Speaking for the River

The Stony Brook-Millstone Watershed Association's
Position and Comments on the Penns Neck Area
Draft Environmental Impact Statement

June 30, 2003

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I. SUMMARY

The Stony Brook-Millstone Watershed Association (Stony Brook) has invested an enormous amount of staff resources on the issue of the proposed Millstone Bypass, now called the Penns Neck Area Bypass. With guidance from Board members, staff has reviewed documents, spoken to a variety of stakeholders, released an independent environmental analysis, led canoe trips along the Millstone River, gained consulting party status in the Section 106 cultural and historic review process, encouraged a full review of alternatives and participated in 23 months of stakeholder meetings. Our goal in this process has been to provide a balanced, open-minded evaluation of the issues within the context of our mission.

Why have we invested so much in this proposed road? Our mission is to enhance the quality of the natural environment in the 265-square-mile region drained by the Stony Brook and Millstone River. Many of the proposed alignments run next to the Millstone River, impacting floodplains, habitat and wetlands. The Millstone River, Little Bear Brook, Big Bear Brook, the D&R Canal, local wetlands, and the wildlife that inhabit this region do not vote in local elections, do not pay taxes and cannot attend public meetings. Yet these natural resources supply drinking water; help to clean our air; control flooding; remove pollutants from the water; and allow citizens to escape to nature, catch fish, birdwatch and canoe. Stony Brook has attempted to "Speak for the River" on this issue. We want to ensure that these natural resources have a voice in the public process and that there is an understanding of what will be lost if they are not protected, preserved and enhanced.

Stony Brook appreciates that over the twenty years the concept of this road has been debated that there have been countless hours invested in the process and many perspectives developed and advocated. We thank the New Jersey Department of Transportation for getting all of us to this point by hiring a project team and allowing the development of an innovative roundtable public process that, while time consuming and often difficult, provided an enormous amount of information and public input. This process has allowed Stony Brook and other participants to conduct an analysis of the various alternatives using a common base of information, and allowed us to evaluate a clearer picture of the positive and negative impacts of this proposed project.

To prepare this document, Stony Brook read and evaluated the entire Draft Environmental Impact Statement (DEIS) document, which as we describe here in detail, has led the Association to endorse Alternative D.2. We note as well that Stony Brook also strongly supports various concepts that were agreed to by a broad consensus in the roundtable process, and that apply to several alternatives, including Route 1 in-a-cut at Washington Road, frontage roads on both the east and west sides of Route 1 between Washington Road and Harrison Street, and a Vaughn Drive Connector. We also want to emphasize that as an environmental organization with the mission to protect water quality and associated natural resources, we feel strongly that an East Side Connector would destroy critical habitats, decrease recharge, and fragment the habitat along the Millstone River. We also feel that a West Side Connector running along the D&R Canal would disrupt the serenity of the park and also destroy the historic Washington Road Elm Allée. Again, we will advocate for these positions as they apply across various alternatives.

After reviewing the results of the DEIS and balancing impacts to the natural environment with protections to local communities and improvements to traffic congestion, Stony Brook recommends that Alternative D.2 be adopted and built. In general, we recommend Alternative D.2 because it enhances both north-south and east-west traffic while minimizing negative environmental, cultural and historic impacts. In sum:

- Alternative D.2 protects floodplains, forests, wetlands, and a threatened species; prevents habitat fragmentation; loses little groundwater recharge; and does not place impervious surfaces directly near waterbodies.
- Alternative D.2 preserves important archaeological and historic sites.
- Alternative D.2 enhances vehicular access and safety to businesses and the environment by reducing north-south and east-west travel time. Although environmentally protective, the C and G series do not enhance vehicular access and safety to businesses and institutions.
- Alternative D.2 is one of the best overall performers in east/west travel time and performs well for north/south traffic flow as well. Overall, Alternative D.2 either has a positive or neutral effect on the amount of traffic on various local roadways relative to the no-build alternative.
- Alternative D.2 does have many of the components agreed upon by the Roundtable: including Route 1 in-a-cut at Washington Road, frontage roads, and no west side connector (WSC) along the D&R Canal. Alternative D.2 does not have east side connector (ESC) or a road going through Sarnoff property, which accounts for many of its environmental benefits. Although the ESC is identified as a key component to reducing overall congestion, it does not yield substantial improvement in east/west or north/south travel time through the area.

II. HISTORY

a. Historical Need. In 1984, New Jersey Department of Transportation (NJDOT) initiated a study of the 20-mile section of the Route 1 corridor between Lawrence Township, Mercer County and New Brunswick, Middlesex County (Bureau of Statewide Transportation Planning 1986). The Route 1 Corridor Study, published in 1986, made a number of recommendations. The study identified removing the traffic lights at Washington Road and separating traffic as priorities in order to make Route 1 operate safely and effectively. NJDOT also rated the interchange of Route 571 and Route 1 as one of the most dangerous on Route 1. A proposed solution was the alignment that ran along the Millstone River on the Sarnoff property, crossed Route 1 and ran along the D&R Canal State Park on what is currently Princeton University athletic fields and ended at Washington Road. The purpose of this project was to:

- Eliminate three signaled intersections on Route 1 at Washington Road, Fisher Place, and Harrison Street,
- Direct east-west traffic away from the residential neighborhood of Penns Neck in West Windsor Township, and
- Distribute traffic between Washington Road and Harrison Street.

NJDOT studies in 1990 and 1993 state the following:

- Many of the existing intersections and segments of Route 571 are or will be "severely over capacity" due to development on Route 130, Alexander Road, Route 1 and surrounding areas.
- A series of projects are indicated to upgrade Route 571 to a four-lane highway for the entire route from Route 130 to west of Route 1, specifically including a Bypass Road around Penns Neck, paralleling the Millstone River, with a grade separation (overpass) at Route 1, and continuing on to connect to Harrison Street.
- The intersection of Washington Road and Route 1 was operating at a level of service of D in the morning and evening peak hours; the intersection of Harrison Street and the David Sarnoff Research Center was a level E at evening peak hours; and Route 1 and Fisher Place was a level E at morning peak hours[1]. These operating levels raised concern about traffic congestion, air pollution, public safety and general quality of life for the residents in this area.

In September 2000, NJDOT released the Environmental Assessment (EA) for the improvement of the above-mentioned section of Route 1. The document generated significant opposition from some local officials (most notably Princeton Borough and Township) and community and environmental groups. In November 2000, then Governor Christine Todd Whitman ordered that a full Environmental Impact Statement (EIS) be prepared. This process was initiated in March of 2001 when NJDOT hired the Rutgers Voorhees Transportation and Policy Institute to coordinate this process and begin an innovative public participation process, coordinate consultants and draft the EIS.

This project team convened the Partners' Roundtable Advisory Committee, which consisted of 32 members representing citizens groups, business organizations and stakeholders; the governments of

[1] These letters grades correspond to NJ DOT's ranking system for the level of service offered by these roads and intersections. An "A" is best, "F" is gridlock.

West Windsor, Princeton, and Plainsboro Townships, Princeton Borough and Mercer and Middlesex Counties; transportation advocacy groups; and other state agencies. The group met 35 times over two years and engaged in dialogue and document review related to all aspects of the EIS development.

The DEIS was released in May 2003 and the public hearing is scheduled for June 30, 2003 with written public comments due by August 1, 2003.

b. Stony Brook's Involvement. In 1999, the issue of the proposed Millstone Bypass, as it is commonly known, was brought to the association through two of our other programs – the Natural Lands Network (NLN) and StreamWatch, our volunteer monitoring program. The Issues Committee of our Board invited individuals with various perspectives on this issue to summarize the Bypass to Board and staff members of Stony Brook. Diane Brake of the Regional Planning Partnership (RPP), Shing-Fu Hsueh, a Stony Brook Board Member and West Windsor's Mayor and representatives from Sensible Transportation Options Partnership (STOP) came and presented their perspectives. The Issues Committee, with recommendations from the staff, determined that the Association should become actively involved with this issue. The Board adopted a resolution on July 26, 1999 that recommended a complete review of all alternatives with "a full and vigorous environmental evaluation." The resolution also noted that Stony Brook would "continue to 'Speak for the River' as we worked with the numerous governmental agencies…"

After this Resolution, the staff began reviewing documents, meeting with government agencies, citizen organizations and other interested parties in order to thoroughly understand this issue. In January 2000, we released the "Millstone Bypass Issue Paper" at a public forum that evaluated NJDOT's "final alignment" and how it would affect the local environment[2].

Since 2001, when the Roundtable was convened, we have participated fully in the meetings, providing comments and supplementary documentation.

III. STONY BROOK'S EVALUATION OF DEIS RESULTS

The DEIS evaluates 19 alternatives. Stony Brook reviewed the analysis of the alternatives, looking at impacts to the environment, historic and archeological resources, traffic, neighborhoods, and businesses. We note that for purposes of a DEIS, "environmental impacts" include the entire range of impacts (natural resource, cultural, historic, etc.). Environmental impacts pertaining to ecology are identified as "natural" environmental impacts. Our goal is to determine which alternative provides protection to the local natural environment and balanced the other needs of the project. Our conclusion is that Alternative D.2 best achieves our goal.

a. Impacts to the Natural Environment. The DEIS states that the project goal pertaining to natural environment impacts is to "Protect and enhance the environment and natural resources." The DEIS lists relevant project objectives as follows:

- Preserve or improve water quality in the Millstone River watershed and the Delaware and Raritan Canal.
- Protect against flooding and encourage stormwater recharge, where appropriate.
- Protect wetlands.

[2] This Issues Paper is available on our web (www.thewatershed.org/WSM/millstoneissuepaper.html) for review.

- Avoid impacts to federal and state rare, threatened, and endangered species.
- Consider underlying geological conditions (i.e. bedrock, groundwater, etc.)
- Avoid habitat fragmentation.
- Meet federal and state air quality standards.

When assessing the alternatives, we compared each to these general categories. The following is a summary of our review (see Table 1 for a summary):

- ***Increase in Impervious Surfaces (acres):*** Alternative B.2 has the highest at 27.59 acres. The G series has the lowest (3.24-4.26) and C series is next (11.38-13.84). D, D.1 and D.2 would be ranked 7, 8 and 11 in this category. We note that not only the amount of impervious surface, but where that surface is placed should be considered. Alternatives C, C.1, D.2 and the G-series all do not propose roads next to the Millstone River, and therefore do not generate impervious surfaces near the River or the associated wetlands. Alternative D and D.1 do have an ESC, but it runs through the center of the Sarnoff property, near an existing roadway.
- ***New Pavement per Recharge Class (acres), Recharge Reductions (million gallons per year, mgy):*** This category analyzed the amount of impervious surfaces in areas of high, moderate and low recharge and estimated how much each alternative would reduce recharge (the current recharge is 530.49 mgy). Again the worst is Alternative B.2 at a loss of 8.79 mgy and the best is the G series (0.79 - 1.0 mgy). The C series and D.2 follow as the next best (3.69 - 5.59 mgy).
- ***Potential Wetlands Disturbances (Acres):*** The worst is the B series, followed closely by the A and F series. The best is the C series and D.2 (0.06 - 0.08 acres).
- ***Potential Floodplains Disturbance (Acres):*** The worst is B series, followed closely by the A and F-series (between 3.5 and 4.1 acres). After the G series, the best are the C series and D.2 (0.63 -1.22 acres).
- ***Upland Vegetation Impacts (Acres):*** Upland vegetation includes landscape/lawn, agriculture, forests and areas already disturbed or cleared. Looking at the total impact, Alternative B.2 disturbs 16.31 acres while the C series and D.2 disturb 3.49 -5.2 acres (least after the G series). Alternatives that do not include an ESC disturb no forest.
- ***Water Quality Analysis:*** See our comment section regarding this information. Four waterways currently exist within the Project Study area for the Penns Neck Bypass impacted, which could be impaired by existing and proposed traffic enhancements. These waterways include the Millstone River, Carnegie Lake, the Delaware & Raritan Canal, and Little Bear Brook, and floodplain and wetland areas associated with these waterways. Each waterway contributes to the public water supply and they serve various recreational activities such as boating, canoeing, fishing, hiking trails, birding, and even duck hunting on the Millstone River.
- ***Habitat Fragmentation:*** Stony Brook provided the Roundtable and the Project Team with a report prepared by Dr. Michael Van Clef, a trained Rutgers ecologist, on his studies along the Millstone River in 2000. His work demonstrates that disturbing the riparian area impacted habitat and the diversity of native plant species, allowing invasive species to overwhelm the native plant community by 80%.

Note: The DEIS comments that there are currently no stormwater controls in this area, and that any alternative would contain controls as regulated by NJDEP. We disagree. Wetlands, forest and floodplains act as natural stormwater controls for this area, and if left protected, will perform this service for free – providing critical habitat and recreational areas as well.

Other information:

- ***Threatened and Endangered Species:*** "The rapid "suburbanization" of the NJ landscape has led to the loss and degradation of critically important wildlife habitats, and the fragmentation and isolation of the habitats that remain. Many rare species populations require large contiguous blocks of habitat to survive. Small patches of fields, forests and wetlands interspersed with development provide habitat for some common species, but don't provide the necessary habitat for the long-term protection of most of our endangered or threatened animal species.[3]" In an April 21, 2003 letter to NJDOT, Larry Niles, Chief of the Endangered and Nongame Species Program in the Division of Fish and Wildlife of the NJ Department of Environmental Protection (NJDEP) responded to a request from NJDOT on a sighting of a long-eared owl (*Asio otus*) on the Sarnoff Property[4]. In this letter, he confirmed the presence of the owl. The letter stated, "Our preliminary assessment of the proposed bypass alternatives that are routed through the Sarnoff property is that they would essentially destroy the documented habitat of this state-threatened species." They also, "recommend that additional surveys for endangered and threatened species be conducted on the site. It should be noted that the absence of records of endangered and threatened species on the site does not confirm their absence." As we have for many years, Stony Brook continues to advocate for the completion of a thorough survey of endangered and threatened species.

Our conclusion is that Alternative D.2 is preferable with respect to environmental impacts. We are keenly aware that the series of G Alternatives have the least environmental impacts. However, as described in our summary table and below, the G series fares poorly in almost every other category. We support Alternative D.2 because of our awareness and support for a broad range of objectives for this project.

b. Traffic. Staff evaluated all the alternatives, but paid particular attention to comparing Alternatives A.4 and D.2 because they are very similar, except for the ESC. This direct comparison illuminates the specific effects of the ESC on traffic performance. In summary:

- The change in truck traffic is similar in all alternatives.
- After the no-build alternative, the G series performs the worst overall in terms of relief of traffic congestion.
- The A and D series perform the best overall in terms of decreasing east/west travel time. The key feature for this appears to be a grade-separated interchange at Harrison Street and Washington Road (Route 1 in-a-cut).
- All the alternatives do well in terms of north/south travel time and range from delays between 10 to 15 minutes, with most around 10 min and the no-build at 15. There is a 30 second difference between C.1 (which is considered the best) and D.2. The most significant feature is the elimination of Route 1 traffic lights.

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[3] Excerpt from the NJDEP reference: Protocols For The Establishment Of Exceptional Resource Value Wetlands Pursuant To The Freshwater Wetlands Protection Act (N.J.S.A. 13:9b-1 Et Seq.) Based On Documentation Of State Or Federal Endangered Or Threatened Species, July 2002 edition, http://www.state.nj.us/dep/landuse/announce/protocols.pdf

[4] NJDEP literature states that long-eared owls use both upland and wetland habitats. In general, long-eared owls hunt in open field or meadow habitats interspersed with hedgerows, and nest in dense stands of forest, either hardwood or evergreen. The preservation of both habitats is vital to their survival.

- Except for G series, all alternatives provide for significant public benefit in terms of system-wide congestion relief (vehicle hours traveled, vehicle miles traveled, etc.). However, Alternative D.2 is one of the worst performers relative to system-wide congestion relief. In relation to system-wide congestion, the ESC is an important component (in addition to the elimination of Route 1 lights and maintenance on east/west crossings). However, in terms of other measures, including east/west travel time, the system performs well even without the ESC under alternative D.2. We question if the marginal improvement in traffic performance is worth the environmental costs of constructing an entire new roadway.
- D.2 is considered to have a neutral or positive impact on all the neighborhoods in the study area. While it does reduce traffic on Washington Road, D.2 is projected to provide one of the smallest reductions to congestion in this area.
- With respect to traffic on Alexander Road, Washington Road, and Harrison Street, staff notes that distribution between them will change over time with or without a new road. Except for the C and G series, all the alternatives improve access to/from Route 1 at Harrison Street. Of the alternatives without an ESC, D.2 has the most equitable distribution of traffic.
- Upper Harrison Street will be impacted with an increase in traffic with all alternatives. Traffic will increase by 100% for Alternatives A.2, A.3, A.4, D, D.1, and the F series. D.2 increases traffic by 83%.
- During the morning rush, travel times on Alexander range from 17 to 23 minutes, with most around 18 minutes and D.2 at 18.6. On Washington Road, times range from 14 to 21, with D.2 under 14 minutes. At Harrison Street, the range is between 13.7 to 20.6 minutes with D.2 at 14.4 minutes.

Our conclusion is that Alternative D.2 affords the best improvement to both north-south and east-west traffic, improving vehicular access and public safety when weighed in comparison to environmental impacts (above) and cultural and other impacts (below).

c. Cultural and Historic Resources. The State Office of Historic Preservation conferred on Stony Brook the status of a "Consulting Party" under Section 106 of the National Environmental Policy Act (NEPA) (36 CFR Part 800 "Protection of Historic Properties"). This status affords Stony Brook the general responsibility to review and comment on information and documentation pertinent to the identification of historic properties and assessment of these effects; to participate in the development/evaluation and refinement of alternatives which can be considered to avoid or minimize adverse impacts; and to participate in the consideration of mitigation strategies or measures where impacts cannot be avoided. We have participated in these meetings, held outside the scope of the Roundtable's meetings, and commented on relevant documents.

From the results of the DEIS (See Table 2 for a summary):

- There are 4 major archaeological sites that are eligible or National Historic Register status and three of these sites are located in the study area. They are identified as 28ME2, 28ME23 and 28ME86. These sites all appear to have in situ lithic artifacts and are culturally stratified. 28ME86 has been significantly disturbed due to prior construction activity but further testing and evaluation could help to determine its importance. These three sites appear to be occupied from the Late Archaic (4000 –1000 BC) to the Early Woodland period (100BC –500AD).

- All the alternatives with the East Side Connector would result in the destruction of all these sites.
- According to the archaeological survey report, "stratified prehistoric sites are rare in this region" and as such this is a "unique opportunity to address shifts in technological organization and subsistence strategies in the Inner Coastal Plain region of New Jersey." The importance of these kinds of sites needs to be stressed and the location of the sites in conjunction with the environmentally sensitive Millstone River makes it critical for preservation.
- Alternative D.2 would cause the destruction of one site, 28ME291 (a small prehistoric lithic scatter that does not provide any chronological information). All alternatives that include one of the Vaughn Drive Connector alternatives have a destructive impact on site 28ME291.
- Alternatives B.1 and B.2 would cause the destruction of 5 historical architectural resources including, the Aqueduct Mills Historic District and the Washington Road Elm Allée.
- Alternative D.2 would result in the destruction of the Aqueduct Mills Historic District and the Pennsylvania Railroad Historic District, and is the only alternative besides the G alternatives (even G.2 would result in the destruction of 1 historical structure) that would destroy the least (2) historical structures in the affected area.
- Note that the Aqueduct Mills Historic District will be affected due to the expansion and/or replacement of the bridge over the Millstone River, that will occur under the no build and all the alternatives.

From other sources:

- In a letter dated March 3, 2003, the State Historic Preservation Office states that, "Public comments… have questioned the adequacy of the evaluation of archaeological resources. These comments have focused upon the potential for an archaeological historic district…Given the large number of archaeological sites within the immediate APE and larger Study Area, the potential for an archaeological historic district … must be seriously explored." This office also suggests, "Avoiding adverse effects to archaeological sites 28ME2, 23, 86, by eliminating the proposed east-side connector road."

Our conclusion is that Alternative D.2 preserves important historic, cultural and archaeological sites while also providing the best combination of improved vehicular flow and public safety. We recognize that Alternative D.2 does cause damage to several important historic and cultural sites, which we regret. However, this damage is minimized due to the avoidance of a ESC, and is balanced by the achievement of vehicular and safety objectives while minimizing other environmental impacts.

d. Contaminated Materials. All the alignments disturb sites with contaminated materials. Staff recommends that if there is a need to disturb these sites, remediation is mandatory. The State of New Jersey has allotted over $30 million dollars for the clean-up of underground storage tanks. There are other funds available for remediation for other sources of contamination. We suggest these funds potentially be tapped for any associated remediation. Staff also emphasizes that under federal and state law, private "responsible parties" are liable in the first instance for the clean-up of a contaminated site. It should be noted that a condemning entity has been held not liable to remediate contamination and the Brownfields Act so codifies; however, we recommend that if any

property is acquired by a governmental agency the acquisition documents should include "environmental reservation clauses".

e. Residential Disturbances. The A and B series would result in two residential displacements in the vicinity of Eden Way/Logan Drive. In addition, if the Vaughn Drive Connector, Alternative 3 is built, one residential displacement in the vicinity of Washington Road and Station Drive would occur. For other impacts to local residents, please refer to section "b" of this report on traffic.

f. Business Disturbances. All the alternatives, with the exception of G.2, would result in multiple business displacements, including in most cases the gas stations along Route 1 and in some cases the Eden Institute. The B series would result in the fewest displacements, while the A and F-series result in the most displacements. The C and G series do not enhance vehicular access and safety to businesses and institutions.

IV. COMMENTS and QUESTIONS

- ***Reliability of the Data:*** There are many models run, values presented and estimates given in the DEIS. However, there are no estimates of the "margin of error." Without this information, we were unable to determine if there is there a significant difference between analytical results that varied, for example, between 4 and 14%.
- ***Growth in the Region:*** The growth forecasts of this region also need to be highlighted. There is an expected increase in households for the region that includes Plainsboro, West Windsor and Princeton Townships and Princeton Borough of 12% and an increase in employment of 68%. There is 12,750,000 square feet of additional single-use, low-density, campus-style office space already approved by local planning boards (primarily in West Windsor and Plainsboro)! Due to the lack of public transportation, the disparity between amount of new households and employment means that more people will have to live outside this region must drive into the area. Traffic will therefore increase regardless of what alternative is chosen. Municipalities continue to approve new commercial space without providing associated housing.
- ***Proposed East Side Connector:*** Compared to the East Side Connector proposed in the 1999 "final alignment" – which was specifically designed to be one lane in each direction, the ESC described in the DEIS is at least 64 feet wide with forty-four feet of travel lanes (two in each direction), 10 feet in shoulder and 10 feet in landscaping at the median. We emphasize that in a 1990 study the NJDOT concluded that a road of this size near the Millstone River would have unacceptable negative environmental impacts. This report stated, "(A four land Bypass) would also be consistent with the fact that major geometric *improvements at the existing Penns Neck Circle and along the existing right of way are not viable* due to the magnitude of environmental and socioeconomic impacts.[5]"
- ***"Study Area":*** Within the DEIS, there are five (5) different areas identified: Core Study Area; Primary Study Area, Secondary Study Area; Study Area; and Expanded Study Area. Each of the various "environments" – traffic, business, the natural environment, etc. – use different geographic areas in their evaluation. Changing the scope of study areas across environments makes comparison and evaluation difficult.

[5] emphasis added. Division of Transportation Systems Planning. 1990. 571 Ultimate Needs Assessment.

For example, traffic and circulation is evaluated in terms of the core study area (bounded by the Millstone River to the north, Alexander Road to the south, Clarksville Road to the east and Route 27 to the west). In contrast the natural environment was reviewed in context of the Expanded Study Area (the core study area without Princeton Borough).

- ***Stormwater:*** The DEIS comments that there are currently no stormwater controls in this area, and that any alternative would contain controls as regulated by NJDEP. We disagree. Wetlands, forest and floodplains act as natural stormwater controls for this area, and if left protected, will perform this service for free – providing critical habitat and recreational areas as well.
- ***Threatened and Endangered Species:*** We recommend the inclusion of the Hudsonia and Van Clef reports on threatened and endangered species in the DEIS and concur with the NJDEP recommendation that a more comprehensive survey for threatened and endangered species be undertaken.
- ***Surface Water Quality:***
  - Page 3-133 references width and depth of Millstone River from 1985. Is there anything more recent that may indicate any sedimentation/erosion impacts?
  - Page 3-134 refers to the velocity of flow in Little Bear Brook from a 1983 FEMA study. Anything more recent to account for changes in land use and annual precipitation and increased impervious cover?
  - The data on water quality is very sparse and is not sufficient to accurately reflect true conditions. The scales used to describe sampling results need to be consistent. The DEIS currently jumps all over, from Raritan Basin to Bypass Study Area. Chemical sampling in the study area was restricted to a single event in December 2002. There is no discussion on the limitations to a single sampling event. For example, the December 2002 sample indicates that dissolved oxygen is below the State Water Quality Standards, which is not unexpected as dissolved oxygen levels are higher in winter and lower in summer. However, why was the sampling not done for at least a year to reduce seasonal variability? Stony Brook, and many other organizations, recommended expanded sampling over the entire course of the Roundtable process. This is a serious flaw in the DEIS.
  - The Water Quality Inventory Report (page 3-139) contains data from outside the study area and thus does not help determine current conditions in the study area.
  - The DEIS does include results for biological monitoring. There needs to be a discussion about what these results indicate about impairment in the Millstone. What sampling has been done to determine the impairment?
  - Did the DEIS account for monitoring information in EPA's STORET database for information? Stony Brook has accessed the database and there are hundreds of pages of information.
  - Why is there no information on pollutants related to automobiles (hydrocarbons, lead, asbestos, etc.)? Stony Brook summarized this information in our Issues Paper and we have sent subsequent recommendations for sampling sites, parameters and frequency. These types of contaminants are often known as "diffuse anthropogenic pollution" (DAP). DEP has agreed to develop guidance for remediation of this type of contamination.
  - Page 4-168 says that only the Millstone River was used in the Highway –Generated Runoff model. Why?

- ***Groundwater***
  - Data from one monitoring well was included in the study (page 3-126). This site is outside the boundaries of the Bypass area. How is it relevant?
  - What will be the impact on infiltration/recharge of compaction during the construction activities?
  - What "regional" groundwater quality data is available? NJDEP has done some studies relative to known TCE contamination plume in the study area. This should be included in the report.
  - Will there be an impact to drinking water supplies from automobile pollutants, hydrocarbons in particular? The groundwater recharge is high in many areas and the soils are associated with Coastal Plain (loosely packed). Won't this aid in potentially contaminating water supplies?
- ***Impervious Cover:*** Does the projected increases in impervious cover break the 10% or 25% thresholds for environmental degradation identified by the Center for Watershed Protection? Page 4-172 talks about the proximity of impervious cover to the stream buffer and road crossings. There needs to be a discussion of the impacts to watershed health with increasing road crossing density.
- ***Wildlife:***
  - Why weren't wildlife in all wetlands (forested, scrub-shrub and emergent) reviewed/surveyed?
  - The DEIS needs to include plant and animal report from Hudsonia and Dr.Mike Van Clef which Stony Brook submitted many times.
- ***Alternative Forms of Transportation:*** Stony Brook applauds efforts by the Greater Mercer Transportation Authority in their efforts to investigate alternative means of transportation, including the Bus Rapid Transit. Stony Brook will continue to support studies on bike and pedestrian paths that link residential areas to local businesses and recreational areas; funding for NJ Transit; greater access, parking, and bike lockers at local stations and State funding of these efforts.

Table 1

Alternative	Increase in Impervious Surfaces (Acres) [Rank]	New Pavement per Recharge Class (Acres)			Recharge Reduction (mgy)	Potential Wetlands Disturbance (Acres)	Percent of Project Area Wetlands Affected	Potential Floodplains Disturbance (Acres)	Percent of Project Area Floodplains Affected	Forests Impacted (Acres)	Total Upland Vegetation Impacted (Acres
		High	Mod	Low	Current Recharge = 530.49 mgy						
A	23 [9]	13.18	4.8	5.02	7.12 [8]	0.29 [10]	0.12	3.58 [9]	0.44	2.37	11.75
A.1	24.81 [17]	14.29	5.55	4.97	7.81 [18]	0.29 [10]	0.12	3.51 [8]	0.43	2.37	12.93
A.2	23.85 [13]	13.5	5.42	4.93	7.43 [13]	0.29 [10]	0.12	3.58 [9]	0.44	2.37	12.34
A.3	23.12 [11]	13.19	5.45	4.48	7.28 [12]	0.29 [10]	0.12	3.92 [11]	0.48	2.37	12.71
A.4	24.11 [14]	13.46	6.03	4.62	7.56 [14]	0.29 [10]	0.12	3.92 [11]	0.48	2.37	12.71
B	24.66 [15]	14.26	5.39	5.01	7.65 [15]	0.31 [11]	0.13	4.1 [14]	0.5	2.37	13.83
B.1	24.66 [15]	14.26	5.39	5.01	7.65 [15]	0.31 [11]	0.13	4.1 [14]	0.5	2.37	13.83
B.2	27.59 [19]	16.04	6.4	5.15	8.79 [19]	0.31 [11]	0.13	3.98 [13]	0.48	2.51	17.22
C	13.84 [5]	7.85	4.08	1.91	4.51 [5]	0.06 [1]	0.02	0.72 [2]	0.09	0.14	5.91
C.1	11.38 [4]	6.88	2.75	1.65	3.69 [4]	0.06 [1]	0.02	0.72 [3]	0.09	0	3.49
D	22.66 [8]	13.9	4.5	4.26	7.21 [11]	0.19 [8]	0.08	3.6 [10]	0.44	2.37	10.97
D.1	22.33 [7]	13.46	4.94	3.93	7.16 [10]	0.19 [8]	0.08	3.58 [9]	0.44	2.37	10.41
D.2	23.12 [11]	9.7	5.22	3.02	5.59 [6]	0.08 [3]	0.02	1.22 [6]	0.14	0	5.2
E	20.28 [6]	11.93	7.27	1.08	7.13 [9]	0.17 [7]	0.07	3.15 [7]	0.38	2.57	10.63
F	23.01 [10]	13.53	4.22	5.26	7.11 [7]	0.29 [10]	0.12	3.94 [12]	0.48	2.37	12.11
F.1	25.04 [18]	14.13	5.73	5.18	7.79 [17]	0.29 [10]	0.12	3.94 [12]	0.48	2.6	13.7
G	3.41 [2]	0.44	1.94	1.03	0.79 [1]	0.1 [4]	0.04	0.98 [4]	0.12	0	1.43
G.1	4.26 [3]	0.58	2.4	1.28	1 [3]	0.1 [4]	0.04	1.02 [5]	0.12	0.2	1.63
G.2	3.24 [1]	0.76	1.82	0.66	0.87 [2]	0.1 [4]	0.04	0.63 [1]	0	0	1.34

Highest Value

Lowest Value

Table 2

Alternative	Number of Archeological Sites Destroyed	Number of Historic Architectural Sites Destroyed	Potential Impacts to Contaminated Materials Sites	
			Number of Sites Disturbed - Higher Concern	Number of Sites Disturbed - Lower Concern
A	4	4	5	5
A.1	4	4	5	5
A.2	4	4	5	5
A.3	4	4	5	5
A.4	4	4	5	5
B	3	4	1	5
B.1	4	5	1	5
B.2	4	5	1	5
C	2	4	3	2
C.1	2	3	3	2
D	4	2	6	4
D.1	4	2	6	4
D.2	1	2	5	2
E	3	2	5	4
F	4	3	5	5
F.1	4	3	5	5
G	1	2	2	1
G.1	1	3	4	1
G.2	0	1	0	1

Highest Value

Lowest Value

TABLE 3 SBMWA Summary of MORNING peak hour traffic info from tables 5-1 and 5-2

OBJECTIVES	Existing 2001	NO ACTION	in-a-cut A series Low	in-a-cut A series High	A.4	at-grade B series Low	at-grade B series High	C.1	C.2	in-a-cut D	in-a-cut D.1	in-a-cut D.2	in-a-cut E	in-a-cut F	in-a-cut F.1	at-grade G series Low	at-grade G series High
1. Travel delay and rate of growth in congestion (Various Measures)																	
Reduces Vehicle Hours Traveled (VHT)	7,391	18,056	10,850	12,241	10,850	10,685	11,688	12,842	14,238	11,632	11,112	13,196	11,683	9,905	9,968	15,156	17,373
Reduces Vehicle Hours Traveled (VHT) under congested conditions	3,065	16,843	9,449	10,734	9,449	9,279	10,170	11,564	13,003	10,254	9,724	11,917	10,288	8,395	8,484	14,073	16,171
Reduces Vehicle Miles Traveled (VMT) under congested conditions	1,929	31,220	24,472	27,924	26,942	23,089	25,231	24,659	25,657	27,015	27,630	28,229	26,951	20,662	21,910	29,369	34,635
2. Travel time on Rte. 1 (Travel time in minutes - AM peak hour)																	
Northbound	5	15.13	12.04	12.62	12.04	11.29	12.35	11.18	11.97	12.95	12.71	12.14	12.90	11.65	11.60	14.54	15.64
Southbound	4	6.86	4.18	4.85	4.85	4.37	5.36	3.92	3.99	5.08	4.88	4.52	4.48	4.98	4.95	5.80	7.64
3. Travel times on E-W streets (Average 2-way travel time in minutes - AM peak hour)																	
Travel from Clarksville Rd/CR 571 intersection in W. Windsor to Nassau Street in the vicinity of:																	
Alexander Rd.	13	21.34	18.05	19.15	18.05	19.08	20.89	20.36	22.66	18.13	19.00	18.57	19.10	18.69	17.57	20.67	26.54
Washington Rd.	10	18.32	13.64	14.61	14.14	16.35	16.84	18.95	19.79	13.65	13.88	13.92	15.04	13.26	14.62	17.41	23.18
Harrison St.	12	19.79	13.69	14.78	14.25	16.01	16.84	18.91	20.64	13.64	13.81	14.40	14.24	14.54	15.72	18.77	23.21
6. Change in traffic volume on key routes (2-way traffic volume - AM peak hour)																	
a) Core are b/w D&R Canal and NEC rail line																	
Alexander Rd b/w Canal and Route 1	1,681	2,346	1,943	2,221	1,943	2,037	2,161	2,286	2.554	2,033	2,068	2,088	2,132	2,039	1,902	2,223	2,607
% Change		40%	17%	5%	-17%	-13%	-8%	-3%	9%	-13%	-12%	-11%	-9%	-13%	-19%	-5%	11%
Harrison St. crosing D&R Canal	923	1,182	2,056	2,443	2,436	1,778	1,884	1,316	1,301	2,414	2,207	2,160	2,082	2,082	2,546	1,566	1,671
% Change		28%	74%	107%	106%	50%	59%	11%	10%	104%	87%	83%	76%	76%	115%	32%	41%
Washington Rd. in Penns Neck	1,607	2,670	939	1,346	939	672	902	1,940	1,990	665	645	2,436	547	547	1,206	1,961	2,714
% Change		66%	-65%	-50%	-65%	-75%	-66%	-27%	-25%	-75%	-76%	-9%	-80%	-80%	-55%	-27%	2%
b)West of D&R Canal																	
Alexander Rd b/w Faculty Rd and University Pl	1,736	2,229	2,015	2,143	2015	2,065	2,152	2,253	2,272	2,062	2,104	2,113	2,015	2,041	2,003	2,142	2,259
% Change		28%	-10%	-4%	-10%	-7%	-3%	1%	2%	-7%	-6%	-5%	-10%	-8%	-10%	-4%	1%
Washington Rd b/w Nassau St. and Faculty Rd.	1,222	2,058	1,566	1,725	1725	1,797	1,932	1,952	1,651	1,701	1,727	1,715	1,785	1,516	1,574	1,506	1,981
% Change		68%	-24%	-16%	-16%	-13%	-6%	-5%	20%	-17%	-16%	-17%	-13%	-26%	-24%	-27%	-4%
Harrison St b/w Nassau St and Faculty Rd (Upper Harrison St)	899	1,231	1,513	1,621	1621	1,146	1,533	1,234	1,205	1,563	1,432	1,504	1,468	1,691	1,689	1,398	1,400
% Change		37%	23%	32%	32%	15%	25%	0%	-2%	27%	16%	22%	19%	37%	37%	14%	14%
Nassau St b/w Mercer St and Washington Rd.	1,496	1,806	1,733	1,838	1838	1,734	1,735	1,621	1,771	1,763	1,673	1,722	1,921	1,765	1,823	1,791	1,812
% Change		21%	-4%	2%	2%	-4%	-4%	-10%	-2%	-2%	-7%	-5%	6%	-2%	-1%	-1%	0%
c) Vicinity of NEC rail line																	
Alexander Rd. east of NEC rail line	608	1,564	1,108	1,286	1108	1,085	1,362	1,246	1,373	1,126	1,151	1,153	1,175	1,198	1,078	1,398	1,520
% Change		157%	-29%	-18%	-29%	-31%	-13%	-20%	-12%	-28%	-26%	-26%	-25%	-23%	-31%	-11%	-3%
North Post Rd	1,275	1,314	1,041	1,230	1088	1,001	1,268	1,058	1,131	1,143	1,239	1,139	1,085	1,139	1,261	1,369	1,284
% Change		3%	-21%	-6%	-17%	-24%	-4%	-19%	-14%	-13%	-6%	-13%	-17%	-13%	-4%	-2%	4%
CR 571 b/w Alexander Rd and Wallace Rd.	1,213	2,588	2,485	2,651	2485	2,455	2,527	1,933	2,028	2,610	2,690	2,310	2,577	2,535	2,480	2,145	2,405
% Change		113%	-4%	2%	-4%	-5%	-2%	-22%	-25%	1%	4%	-11%	0%	-2%	-4%	-17%	-7%
Clarksville Rd b/w No. Post Rd and CR571	1,517	2,066	1,970	2,083	2083	1,947	2,286	2,084	2,090	1,923	1,962	2,030	1,980	2,083	1,970	2,165	2,466
% Change		36%	-5%	1%	1%	-6%	11%	1%	1%	-7%	-5%	-2%	-4%	1%	-5%	5%	19%

TABLE 4

Neighborhood	Neighborhood Impact	
	Positive or Neutral	**Negative**
Alexander Rd. – Rte. 1 and D&R Canal	All alternatives, except	G2
Bear Brook and Windsor Rd.	B, D2, G2	All alternatives, except
Benford	All alternatives	
Berrien City	All alternatives, except	B, G2
Canal Point	All alternatives, except	B2
Clarksville and Wellington Rd.	All alternatives, except	B, G2
Lower Harrison St.	All alternatives, except	C&G Series A&B Series displace 2 homes
Penns Neck	All alternatives, except	E
Sherbrooke Estates	All alternatives	
Upper Harrison St.	C series	All alternatives, except
Mercer Hill Historic District	All alternatives, except	C1
Princeton Borough, South Washington Rd.	All alternatives, except	A, A4, E, F1, G, G1
Princeton Borough, North Washington Rd.	All alternatives, except	G, C1
Vaughn Drive, VDC3	B, G2	All alternatives, except