-1	1	-1	0	-1	-1	1
G.1	-1	-1	1	-1	0	-1	-1	1
G.2	-1	-1	0	-1	-1	-1	-1	1
No-Action	-1	-1	0	-1	-1	-1	-1	-1

Notes:
1 = Consistent
0 = Neutral
-1 = Inconsistent

Alternatives that Divert Regional Traffic from Local Roads

One of the performance measures of the Penns Neck traffic analysis is the change in volume on key routes. Following are the results relating to the Action Alternatives' impacts on local traffic patterns:

Core area between D&R Canal and NEC rail line:

All alternatives except D.2, G and G.1 decrease traffic on Washington Road in Penns Neck. Reductions range from 25% (Alt. C.1) to 80% (Alt. E). All alternatives decrease traffic on Washington Road between the Canal and Route 1. Reductions range from 6% (Alt. G & G.1) to 86% (Alt. B.2). All alternatives except C.1 and G.2 decrease traffic on Alexander Road between the Canal and Route 1. Reductions range from 5% (Alt. A.1, G. and G.1) to 19% (Alt. F.1). All alternatives except the C and G-series decrease traffic on Lower Harrison Street between Route 1 and the Canal more than 95%.

West of D&R Canal:

All alternatives decrease traffic on Washington Road between Faculty Road and Nassau Street. Reductions range from 4% (Alt G & G.1) to 26% (Alt. F). All alternatives except C and C.1 increase traffic on Upper Harrison Street between Faculty Road and Nassau Street. Increases range from 14% (Alt. G, G.1 & G.2) to 37% (Alt. F & F.1). All alternatives except G and G.1 decrease traffic on Nassau Street between Washington Road and Harrison Street. Reductions range from 7% (Alt. C) to 20% (Alt. D.1). Alternatives G and G.1 increase traffic 5%. All alternatives decrease traffic on Faculty Road between Washington Road and Harrison Street. Reductions range from 5% (Alt. C & C.1) and 46% (Alt. D).

Vicinity of NEC rail line:

All alternatives decrease traffic on Alexander Road east of the NEC rail line. Reductions range from 3% (Alt. G.2) to 31% (Alt. B.2 and F.1). All alternatives except B and the G series decrease traffic on Wallace Road. Reductions range from 11% (Alt. F.1) to 43% (Alt. C.1). All alternatives except G and G.1 decrease traffic on North Post Road. Reductions range from 2% (Alt. G.2) to 24% (Alt. B.1).

All alternatives except B increase traffic on Alexander Road between Vaughn Dr and Roszel Road. Increases range from less than 10% (Alt. F and F.1) to 28%. All alternatives except B and G.2 increase traffic on Bear Brook Road. Increases range from 2% (Alt. C.1) to 19% (Alt. A.1).

Action Alternatives would introduce new roadways and/or improvements to existing roadways intended to accommodate and manage this anticipated traffic growth. Many of the alternatives would introduce new roadways to divert regional, through traffic from local streets. These alternatives include A, A.1, A.2, A.3, A.4, B, B.1, B.2, C, D, D.1, D.2, E, F, and F.1. Because these alternatives would divert regional and through traffic volumes from local roads, neighborhoods would benefit.

Alternatives that Improve Access Along Route 1
All Alternatives, except the G Alternatives and No-Action, would improve traffic flow along Route 1 by removing the traffic signals. Compared to the No-Action Alternative, it appears that Alternatives C and C.1 are the best performers, while Alternatives G, G.1 and G.2 are the worst performers, relative to reducing north-south travel time.

Considering these two criteria, Action Alternatives A, A.1, A.2, A.3, A.4, B, B.1, B.2, D, D.1, E, F, and F.1 are considered consistent with the West Windsor Master Plan and the No-Action and G Alternatives are not considered consistent with the Master Plan. Action Alternatives C, C.1, and D.2 improve access along Route 1, but do not divert traffic as much as the other Action Alternatives and so are considered neutral.

4.4.3.2 Plainsboro Master Plan

The Plainsboro Master Plan, Circulation Plan element, identifies Route 1 as one of the major links in the Northeast Corridor's roadway system. The plan also states the importance of improving traffic flow on major roadways to prevent accidents and divert regional traffic from residential neighborhoods. The Master Plan projects that Route 1 will experience high traffic volumes and a number of problem movements, and identifies grade separations and access restrictions as improvements that would benefit Plainsboro and the rest of the Route 1 corridor.

Alternatives that Divert Regional Traffic from Local Roads
The Action and No-Action Alternatives would have a neutral impact on local roads in the township.

Alternatives that Improve Access Along Route 1
All Alternatives, except the G Alternatives and No-Action, would improve traffic flow along Route 1 by removing the traffic signals. Compared to the No-Action Alternative, it appears that Alternatives C and C.1 are the best performers, while Alternatives G, G.1 and G.2 are the worst performers, relative to reducing north-south travel time. All Action Alternatives would widen Route 1 south of Mapleton Road, thereby unifying the highway section with that above Mapleton Road. This action would eliminate a current inconsistency and associated driver confusion, and would improve flow patterns on Route 1 in Plainsboro.

Considering these two criteria, Action Alternatives A, A.1, A.2, A.3, A.4, B, B.1, B.2, C, C.1, D, D.1, D.2, E, F, and F.1 are considered consistent with the Plainsboro Master Plan and the No-Action and G Alternatives are not considered consistent with the Master Plan.

4.4.3.3 Princeton Master Plan

The 2001 Reexamination Report of the Princeton Community Master Plan identifies concerns raised by the community regarding this project. Their concerns are that a

transportation action in Penns Neck could exacerbate existing traffic problems by increasing the amount of traffic through downtown Princeton. In addition, public and Roundtable sentiment is for an equitable balance of traffic on east-west routes: Harrison Street, Washington Road and Alexander Road.

On-going area development will increase traffic in the study area and PSA as demonstrated in the traffic analysis for the Penns Neck Area EIS. The management of that portion of traffic passing through the study area is the concern of the Penns Neck Area EIS.
All Action Alternatives, except G.2, would either preserve the three existing east-west corridors in the study area – Washington Road, Harrison Street, and Alexander Road – or would provide a new roadway to replace the function of one or more of these corridors. The Action Alternatives differ in the allocation of traffic to the three corridors.

Table 4-13 summarizes the distribution percentages from the traffic analysis and these data indicate that all alternatives except the C and G-series would dramatically improve access to/from Route 1 at Harrison Street. As such, these alternatives enhance the function of Harrison Street as an attractive east-west travel corridor. All but D.2 would increase the percentage of traffic using Harrison Street rather than Washington Road or Alexander Road. Alternatives C, C.1, G, and G.1 provide the least variation in distribution compared to the No-Action, thus preserving the relative distribution and Action Alternative B.2 provides the most equal distribution between the three routes. The No-Action Alternative would maintain the current distribution percentages as no new roadways or traffic patterns would be created.

These Action Alternatives, C, C.1, G, G.1 and the No-Action are considered consistent with the Princeton Master Plan. Area development will increase traffic in the study area and these Action Alternatives manage additional traffic consistent with public and Roundtable sentiment for an equitable balance on the three routes. The other Action Alternatives are considered neutral.

Table 4-13
Balance of Traffic on East-West Routes.

		Harrison Street		Washington Road		Alexander Road	
Alternative	Score	Volume of Traffic	Percentage	Volume of Traffic	Percentage	Volume of Traffic	Percentage
Existing		899	23	1222	32	1736	45
A	-1	1594	30	1669	31	2054	39
A.1	-1	1513	28	1711	32	2143	40
A.2	-1	1510	29	1624	31	2040	39
A.3	-1	1581	30	1698	32	2074	39
A.4	-1	1621	30	1725	32	2015	38
B	-1	1425	27	1797	33	2152	40
B.1	-1	1416	26	1863	35	2121	39
B.2	1	1533	28	1932	35	2065	37
C	1	1234	23	1952	36	2253	41
C.1	1	1205	23	1651	32	2272	44
D	-1	1563	29	1701	32	2062	39
D.1	-1	1432	27	1727	33	2104	40
E	-1	1468	28	1785	34	2015	38
F	-1	1691	32	1516	29	2041	39
F.1	-1	1689	32	1574	30	2003	38
G	1	1398	25	1981	36	2142	39
G.1	1	1398	25	1981	36	2142	39
G.2	-1	1400	27	1506	29	2259	44
No-Action	-1	1231	22	2058	37	2229	40

4.4.3.4 Mercer County Growth Management Plan

The Highways section of the Mercer County Growth Management Plan identifies Route 1 as one of the fastest growing development regions in the nation. The plan defines county roads as roads that serve regional needs, connecting various municipalities and carrying moderate volumes of traffic. The Plan specifically states that the roadway most in need of improvement is Route 1.

All Alternatives, except the G Alternatives and No-Action, would improve traffic flow along Route 1. Compared to the No-Action Alternative, it appears that Alternatives C and C.1 are the best performers, while Alternatives G, G.1 and G.2 are the worst performers, relative to reducing north-south travel time. All Alternatives, except the G Alternatives and No-Action, are considered consistent with the Mercer County Growth Management Plan.

4.4.3.5 The Delaware Valley Regional Planning Commission Horizons 2025 Plan

The Delaware Valley Regional Planning Commission (DVRPC) *Horizons 2025 Plan* designates the Route 1 corridor in the Princeton area as a Metro Sub-Center.

Specifically, the corridor, which is home to 110,000 jobs, is designated as a Suburban Growth Center that has emerged as a satellite center around Philadelphia. Suburban Growth Centers are designated for their regional significance and concentration of job growth. The DVRPC Transportation Plan includes in its vision minimizing congestion and delay for system users and using transportation to advance economic development. Making improvements to Route 1 at Penns Neck would address both goals by improving transportation access in an area identified as a major growth center.

All Alternatives, except the G Alternatives and No-Action, would improve traffic flow along Route 1. Compared to the No-Action Alternative, it appears that Alternatives C and C.1 are the best performers, while Alternatives G, G.1 and G.2 are the worst performers, relative to reducing north-south travel time.

Improving overall system function also requires addressing east-west traffic mobility. All Action Alternatives, except G.2, would either preserve the three existing east-west corridors in the study area – Washington Road, Harrison Street, and Alexander Road – or would provide a new roadway to replace the function of one or more of these corridors. The traffic analyses of the Alternatives indicates that all Action Alternatives, except G.2, would provide east-west mobility and, in many cases, improve traffic flow on these corridors. All Action Alternatives, except C.1, D.2, and G.2, would reduce east-west travel time in the AM peak hour from 3% to 31%. Alternative G.2 would eliminate movements across Route 1 at Washington Road and Harrison Street.

All Alternatives that would improve access along Route 1 and along east-west routes are considered consistent with the Delaware Valley Regional Planning Commission's Horizons 2025 Plan. Action Alternatives that improve access along Route 1 or east-west routes are considered neutral. Action Alternatives that do not improve access on Route 1 or east-west routes are considered inconsistent. The No-Action and G.2 Action Alternative are considered inconsistent, Action Alternatives C.1, D.2, G and G.1 are considered neutral and Action Alternatives A, A.1, A.2, A.3, A.4, B, B.1, C, D, D.1, E, F, and F.1 are considered consistent with DVRPC's Plan.

4.4.3.6 New Jersey State Development and Redevelopment Plan

In 1986, the New Jersey State Planning Act was signed into law and the State Development and Redevelopment Plan (SDRP) was adopted. In 1992, the SDRP was updated and revised, and in March 2001, after the cross acceptance process was completed, the plan was adopted by the State Planning Commission.

Following is a listing of the relevant policies in the SDRP. Following each is a discussion of how each Alternative was found to meet each policy.

- Transportation and environmental resource protection, Policy 5, recommends that environmental impacts are evaluated before programming for construction.

The Penns Neck Area EIS study includes an examination of existing environmental conditions, potential impacts of Action and No-Action Alternatives, and mitigation strategies where unavoidable impacts could occur.

- Transportation and air quality, Policy 6, requires that transportation planning be coordinated with efforts to attain the National Ambient Air Quality Standards. The Penns Neck Area EIS study includes a detailed air quality analysis that addresses the extent to which Action and No-Action Alternatives would affect air quality.

- Transportation and aesthetics, Policy 8, advocates the incorporation of aesthetic values in the development of transportation systems and corridors. The emphasis of this EIS process on context sensitive design and visual assessment ensures that, if an Action Alternative is selected, aesthetic values have been carefully considered.

- Transportation maintenance and repair, Policy 1, notes that the maintenance and repair of existing infrastructure is the highest priority. Coordination of transportation planning among public, quasi-public, and private agencies, Policy 3, encourages cooperation and integration among all transportation interests. The Action Alternatives developed as part of the Penns Neck Area EIS study include the provision to replace the Millstone River bridge. This bridge is in need of structural repair and is a vital component in maintaining Route 1 as a regional highway. Also included in the Action Alternatives are east-west corridors owned and maintained by Mercer County and West Windsor. Coordination and cooperation with these agencies is on-going and is essential to addressing the project purpose. All Action Alternatives will include, as a complementary strategy, a Commute Options package to address on-going transportation interests in the study area. Finally, a *Congestion Management Systems Study* was completed that identified the need for on-going discussion of and planning for transportation solutions for the region (NJDOT, 1998). For these reasons, the Action Alternatives are consistent with this policy. The No-Action Alternative would involve no maintenance or repair of existing infrastructure and is inconsistent with this policy.

- Efficient utilization of capacity, Policy 14, maintains the importance of increasing the capacity of existing transportation infrastructure. The Penns Neck Area EIS study has identified the desirability of removing existing traffic signals along Route 1 in Penns Neck to improve traffic flow. Along east-west corridors, total traffic volume has a regional, through movement component and a local component. All Action Alternatives, except C.1, D.2, and the G's, would effectively separate these two different components, thereby increasing capacity on local, neighborhood streets and directing through volumes to roadways designed to accommodate that component. All Action Alternatives except C.1, D.2, and the G's are consistent with this policy. Action Alternatives C.1, D.2,

and the G's, as well as the No-Action Alternative are inconsistent with this policy.

- Transportation planning as a redevelopment and development tool, Policy 20, advocates the use of transportation infrastructure to encourage growth in appropriate areas. The Penns Neck study area and PSA are designated growth areas in local and regional plans. Development of remaining lands is already programmed, irrespective of the Penns Neck Area EIS study. The intent of the Action Alternatives is to address mobility and access issues in the study area. The Action and No-Action Alternatives are neutral with respect to this policy.

- Highway access management, Policy 1, advocates controlling local access to highways and encourages the use of parallel service roads. Action Alternatives A.1, A.2, A.3, A.4, C, C.1, D, D.1, D.2, E and F.1 would provide frontage roads on one or both sides of Route 1 in the study area to control highway access and facilitate Route 1 in a cut. These Action Alternatives are consistent with this policy. The remaining Action Alternatives and the No-Action Alternatives are inconsistent with this policy.

- Regional and local traffic patterns, Policy 19, encourages the use of limited access bypass roads to minimize impacts on adjacent communities. Action Alternatives A, A.1, A.2, A.3, A.4, B, B.1, B.2, C, D, D.1, E, F, and F.1 would provide east-side and west-side connector roads to divert through traffic from Washington Road and Harrison Street, thereby reducing traffic volumes on these roads. These Action Alternatives are consistent with this policy. The remaining Action Alternatives and the No-Action Alternatives are inconsistent with this policy.

Examination of Action and No-Action Alternatives in the context of the aggregate of these policies indicates that Action Alternatives A, A.1, A.2, A.3, A.4, C, D, D.1, E, F, and F.1 are consistent with the SDRP. Action Alternatives A, B, B.1 and B.2 are considered neutral with respect to the SDRP and the No-Action Alternative, C.1, D.2, G, G.1 and G.2 are inconsistent with the SDRP.

4.4.3.7 Regulations for the Review Zone of the Delaware and Raritan Canal State Park

The regulations stipulated for development within the Review Zone of the Delaware and Raritan Canal State Park reflect the overall objectives of the Park Master Plan. These objectives are to preserve the Park's multiple purposes: a recreational resource, a vehicle for enhancing urban areas, a source of potable water, an ecological preserve, and an historic site. The following discussion addresses the extent to which Action and No-Action Alternatives would contribute to the preservation of the first two Park purposes. The reader is referred to the *Natural Ecosystems Technical Environmental Study, Penns Neck Area EIS* for discussion of the Alternatives in the context of the Park as a potable water resource and ecological preserve. The reader is also referred

to the *Cultural Resources Effects Report, Penns Neck Area EIS* for discussion of the Alternatives in the context of the Park as an historic site.

The No-Action Alternative would preserve existing roadways and traffic patterns, but area traffic growth would exert a greater burden on existing roadways, including Alexander Road, Washington Road, and Harrison Street. The Park will be burdened by growing peak period traffic congestion and queuing on these roads.

Some Action Alternatives would improve traffic movement on Washington Road and Harrison Street by eliminating the traffic signals at Route 1 that cause peak period queues. These alternatives are 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, and G.2. The extent to which these Action Alternatives would reduce traffic congestion and queues across the canal bridges would be a benefit to the park in terms of protecting the resource as a recreational destination and urban refuge.

Alternatives G and G.1 would preserve the existing traffic signals and would have a limited ability to improve traffic movements and reduce congestion on east-west roadways. Little benefit to the Park would occur as a result of Alternatives G and G.1.

Some Action Alternatives would straighten the through movement approach to the canal bridge at Harrison Street. Action Alternatives A, A.1, A.2, A.3, A.4, B. B.1, B.2, D, D.2, F, and F.1 would extend the west-side connector to the bridge in a straight alignment. This configuration would increase sight distance for motorists and canal users.

The traffic analyses determined that some Action Alternatives would maintain the existing distribution of traffic on east-west corridors crossing the Park, while others would change the distribution. As described above, all Action and No-Action Alternatives would preserve east-west access. Currently, the traffic split on these roads is approximately 32% on Washington Road, 23% on Harrison Street, and 45% on Alexander Road. Alternatives C, C.1, G, and G.1 provide the least variation in distribution compared to No-Action, thus preserving the relative distribution. Action Alternative B.2 provides the most equal distribution between the three routes.
Action Alternatives B and B.1 include a west-side connector that would parallel the canal between Harrison Street and Washington Road at a close distance. Unavoidable impacts to the Park would require coordination with the D&R Canal Commission to develop a screening design to block views of the new roadway from the Park.

In the advancement of an Action Alternative to design, examination of means to avoid Park impacts would be undertaken. Where impacts cannot be avoided, design refinement would strive to minimize impacts and the feasibility of providing mitigation to compensate for unavoidable impacts would be explored.

Action Alternatives A, A.1, A.2, A.3, A.4, B.2, C, C.1, D, D.1, E, F, and F.1 appear to be consistent with Park regulations. Action Alternatives B and B.1 may be consistent if suitable mitigation strategies can be developed. These alternatives and

D.2 have been given a neutral rating. Alternatives G, G.1, G.2, and the No-Action Alternative are considered to be inconsistent with Park regulations.

4.4.3.8 New Jersey Long-Range Transportation Plan Update – Transportation Choices 2025

The purpose of The New Jersey Long-Range Transportation Plan Update – Transportation Choices 2025 is to determine what improvements to the state transportation system would be necessary to provide adequate transportation services for goods and individuals through the year 2025. The Plan identifies a number of Emerging Initiatives that address quality of life issues while improving transportation facilities and services: Context Sensitive Design, Access Management, Value Pricing, Transit Villages, Scenic Byways, Environmental Stewardship, Urban Investment Strategy and Environmental Justice.

Context Sensitive Design (CSD) is an initiative that stresses compatibility of a transportation system with the communities and environmental resources through which it passes. The foundation of CSD, as applied to a transportation project, is interaction with the affected communities. The Penns Neck Area EIS study is embedded in CSD principles which have been expressed in the form of a far-reaching public involvement program that is led by a Roundtable Advisory Group made up of elected officials, local organization representatives, neighborhood group representatives, and regulatory agency representatives (Section 7.2.2). An Action Alternative would be consistent with the Context Sensitive Design initiative. The No-Action Alternative would be inconsistent with the CSD initiative as it would not address the Project Purpose, Goals and Objectives developed by the Roundtable.

Access Management is an initiative that calls for minimal increases in highway capacity and managed access to the highway system. Access management refers to the Highway Access Code, which stresses access management when additional lanes are added for additional capacity. The Action Alternatives would introduce new roadways and/or improvements to existing roadways intended to accommodate and manage this anticipated traffic growth. One of the goals of the Penns Neck EIS is to improve access, mobility, and safety and reduce congestion for all modes of transportation. Under this goal are objectives that are consistent with the Access Management initiative, including reducing the number of curb cuts along Route 1, and make use of collector/distributor lanes on Route 1, where consistent with other objectives and improving the flow of traffic on Route 1. The Action Alternatives, except for the No-Action Alternative, would be consistent with the Access Management initiative.

The **Value Pricing** initiative is a toll collection policy where the price of the toll is dependent upon the amount of traffic at a particular time. It is not applicable to this study.

The **Transit Villages** initiative is a public transportation and land planning initiative that is not applicable to this study.

The **Scenic Byways** initiative calls for the protection of scenic and aesthetic resources. All Action Alternatives would preserve wooded river fringe along the Millstone River. Alternatives that include the east-side connector road closest to the river have the potential to introduce drivers to views of the Millstone River. Negative visual impacts would be mitigated, to the extent possible.

The **Environmental Stewardship** initiative calls for the protection of natural and human environmental resources in the development of transportation projects. The Action and No-Action Alternatives have been examined in the Penns Neck Area EIS to identify and strive to avoid environmental impacts, to minimize unavoidable adverse impacts, and to mitigate impacts that cannot be avoided. These analysis procedures are required by the National Environmental Policy Act (NEPA) and are the means to ensure that transportation projects show stewardship toward the environment.

The **Urban Investment Strategy** initiative recommends that a project be consistent with the New Jersey State Development and Redevelopment Plan in regard to concentrating transportation improvements in growth centers. Transportation planning as a redevelopment and development tool, State Development and Redevelopment Plan Policy 20, advocates the use of transportation infrastructure to encourage growth in appropriate areas. The Penns Neck study area and PSA are designated growth areas in local and regional plans. Development of remaining lands is already programmed, irrespective of the Penns Neck Area EIS study. The intent of the Action Alternatives is to address mobility and access issues in the study area. The Action and No-Action Alternatives are neutral with respect to this policy.

The **Environmental Justice** initiative relates to Executive Order 12898 that provides protection to minority and low-income populations from disproportionate adverse impacts. As indicated in Section 4.4.2 of this EIS, no such populations were found within the study area. Therefore, Environmental Justice is not an issue in this project.

Some of the initiatives in the Long Range Transportation Plan are process oriented, including the CSD, Environmental Stewardship and Scenic Byways initiatives. These initiatives have been developed so that projects are responsive to the needs of the public and adequately address environmental and aesthetic concerns. The analysis procedures required by the National Environmental Policy Act ensure that public, environmental and aesthetic concerns are considered in the development of the project. The Access Management initiative is consistent with the purpose and need of the project. All Action Alternatives, except for the No-Action Alternative can be considered consistent with the Long Range Transportation Plan.

4.4.4 Relocation Impacts

Table 4-14 summarizes the potential displacements that could result from the implementation of the Action and No-Action Alternatives. The No-Action Alternative and G.2 are the only alternatives that would not potentially require any displacements.

Action Alternatives A, A.1, A.2, A.3, A.4, B, B.1 and B.2 would result in residential displacements near the corner of Eden Way. These impacts would occur from: the loop-type interchange near Harrison Street. One other residential impact would occur near Station Road on Washington Road, from VDC 3.

Some of the Action Alternatives have the potential to displace and restrict access to and from local businesses in West Windsor. No other municipalities would be impacted in this manner. The No-Action Alternative and Action Alternative G.2 would have no business displacements. All of the Action Alternatives, except the No-Action Alternative, would impact land owned by West Windsor businesses. The No-Action Alternative, however, would have access impacts as the amount of traffic congestion increases on Route 1 and other east-west roads.

4.4.4.1 No-Action Alternative, Relocation Impacts

The No-Action Alternative would have no relocation impacts on residences or businesses as no new construction would occur.

4.4.4.2 Action Alternatives, Relocation Impacts

The number of commercial, residential, and other structures that would be displaced as a result of each component was quantified. This analysis was performed using West Windsor tax parcel maps, overlaid with printouts of the Action Alternatives at the same scale. A comprehensive list of potentially impacted properties, including properties that may only be partially impacted, appears in Appendix C organized by component. Displacements have been categorized as residential (R) or commercial and other (C) impacts.

Route 1 in-a-cut: Relocation Impact – 2 Commercial Buildings (2C)
Route 1 in-a-cut would impact the properties on the west side of the existing intersection of Washington Road and Route 1. Princeton Circle Exxon Station and Pits Gulf Station located adjacent to the intersection on the west side of Route 1 would be directly impacted and would be subject to relocation. Action Alternatives A, A.1, A.2, A.3, A.4, D, D.1, D.2, E, F, and F.1 share this component.

Route 1 at-grade – Relocation Impacts
The Route 1 at-grade component has two different alignments, one that is equivalent to the existing alignment and one that would shift Route 1 to the west. Action Alternatives with Route 1 at grade are B, B.1, B.2, C, C.1, G, G.1 and G.2.

Alternatives B, B.1, B.2 and G.2: Relocation Impact – None (0)
Maintaining Route 1 in the current alignment but widening to the west would impact land owned by Princeton Circle Exxon Station and Pits Gulf Station located adjacent to the intersection on the west side of Route 1, but would not displace either business.

Alternative C, C.1, and G: Relocation Impact – 2 Commercial Buildings (2C)
Shifting Route 1 at-grade to the west would displace the Princeton Circle Exxon and the Pits Gulf Station at the intersection of Route 1 and Washington Street.

Alternative G.1: Relocation Impact – 3 Commercial Buildings (3C)
Shifting Route 1 at-grade to the west and adding a jughandle in the southwest quadrant of the intersection and a finger ramp in the southeast quadrant at Washington Road would displace the Princeton Circle Exxon, the Pits Gulf Station, and the Princeton Getty Station.

Eastern frontage road: Relocation Impact – None (0)
The proposed eastern frontage road would impact the Sarnoff Corporation land but would not result in the displacement of any residences or businesses. Alternatives A.1, A.3, A.4, D, D.1, D.2, E, and F.1 share this component.
Western frontage road: Relocation Impact – None (0)
The proposed western frontage road would impact Princeton University land but would not result in the displacement of any residences or businesses. Alternatives A.1, A.2, A.3, A.4, C, C.1, D, D.1, D.2, E, and F.1 share this component.

East-side connector road: Relocation Impact – None (0)
All three options for the east-side connector road would impact land owned by the Sarnoff Corporation. However, this component would not result in any residential or business relocations. Alternatives that share this component include A, A.1, A.2, A.3, A.4, B, B.1, B.2, D, D.1, E, F, and F.1.

West-side connector road to Harrison Street: Relocation Impact - None (0)
Alternatives that share this component include A, A.1, A.2, A.3, A.4, B, B.1, B.2, D, D.1, D.2, E, F, and F.1. Options for a west-side connector road would impact land owned by Princeton University. Alternatives D.1, F and F.1 would require land takings along Eden Way, but no residential or business relocations would be required.

Table 4-14 Summary of Potential Displacements		
Alternative	**Number of Business Displacements[1]**	**Number of Residential Displacements[2]**
A	5	2
A.1	5	2
A.2	5	2
A.3	5	2
A.4	5	2
B	3	2
B.1	3	2
B.2	3	2
C	5	0
C.1	5	0
D	3	0
D.1	3	0
D.2	3	0
E	2	0
F	5	0
F.1	5	0
G	2	0
G.1	5	0
G.2	0	0
No-Action	0	0

Notes:

1. When these Action Alternatives are combined with VDC 2, except for Action Alternatives B and G.2 which do not include a VDC, add one business displacement.
2. When these Action Alternatives are combined with VDC 3, except for Action Alternatives B and G.2 which do not include a VDC, add one residential displacement.

West-side connector road to Washington Road: Relocation Impact – None (0)
Alternatives that share this component include B, B.1, and B.2. Options with this west-side connector road have the potential to impact property owned by Princeton University, but no residential or business relocations would be required.

West-side connector road between Alexander Road and Washington Road: Relocation Impact – None (0)
Alternatives that share this component include B.2 and C. These alternatives would impact property owned by Princeton University. This component would not displace any commercial buildings or residences.

Loop-type interchange (vicinity of Harrison Street)
Alternatives that share this component include A, A.1, A.2, B, B.1, B.2, F, and F.1. Nine properties could be impacted by the implementation of this component. This interchange would impact lands owned by the Sarnoff Corporation on the east of Route 1, but no relocations would be required. On the west side of Route 1, this component could affect a number of residences and businesses located along Eden Way, and potentially some land occupied by the PSE&G substation.

> **Alternatives A, A.1, A.2, B, B.1, B.2: Relocation Impact – Eden Institute, 2 Residential, 2 Commercial (2R and 3C)**
> This component would impact Larry's Sunoco, buildings owned by the Eden Institute, and the office building on Harrison Street. In addition, this component would impact two residences on Eden Way. These impacted commercial and residential uses would have to be relocated.

> **Alternatives F and F.1: Relocation Impact – Eden Institute, 2 Commercial (3C)**
> The loop type interchange proposed in Alternatives F and F.1 would be slightly different from the interchange in the other alternatives and has the potential to impact Larry's Sunoco, buildings owned by the Eden Institute, and the office building on Harrison Street. These impacted commercial uses would have to be relocated.

Diamond Interchange (vicinity of Harrison Street)
Alternatives that share this component include A.3, A.4, C, C.1, D, D.1, and D.2. The east side of the diamond interchange impacts land owned by the Sarnoff Corporation, but no business relocations would be required.

> **Alternatives A.3 and A.4: Relocation Impact – 2 Residences, 3 Commercial, and Eden Institute (2R and 3C)**
> The west side of the interchange in A.3 and A.4 would impact two residences, Eden Institute, the Sunoco station, and the office building.

Alternatives C and C.1: Relocation Impact – 3 Commercial (3C)
Alternatives C and C.1 would impact Eden Institute, the Sunoco station, and the office building.

Alternatives D, D.1, and D.2: Relocation Impact – 1 Commercial (1C)
Alternatives D, D.1, and D.2 would impact the Sunoco station.

Diamond interchange (just north of Fisher Place): Relocation Impact – None (0)
Alternative E is the only alternative that has this component. The diamond interchange would impact land owned by Princeton University and the Sarnoff Corporation. No business or residential relocations would be required.

At-Grade Intersection at Harrison Street
The G alternatives share this component.

Alternative G: Relocation Impact – None (0)
Alternative G would widen Harrison Street to provide additional turning lanes. Land takes from the Sunoco Station and the office building would be required. No residential or commercial relocations would be required.

Alternative G.1: Relocation Impact – 2 Commercial (2C)
Alternative G.1 would provide the widening on Harrison Street described for G and would include a jughandle in the southwest quadrant of the intersection. The jughandle would impact the Sunoco Station and office building, requiring their relocation.

Alternative G.2: Relocation Impact – None (0)
Alternative G.2 would involve no alteration of the existing Harrison Street pavement at the intersection. No business or residential impacts would be required.

Vaughn Drive Connector Road (VDC)
All Action Alternatives, except B and G.2, have a VDC connector component.

VDC 1: Relocation Impact – 1 Commercial (1C); 2 Residences in D.2 (2R)
VDC 1 would impact one business. Reconfiguration of station parking would be required and compensation for lost parking spaces may be required. The VDC 1 alignment in Alternative D.2 would also impact 2 residences.

VDC 2: Relocation Impact – 1 Commercial (1C)
VDC 2 would pass through an existing commercial parcel, displacing one commercial building. Reconfiguration of parking would be required, and compensation for the loss of parking spaces may be required.

VDC 3: Relocation Impact – 1 Residence (1R)
VDC 3 would use an existing driveway between two small office complexes. In doing so, there is little potential for commercial displacements. Reconfiguration of parking would be required, and compensation for the loss of parking spaces may be required. Additionally, one residence on Washington Road would be impacted and would have to be relocated.

Residential and business impacts are summarized in Table 4-15.

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Table 4-15
Summary of Residential and Business Impacts

Alternative	Century 21	Princeton Circle Exxon Station	Princeton Getty	Pits Gulf	Sarnoff Corp.	Princeton University	Larry's Sunoco	Eden Institute	Office Building on Harrison Street	PSE&G	Office Building on Washington Road	Residences on Eden Way	Residences on Washington Road
A	A	D	A	D	L	L	D	D	D	L		D	
A.1	A	D	A	D	L	L	D	D	D	L		D	
A.2	A	D	A	D	L	L	D	D	D	L		D	
A.3	A	D	A	D	L	L	D	D	D	L		D	
A.4	A	D	A	D	L	L	D	D	D	L		D	
B		L		L	L	L	D	D	D	L		D	
B.1		L		L	L	L	D	D	D	L		D	
B.2		L		L	L	L	D	D	D	L		D	
C		D		D	L	L	D	D	D				
C.1		D		D	L	L	D	D	D				
D	A	D	A	D	L	L	D						
D.1	A	D	A	D	L	L	D						
D.2		D		D	L	L	D						
E	A	D	A	D	L	L	D						
F	A	D	A	D	L	L	D	D	D	L			
F.1	A	D	A	D	L	L	D	D	D	L			
G		D		D	L	L	L	L					
G.1		D	D	D	L	L	D	L	D				
G.2		L		L		L	L	L					
No Action	A	A	A	A	A	A	A	A		A	A		
VDC1					L								D(a)
VDC2											D		
VDC3											L		D

A = Access Impact
D = Displacement
L = Land Acquisition
(a) Only in D.2 alternative.

4.4.5 Community Disruption

FHWA's 1987 Technical Advisory, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* outlines the types of impacts on area communities and neighborhoods that can occur from roadway projects. These impacts can include splitting or isolating a neighborhood, generating new development, and changes to travel patterns and accessibility.

On-going dialogue with the public and the Penns Neck Area EIS Partners Roundtable has revealed a number of concerns regarding this project. These include concerns regarding the effect of increased traffic on quality of life, preservation of east-west corridors including access to community facilities, equal distribution of traffic, truck traffic volumes, impacts to the Alexander Road bridge over Amtrak, pedestrian and bicycle safety and access, and impacts on the environment. These concerns are equivalent to most types of impacts outlined in the Technical Advisory. The following discussion is organized according to these concerns.

Other types of impacts outlined in the Technical Advisory have been addressed in other sections of this EIS. In particular, potential relocations and displacements are discussed in detail in Section 4.4, Socioeconomic and Land Use Impacts. The effects of secondary development are discussed in Section 4.14, and Section 4.4.3 addresses the project's consistency with local and regional planning efforts.

4.4.5.1 No-Action Alternative, Community Disruption

Under a No-Action Alternative, traffic patterns and routes would be the same as the existing condition. An examination of other planned roadway improvements in the traffic analysis determined that none of those improvements would substantially modify current travel patterns in and immediately around the study area (Section 4.1). Consequently, the only change would be growth in volume. Existing streets already carrying a heavy burden of traffic, Washington Road, Harrison Street, and Alexander Road, to name three, would experience greater volumes and congestion under a No-Action Alternative. A negative quality of life impact on all neighborhoods experiencing increased traffic would result from the No-Action Alternative.

4.4.5.2 Action Alternatives, Community Disruption

Impact of Increased Traffic on Quality of Life

As with No-Action, Action Alternatives would result in increased traffic in the study area, PSA, and SSA based on the traffic analyses undertaken for the Penns Neck Area EIS (Section 4.1). Impacts on neighborhood quality of life are directly related to the roads and routes this increased traffic volume would use.

The following terms are used in the discussion below and are intended to recognize the difference between impacts from traffic on roads that currently pass through a

neighborhood compared to impacts from traffic on roads that are adjacent to or peripheral to a neighborhood. As such, traffic changes on both through and peripheral roads were considered.

Positive impact – the alternative would reduce traffic on roads passing through the neighborhood and/or roads adjacent to the neighborhood, thereby resulting in less intrusion:

Through roads – traffic reduced greater than 15%
Peripheral roads – traffic reduced greater than 30%

Some positive impact – the alternative would reduce traffic on roads passing through the neighborhood and/or roads adjacent to the neighborhood, thereby resulting in less intrusion:

Through roads – traffic reduced 0-15%
Peripheral roads – traffic reduced 6-30%

Neutral – the alternative would be neutral relative to traffic-related impacts on the neighborhood:

Peripheral roads – traffic change +/- 5%

Some negative impact – The alternative would increase traffic on roads through a neighborhood and/or roads adjacent to a neighborhood, thereby resulting in more intrusion.

Through roads – traffic increased 0-5%
Peripheral roads – traffic increased 6-15%

Negative impact – The alternative would increase traffic on roads through a neighborhood and/or roads adjacent to a neighborhood, thereby resulting in more intrusion.

Through roads – traffic increased greater than 5%
Peripheral roads – traffic increased greater than 15%

Impacts to each neighborhood are discussed below. Table 4-16 summarizes these impacts.

Table 4-16
Summary of Traffic Impacts on Distinctive Neighborhoods

Alternative	Penns Neck	Lower Harrison Street	Old Bear Brook Road	Benford Estates	Berrien City	Clarksville Road	Sherbrook Estates	Upper Harrison Street	Wellington Estates	Windsor Haven	Alexander Road	Canal Pointe	Cetnral District (south)	Central District (north)	Mercer Hill
A	1	1	-1	1	1	0	0	-1	0	-1	1	1	-1	1	1
A.1	1	1	-1	1	1	0	0	-1	0	-1	0	1	1	1	0
A.2	1	1	-1	1	1	0	0	-1	0	-1	1	1	1	1	1
A.3	1	1	-1	1	1	0	0	-1	0	-1	1	1	0	1	1
A.4	1	1	-1	1	1	0	0	-1	0	-1	1	1	-1	1	1
B	1	1	1	1	-1	0	0	-1	0	1	1	1	1	1	1
B.1	1	1	-1	1	1	0	0	-1	0	-1	1	1	1	1	1
B.2	1	1	-1	1	1	0	0	-1	0	-1	1	-1	1	1	1
C	1	-1	-1	1	1	0	0	1	0	-1	0	0	1	1	1
C.1	1	-1	-1	1	1	0	0	1	0	-1	0	1	1	1	-1
D	1	1	-1	1	1	0	0	-1	0	-1	1	0	1	1	1
D.1	1	1	-1	1	1	0	0	-1	0	-1	1	0	1	1	1
D.2	0	1	-1	1	1	0	0	1	0	-1	1	1	1	1	0
E	1	1	-1	1	1	0	0	-1	0	-1	1	0	-1	1	1
F	1	1	-1	1	1	0	0	-1	0	-1	1	1	1	1	1
F.1	1	1	-1	1	1	0	0	-1	0	-1	1	1	-1	1	1
G	-1	-1	-1	-1	-1	0	0	-1	0	-1	0	0	-1	-1	1
G.1	-1	-1	-1	-1	-1	0	0	-1	0	-1	0	0	-1	-1	1
G.2	1	-1	1	1	-1	0	0	-1	0	1	-1	0	0	0	1

Notes: Central District (south) is located along Nassau Street between Alexander Road and Washington Road (includes the Bank Street neighborhood)
Central District (north) is located along Nassau Street between Washington Road and Harrison Street
Upper Harrison Street includes Jugtown neighborhood
1 = positive impact due to reduced traffic 0 = neutral -1 = negative impact due to increased traffic

Alexander Road (between Canal Pointe Blvd. and D&R Canal)

Under the No-Action Alternative, traffic on Alexander Road adjacent to the neighborhood would increase from approximately 1,680 vehicles today to 2,345 vehicles in 2028, an increase of 40%.

Compared to the No-Action Alternative, the A, A.2, A.3, A.4 Alternatives and the B, D, E, and F-series alternatives would reduce traffic 8-19% on Alexander Road adjacent to the neighborhood. This would have ***some positive impact*** on the neighborhood. Alternatives A.1, C, G and G.1 would be ***neutral*** relative to traffic impacts on this neighborhood. Compared to the No-Action Alternative, Alternatives C.1 and G.2 would increase traffic 9-11% on Alexander Road adjacent to the neighborhood, resulting in ***some negative impact*** on the neighborhood.

Bear Brook Road/Windsor Haven

Under the No-Action Alternative, traffic on Bear Brook Road adjacent to the neighborhood would increase from approximately 620 vehicles today to 1430 vehicles in 2028, an increase of 131%.

Compared to the No-Action Alternative, Alternative B would reduce traffic 11% on Bear Brook Road. This would have ***some positive impact*** on the neighborhood. Alternatives C.1 and G.2 would be ***neutral*** relative to traffic impacts on this neighborhood. Compared to the No-Action Alternative, Alternatives A.3, A.4, B.1, B.2, C, E and the D and F-series alternatives would increase traffic 6-15%, resulting in ***some negative impact*** on the neighborhood. Compared to the No-Action Alternative, Alternatives A, A.1, A.2, E, G, and G.1 would increase traffic 16-19% on Bear Brook Road adjacent to the neighborhood. This would have a ***negative impact*** on the neighborhood.

Benford Estates

Under the No-Action Alternative, traffic on North Post Road adjacent to the neighborhood would increase from approximately 1275 vehicles today to 1315 vehicles in 2028, an increase of 3%.

Compared to the No-Action Alternative, the A, C, and D-series alternatives and Alternatives B.1, B.2 and F would reduce traffic 6-24% on North Post Road adjacent to the neighborhood. This would have ***some positive impact*** on the neighborhood. Alternatives B, F.1 and the G-series alternatives would be ***neutral*** relative to traffic impacts on this neighborhood.

Berrien City

Under the No-Action Alternative, traffic on Alexander Road east of the NEC rail line would increase from approximately 610 vehicles today to 1565 vehicles in 2028, an increase of 157%. Traffic on Wallace Road would increase from approximately 560 vehicles today to 725 vehicles in 2028, an increase of 29%.

Compared to the No-Action Alternative, Alternatives A, A.2, A.4, B.1, C and the D-series alternatives would reduce traffic 15-29% on Alexander Road and 33-42% on Wallace Road. This would have ***a positive impact*** on the neighborhood. Compared to the No-Action Alternative, Alternatives A.1, A.3, B.2, C.1, E, G, G.1 and the F-series

alternatives would reduce traffic 11-31% on Alexander Road and 4-43% on Wallace Road. This would have ***some positive impact*** on the neighborhood. Compared to the No-Action Alternative, Alternatives B and G.2 would reduce traffic 3-13% on Alexander Road, but would increase traffic 20-38% on Wallace Road. This would have ***a negative impact*** on the neighborhood.

Canal Pointe

Under the No-Action Alternative, traffic on Canal Pointe Boulevard adjacent to the neighborhood would increase from approximately 833 vehicles today to 1549 vehicles in 2028, an increase of 86%.

Compared to the No-Action Alternative, the A and F-series alternatives and Alternatives B, B.1 and C.1 would reduce traffic 7-23% on Canal Pointe Boulevard. This would have ***some positive impact*** on the neighborhood. Alternatives C, E and the D and G-series alternatives would be ***neutral*** relative to traffic impacts on this neighborhood. Compared to the No-Action Alternative, Alternative B.2 would increase traffic on Canal Pointe Boulevard 31%. This would have a ***negative impact*** on the neighborhood.

Central District (North of Washington Road)

Under the No-Action Alternative, traffic on Nassau Street between Washington Road and Harrison Street would increase from approximately 1,194 vehicles today to 2,344 in 2028, an increase of 96%.

Compared the to No-Action Alternative, Alternatives A, A.3, A.4, the D-series, E, and the F-series would reduce traffic 17-23% on Nassau Street. This would have a ***positive impact*** on the neighborhood. Compared the to No-Action Alternative, Alternatives A.1, A.2, the B-series, the C-series, and G.2 would reduce traffic 7-15% on Nassau Street. This would have ***some positive impact*** on the neighborhood. Compared to the No-Action Alternative, Alternatives G and G.1 would increase traffic on Nassau Street by 5%. This would have ***some negative impact*** on the neighborhood.

Central District (South of Washington Road)

Under the No-Action Alternative, traffic on Nassau Street between Washington Road and Mercer Street would increase from approximately 1,496 vehicles today to 1,806 in 2028, an increase of 21%.

Compared the to No-Action Alternative, Alternatives A.1, A.2, the B-series, the C-series, the D-series, G, and G.1 would reduce traffic 1-10% on Nassau Street. This would have ***some positive impact*** on the neighborhood. Alternatives A.3, and G.2 would be ***neutral*** relative to traffic impacts on this neighborhood. Compared to the No-Action Alternative, Alternatives A, A.4, and F.1 would increase traffic on Nassau Street by 1-5%. This would have ***some negative impact*** on the neighborhood. Compared to the No-Action Alternative, Alternative E would increase traffic on Nassau Street by 6%. This would have a ***negative impact*** on the neighborhood.

Clarksville Road/Wellington Estates

Under the No-Action Alternative, traffic on Clarksville Road between North Post Road and CR 571 would increase from approximately 1,515 vehicles today to 2,065 vehicles in 2028, an increase of 36%.

Compared to the No-Action Alternative, Alternatives B.2 and D would reduce traffic 6-7% on Clarksville Road between North Post Road and CR 571. This would have ***some positive impact*** on the neighborhood. The A, C, E and F-series alternatives and Alternatives B.1, D.1, G and G.1 would be ***neutral*** relative to traffic impacts on this neighborhood. Compared to the No-Action Alternative, Alternative B and G.2 would increase traffic on Clarksville Road between North Post Road and CR 571 by 11% and 19%, respectively. Alternative B would have ***some negative impact*** on the neighborhood, while the impact of Alternative G.2 would be ***negative.***

Lower Harrison Street

Under the No-Action Alternative, traffic on Harrison Street between Route 1 and the D&R Canal would increase from approximately 925 vehicles today to 1,180 vehicles in 2028, an increase of 28%.

Compared to the No-Action Alternative, the A, B, D, E and F-series alternatives would reduce traffic on Lower Harrison Street by approximately 97%. This would have a ***positive impact*** on the neighborhood. Compared to the No-Action Alternative, the C-series alternatives would increase traffic 10-11% on Lower Harrison Street. This would have ***some negative*** impact. Compared to the No-Action Alternative, the G-series alternatives would increase traffic 32-41% on Lower Harrison Street. This would have a ***negative impact*** on the neighborhood.

Mercer Hill

Under the No-Action Alternative, traffic on Alexander Road between University Place and Mercer Street would increase from approximately 1,300 vehicles today to 1,713 in 2028, an increase of 32%.

Compared the to No-Action Alternative, Alternative F.1 would reduce traffic 17% on Nassau Street. This would have a ***positive impact*** on the neighborhood. Compared the to No-Action Alternative, Alternatives A, A.2, A.3, A.4, the B-series, C, D, D.1, E, F, and the G-series would reduce traffic 1-14% on Nassau Street. This would ***have some positive impact*** on the neighborhood. Alternatives A.1 and D.2 would be ***neutral*** relative to traffic impacts on this neighborhood. Compared to the No-Action Alternative, Alternative C.1, would increase traffic on Nassau Street by 3%. This would have ***some negative impact*** on the neighborhood. Compared to the No-Action Alternative, Alternative E would increase traffic on Nassau Street by 6%.

Penns Neck

Under the No-Action Alternative, traffic on Washington Road between the NEC and Route 1 would increase from approximately 1,605 vehicles today to 2,670 vehicles in 2028, an increase of 66%.

Compared to the No-Action Alternative, all of the Action Alternatives except D.2, G and G.1 would reduce traffic 25-80% on Washington Road between the NEC and

Route 1. This would have a ***positive impact*** on the neighborhood. Alternatives D.2, G and G.1 would be ***neutral*** relative to traffic impacts on this neighborhood.

Sherbrooke Estates

Under the No-Action Alternative, traffic on CR 571 between the Alexander Road and Wallace Road would increase from approximately 1,215 vehicles today to 2,590 vehicles in 2028, an increase of 113%.

Compared to the No-Action Alternative, the C and G-series alternatives would reduce traffic 7-25% on CR 571 between Alexander Road and Wallace Road. This would have ***some positive impact*** on the neighborhood. The A, B, D, E and F-series alternatives would be ***neutral*** relative to traffic impacts on this neighborhood.

Upper Harrison Street

Under the No-Action Alternative, traffic on Harrison Street west of Faculty Road would increase from approximately 900 vehicles today to 1,230 vehicles in 2028, an increase of 37%.

The C-series alternatives would be ***neutral*** relative to traffic impacts on this neighborhood. The A, B, D, E, F, and G-series alternatives would increase traffic 14-37% on Harrison Street west of Faculty Road. This would have a ***negative impact*** on this neighborhood.

East-West Access (Including Access to Community Facilities)

Action and No-Action Alternatives would preserve east-west access, including access to community facilities. The following discussion addresses the ways in which the alternatives could change travel patterns associated with existing and proposed east-west corridors. Most community services are located to the east of Route 1, including the police, fire, and ambulance services, underscoring the importance of east-west access. This section will first discuss the Action and No-Action Alternatives' impact on east-west access and then discuss potential benefits that the neighborhoods would realize as a result of the implementation of the Action Alternatives.

Potential traffic impacts were evaluated by analyzing potential delays at the Harrison Street, Washington Road and Alexander Road intersections with Route 1 and by the average travel time between the intersection of County Route 571 and Clarksville Road in West Windsor and Nassau Street in the vicinity of Alexander Road, Washington Road and Harrison Street for each of the Action Alternatives. The data from these analyses indicates that:

- The No-Action Alternative may impact local travel patterns as traffic on Route 1 and connecting local roads increases. The traffic analyses for the Penns Neck Area EIS indicate that peak period travel on east-west corridors would experience delays due to increased traffic volumes. Delays at the Washington Road and Harrison Street intersections under the No-Action Alternative are estimated to exceed 16 minutes. All alternatives except the G-series would reduce intersection delays on Washington Road and Harrison Street approaching Route 1, where through movement is permitted. For those alternatives that

include grade-separated through movement of east-west traffic across Route 1, delays are reduced to 1 minute or less. Intersection delays on Alexander Road approaching Route 1 are largely unaffected by the alternatives.

- All Action Alternatives, except C.1 and G.2, would reduce east-west travel time in the AM peak hour from 3% to 31%. Alternative G.2 would eliminate movements across Route 1 at Washington Road and Harrison Street.

All Action Alternatives, except G.2, would either preserve the three existing east-west corridors in the study area – Washington Road, Harrison Street, and Alexander Road – or would provide a new roadway to replace the function of one or more of these corridors. The No-Action Alternative would not change the location of or travel patterns on east-west corridors. All Action Alternatives except for the No-Action, G series and C.1 would improve east-west access during peak hours. Alternatives A, A.1, A.2, A.3, A.4, B, B.1, B.2, C, D, D.1, E, F, and F.1 would provide a new, replacement east-west corridor via an east-side connector road, west-side connector road, or combination of the two. Examination of the traffic analysis findings in the context of the distinctive neighborhoods indicates that the new east-west corridor in these alternatives would benefit these neighborhoods by providing an east-west route and/or by diverting through traffic from their closest and most convenient route. The benefit to these neighborhoods would be found in reduced congestion and/or improved access and travel time on the existing routes. Following are some examples to illustrate the kinds of neighborhood benefits that could occur.

- An east-side and west-side connector corridor could reduce traffic volume on Washington Road, making east-west travel on Washington Road easier. Since Washington Road would remain open, Penns Neck residents would not have to change their travel patterns and would be the prime beneficiaries.

- Using this same example, residents in neighborhoods peripheral to the study area – Benford Estates, Berrien City, Sherbrooke Estates, Wellington Estates, and Upper Harrison Street - could experience improved east-west travel time by using the east-side and west-side connector roads versus Washington Road.

- Closure of Lower Harrison Street to through traffic as contemplated in all but the C and G Action Alternatives would eliminate through traffic from the street, but the replacement west-side connector would preserve similar travel patterns for residents on that street.

- Residents who now normally travel Alexander Road to access Princeton may find it more convenient to bypass downtown Princeton by using the Vaughn Drive Connector and east-side and west-side connectors to access destinations north and west of Princeton.

Action Alternatives C.1 and G.2 would change east-west access and travel patterns. Neither alternative would provide a through movement across Route 1 at Washington

Road. A Penns Neck resident headed for Princeton can now cross Route 1 at the Penns Neck Circle and travel directly to Princeton. In Alternative C, this resident must either travel north on Route 1 to Harrison Street or use the Vaughn Drive Connector to get to Alexander Road. In G.2, that same Penns Neck resident must find a route through Princeton Junction or Berrien City to get to Alexander Road. For a resident in a neighborhood outside the study area such as Upper Harrison Street or Sherbrooke Estates, a route using Alexander Road would be the only east-west corridor across Route 1 without using Route 1.

Action Alternatives A, A.1, A.2, A.3, A.4, B, B.1, B.2, C, D, D.1, D.2, E, F and F.1 receive a positive score for this criteria and the No-Action, C.1 and the G Action Alternatives receive negative scores. None of the Action Alternatives receive a neutral score.

Emergency Access

The Penns Neck Area EIS Travel Demand Forecasting Model includes a performance measure that addresses which Action Alternatives address the needs of emergency response personnel. Action Alternatives that improve east-west and north-south access meet this objective. Action Alternatives that improve east-west and north south access, but eliminate access across Route 1 at Washington Street somewhat meet this objective. Action Alternatives that do not improve north-south and east-west access do not meet this objective. Action Alternatives A, A.1, A.2, A.3, A.4, D, D.1, D.2, and E meet this objective and are given a positive score, Action Alternatives B, B.1, B.2, C, C.1, F, F.1, G and G.1 somewhat meet this objective and are given a neutral score, and Action Alternative G.2 and the No-Action do not meet this objective and are given a negative score.

Equal Distribution of Traffic

As described above, all Action and No-Action Alternatives would preserve east-west access. The equal distribution of traffic refers to the balance of traffic volume on the three east-west routes, and in the study area: Washington Road, Harrison Street, and Alexander Road. Currently, the traffic split on these roads is approximately 32% on Washington Road, 23% on Harrison Street, and 45% on Alexander Road. Public and Roundtable sentiment is for the preservation of this relative distribution.

The distribution of traffic into and out of Princeton on Alexander Road, Washington Road and Harrison Street will change over time with or without improvements in the Penns Neck area. The Action Alternatives differ in the allocation of traffic to the three corridors. Table 4-17 is a synopsis of the distribution percentages from the traffic analysis. The data in this table indicates all alternatives except the C and G-series would dramatically improve access to/from Route 1 at Harrison Street. As such, these alternatives enhance the function of Harrison Street as an attractive east-west travel corridor and increase the percentage of traffic using Harrison Street rather than Washington Road or Alexander Road.

Alternatives C, C.1, G, and G.1 provide the least variation in distribution compared to the No-Action, thus preserving the relative distribution and Action Alternative B.2 provides the most equal distribution between the three routes.

The No-Action and Action Alternatives B.2, C, C.1, G and G.1 receive a positive score for these criteria while the remaining Action Alternatives receive a negative score.

Table 4-17
Distribution of Traffic

		Harrison Street		Washington Road		Alexander Road	
Alternative	Score	Volume of Traffic	Percentage	Volume of Traffic	Percentage	Volume of Traffic	Percentage
Existing		899	23	1222	32	1736	45
A	-1	1594	30	1669	31	2054	39
A.1	-1	1513	28	1711	32	2143	40
A.2	-1	1510	29	1624	31	2040	39
A.3	-1	1581	30	1698	32	2074	39
A.4	-1	1621	30	1725	32	2015	38
B	-1	1425	27	1797	33	2152	40
B.1	-1	1416	26	1863	35	2121	39
B.2	1	1533	28	1932	35	2065	37
C	1	1234	23	1952	36	2253	41
C.1	1	1205	23	1651	32	2272	44
D	-1	1563	29	1701	32	2062	39
D.1	-1	1432	27	1727	33	2104	40
D.2	-1	1679	31	1716	31	2112	38
E	-1	1468	28	1785	34	2015	38
F	-1	1691	32	1516	29	2041	39
F.1	-1	1689	32	1574	30	2003	38
G	1	1398	25	1981	36	2142	39
G.1	1	1398	25	1981	36	2142	39
G.2	-1	1400	27	1506	29	2259	44
No-Action	-1	1231	22	2058	37	2229	40

Truck Traffic Volumes

The traffic analysis undertaken for the Penns Neck Area EIS indicates that traffic volumes, including truck traffic, are expected to increase through Design Year 2028 regardless of the Action and No-Action Alternatives. Under the No-Action Alternative, existing roadway corridor and travel routes would remain. Additional traffic will add volume and congestion to these existing corridors. No new means of accommodating or managing the additional traffic would be undertaken by the No-Action Alternative.

The Action Alternatives would introduce new roadways and/or improvements to existing roadways intended to accommodate and manage this anticipated traffic growth. Many of the alternatives would introduce new roadways to divert regional,

through traffic from local streets. These alternatives include A, A.1, A.2, A.3, A.4, B, B.1, B.2, C, D, D.1, D.2, E, F, and F.1. Because these alternatives would divert regional and through traffic volumes from local roads, neighborhoods would benefit. Local truck traffic, including vehicles making deliveries to Penns Neck, Princeton Junction, Princeton Township and other localized destinations, however, would continue to use corridors such as Washington Road and Harrison Street if they remain through streets. Action Alternatives that include both an east-side and west-side connector, however, would benefit these and other neighborhoods, like Berrien City. Providing a through corridor, the east-side and west-side connectors could divert through traffic and even localized truck traffic away from neighborhood streets.

Alternative C.1 would eliminate through movements across Route 1 on Washington Road. Trucks traveling west on Washington Road to make deliveries west of the study area would either travel north on Route 1 to Harrison Street or south via the Vaughn Drive Connector to Alexander Road. No neighborhood benefit from reduced truck traffic would occur.

Alternatives G and G.1 would preserve existing travel patterns, thereby resulting in no change in truck traffic patterns or volumes.

Alternative G.2 would eliminate through movements across Route 1 at Washington Road and Harrison Street. This alternative would divert east-west truck traffic movements to Alexander Road and increase total truck traffic on Alexander Road. Local trucks traveling west from the Princeton Junction area would have to travel through Berrien City on Alexander Road to reach a Princeton destination. Likewise, trucks traveling east to Penns Neck from Princeton or southbound Route 1 would have to use the same route. Trucks on Route 1 northbound would have to exit at Alexander Road and travel through Princeton Township to reach destinations to the west such as Princeton Shopping Center. Whereas the Penns Neck and Harrison Street neighborhoods would likely see a truck traffic reduction, Berrien City and Alexander Road west of Route 1 would likely see an increase.

Table 4-18 describes the existing and projected percentages of heavy trucks crossing the D&R Canal at Harrison Street, Washington Road and Alexander Road. For all Action Alternatives, heavy trucks represent less than 5% of total 2-way traffic using east-west roads in the Penns Neck area. Compared to the No-Action, the overall change in heavy trucks using east-west roads is less than 0.4%. All alternatives except the C and G-series, enhance the function of Harrison Street as an east-west corridor. As a result, traffic on Harrison Street increases. As traffic on Harrison Street increases, the share of heavy trucks using Harrison Street increases slightly and decreases slightly on Alexander Road and Washington Road.

Table 4-18
Percentage of Heavy Trucks Crossing D&R Canal

Alternative	Harrison Street	Washington Road	Alexander Road
Existing	2.9	1.4	2.0
A	3.5	1.9	3.4
A.1	3.5	1.9	3.4
A.2	3.5	1.9	3.4
A.3	3.5	1.9	3.4
A.4	3.5	1.9	3.4
B	3.5	1.9	3.4
B.1	3.5	1.9	3.4
B.2	3.5	1.9	3.4
C	3.2	2.3	4.7
C.1	3.2	2.3	4.7
D	3.5	1.9	3.4
D.1	3.5	1.9	3.4
D.2	3.2	2.3	3.4
E	3.5	1.9	3.4
F	3.5	1.9	3.4
F.1	3.5	1.9	3.4
G	3.2	2.3	4.7
G.1	3.2	2.3	4.7
G.2	3.2	2.3	4.7
No-Action	3.2	2.3	4.7

All Action Alternatives, therefore, except the No-Action, C, C.1, G, G.1 and G.2 receive a positive score for these criteria.

Impacts to Alexander Road Bridge Over the NEC
The Alexander Road Bridge over the NEC is the subject of a separate study by the NJDOT. However, due to its location at the edge of the study area and its relationship to the study in terms of traffic patterns, a discussion of the effect of the Action and No-Action Alternatives is provided.

The No-Action Alternative would preserve existing roadways and travel patterns in and around the study area. Thus, no change in traffic patterns on the Alexander Road Bridge are anticipated to occur under a No-Action Alternative.

All alternatives decrease traffic on Alexander Road east of the NEC. Reductions range from 3% (Alt. G.2) to 31% (Alt. B.2 and F.1). Therefore, the No-Action receives a negative score for these criteria and the remaining Action Alternatives receive a positive score.

Pedestrian and Bicycle Safety and Access

The No-Action Alternative would include no provisions to improve or enhance pedestrian and bicycle safety and access.

All of the action alternatives would be accompanied by concurrent implementation of the Commute Options package, which includes pedestrian and bicycle network enhancements in the vicinity of the Penns Neck and Princeton Junction neighborhoods.

Princeton Junction Train Station

In addition to the Commute Options Package, compared to the No-Action Alternative, Alternatives A, A.2, A.4, B.1, C and the D-series alternatives would reduce traffic 15-29% on Alexander Road and 33-42% on Wallace Road. Alternatives A.1, A.3, B.2, C.1, E, G, G.1 and the F-series alternatives would reduce traffic 11-31% on Alexander Road and 4-43% on Wallace Road. All of the Action Alternatives except G and G.1 would reduce traffic 25-80% on Washington Road between the NEC and Route 1. These alternatives would enhance vehicular, pedestrian, and bicycle access and safety.

Alternatives B and G.2 would reduce traffic 3-13% on Alexander Road, but would increase traffic 20-38% on Wallace Road. Alternative G and G.1 would not change traffic volumes on Washington Road. These alternatives would not enhance vehicular, pedestrian, and bicycle access and safety.

Maurice Hawk School and West Windsor-Plainsboro High School (South)

In addition to the Commute Options package, compared to the No-Action Alternative, Alternatives B.2 and D would reduce traffic on Clarksville Road between North Post Road and CR 571. As such, these alternatives would enhance vehicular, pedestrian, and bicycle access and safety to these schools. The A, C, E and F-series alternatives and Alternatives B.1 and D.1 would not significantly change traffic volumes (e.g., +/- 5%). As such, these alternatives would only somewhat enhance access and safety to these schools. Alternatives B and G.2 would increase traffic more than 5% on Clarksville Road between North Post Road and CR 571. As such, these alternatives would not enhance access and safety to these schools.

West Windsor Township Municipal Complex

In addition to the Commute Options package, compared to the No-Action Alternative, all of the action alternatives except F.1 and the G-series alternatives would reduce traffic on North Post Road adjacent to the municipal complex. As such, these alternatives would enhance vehicular, pedestrian, and bicycle access and safety to these facilities. Alternative F.1 and the G-series alternatives would not significantly change traffic volumes (e.g., +/- 5%) on North Post Road. As such, these alternatives would only somewhat enhance access and safety to these facilities.

4.4.6 Commercial and Institutional Neighborhoods

The potential of the Action and No-Action Alternatives to have environmental impacts has been identified and analyzed in detail in the technical environmental studies and draft environmental impact statement prepared for the Penns Neck Area EIS study. This TES is one of several TESs that form the basis of the EIS. In addition to socioeconomics and land use concerns, the following environmental concerns have been investigated as the subject of other TESs: air quality, noise, natural ecosystems, contaminated materials, and cultural resources.

Access and Traffic Patterns

The Action and No-Action Alternatives have the potential to alter travel patterns to, from, and in some cases along commercial and institutional neighborhoods.

North-south Access

The No-Action Alternative would preserve existing roadway and travel patterns in and around the study area. Additional traffic volume on the existing roadway network will increase congestion and add to travel time. Average north-south travel times between Scudders Mill Road in Plainsboro and Carnegie Center Blvd. in West Windsor Township would increase from approximately 4.75 minutes today to approximately 11 minutes in 2028, a 132% increase. These roadway and traffic factors will not impair or change the nature and pace of development in the area, which as described in a foregoing section of this TES, are either approved or in the process of being approved by local authorities.

Compared to the No-Action Alternative, Alternatives B.2, C and C.1 would reduce average north-south travel time by 27-31%. The A, D, E and F-series alternatives and Alternatives B and B.1 would reduce average north-south travel time 18-25%. Alternatives G and G.1 would reduce average north-south travel time 8%. These alternatives would enhance access to area businesses and institutions from the north and south. Compared to the No-Action Alternative, Alternative G.2 would increase average north-south travel time by 6%. As such, Alternative G.2 would not enhance access to area businesses and institutions.

East-west Access

Under the No-Action Alternative, average east-west travel times between Clarksville Road West Windsor Township and Nassau Street in Princeton Borough would increase from approximately 11.6 minutes today to approximately 19.8 minutes in 2028, a 71% increase. Compared to the No-Action Alternative, the A, E and F-series alternatives and D and D.1 would reduce average east-west travel time 19-24%. The B-series alternatives and Alternatives C, D.2, G and G.1 would reduce average east-west travel time 2-13%. These alternatives would enhance access to area businesses and institutions from the east and west.

Compared to the No-Action Alternative, Alternatives C.1 and G.2 would increase average east-west travel time 6-23%. Alternative C.1 would eliminate through movements across Route 1 on Washington Road. A traveler destined for the Penns Neck business corridor along Washington Road from Princeton or Route 1 southbound would have to use the circuitous route of Alexander Road and the Vaughn Drive Connector to reach the destination. Morning and evening peak period commuter movements on Harrison Street would be unchanged.

Alternative G.2 would deny through movements across Route 1 at Washington Road and Harrison Street. This alternative would divert east-west traffic movements to Alexander Road and increase total traffic on Alexander Road. Traffic traveling west from the Princeton Junction area would have to travel through Berrien City on Alexander Road to reach a Princeton destination. Likewise, traffic traveling east to Penns Neck from Princeton or southbound Route 1 would have to use the same route. Traffic on Route 1 northbound would have to exit at Alexander Road and travel through Princeton Township to reach destinations to the west such as the Princeton Central Business District and Princeton Shopping Center. Whereas the Penns Neck and Harrison Street neighborhoods would likely see a traffic reduction, Berrien City and Alexander Road west of Route 1 would likely see an increase.

Except for the No-Action, C.1 and G.2, all other Action Alternatives would improve mobility for commercial and institutional neighborhoods.

Business and Institutional Development

The No-Action Alternative would not adversely effect the physical development of lands reserved for future development.

The alignment of the A, D, F and G-series alternatives and Alternatives B, B.1 and C.1 would minimize adverse effects on the future development of Princeton University-owned land west of Route 1. The alignment of Alternatives B.2, C and E would divide Princeton University-owned lands west of Route 1. All of the Action Alternatives except D and D.1 would minimize adverse effects on the future development of Sarnoff-owned land east of Route 1, including the property recently purchased by Princeton University. The D-series alternatives would divide Sarnoff-owned land located east of Route 1, including the property recently purchased by Princeton University.

4.4.7 Parks, Recreational Resources and Open Space

D&R Canal Park and Lake Carnegie

Some Action Alternatives would improve traffic movement on Washington Road and Harrison Street by eliminating the traffic signals at Route 1 that cause peak period queues. These alternatives are 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, and G.2. As demonstrated in the traffic analyses, some of these alternatives would accommodate traffic and reduce queuing more effectively than others.

Alternatives with loop interchanges and right in/right out configurations would operate more effectively than the diamond interchanges requiring left turns onto Route 1 northbound. The extent to which these Action Alternatives would reduce traffic congestion and queues across the canal and lake bridges would be a benefit.

Alternatives G and G.1 would preserve the existing traffic signals and would have a limited ability to improve traffic movements and reduce congestion on east-west roadways. Little benefit to the D&R Canal Park and lake would occur as a result of G and G.1.

The traffic analyses determined that some Action Alternatives would maintain the existing distribution of traffic on east-west corridors crossing the D&R Canal Park and Lake Carnegie, while others would change the distribution. The equal distribution of traffic refers to the balance of traffic volume on the three east-west routes, and in the study area: Washington Road, Harrison Street, and Alexander Road. Currently, the traffic split on these roads is approximately 32% on Washington Road, 23% on Harrison Street, and 45% on Alexander Road. Public and Roundtable sentiment is for the preservation of this relative distribution. As described in Section 4.4.5.2, Alternatives C, C.1, G, and G.1 provide the least variation in distribution compared to the No-Action, thus preserving the relative distribution and Action Alternative B.2 provides the most equal distribution between the three routes. Following is a summary of the Action Alternative traffic data for each crossing.

Alexander Road - Compared to the No-Action Alternative, Alternatives A, A.2, A.3, A.4, G, G.1 and the B, D, E, and F-series alternatives would reduce traffic 6-21% on Alexander Road, resulting in less intrusion on the park and lake. These alternatives would have a positive impact on the park and lake at this location. Alternatives A.1 and C would be neutral relative to traffic impacts on Alexander Road. Alternatives C.1 and G.2 would increase traffic 9-11%. The resulting increase in intrusion would have a negative impact on the park and lake at this location.

Washington Road – Compared to the No-Action Alternative, all of the Action Alternatives except C would reduce traffic 7-46% on Washington Road, resulting in less intrusion on the park and lake. These alternatives would have a positive impact on the park and lake. Alternative C would be neutral relative to traffic impacts on the park and lake at this location.

Harrison Street – Compared to the No-Action Alternative, all of the Action Alternatives would increase traffic 7-95% on Harrison Street, resulting in greater intrusion to the park and lake. All of the Action Alternatives would have a negative impact on the park and lake at this location.

Some Action Alternatives would straighten the through movement approach to the canal bridge at Harrison Street. Currently, Harrison Street has a sharp curve just east of the bridge that limits sight distance for both motorists and park users trying to

cross the street either on foot or by car from the parking area. Action Alternatives A, A.1, A.2, A.3, A.4, B. B.1, B.2, D, D.2, F, and F.1 would extend the west-side connector to the bridge in a straight alignment. Harrison Street would tie into this connector at a new T-intersection east of the canal bridge. This configuration would increase sight distance for motorists and canal users.

Action Alternatives B and B.1 include a west-side connector that would parallel the canal between Harrison Street and Washington Road at a close distance. This roadway would be visible from a portion of the park near Harrison Street where the wooded area is somewhat thinner than other areas and the topography is relatively flat. Visibility through the trees in this area would be somewhat greater in winter when the deciduous trees and shrubs are leafless.

Greenbelts

None of the Action Alternatives would impact NJ Green Acres funded tracts within the study area. This includes the existing greenbelt tract on Alexander Road and the planned greenbelt on the Sarnoff property.

Private Recreational Resources

In the context of existing conditions, Action Alternatives with and east-side connector would impact some recreation areas on the Sarnoff property. Action Alternatives A, A.1, A.2, A.3, A.4, B, B.1, B.2, F, and F.1 would impact existing ballfields. It should be remembered, however, that Sarnoff Corporation received approval for their General Development Plan that would introduce new office, research, and related development on its property. Examination of the Plan indicates this development would impact the same recreational resources as the east-side connector. Construction of buildings and parking areas would impact the existing ballfields. A connector road between the two campuses would traverse Little Bear Brook and would likely have similar impacts to the east-side connector proposed in some of the Action Alternatives.

4.4.8 Mitigation of Socioeconomic and Land Use Impacts

If an Action Alternative is selected and advanced in design, a closer examination of its potential impacts would be undertaken. As part of typical design practice, means to avoid business, residential, parks, recreational area, and open space impacts would be examined. Where such impacts are found to be unavoidable, particular efforts would be taken to minimize impacts. Where commercial and/or residential displacements cannot ultimately be avoided, an acquisition and relocation program would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to all affected residents and businesses without discrimination.

The foregoing discussions set forth the benefits and adverse impacts of the Action and No-Action Alternatives on distinctive neighborhoods. Selection of a preferred alternative should give careful consideration to the balance of benefits and adverse

impacts to each neighborhood so as not to place an undue benefit or burden on a neighborhood(s) relative to the others.

Action Alternatives D and D.2 would provide the opportunity to consider constructing a covered section over Route 1 in-a-cut at Penns Neck. This covered area would comprise approximately 55,000 square feet, and could be developed as public open space. The area is sufficiently large to consider an array of landscape and hard scape amenities.

The ability to overcome traffic impacts on Harrison Street in the Upper Harrison Street neighborhood, and at the Alexander Road/Vaughn Drive intersection near the Bear Brook and Windsor Haven neighborhoods would be explored during design if an Action Alternative is selected that would cause such impacts. Using context sensitive design principles, opportunities to provide operational improvements, traffic calming, monitoring, or other techniques at those locations would be examined.

Selection and advancement of an Action Alternative to design would enable an examination of means to refine the alternative to avoid, or at best minimize adverse impacts, develop complementary strategies, and develop mitigation strategies to overcome unavoidable adverse impacts. Further examination of issues and ideas presented by the public and the Roundtable would occur at this time.

4.4.9 Cultural Resources

The effect of the proposed undertaking on a cultural resource is predicted based upon the distinguishing elements of the resource and the design and anticipated consequences of the undertaking. Effects to cultural resources on or eligible for listing in the National Register of Historic Places are evaluated with regard to the Criteria of Effect and Adverse Effect, established by the Advisory Council on Historic Preservation (36 CFR 800.9). According to these criteria:

An undertaking has an effect on a historic property when the undertaking may alter the characteristics of the property that may qualify the property for inclusion in the National Register. For the purpose of determining effect, alterations to features of a property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered. An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

1) Physical destruction, damage, or alteration to all or part of the property;

2) Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;

3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;

4) Neglect of a property resulting in its deterioration or destruction; and

5) Transfer, lease or sale of a property (36 CFR 800.9).

Figures 4-19 through 4-32 present the Action Alternatives in the context of the cultural resources. All traffic numbers presented in the following subsection are for the AM peak hour of travel. Traffic volume estimates have been rounded for comparative purposes.

4.4.10 No-Action Alternative, Cultural Resources

The No-Action Alternative would involve no new construction or right-of-way acquisition. No physical impacts on cultural resources would occur.

4.4.11 Action Alternatives, Cultural Resources

The Action Alternatives have the potential to impact up to 13 of the listed or eligible properties found within the APE depending on the alternative considered. Table 4-19 and 4-20 present matrix summaries of the potential impacts to listed or eligible properties from each of the Action and No-Action Alternatives. More detailed information on these potential impacts is contained in the *Cultural Resources Effects Document, Penns Neck Area EIS.* Properties within the APE that would not be impacted by any Action Alternative or the No-Action Alternative include the Lake Carnegie Historic District, the Penns Neck Cemetery, and the Princeton Branch D&R Canal Bridge.

Following is a comparative discussion of potential impacts by listed or eligible property.

Aqueduct Mills Historic District
All of the Action Alternatives call for the widening of Route 1 south from the Mapleton Road intersection. This widening, proposed to amount to 12 feet on either side of the highway, would require acquisition of a portion of District property at the intersection of Mapleton Road and Route 1 and removal of a dry-laid stone wall that is a contributing resource of the District. Wall removal would result in an adverse effect on the District.

Compared to the No-Action Alternative, the Action Alternatives would reduce traffic on Mapleton Road by approximately 5-90 vehicles depending on the alternative. Consequently, traffic noise and vehicle emissions would be reduced slightly within the District. In addition, widening Route 1 to provide an acceleration lane for traffic merging on to Route 1 is intended to improve traffic flow through the area adjacent to the District and decrease congestion in the District during peak travel periods.

Balancing the removal of the stone wall with reduced traffic and congestion in the District, the net effect of any of the A alternatives is expected to be positive.

Aqueduct Mills Historic District Extension

None of the Action Alternatives would physically impact District property. However, all Action Alternatives, except D and E, may have visual impacts due to increased traffic on Harrison Street. Alternatives C, C.1, D.1, F, F.1, and G Alternatives may have auditory impacts due to increased traffic on Harrison Street. The C Alternatives would include construction of the north end of a frontage road, relocation and elevation of the east end of Harrison Street, and a diamond interchange at Route 1 which may result in an adverse visual effect. Alternative D.1 would include construction of a connector road intersecting Lower Harrison Street at Logan Drive. The east end of Lower Harrison Street would be converted to a dead-end street, substantially reducing traffic volumes. However, traffic west of the connector road intersection would increase by 1,025 vehicles. The C and G Alternatives would increase traffic on Lower Harrison Street by 120-490 vehicles. This increased traffic may result in increased traffic noise and vehicle emissions. According to the noise study, post-construction future noise levels would be at or above the NAC at six Harrison Street houses located in the District. Increased traffic noise and vehicle emissions may result in an adverse effect on the District.

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Table 4-19
Possible Adverse Effects on National Register-Listed and Eligible Historic Architectural Resources

PENNS NECK AREA EIS—ALTERNATIVES																			
Historic Architectural Resources	**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**
Aqueduct Mills Historic District	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Aqueduct Mills Historic District Extension	Vs	Vs	Vs	Vs	Vs	Vs	Vs	Vs	Au,Vs	Au,Vs		Au,Vs		Au	Vs	Vs	Au,Vs	Au,Vs	Au,Vs
Covenhoven-Logan-Silvers House	D	D	D	D	D	D	D	D			Au,Vs	Au,Vs	Au,Vs	Vs	Au,Vs	Au,Vs		Vs	
Delaware and Raritan Canal Bridge																			
Delaware and Raritan Canal Historic District	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs	Au,Vs
Lake Carnegie Historic District																			
Penns Neck Baptist Church	Au	Au	Au	Au	Au						Au	Au	Au	Au	Au	Au			
Penns Neck Cemetery																			
Pennsylvania Railroad Historic District	D	D	D	D	D		D	D	D	D	D	D	D	D	D	D	D	D	
Princeton Operating Station	D	D	D	D	D	D	D	D	D	D					D	D			
RCA Laboratories (David Sarnoff Research Center)											Vs	Vs		Vs					
David S. Voorhees House	Vs	Vs	Vs	Vs	Vs		Vs	Vs	Vs	Vs	Vs	Vs	Vs	Vs	Vs	Vs	Vs	Vs	
Washington Road Elm Allée						D	D	D	D									D	

Notes:

- Air quality measurements and predictions indicate that no alternative will have an adverse atmospheric impact on any resource.
- Predicted vibration levels in the vicinity of resources have not been calculated.
- Only Vaughn Drive Connector 1 may result in the adverse effects noted for the Pennsylvania Railroad Historic District. Vaughn Drive Connectors 1 or 2 may have a visual effect on the David S. Voorhees House. Vaughn Drive Connector 3 would not result in an adverse effect.

Au Adverse effect possible due to noise impact.
D Adverse effect possible due to physical destruction.
Vs Adverse effect possible due to visual impact.

Table 4-20
Possible Adverse Effects to National Register Eligible Archeological Sites

Archeological Site	PENNS NECK AREA EIS – ALTERNATIVES																		
	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
28ME2	D	D	D	D	D	D	D	D	D	D	D	D			D	D			
28ME23	D	D	D	D	D	D	D	D			D	D		D	D	D			
28ME86	D	D	D	D	D	D	D	D			D	D		D	D	D			
28ME291	D	D	D	D	D		D	D	D	D	D	D	D	D	D	D	D	D	

D = Adverse effect likely due to physical destruction.

Note: This table assumes selection of VDC 3 for all alternatives with a Vaughn Drive Connector component.

The A, B, E, and F Alternatives, as well as Alternative D, would convert Harrison Street to a dead-end street, thereby substantially reducing traffic volumes and having positive noise and visual effects on the District.

Covenhoven-Silvers-Logan House

The C and G alternatives would not physically impact the property. The D, D.2, F, and F.1 alternatives would introduce traffic noise from west-side connector roads, thereby having adverse noise and visual effects on the property. The west-side connector roads would be visible from the house. In addition to possible adverse visual effects on the resource, increased traffic near the resource would result in noise levels that would approach or exceed the NAC. In particular, Alternative D.1 includes a west-side connector road on axis with existing Eden Way that would dramatically increase traffic volume in the immediate vicinity of the house. Post-construction future noise levels would be above the NAC at the Logan House. This increased traffic and associated increased noise would result in adverse noise and visual effects on the resource.

The E Alternative would introduce a west-side connector road which would be visible from the house. The road would alter the setting of the resource, and may result in an adverse visual effect.

The A and B alternatives would have a physical impact on the property, necessitating building demolition or relocation. The alternatives would have an adverse effect on the house. Archaeological investigation would also be required, and possibly data recovery, if an A or B alternative is selected.

David S. Voorhees House

The B and G.2 Alternatives would not physically impact the property or result in an adverse effect. If VDC 1 is selected to accompany the remaining Action Alternatives, some property acquisition (side yard) may be required to widen Station Drive. Depending on the amount of land required, this widening could alter the setting of the house to such a degree as to result in an adverse visual effect. However, the structure would not be physically impacted by any of the Action Alternatives.

Vaughn Drive Connector alignment 2 may require acquisition of a portion of the north side yard of the house. This acquisition could have an adverse visual effect on the setting of the house. Vaughn Drive Connector alignments 3 would not have an effect on this resource.

Delaware and Raritan Canal State Park and Historic District

The C, D.1, E, and G Alternatives would result in no physical impacts to the District. The A, B, C, D, E, F, G and G.1 alternatives would increase traffic volumes on Harrison Street, while reducing traffic at the Washington and Alexander Road crossings (Table 4-21). This increase in traffic may result in an adverse visual effect on those portions of the canal closest to the Harrison Street crossing. However, while traffic would increase at the Harrison Street canal crossing, it would be reduced at the Washington and Alexander Road crossings, yielding a positive effect on the District at these crossings.

Table 4-21
Traffic Volume Changes at D&R Canal Crossings[a]

Alternative	Harrison Street	Washington Road	Alexander Road
A's	875-1260	(605-895)	(110-390)
B's	615-700	(245-400)	(165-335)
C	135	(25)	(80)
C.1	120	(550)	220
D and D.1	1025-1230	(630-680)	(260-300)
D.2	975	(533)	(381)
E	900	(615)	(220)
F's	1290-1365	(680-880)	(310-450)
G, G.1	385	(140)	(115)
G.2	490	(950)	255

[a] Compared to the No-Action Alternative; AM peak hour.
Note: Values in parentheses are reductions.

According to the noise study, existing noise levels on the canal measured 57 dBA near Washington Road, 58 dBA near Harrison Street and 61 dBA at the canal midpoint. Noise levels under each of the Action Alternatives would be at or above the NAC near Washington Road and Harrison Street, but below permissible NAC standards at the canal midpoint. The noise levels at the intersections may constitute an adverse effect.

The deleterious effects of this increased traffic may be partially reduced in some alternatives by the positive effect of increased sight distances for Canal Park users when the road is realigned. 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.

Lake Carnegie Historic District

In all Action Alternatives, traffic using the three lake crossings will increase in the future (Table 4-22). The increased traffic would have an effect on the district. Because isolation from traffic noise is not a significant characteristic of the district, the effect is not expected to be adverse.

Pennsylvania Railroad Historic District
All Action Alternatives would impact the District by replacing the Route 571 bridge, a contributing resource to the District. Provided this rehabilitation proceeds in accordance with the Secretary of the Interior's Standards and Guidelines, no adverse effect would result. The VDC 1 alignment may have an adverse effect on the Princeton Junction Hotel, which is a contributing element to the District.

The construction of VDC 1 would require the widening of existing Station Drive, and may necessitate the demolition of the Princeton Junction Hotel, a District contributing element, due to its proximity to the VDC right-of-way. Demolition would have an adverse effect on the District. Vaughn Drive connector road alignments 2 and 3 (VDC2 and VDC3) would not result in an adverse effect on the District.

Princeton Baptist Church at Penns Neck
The Action Alternatives would result in no physical impacts to the Church complex. All Action Alternatives except G and G.1 would remove the traffic signals on Route 1, thereby allowing uninterrupted traffic flow on Route 1 in front of the church. All Action Alternatives except E would increase traffic volumes on Route 1 compared to the No-Action Alternative (Table 4-22). 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 series 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 by reducing noise and visual impacts due to traffic.

Geotechnical borings indicate Route 1 in-a-cut can be constructed using conventional machinery (DMJM+HARRIS, February 2003) (Section 4.13). Construction would result in a temporary adverse effect due to noise.

Route 1 traffic under the B, C, and G Alternatives with Route 1 at-grade would cause future exterior noise levels near the church to be above the NAC. Because the noise levels represent the continuance of an existing adverse condition, and the increase in noise is expected to be less than 10 dBA, noise from increased traffic would not constitute an adverse effect.

All Action Alternatives except G and G.1 would reduce traffic volumes on Washington Road compared to the No-Action Alternative (Table 4-22).

Table 4-22
Route 1 and Washington Road Traffic Volume Changes[a]

Alternative	Route 1 At-grade or In-a-cut	Route 1 Volume	Washington Road Volume
A's	In-a-cut	612-1455	(1325-1730)
B's	At-grade	85-941	(1770-2000)
C's	At-grade	987-1160	(680-730)
D's	In-a-cut	1058-1198	(2005-2025)
E	In-a-cut	(58)	(2125)
F's	In-a-cut	233-800	(1465-1705)
G, G.1	At-grade	232	45
G.2	At-grade	2403	(710)

[a] Compared to the No-Action Alternative; AM peak period.
Note: Values in parentheses are reductions.

Princeton Operating Station
Alternatives A, A.1, A.2, B, B.1, and B.2 would include construction of a ramp encircling the Station. This ramp would preclude access to the Station, and demolition of the building may be required. As a result, the effect of each of these alternatives on the building would be adverse. The F alternatives would include a grade-separated loop interchange in the vicinity of Harrison Street, an east-side connector road, and a Harrison Street connector road. Alternative F.1 would also include a frontage road on the west side of Route 1. The alignment of the interchange ramps, as well as that of the Harrison Street connector road, would necessitate the demolition of the Station. Therefore, either of the F Alternatives would have an adverse effect on the resource.

Alternatives A.3, A.4, C, and C.1 would include construction of a ramp and frontage road in the vicinity of the Station. This ramp/frontage road would include an approximately 20-foot high retaining wall directly in front of the Station, which would result in a visual effect to the building, and building demolition may be required. Therefore, the effect of these alternatives would also be adverse. If the building remains, according to the noise study, noise levels would be above the NAC. Because the noise level represents the continuance of an existing condition, noise from increased traffic does not constitute an adverse effect.

The D, E, and G Alternatives, would not result in physical changes to the Station as the interchanges would be located away from the property. The Station is expected to experience noise levels that approach or exceed the NAC for a school or playground. Because the noise level represents the continuance of an existing condition, and the increase in noise is less than 10 dBA, noise from increased traffic would not constitute an adverse effect.

Sarnoff Corporation
The A, B, E, and F series alternatives and D and D.1 include an east-side connector road that would cross a portion of the district, thereby having the potential for an

adverse effect on the property. The C and G series alternatives would have no effect on the property.

Washington Road Elm Allée
All Action Alternatives would reduce traffic volumes on Washington Road, resulting in a benefit to the allée (Table 4-22). The B Alternatives and Alternative G.1 would physically impact trees in the allée, causing an adverse effect on the allée. Alternatives B and B.1 would impact 3 trees, B.2 would impact 4 trees, C would impact 2 trees, and G.1 would impact 3 trees.

Archaeological Site 28 ME 2
The E and G Alternatives would not physically impact the site. The A, B, C, and F series alternatives and D and D.1 would physically impact the site, causing an adverse effect.

Archaeological Site 28 ME 23
The C and G Alternatives would not physically impact the site. The A, B, E, and F series alternatives and D and D.1 would physically impact the site, causing an adverse effect.

Archaeological Site 28 ME 86
The C and G Alternatives would not physically impact the site. The A, B, E, and F series alternatives and D and D.1 would physically impact the site, causing an adverse effect.

Archaeological Site 28 ME 291
The VDC 3 alignment would impact this site, causing an adverse effect. VDC 1 and VDC 2, as well as any Action Alternatives that do not include VDC 3, would not impact this site.

4.4.12 Mitigation Measures, Cultural Resources

Upon selection of a preferred alternative, a reassessment of unavoidable impacts including cultural resources will be made. The ability of the selected alternative to avoid adverse effects will be examined. Reasonable effort will be made to avoid or at least minimize adverse cultural resources effects.

The Section 106 process provides a framework for determining appropriate mitigation for unavoidable adverse effects to historic and archaeological resources. This process culminates in the drafting, negotiation, and execution of a Memorandum of Agreement (MOA) among the FHWA, NJDOT, the Advisory Council on Historic Preservation, and the State Historic Preservation Office. The MOA would identify the specific measures to be undertaken to offset or mitigate adverse effects and the parties responsible for executing those measures. This part of the Section 106 process and the MOA would be reported in the FEIS.

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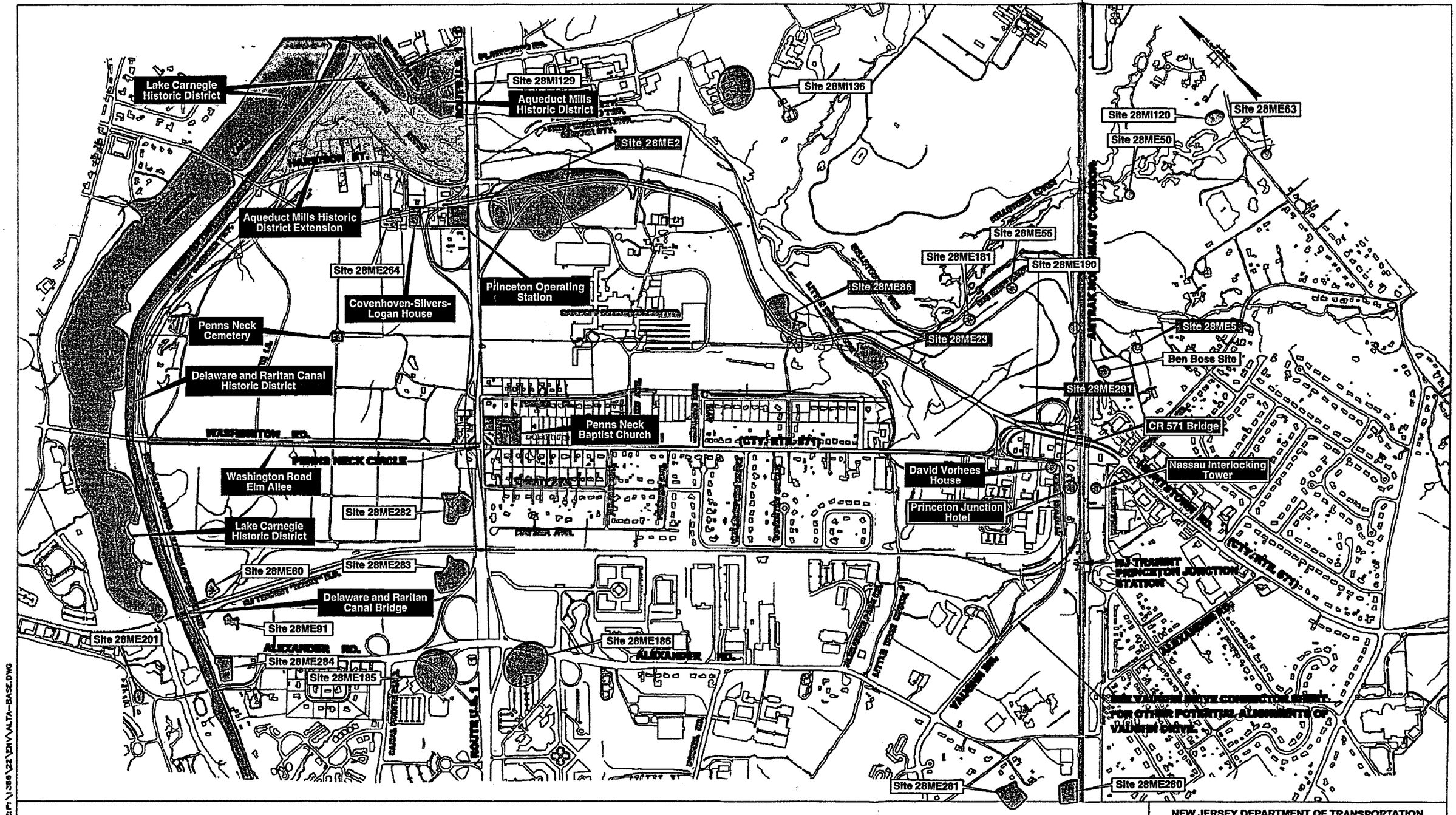

LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-19

Alternative A, showing the locations of previously identified historic architectural resources and archeological sites.

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Lake Carnegie Historic District
Site 28MI129
Aqueduct Mills Historic District
Site 28MI136
Site 28ME2
Site 28MI120
Site 28ME63
Site 28ME50
Aqueduct Mills Historic District Extension
Site 28ME55
Site 28ME181
Site 28ME190
Princeton Operating Station
Site 28ME264
Site 28ME86
Covenhoven-Silvers-Logan House
Penns Neck Cemetery
Site 28ME23
Site 28ME5
Ben Boss Site
Delaware and Raritan Canal Historic District
Site 28ME291
Penns Neck Baptist Church
CR 571 Bridge
Washington Road Elm Allee
David Vorhees House
Nassau Interlocking Tower
Site 28ME282
Princeton Junction Hotel
Lake Carnegie Historic District
Site 28ME60
Site 28ME283
Delaware and Raritan Canal Bridge
Site 28ME91
Site 28ME201
Site 28ME186
Site 28ME284
Site 28ME185
Site 28ME281
Site 28ME280

LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-20

Alternative A.1, showing the locations of previously identified historic architectural resources and archeological sites.

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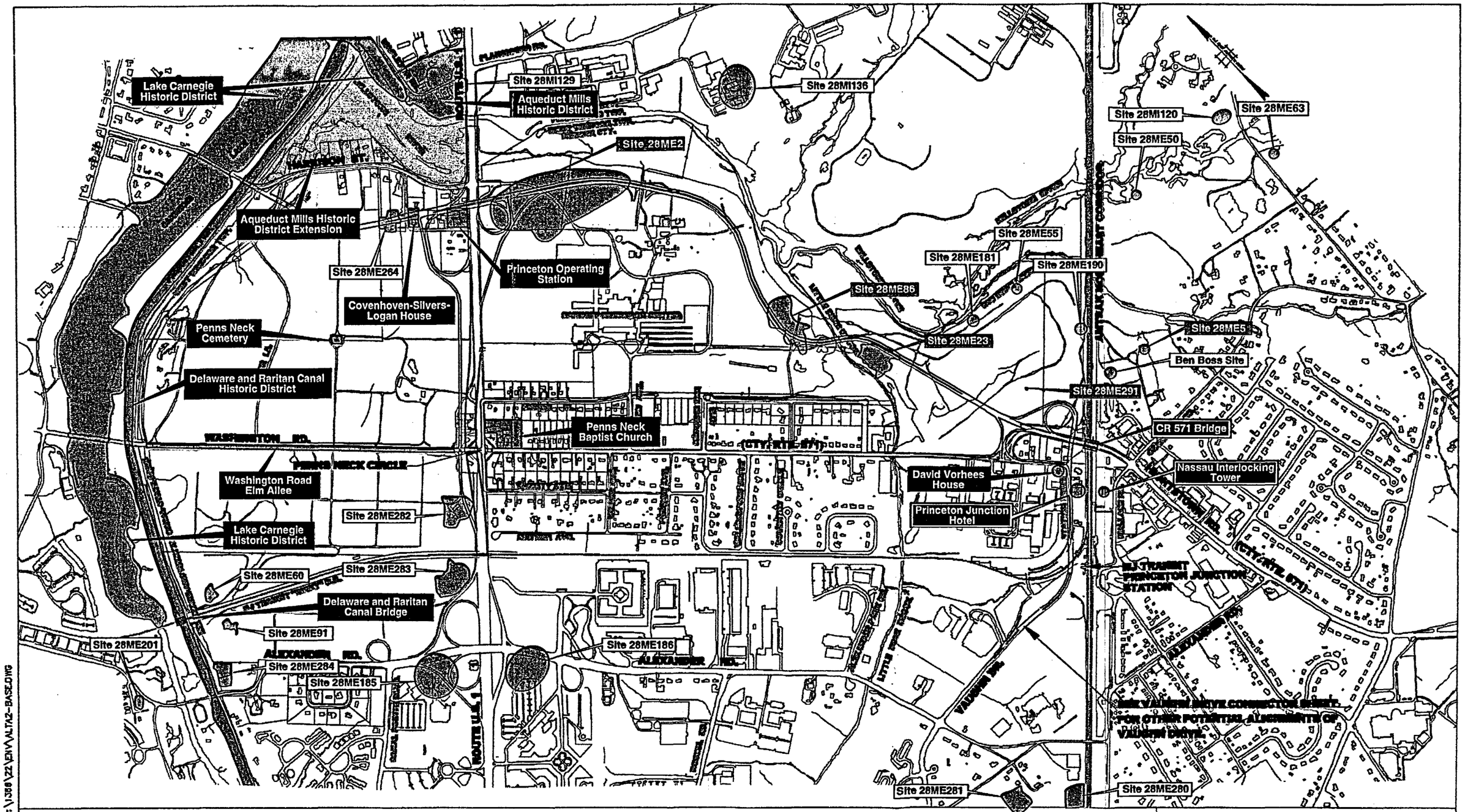


LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

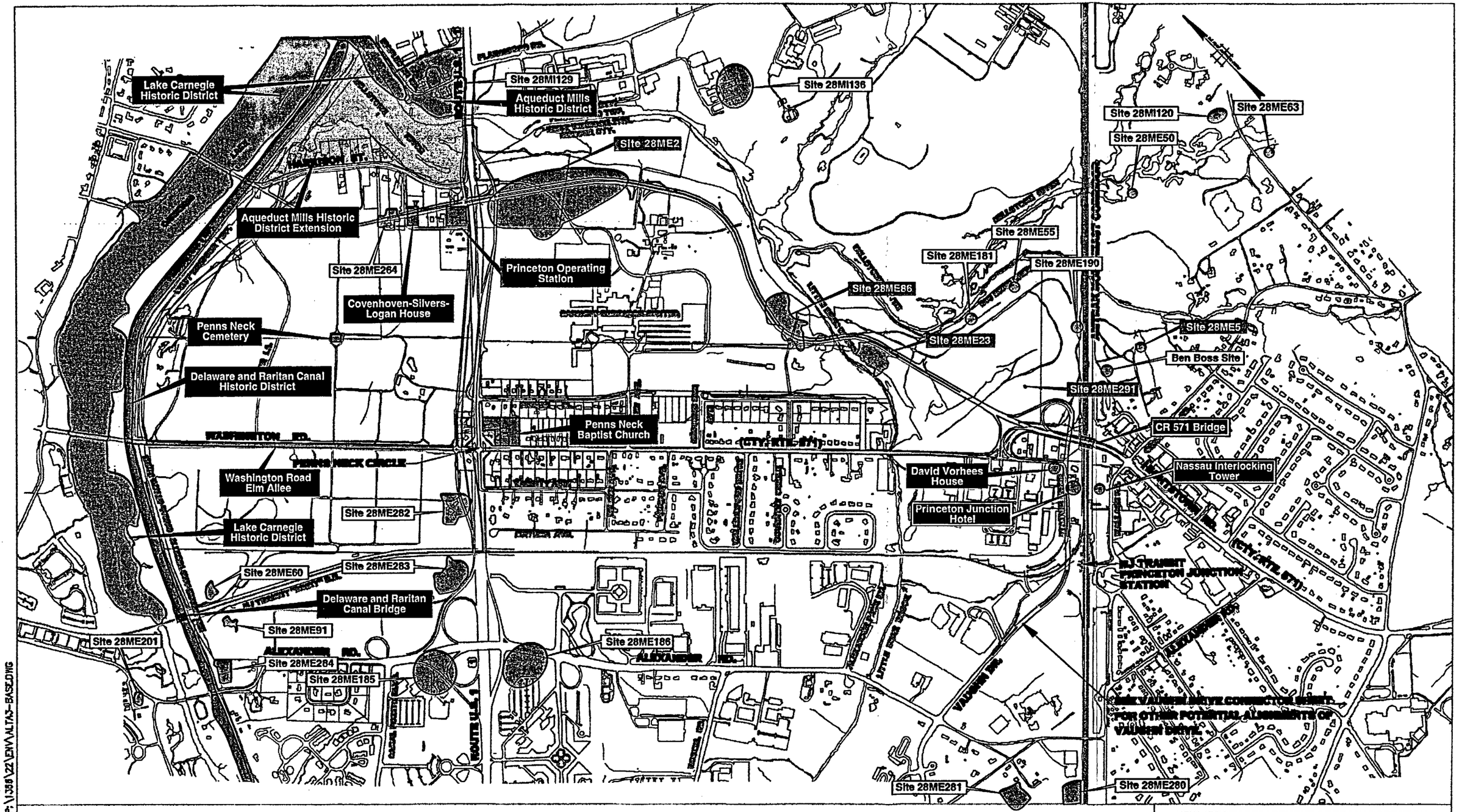
NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

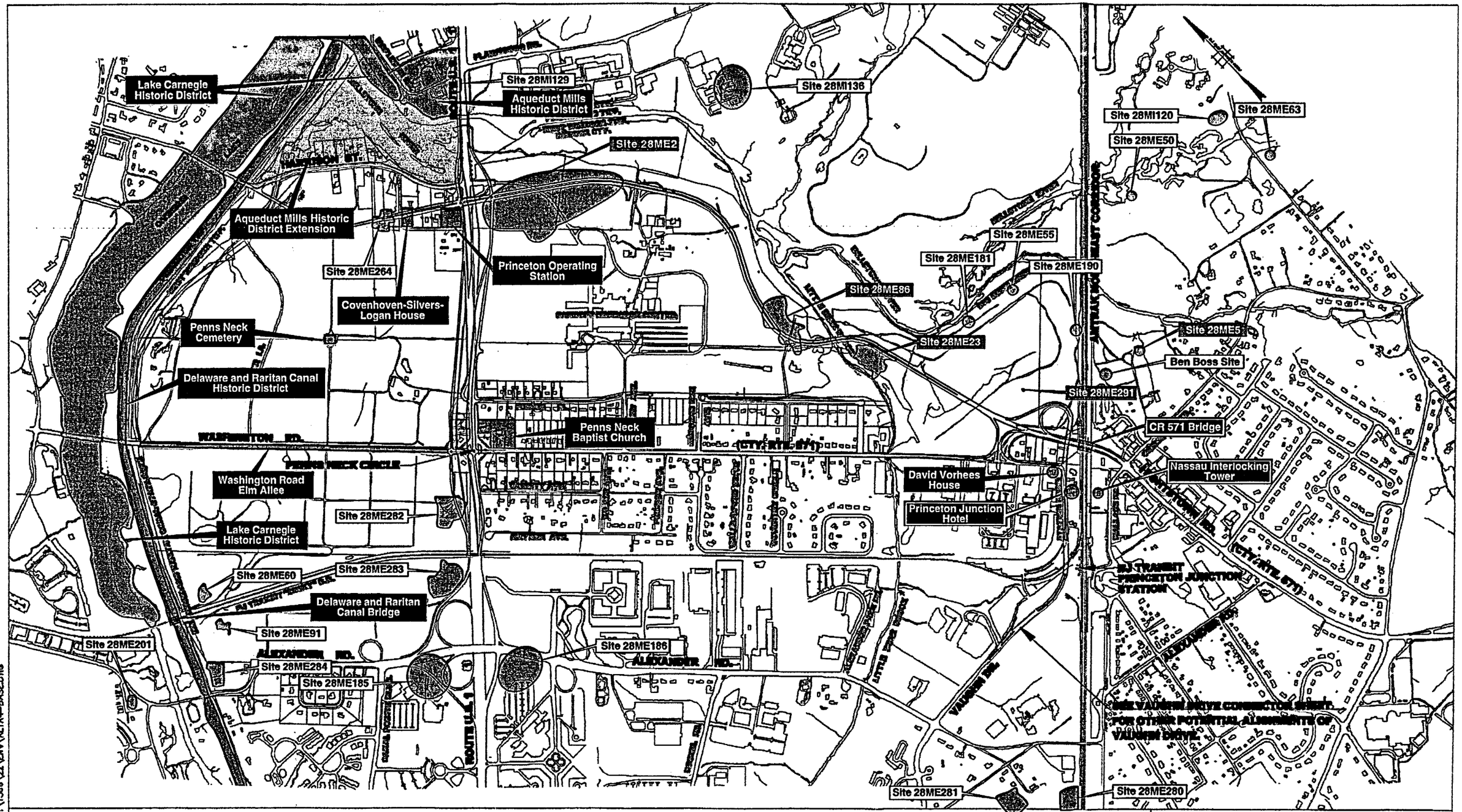
FIGURE 4-21

X-REFS: NONE
LAST EDIT: 09/05/02
PROJECT: 1368-22
FILE NAME: P:\1368\22\ENV\ALT4Z-BASE.DWG

Alternative A.2, showing the locations of previously identified historic architectural resources and archeological sites.



Alternative A.3, showing the locations of previously identified historic architectural resources and archeological sites.



LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

Site 28ME2: Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186: Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District: Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge: Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

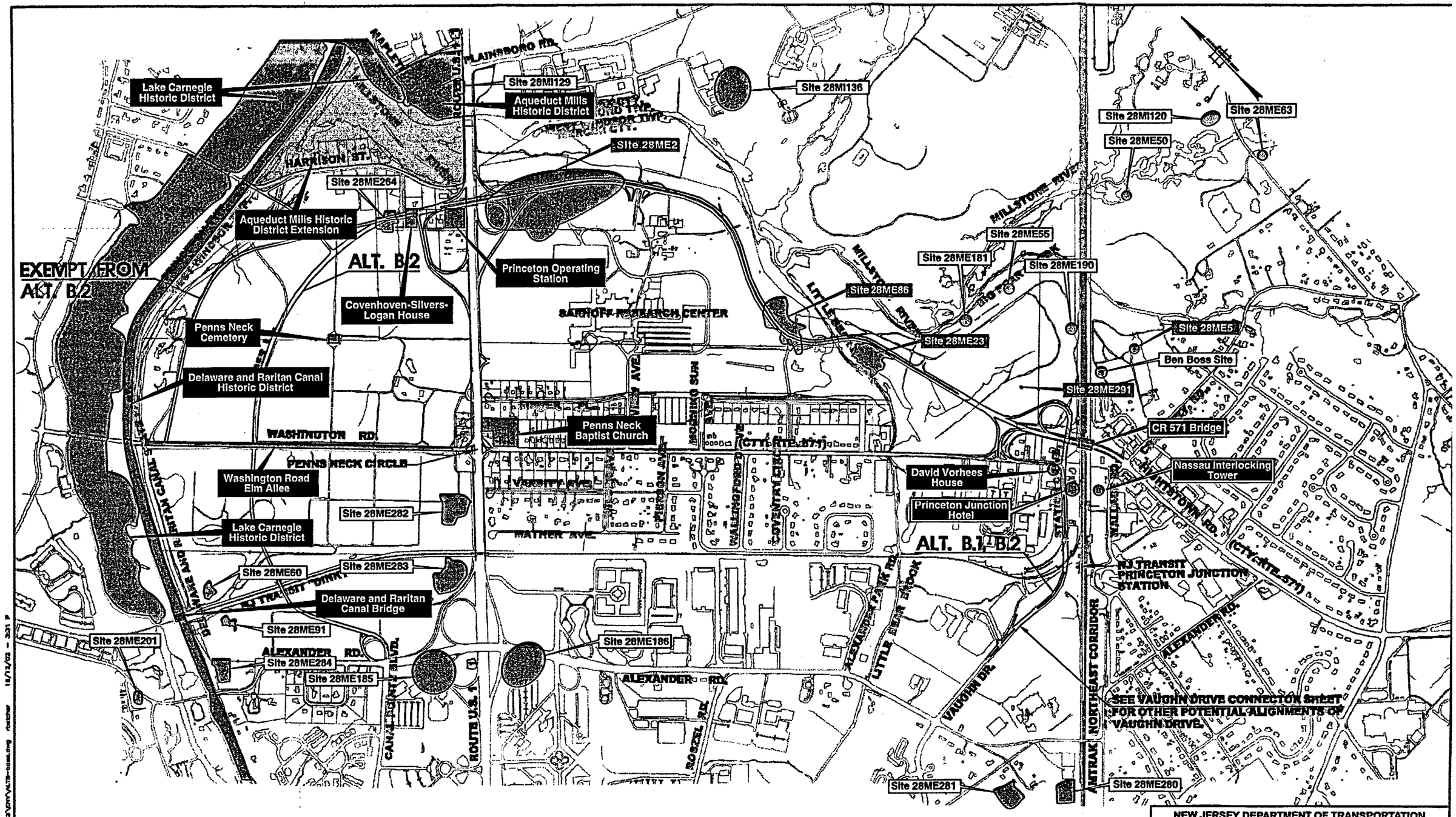
NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA EIS

FIGURE 4-23

X-REFS: NONE
LAST EDIT: 09/05/02
PROJECT: 1936-22
FILE NAME: P:\1936\22\ENV\ALT4-BASE.DNG

Alternative A.4, showing the locations of previously identified historic architectural resources and archeological sites.



LEGEND:

PROPOSED IMPROVEMENTS

EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

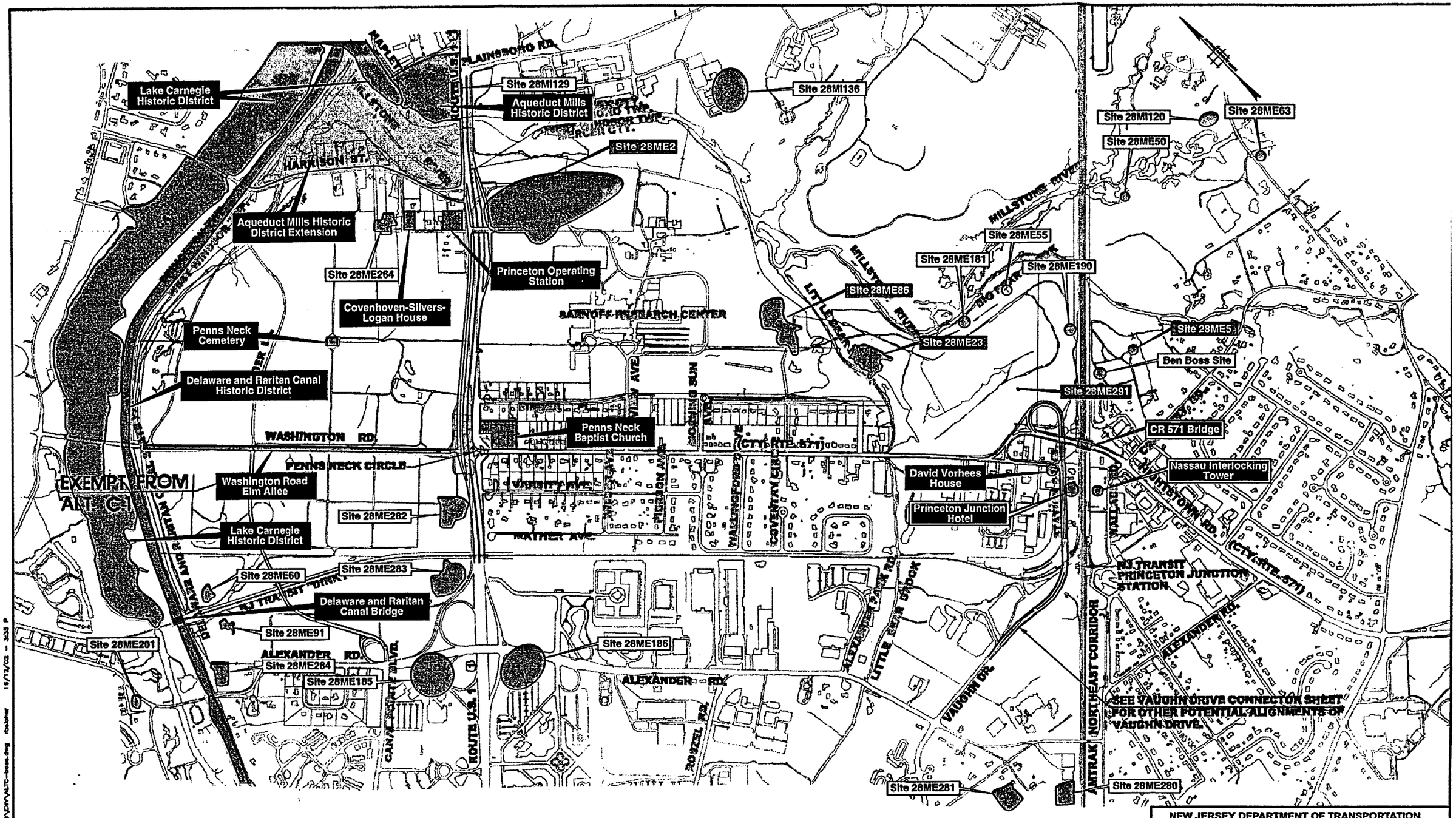
NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA EIS

FIGURE 4-24

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

Alternatives B, B.1, and B.2 showing the locations of previously identified historic architectural resources and archeological sites.



Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

LEGEND:

PROPOSED IMPROVEMENTS

EXISTING CONDITIONS

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-25

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

Alternatives C and C.1, showing the locations of previously identified historic architectural resources and archeological sites.

Lake Carnegie Historic District
Site 28MI129
Aqueduct Mills Historic District
Site 28MI136
Site 28ME2
Site 28MI120
Site 28ME63
Site 28ME50
Aqueduct Mills Historic District Extension
Site 28ME55
Site 28ME181
Site 28ME190
Princeton Operating Station
Site 28ME264
Site 28ME86
Covenhoven-Silvers-Logan House
Penns Neck Cemetery
Site 28ME23
Site 28ME5
Ben Boss Site
Delaware and Raritan Canal Historic District
Site 28ME291
Penns Neck Baptist Church
CR 571 Bridge
Washington Road Elm Allee
David Vorhees House
Nassau Interlocking Tower
Site 28ME282
Princeton Junction Hotel
Lake Carnegie Historic District
Site 28ME60
Site 28ME283
Delaware and Raritan Canal Bridge
Site 28ME91
Site 28ME201
Site 28ME186
Site 28ME284
Site 28ME185
Site 28ME281
Site 28ME280

LEGEND:

PROPOSED IMPROVEMENTS
EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-26

X-REFS: NONE
LAST EDIT: 09/04/02
PROJECT: 1368-22
FILE NAME: P:\1368\22\ENV\ALT D-BASE.DWG

Alternative D, showing the locations of previously identified historic architectural resources and archeological sites.

Lake Carnegie Historic District
Site 28MI129
Aqueduct Mills Historic District
Site 28ME2
Site 28MI136
Site 28MI120
Site 28ME63
Site 28ME50
Aqueduct Mills Historic District Extension
Site 28ME55
Site 28ME181
Site 28ME190
Site 28ME264
Princeton Operating Station
Site 28ME86
Covenhoven-Silvers-Logan House
Penns Neck Cemetery
Site 28ME23
Site 28ME5
Ben Boss Site
Delaware and Raritan Canal Historic District
Site 28ME291
Penns Neck Baptist Church
CR 571 Bridge
Washington Road Elm Allee
David Vorhees House
Nassau Interlocking Tower
Site 28ME282
Princeton Junction Hotel
Lake Carnegie Historic District
Site 28ME60
Site 28ME283
Delaware and Raritan Canal Bridge
Site 28ME91
Site 28ME201
Site 28ME186
Site 28ME284
Site 28ME185
Site 28ME281
Site 28ME280

LEGEND:

PROPOSED IMPROVEMENTS
EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

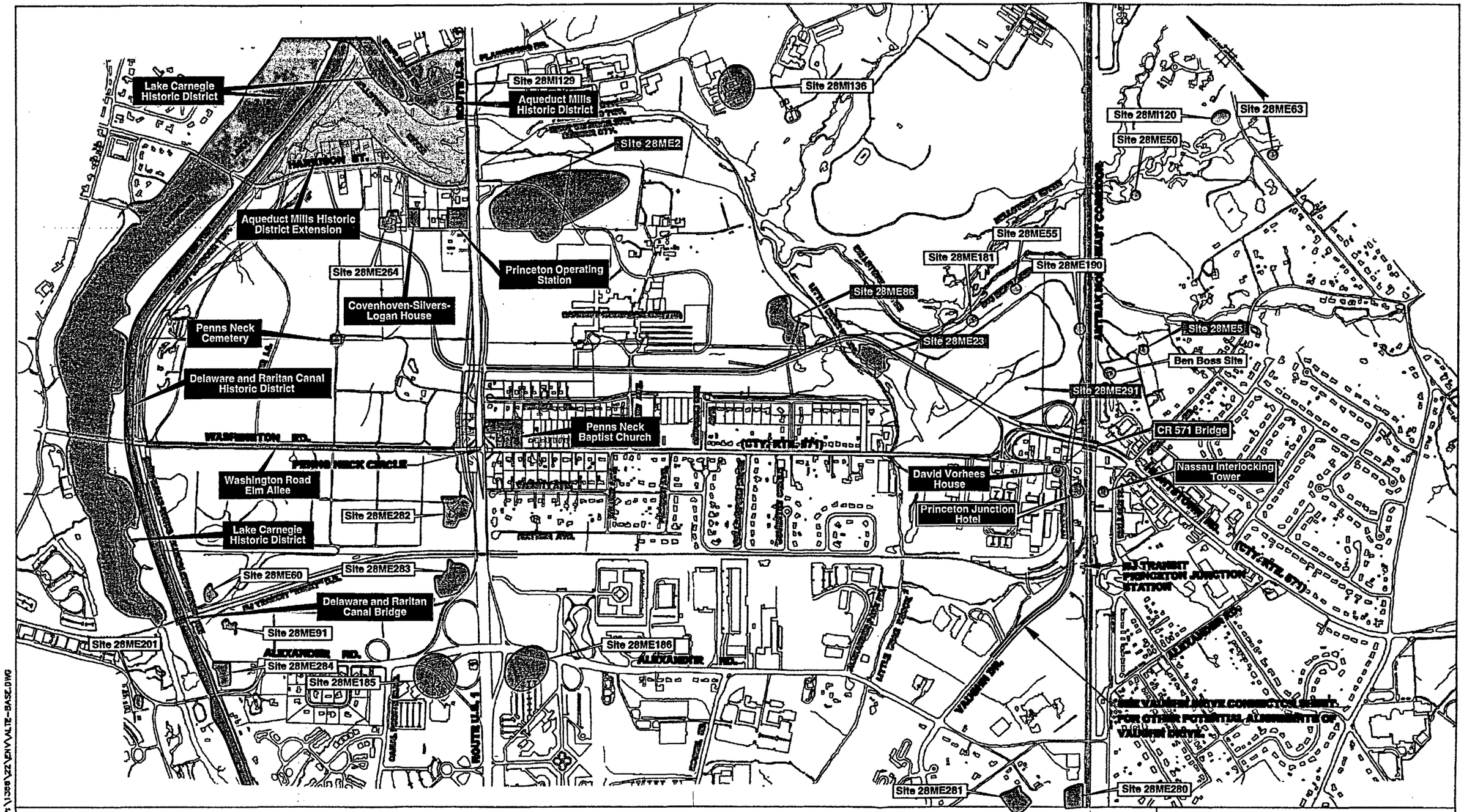
NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-27

X-REFS: NONE
LAST EDIT: 09/05/02
PROJECT: 1346-22 FILE NAME: P:\1346\22\ENV\ALT01-BASE.DWG

Alternative D.1, showing the locations of previously identified historic architectural resources and archeological sites.



Alternative B, showing the locations of previously identified historic architectural resources and archeological sites.

Lake Carnegie Historic District
Site 28MI129
Aqueduct Mills Historic District
Site 28MI136
Site 28ME2
Aqueduct Mills Historic District Extension
Princeton Operating Station
Site 28ME264
Covenhoven-Silvers-Logan House
Penns Neck Cemetery
Delaware and Raritan Canal Historic District
Penns Neck Baptist Church
Washington Road Elm Allee
Site 28ME282
Lake Carnegie Historic District
Site 28ME60
Site 28ME283
Delaware and Raritan Canal Bridge
Site 28ME91
Site 28ME201
Site 28ME284
Site 28ME185
Site 28ME186
Site 28ME281
David Vorhees House
Princeton Junction Hotel
Site 28MI120
Site 28ME63
Site 28ME50
Site 28ME55
Site 28ME181
Site 28ME190
Site 28ME86
Site 28ME23
Site 28ME5
Ben Boss Site
Site 28ME291
CR 571 Bridge
Nassau Interlocking Tower
Site 28ME280

X-REFS: NONE
LAST EDIT: 09/04/02
PROJECT#: 1368-22
FILE NAME: P:\1368\22\ENV\ALT-BASE.DWG

LEGEND:
- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME186 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

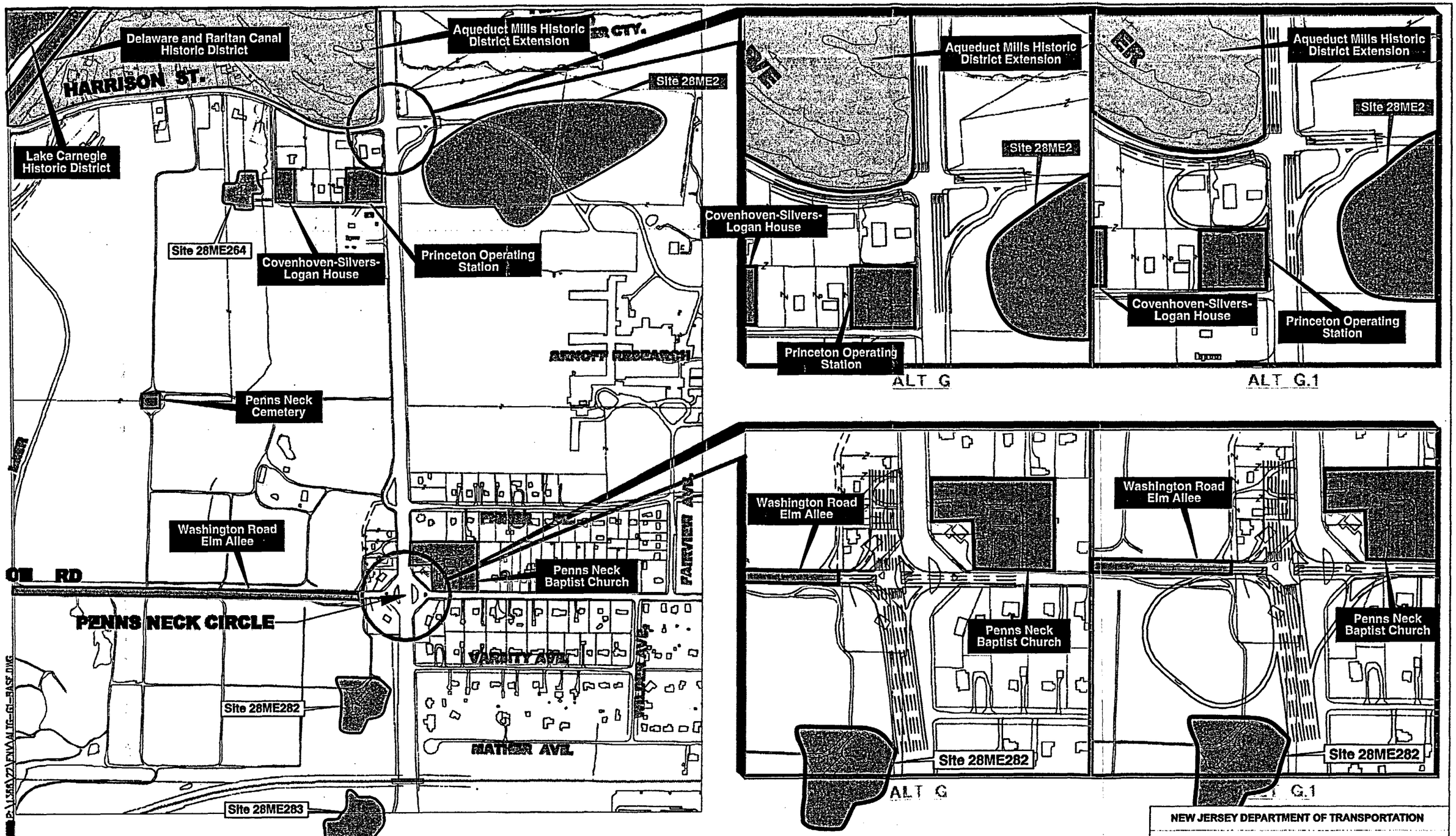
CR 571 Bridge — Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-29

Alternatives F and F.1, showing the locations of previously identified historic architectural resources and archeological sites.



LEGEND:

PROPOSED IMPROVEMENTS

EXISTING CONDITIONS

Site 28ME2 — Archeological site listed or eligible for listing in the National Register of Historic Places

Site 28ME283 — Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined

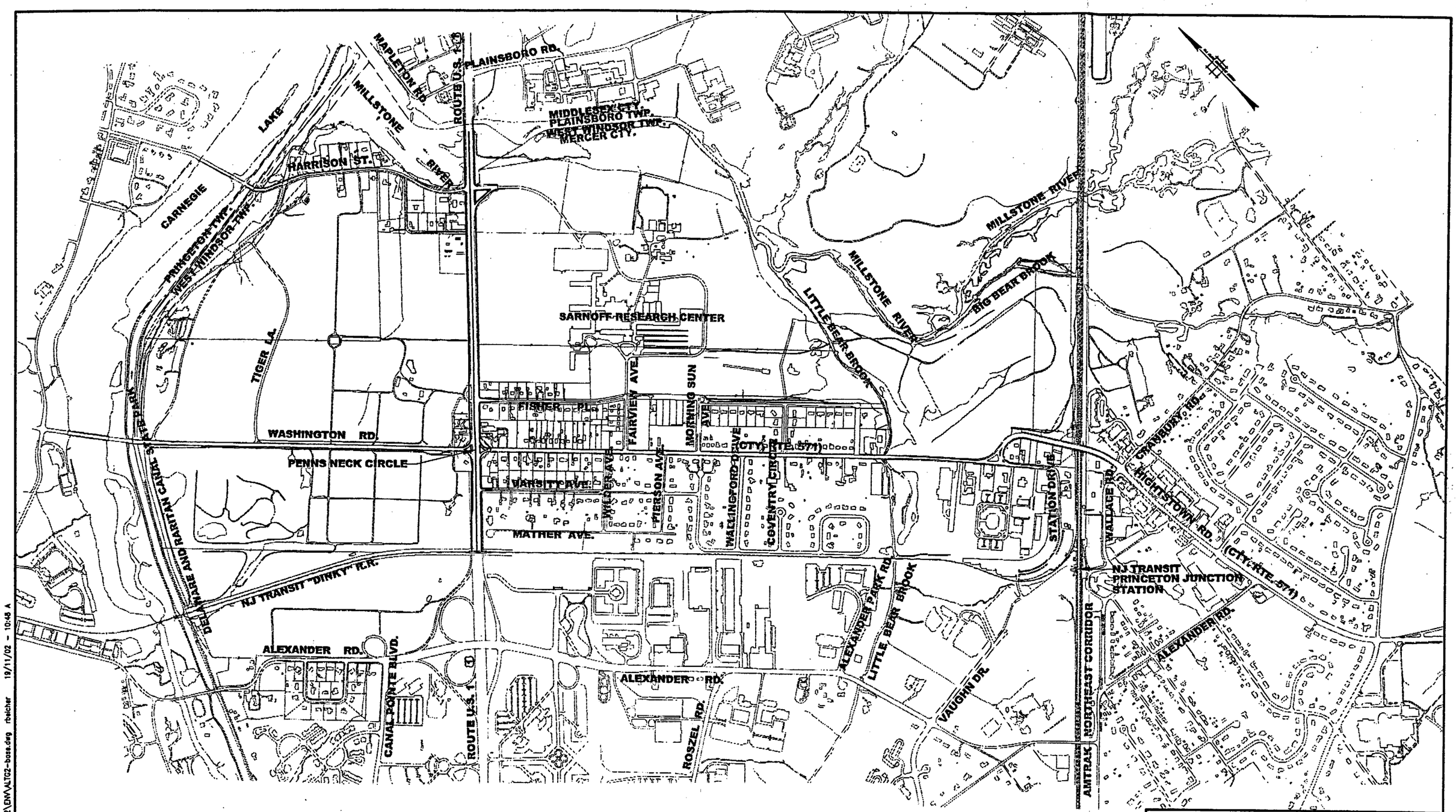
Lake Carnegie Historic District — Historic architectural property listed or eligible for listing in the National Register of Historic Places

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-30

Alternatives G and G.1, showing the locations of previously identified historic architectural resources and archeological sites.



LEGEND:

PROPOSED IMPROVEMENTS

EXISTING CONDITIONS

This figure will be updated in the next version of the DEIS.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

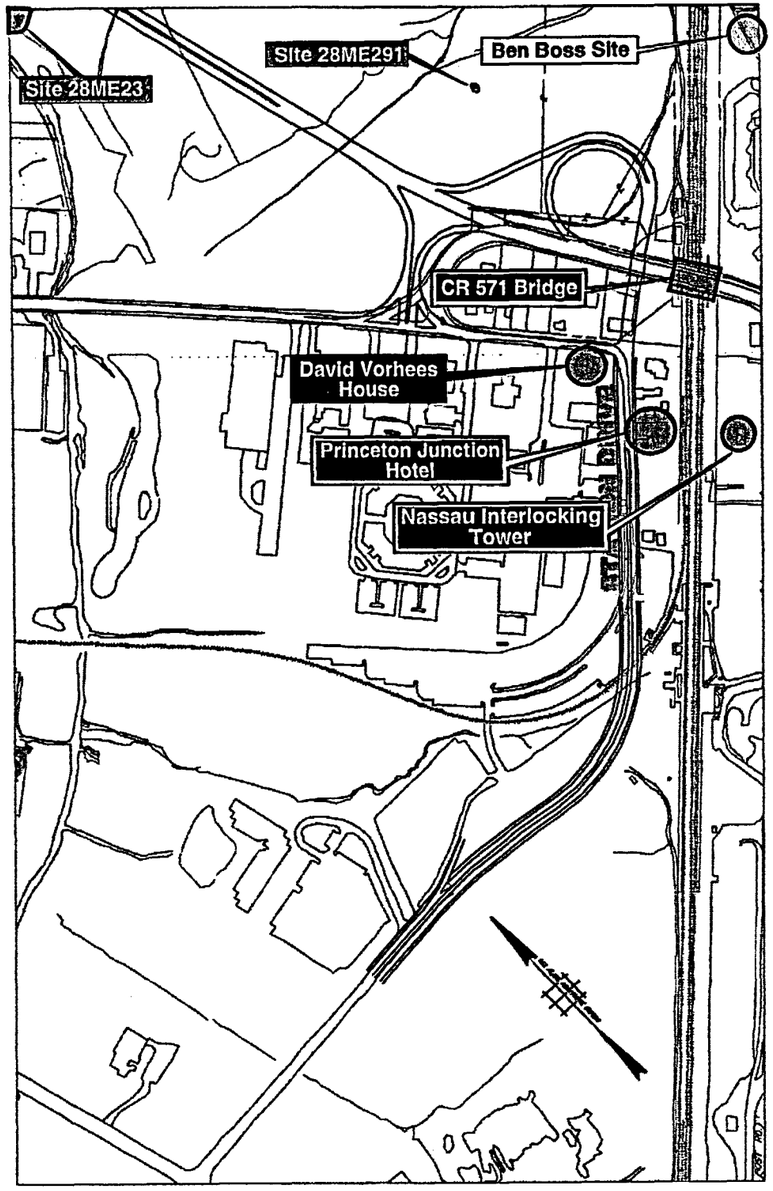
PENNS NECK AREA
ENVIRONMENTAL IMPACT STATEMENT

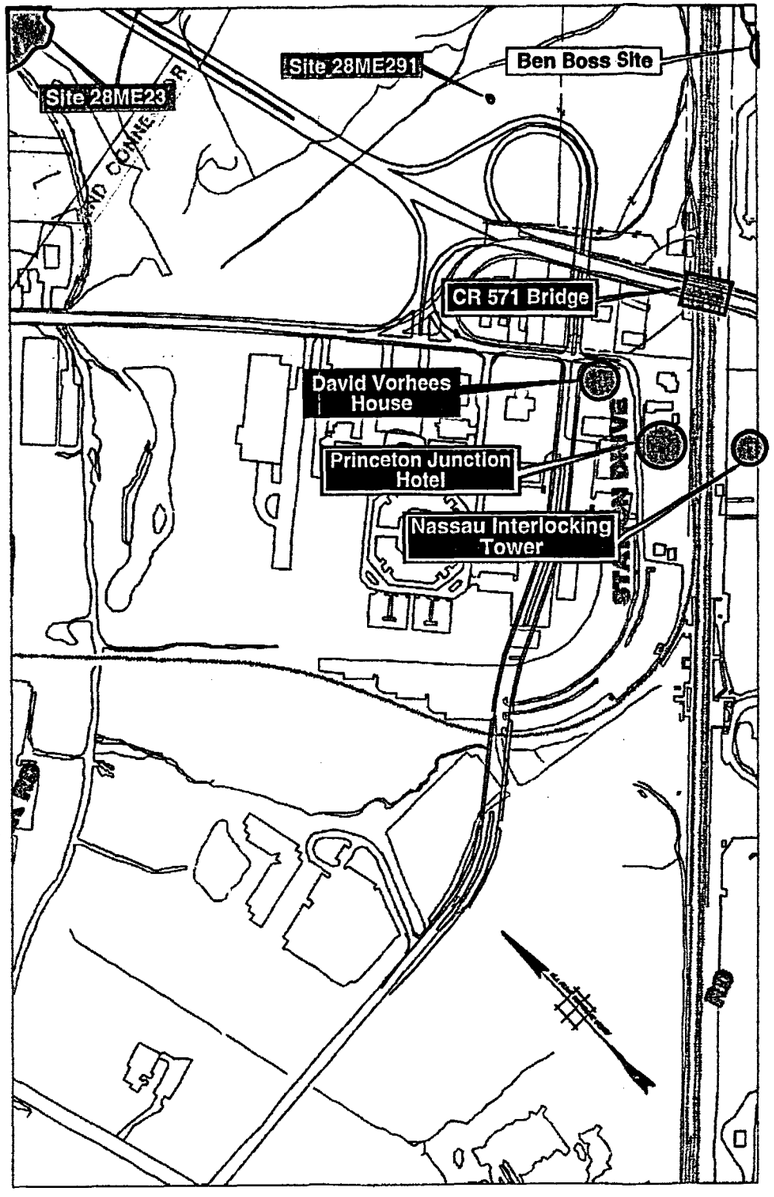
ACTION ALTERNATIVE G.2

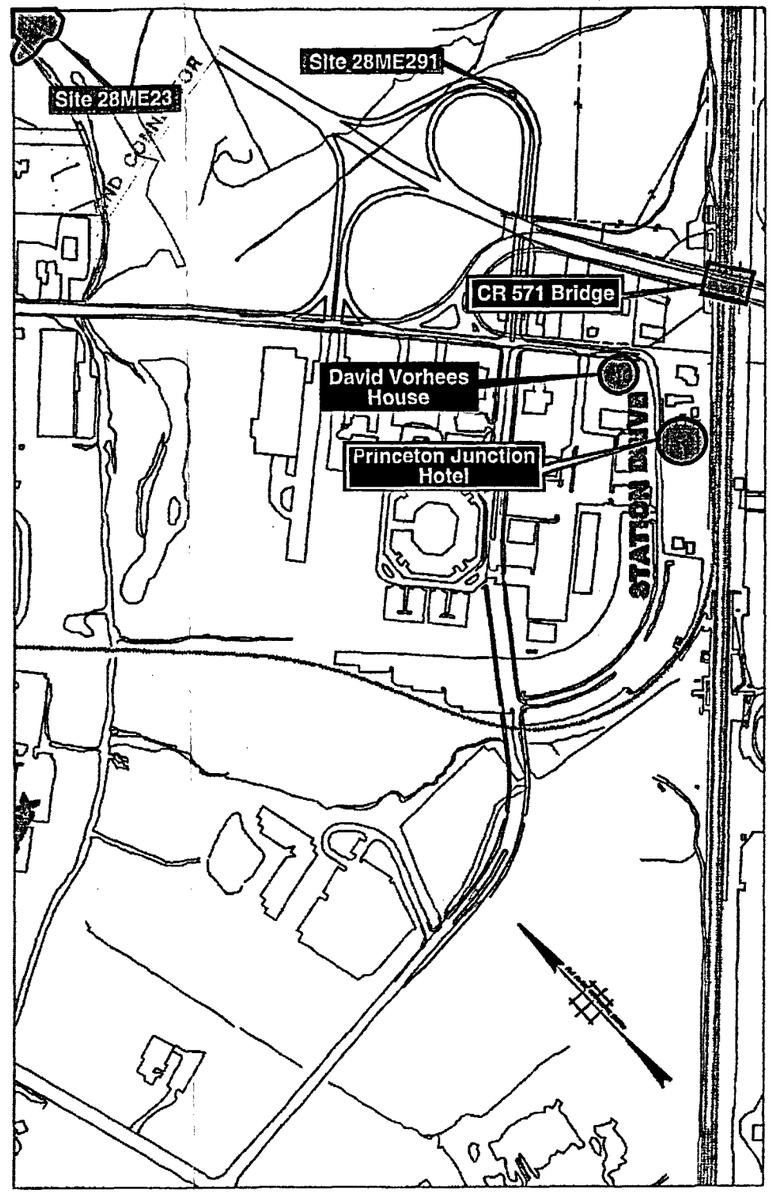
DATE: NOV. 2002
SCALE: 1"=1000'

FIGURE 4-31

DMJM HARRIS P:\1366\22\ENV\ALT02-base.dwg rbelcher 19/11/02 - 10:45 A







LEGEND:

- PROPOSED IMPROVEMENTS
- EXISTING CONDITIONS

Site 28ME23	Archeological site listed or eligible for listing in the National Register of Historic Places
Ben Boss Site	Archeological site not listed or not eligible for listing in the National Register of Historic Places or eligibility undetermined
David Vorhees House	Historic architectural property listed or eligible for listing in the National Register of Historic Places
CR 571 Bridge	Historic architectural property eligible for listing in the National Register of Historic Places as a contributing resource of the Pennsylvania Railroad Historic District

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PENNS NECK AREA
EIS

FIGURE 4-32

09/05/02 13:08:22 P:\1358\22\ENV\ALTVAUGHN-BASE.DWG

Vaughn Drive Connector alignments, showing the locations of previously identified historic architectural resources and archeological sites: left: Alignment 1, middle: Alignment 2, right: Alignment 3.