

Intercounty Connector Draft Environmental Impact Statement Review  
ENVIRONMENT

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**SECTION III. C. NATURAL ENVIRONMENT**

**TOPOGRAPHY, GEOLOGY AND SOILS**

**SUMMARY**

Subsections III.C.1 and IV.C.1 contain descriptions of physical watershed characteristics including geology, soil types and erodibility, and impervious cover. Potential changes or impacts are measured in terms of changes that could affect water resources (e.g., additional impervious surfaces within a watershed/subwatershed, amount of highly erodible soils and steep slopes that could be disturbed, potential amount of sediment leaving an ICC construction site, etc.). Stream channels are characterized in terms of pre-existing conditions such as channel dimensions (width and depth, relative size and position within watershed using stream ordering) and channel bank stability to measure susceptibility to erosion. Potential changes or impacts are evaluated via the number of stream channels by order and number that would have an ICC road crossing.

Streams are also evaluated as part of the sub-sections on waters of the U.S. (III.C.3 and IV.C.3) and on water resources and aquatic biota (III.C.2, IV.C.2, and Appendix E of the DEIS). In the subsections on waters of the U.S., streams are described from field observations, watershed location, and order. Potential changes or impacts are measured as linear feet of stream in each watershed that will be disturbed. Stream information in the subsections on water resources and aquatic biota are discussed below.

**ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED**

See staff comments under water resources and aquatic biota section (imperviousness).

**WATER RESOURCES AND AQUATIC BIOTA**

*(Comments may also be forthcoming from the Montgomery County Department of Environmental Protection. Department of Permitting Services staff has reviewed staff's work on minimization/mitigation; DPS comments on the DEIS will be part of any County Executive agency review of the document.)*

## SUMMARY

The projected impacts of the various proposed alignments of the ICC on aquatic resources are covered in sub-sections III.C.2, IV.C.2, and Appendix E of the DEIS. These subsections provide information on streams, (i.e. the effects of construction and operation of the various proposed alignments are estimated for temperature, sediment, pollutants, baseflow, and stormflows) as well as aquatic life (the fish and benthic macroinvertebrates.) This information defines "existing" or pre-ICC conditions and measures or estimates potential changes or impacts to these conditions that would be attributable to an ICC alternative. It should be noted that the DEIS, itself, often summarizes the data and information; the detailed data (field measurements, quantitative estimates or measures for various parameters, detailed explanation of methods for data collection and analysis, detailed discussions of data analysis results) are found in the Natural Environment Technical Report (NETR) and its associated appendices. Streams are characterized according to four parameters: groundwater and stream base flows, physical and chemical water quality, fish community, and the aquatic macroinvertebrate community. The Paint Branch resource is studied in more detail than aquatic resources in other watersheds.

- Groundwater and stream baseflow -- Information is provided by means of data on stream flows and groundwater levels collected at 37 sites at proposed ICC road crossings over a stream. Potential changes or impacts are reported as potential reduction to stream baseflow due to reduction in groundwater flow (modeled by watershed/subwatershed.)
- Physical and chemical water quality -- Data are provided on water quality parameters collected at 20 sites as part of the ICC study. Also, a summary of qualitative water quality conditions from other studies is provided. Potential changes or impacts are measured in terms of potential increases of various pollutants and of stream water temperatures. These are modeled by watershed/subwatershed.
- Fish community -- A fish inventory was conducted at stream locations where the ICC road crossings could occur. Potential changes or impacts are described as changes in fish populations in very general terms.
- Aquatic macroinvertebrate community -- Macroinvertebrate sampling at larger stream locations where ICC road crossings could occur was conducted. A summary of other studies is also provided. Potential changes or impacts is provided in terms of a very general discussion of impacts on macroinvertebrate populations.
- Paint Branch resource -- A detailed inventory of trout and other fish, macroinvertebrates, stream channel and stream habitat conditions, stream flows, stream temperature, and water quality was conducted for the Paint Branch resource. A discussion of Paint Branch as a trout resource and comparisons to other trout streams is also provided. Potential changes or impacts are displayed as estimates of changes to stream baseflow, sediment input, stream channel enlargement, and stream water temperatures.

In addition, the DEIS discusses minimization and mitigation measures at a conceptual level for most of the water resources impacts. Various types of measures that would be considered for implementation to reduce impacts are proposed. These include sediment and erosion control measures during construction and stormwater management control measures. Bridges are proposed at specific stream crossings as an avoidance/minimization method. Wetlands creation and stream restoration are proposed to mitigate unavoidable impacts to wetlands and other waters of the U.S. A more detailed discussion of the proposed stormwater management concepts are found in a report entitled: "Stormwater Management Design Criteria for Intercountry Connector" (NETR, January, 1997)

## **ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED**

There are five major issues or problems in the water resources area in which staff requires further information or clarification. They are discussed below.

### Characterization of Water Resources

The naturally-reproducing brown trout population in Paint Branch receives particular attention in the DEIS. The study of the Paint Branch trout population seems to focus excessively on the fact that the trout population is sparse and under significant stress. The extensive data collection and analysis demonstrate that Paint Branch is not a pristine stream, and that land uses in the watershed have stressed the trout population.

However, the study should provide a more balanced discussion on the presence of a naturally-reproducing trout stream as an indication of high water/stream quality. It is the fact that a naturally-reproducing trout population exists in Montgomery County over such a relatively long time which has made it a high priority to save and protect locally. It would be preferable for the language characterizing the resource to better reflect the high quality that the resource still retains; this language should be incorporated into the FEIS.

### Impervious Surface Analysis

Impervious surface analyses in the DEIS are used for two purposes: to characterize the general quality of streams in the major watersheds of the study area and to estimate impacts on these streams in terms of impervious surfaces attributable to each alternative. It is important that imperviousness information is correctly interpreted. Watershed imperviousness is a recognized indicator for watershed health; however, it is also recognized that it is a very general, planning-level measure and that there are no absolute thresholds that define stream degradation (see "Montgomery County's Countywide Stream Protection Strategy", 4/21/97 draft, MCDEP; "Environmental Resources: Eastern Montgomery County Master Plan Areas", Sept. 1995, M-NCPPC; "Upper Paint Branch Watershed Planning Study", October 1995, M-NCPPC).

According to consultants who prepared the ICC study, "existing" watershed impervious surfaces are estimated using 1990 Maryland Office of Planning land use maps and impervious factors by land use category. Data on actual building and pavement coverages are not used. Although the NETR recognizes that the watershed imperviousness estimates are not absolute quantifications and have some inherent inaccuracies, the DEIS still uses these estimates to infer watershed health. For example, the DEIS states that: "Most watersheds in the Study Area are stressed or impacted to some extent. In all the watersheds there are areas with imperviousness values high enough (in excess of 25 percent) to be considered degraded" (DEIS, page III-81). Such conclusions may be misleading, especially if other data which more directly define stream quality (e.g., fish and other biological data, chemical and physical measurements, etc.) is available. Since this data is available, it should be factored into statements describing the health of the streams. Modifications to statements on stream health should be incorporated into the FEIS.

Another staff concern related to the imperviousness information is the use of absolute thresholds to define stream health. For example, the DEIS infers that the Good Hope Tributary in the upper Paint Branch watershed is already impaired because its subwatershed imperviousness is over 10 percent: "At 10.4% impervious surface area, the Good Hope subwatershed already exceeds the 10% impervious area criterion for considering a watershed's stream quality to be impaired (Klein, R.D. 1985)" (DEIS, page IV-198). The DEIS also appears to use absolute thresholds of imperviousness to define watershed health in the subsection on measures of effectiveness (DEIS, page VII-23). However, studies that examine the relationship between stream quality and impervious surfaces in the drainage basin do not establish absolute imperviousness thresholds that can be tolerated by streams. The 10 percent watershed/subwatershed imperviousness should be used as a planning -level gauge of how "threatened" the quality of a healthy stream system is from land use activities in the watershed. A more accurate gauge is an assessment procedure that takes into account various stream characteristics which include watershed/subwatershed imperviousness.

In order to address staff's issues on the use of impervious data, it would be helpful for staff to obtain a supplemental paper or memorandum that clarifies how the DEIS weights the imperviousness information with respect to other information on stream characteristics and impacts on stream resources. Acknowledgment that more accurate impervious data may influence the outcome of the impervious analysis, avoiding the use of absolute thresholds, plus better integration of data when characterizing the streams and potential impacts to them would provide a more accurate representation of potential impacts of the roadway alternatives.

#### Conformance to M-NCPPC Environmental Guidelines, Including Buffers

One of the major goals of the Planning Board's Environmental Guidelines is to preserve and protect natural, water-dependent features (streams, seeps, springs, wetlands, floodplains) and land immediately adjacent to them, known as environmental buffer areas. These buffers help maintain the quality and biological integrity of water resources in the County. The extent to

which these buffers are disturbed provide an important measure of the impacts to these water resources. Buffers are estimated based on a number of natural features (slopes, soils, floodplains, water features, wetlands, seeps and springs) that are already provided in the DEIS. The DEIS provides information on potential impacts to the water-dependent features in terms of amount of physical disturbance to these features by alternative. Buffers, however, are not required to be calculated or graphically displayed in a DEIS. To a certain extent, potential impacts to these natural features will also indicate that buffer areas will also be disturbed. But there may be situations where a section of an alternative closely parallels, and does not cross a stream or wetland, but does disturb buffer areas and, thus, still has an impact on the natural features. Therefore, in keeping with the goal of the guidelines for protecting buffer areas, staff needs to have some sort of an assessment of the amount and type of potential buffer disturbance for each alternative. This information is needed in addition to what has already been provided in the DEIS in order to make comparisons between alternatives.

Ideally, buffers should be calculated according to the methods described in the Environmental Guidelines. However, at this stage, an approximation would be acceptable by defining set buffer widths according to stream classifications (e.g., use the mid-buffer width such as 125 feet from stream for Use I streams) and applying those to the alignments to roughly estimate how and where buffers might be disturbed.

#### Compliance with the Upper Paint Branch Special Protection Area (SPA) Requirements and Guidelines

A public project should meet Montgomery County SPA regulations and guidelines in order to locate within an SPA (Chapter 19, Section 19-62.C. Montgomery County Code). A project should demonstrate, through a water quality plan, that certain site-specific, watershed protection goals can be met by the project. Montgomery County Department of Permitting Services (DPS) and Montgomery County Planning Board must approve the water quality plan before the project can proceed. In the Upper Paint Branch SPA, meeting watershed protection goals requires that the project implement measures in four areas of concern:

- Site imperviousness -- There is a 10 percent upper limit within the project's site boundaries. Limiting site imperviousness is considered a Best Management Practice (BMP) that should be implemented in addition to stormwater management and sediment and erosion control measures. The project must examine alternatives, such as redesign of layout or site plan to reduce impervious surfaces, purchase of off-site land to protect as "pervious reserve" land, or change or reduction of uses in the project, to stay within the limit if the original project submission exceeds 10 percent. If site imperviousness still exceeds 10 percent, after all feasible options are incorporated, then the project must request a waiver; Planning Board acts on the waiver.

- SPA buffers -- Buffers around natural features such as streams, wetlands, seeps, springs, and floodplains should be defined and preserved as undisturbed, conservation areas. If a project proposes to encroach within such buffer areas or the natural features themselves, the project should be modified to avoid or minimize encroachments, if feasible. If buffer encroachment cannot be avoided, the project must request a waiver; Planning Board acts on the waiver.
- Stormwater management measures -- Measures must be shown to meet goals set forth in the water quality plan. Measures are stringent and usually in-series. DPS is the lead agency. Performance monitoring is required.
- Sediment and erosion control measures -- Measures must be shown to meet goals set forth in the water quality plan. Measures are stringent. DPS is the lead agency. Performance monitoring is required.

The DEIS does not answer the question: How well does each alternative that goes through Paint Branch SPA conform to or minimizes impacts within the SPA boundaries? Or, alternatively, what is the extent of impacts and "non-compliance" within the SPA? To help answer these questions, staff believes the information listed below should be provided for each alternative in a supplemental memo. **It should be noted that SHA has indicated that most of the listed information below (except for possibly stream buffer information) can be provided to staff.**

- site imperviousness (percent impervious surfaces within ROW within SPA boundaries)
- acreage of impervious surface by subwatershed within SPA
- acreage of SPA buffer disturbed by subwatershed (broken down by forest vs. non-forest, if possible)
- acreage of forest lost by subwatershed (broken down by types of forest or riparian vs. non-riparian, if possible)
- acreage of wetlands disturbed by type and subwatershed within SPA boundaries
- acreage of floodplains disturbed by subwatershed within SPA boundaries
- number of stream crossings and number of linear feet of streams disturbed by subwatershed within SPA boundaries

With respect to mitigation of impacts, the DEIS discusses stormwater management and sediment and erosion controls at a conceptual level. "Watershed restoration" (which the DEIS discusses as including retrofits of SWM facilities, modification of some drainage flows and impervious surfaces on existing residential lots, correcting some existing stormwater problems in developed areas) in Paint Branch is also proposed in concept. Performance goals, as defined in Executive Regulations on SPAs (Montgomery County Executive Regulations 29-95), should be established in the FEIS; discussion on how the selected alternative is proposed to meet these goals should also be included in the FEIS. (See additional staff comments under section on mitigation/minimization of water resource impacts.)

#### Mitigation/minimization of Water Resource Impacts

The DEIS proposes measures to minimize and mitigate impacts at a conceptual level. Staff understands that the minimization/mitigation discussions can only be conceptual at this stage because of the various alternatives that must be considered. However, even at this stage, concepts should have enough detail to provide a "level of comfort" to reviewers that the concepts are realistic and feasible for each alternative. If the feasibility or degree of success of mitigation cannot be established, it cannot be determined how well various natural resources may be protected for each alternative. Staff is especially concerned with minimization/mitigation concepts which involve measures that are new, untested or not well tested, or do not have a long history of use. At a minimum, the following points require more explanation or detail. Ideally, this information could be conveyed in a paper or memorandum in order to help evaluate impacts between the alternatives.

- Stream restoration/ stream improvement work is proposed as a mitigation technique for loss of wetlands and waters of the U.S. The DEIS proposes that such work would be "concentrated in the Paint Branch watershed". This helps mitigate losses and impacts to resources in Paint Branch, but does not mitigate losses and impacts to resources in other watersheds. Staff's issue applies throughout the study area, but is of particular concern with respect to impacts on stream resources within parkland and the project's ability to adequately protect and mitigate such park resources from ICC impacts. Any clarification or expansion of the rationale provided in the DEIS for focusing on the Paint Branch as opposed to providing mitigation to each affected watershed would be helpful.
- The stormwater management concept focuses on the use of combination bioretention/infiltration systems to mitigate impacts such as loss of groundwater recharge and stream baseflow, water quality degradation, and increased surface water temperatures. The concept assumes that where A or B soils are mapped, infiltration can be done. In addition, "contingencies for soils of limited infiltration capacity would include use of vertical chimneys for groundwater mixing." Without documenting actual cases where such systems are in place and functioning, it may be over-optimistic or unrealistic to assume that infiltration can

be made to work. Stormwater management focusing on infiltration techniques alone have a much greater chance of failure in this area than a combination of techniques that incorporate infiltration, filtration, storage of runoff, and pretreatment measures. The 90% recharge effectiveness projected for infiltration seems overly optimistic. The feasibility of locating infiltration measures in B soils in upper Paint Branch is variable; the presence of soil limitations that preclude total infiltration devices is not uncommon. Based on the importance of this technique in the Paint Branch watershed, there should be an alternative for a SWM concept that shows how some of the impacts (e.g., groundwater recharge, water temperature effects) could be mitigated if infiltration alone does not work. This could be provided in a memorandum.

- The "watershed restoration" concept for Paint Branch proposes to "add" infiltration features into developed areas. The concept, which includes such measures as "redirecting residential downspouts onto lawns and other permeable surfaces, . . . replacing residential blacktop and concrete driveways (and some other paved surfaces) with more porous materials, such as gravel or interlocking concrete paving stones that have sod gaps", "retrofitting of infiltration devices into existing storm sewer systems", and the "reconstruction of existing stormwater management ponds to make them infiltration devices", seems to be over-optimistic and unrealistic. (Note that the County does not consider gravel or stone pavers as pervious material when reviewing projects for conformance to SPA requirements). In staff's opinion, it is highly unlikely that government could require homeowners to modify their residences to replace driveways; modifying storm drain systems to add infiltration devices is also unlikely. Since the DEIS recommends this as a viable mitigation concept, there should be some explanation and description as to how such measures will be implemented. This description may be conveyed via a memorandum or paper.
- Like the watershed restoration discussion, the issue of groundwater loss to sewer lines (or to the gravel surrounding the sewer lines) appears promising if solutions to the problem are practicable. Again, there is no discussion of how such a measure would be implemented. Cooperation with WSSC on detailing this measure would be a first step. This information could be provided via a memorandum or paper.

## WETLANDS AND WATERS OF THE U.S.

### SUMMARY

Subsections III.C.3 and IV.C.3 contains descriptions of 197 sites of wetlands and other waters of the U.S. (streams, ponds, etc.) in and near each ICC alternative. Descriptions include type, general vegetative cover, watershed location, general function and value, and size.



Potential changes or impacts are measured as acres of wetlands or waters of the U.S. by type and watershed that could be disturbed by each alternative.

### **ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED**

Wetlands losses are proposed to be mitigated through wetlands creation, preferably in-kind and in watershed. However, the information on the potential mitigation land is very preliminary. Based on the information provided, it cannot be determined if the potential mitigation land is feasible for creating wetlands that can replace the type and function of those lost. As with the concept of stream restoration/stream improvement work, staff is concerned, especially as it relates to park resources, that out-of-watershed wetland mitigation would not mitigate losses and impacts to the affected resources. At a minimum, a memo or paper that discusses what criteria are to be used to screen for wetland replacement sites should be forwarded to staff.

### **FLOODPLAINS**

#### **SUMMARY**

In sub-sections III.C.4 and IV.C.4, existing floodplain studies and new studies prepared for the ICC alternatives are used to map floodplains. The degree to which each alternative impacts floodplains is measured in terms of acres of floodplain disturbed by watershed.

### **ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED**

See staff comments in water resources and aquatic biota section ("Conformance to M-NCPPC "Environmental Guidelines," including stream valley buffers").

### **TERRESTRIAL ECOSYSTEM**

#### **SUMMARY**

Page III-129 describes plant communities within a 300 foot wide corridor along the proposed alternatives by cover type. Page IV-220 describes impacts to plant communities via direct losses associated with clearing within proposed right-of-ways and changes in community structure ("edge effects") and composition. This is measured in terms of acreage for total cover types and for each sub-category. (III-133 b.) Large (at least 100 acres) contiguous forest is identified using aerial photography. Thirty-two large forested tracts are identified within the study area. Also 37 specimen trees greater than 40" diameter at breast height (d.b.h.) were located.

Pages III-137-139 summarizes the occurrence of wildlife species within the ICC study area as compiled from three sources. Species are divided into sub-groupings by taxa and include amphibians, reptiles, birds and mammals. Pages IV-228-240 describes direct and indirect impacts of various alternatives on wildlife and briefly discusses mitigation of adverse impacts for each wildlife group. The section on birds expresses special concerns for forest interior dwelling species.

Pages III-139-146 summarize the known occurrences of Rare, Threatened, and Endangered (RTE) plant species, Watchlist plant species, and RTE animal species as compiled from Maryland Natural Heritage Program records and survey work completed by the consultants during the 1996 field season. Pages IV 226-227 briefly describes direct and indirect impacts of various alternatives on Rare, Threatened and Endangered flora, and possible mitigation of adverse impacts. The DEIS mentions that comprehensive surveys have not been done. Specific surveys would be undertaken after an alternative is chosen.

## **ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED**

### Forest conservation

State road projects, such as the ICC, are not subject to either the State or County Forest Conservation Laws. Rather, such projects must comply with COMAR Section 5-103, which requires that a road project "shall make every reasonable effort to minimize the cutting or clearing of trees and other woody plants." This regulation also requires reforestation on a 1-to-1 ratio to replace forest that is lost as part of the project. Section 5-103 does not require examination of avoidance options or recognition and preservation of high quality forest stands for road projects. Therefore, the DEIS does not contain information about forest quality.

However, in keeping with the intent of the County forest conservation law and stewardship of natural resources within County parkland, staff believes that the review of ICC alternatives should include an analysis of potential impacts on high quality or unusual forest stands, especially those that are already or are planned to be protected (i.e., land within existing or proposed park, private common open space, or with existing conservation easements). Information on forest stand quality would be in addition to that already provided in the DEIS and would help differentiate between the alternatives. It would also help resolve issues of mitigation of forest impacts as well as issues concerning park replacement. Details as to how forest characterization may be completed may be found in the County's Trees: Approved Technical Manual, or the State DNR's Forest Conservation Manual. A brief narrative of the forest stands impacted by the various alternatives does not have to be very detailed. An overall idea of the general health and quality of the forest stand is all that is necessary at this stage. The components of a forest stand quality characterization of most concern to staff are detailed below.

- **Specimen trees (p. III-133-134).** Developers in the County are required to identify specimen trees at 24" d.b.h. and all specimen trees (most of the common forest species are specimen at 30" d.b.h.), per "standardized" specifications in the Maryland DNR Forest Conservation Manual, and in the Montgomery County Trees--Approved Technical Manual. The DEIS provides information on trees of 40" d.b.h.. The number of specimen trees in a forest stand is one of the criteria for determining forest quality. Short of a detailed survey of specimen trees for each alignment, another means of assessing specimen trees acceptable at this stage would be to characterize the frequency of occurrence of specimen trees in the narrative for each forest stand. At this stage, it would be sufficient to convey which stands contain specimen trees, and provide a general percentage as to how many trees in the stand are specimens. In this way, a comparison between the alternatives may be made based on the potential for the alignment to impact forest stands with a potentially high percentage of specimen trees. This information could be displayed graphically for each alignment by simply circling stands or areas within stands with a relatively high occurrence of specimen trees.
- **Mitigation of forest impacts.** There is little detail on mitigation of impacts to forest cover in the DEIS. Depending on the ICC alternative selected, up to 552 acres of forest will be destroyed. The DEIS states that "every effort will be made to provide reforestation on site, or on publicly owned land located in the same county or watershed." It is unclear, however, how such a large amount of mitigation would occur. Also, due to the lack of information about the quality of the affected forest stands, it is unclear what appropriate mitigation should be. When a high quality forest has a 300 foot ROW run through the center of its acreage, will a value be assessed so that equitable mitigation can be done? If so, how will that be determined? This question is especially important for M-NCPPC parkland; the large majority of forested park acres to be impacted by ICC alternatives are of better quality. A description, in concept, on how forested acreage would be replaced for each alternative prior to the FEIS would assist reviewers in evaluating the alternatives. For example, the "Upgrade Existing Roads" alternative may impact mostly forested edge habitat; a suitable mitigation concept for such impacts might include planting of street trees as a component. However, for an alternative that destroys high quality forest stands, street-tree plantings would not be an appropriate mitigation concept. After some characterization of the impacted forest stands is completed, it would be reasonable to be able to provide more detail as to the mitigation of impacts.
- Another component of a forest stand narrative is the presence or absence of rare, threatened and endangered plants. Please refer to this section for more detail.

### Deer-auto Collisions (NETR V-33)

In addition to loss of habitat, a major concern of the ICC from a wildlife perspective (and a human safety perspective) is the potential for wildlife-related auto collisions especially deer-auto collisions (DACs). The DEIS discusses the factors that can increase the potential for high numbers of DAC's and lists mitigation measures that might be applied once an alignment is selected. An attempt to quantify factors that may lead to high levels of DAC's on the various alternatives would help in the comparison of alternatives. These factors include:

- the linear miles of new road for each alternative that would bisect deer habitat
- linear miles of new or upgraded roadway that could be fenced to prevent deer from entering the roadway (Fencing is the most effective preventative measure for DAC's but has limited applications. It must also be acknowledged that the proposed bikeway and trail connections may limit application of this technique.)
- the number of stream valley crossings for each alternative that would be bridged to allow for deer crossing under the highway.

Much of this information has been gathered; it needs to be put in the context of evaluating the alternative alignments for DAC's. A memorandum or paper prior to selection of an alternative would be most helpful.

### Impact on Forest Interior Birds (NETR V, 29-32)

The DEIS discusses the impacts on forest interior dwelling bird (FIB) nesting habitat and calculates acres disturbed for each alignment. The criteria and methods used to calculate these numbers require some clarification.

- **Criteria used.** The criteria used to delineate FIB habitat needs clarification. It appears that the DEIS uses a definition derived from two statements in volume 2, page IV-232: a) "forests fragmented into units less than 100 acres often result in loss of the entire unit as breeding habitat for forest interior dwelling birds (Robbins, 1989)"; and b) "many forest interior dwelling birds nest only in locations within the forest that are greater than 150 feet from the forest edge (James McCann, DNR, personal communication, 1996)". The resulting definition, although it is stated nowhere in the DEIS, would seem to be - forested areas greater than 100 acres in size, after excluding a 150 foot border around forest tract. This definition was no doubt used in order to weed-out some of the long narrow units that, while they are over 100 acres, offer little interior due to their shape. The "Guide to the Conservation of Forest Interior Dwelling Birds in the Critical Area" Guidance paper No. 1 by the Chesapeake Bay Critical Area Commission, defines forest interior dwelling bird habitat as riparian forests of 300

feet in width or wider, and upland forests of at least 100 acres. Under this definition all tracts over 100 acres would be included as available habitat as well as riparian areas of smaller size. The question of definition is an important one. For example, the DEIS definition excludes five tracts from being considered as FIB nesting habitat for the MPA totaling 732 acres and 11 tracts for the NA totaling 2,439 acres. A paper or memorandum that recalculates the impact on forest interior birds using the guidance of the Chesapeake Bay Critical Area Commission would clarify the criteria used. This criteria is accepted and straightforward. In lieu of using the Critical Area Commission guidance, some explanation as to what criteria was used and why would be most helpful.

- **Fragmentation.** The DEIS narrative discusses fragmentation as a major impact on FIB nesting habitat. This information should be figured into calculating the area of disturbance to forest interior dwelling bird nesting habitat in Table V-11 to round out the forest fragmentation problem. Table V-2B shows impacts to large forest tracts and clearly indicates the acreage of forest tracts greater than 20 acres that remain after the large tracts have been fragmented by construction. Table V-11, in showing impacts to forest interior birds, does not reference this data. Some of these remaining parcels are less than 100 acres and are therefore too small to provide habitat for FIBs yet these acres are not added into the number of acres impacted. The acres listed as area of disturbance to forest interior dwelling bird nesting habitat in Table V-11 is the area actually impacted by the road, plus 150 feet on either side of the right-of-way. In order to get a better idea of the fragmentation impacts, a recalculation using the definition from the Chesapeake Bay Critical Area Commission is needed. All areas of forest that are larger than 100 acres should be considered FIB habitat. Forest tracts fragmented into units less than 100 acres in size should be counted as FIB habitat lost, along with the direct impact of the roadway. Using this method would give a more realistic impact to FIB habitat. As an example, the MPA would impact over 1,080 acres of FIB habitat instead of the 322 acres listed in the DEIS. This information would provide an accepted and easier to understand comparison between the alternatives. In lieu of using the Critical Area Commission criteria, an explanation as to how impacts to forest interior birds were derived, and what the relationship between the fragmentation information and the loss of FIB habitat is, would be most helpful.

#### Rare, Threatened, and Endangered (RTE) Plants

Concerning RTE species, the DEIS states "Comprehensive surveys have not been done. Specific surveys would be undertaken for a selected alternative." Some surveying has been done. Two documents are available for SHA's use in evaluating the occurrence of Rare Threatened and Endangered species:

1) "Inventory of Rare, Threatened, and Endangered Plant Populations and Significant Habitats on Select Park Lands of the M-NCPPC in Montgomery County, MD." Prepared by Rodney Bartgis, and Richard Wiegand. Maryland Natural Heritage Program, MD - DNR, June, 1993.

2) "Inventory for Rare Plants and Significant Habitats in M-NCPPC Parklands in Montgomery County, MD." Prepared by Richard Wiegand and Paula Becker. Maryland Natural Heritage Program, MD-DNR, February, 1997.

Applicable sections of these documents should be incorporated into an evaluation of the alternatives to assess impacts on RTE plants. Use of this material may provide additional information on the impacts of the alternatives. These documents should also be incorporated into the FEIS. **It should be noted that staff has submitted appropriate sections of the above-referenced documents to SHA.**

The consultant team found four state-endangered and six watchlist species during their environmental surveys in preparing the DEIS. The consultants stated: "Additional rare plant species not reported here may occur because the Maryland Natural Heritage Program database indicates that 55 rare plant species have been reported from the Study Area vicinity." In lieu of a detailed survey of each alignment for R,T, E species, additional information may be gathered in the course of completing the forest stand narratives requested earlier. In devising narratives for forest stands, an indication of the quality of the vegetation and the potential for R,T,E, habitat could be noted. This narrative would be sufficient for this stage of the project.

### **FARMLAND SOILS**

(The M-NCPPC has no expertise to comment on this section. Therefore, it is not reviewed by M-NCPPC staff.)

### **SECTION III. D. AIR QUALITY**

*(See comments from the Montgomery County Department of Environmental Protection for a complete treatment of the topic. Staff has no major issues on this topic.)*

### **SUMMARY**

The "Air Quality Report" for the ICC Study provides a detailed examination of carbon monoxide (CO) emissions for the various alternatives. This region is a non-attainment area for ground-level ozone, however EPA's conformity rules allow the examination of that pollutant to be deferred until after a preferred alternative is selected and is proposed to be included in the region's Transportation Improvement Program or Constrained Long-Range Plan. The report touches on the possible impacts of construction on particulate matter levels, but indicates that the Maryland Air Management Administration is satisfied that the State Highway Administration's procedures for mitigating "fugitive dust" are satisfactory. Other air pollutants, such as nitrogen

dioxide, sulfur dioxide, and lead are not addressed because there would be no significant emissions of the pollutants from this project and the Washington region is in attainment of air quality standards for those pollutants.

The bulk of Volume 1 of the report provides an analysis of CO impacts. It describes the CO receptor locations and the forecasted CO emissions concentrations at those sites for the no-build and build alternatives in 2010 and 2020. Based on the results of the analysis, none of the alternatives would cause a violation of the CO standard of 35 ppm for 1 hour or the standard of 9 ppm for 8 hours at any of the receptor sites in either 2010 or 2020.

### **SECTION III. E. NOISE**

*(See also comments from the Montgomery County Department of Environmental Protection for a complete treatment of the topic.)*

### **SUMMARY**

This subject area encompasses both transportation noise from operation of the ICC and source noise impacts likely from construction of the ICC. Section III.E, page III-152, describes existing noise conditions in the study area. The study involved mapping 307 receptor sites within 143 noise sensitive areas. Field measurements were completed to establish ambient noise levels at the various receptor sites using procedures outlined in Fundamentals and Abatement of Highway Traffic Noise, FHWA procedures and best practices. Section IV.E, starting on page IV-274, presents the findings of the noise analysis. The receptor sites identified earlier were used to characterize the overall noise environment and identify locations where residences may be impacted by noise according to FHWA and MDT criteria. Tables summarize the impacts and mitigation measures. (More detailed analysis is contained in a "Noise Analysis Technical Report.") The feasibility of constructing barriers to mitigate noise at various receptors that exceed standards are enumerated for each noise sensitive area. Construction noise impacts are addressed by listing the construction equipment to be used.

### **ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED**

There is one major issue in the noise section of the DEIS in which staff requires more information:

- **Indirect impact of noise on future development.** The noise analysis completed does not discuss the indirect impact of transportation noise on future noise sensitive development. The analysis completed was premised on existing noise receptors along the various alternatives. What is unknown is the degree of impact due to diminished value and/or increased cost of any new development within the noise impacted area adjacent to the roadway. In some cases it may be entire parcels that will be impacted by noise. This could be clarified by, at a minimum, stating the nature of this indirect impact, and including a short description of the

local program for mitigating these impacts in a memo or paper. A complete analysis of this problem would entail interpretation of the noise contours generated for each alternative and examining the impact on parcels along the roadway alignment. This could be done as part of the FEIS.

### **SECTION III. F. HAZARDOUS MATERIALS**

*(Refer to comments from the Montgomery County Department of Environmental Protection. Staff has no major issues on this topic.)*

## **TECHNICAL COMMENTS**

### Comments on the DEIS and Associated Appendices

Page I-20 -- "Bedrock streams, whose beds are covered with boulders..." In most classification schemes, bedrock and boulders are not the same.

Page II-25 -- A separate heading is needed for Patuxent River (currently included under the heading for Northwest Branch).

Page II-30 -- Results. Figure II-29 is referred to, but there is no such figure in this section. Figure II-6 is referred to as "Stream Crossings"; Figure II-6 is the General Soils Map.

Page III-2 -- Existing Groundwater Users. It is stated that a limited number of users would be affected by spills. While this may be true in most areas, in the Patuxent watershed the number of surface water users affected would be significant (public water supply).

Page III-8 -- The reference to Appendix II-C apparently should read "Appendix III-C". There is no Appendix II-C.

Page III-21 -- Clarify or delete the sentence fragment at the top of the page. "Area. subsurface soil temperatures. ICC....."

Page III-31 (and elsewhere) -- Referenced documents are not included in the DEIS bibliography, and a bibliography for the NETR could not be located.

Page III-41 -- "As shown in Table III-3, numerical criteria exist for some metals and for dissolved oxygen (DO)." Table III-3 does not show this. It states: "...supports designated uses or meets water quality goals." Numerical criteria are listed in COMAR (26.08.02).

Page III-138, paragraph 2 - N -- Leopard frog (*Rana pipiens*) is listed as common. This species is not common in Montgomery County.



Page III-139, paragraph 4 -- Deer Mouse (*Peromyscus maniculatus*) is listed as common in forest. This species does not occur in woodlands in Montgomery County.

Figure III-30 -- The roadway alternatives should be located on the "Contiguous Forest Tracts Greater than 100 Acres" map as they are on Figure III-13 "Parks and Recreation Areas". This is important information for judging the actual impacts to forests for each alternative route, and it could certainly be done using a map with the Alternatives routes as a base. Many people look at maps rather than reading through pages of tables and script; a visual picture of what forests are impacted on what alignment would be very helpful.

Page IV-198 -- "Existing" subwatershed imperviousness for Gum Springs Tributary should not include pipeline projects since almost all pipeline projects are identified in an adopted master plan amendment for park acquisition.

Page IV-226-227 -- The paragraphs describing the "Indirect Impacts" of the ICC on RTE plants is well written and should be carefully considered.

Page IV-230, paragraph 4 -- Do the "wetlands" inventoried in this study include all vernal pools that might be used by breeding amphibians?

Page IV-232, last paragraph -- This describes the disturbance to forest interior dwelling bird habitat but does not give the criteria used to define it. Tables are referenced that give data on acreage impacted but does not explain the methodology used to calculate these data.

Page IV-233-234 -- This describes the bad effects of forest fragmentation but data is not presented on the size of forest fragments resulting from alternative alignments.

Page IV-234, paragraph 3 -- This should reference Table IV-20. How does this compare with Table III-23 (page III-133)?

Pages S-9 and IV-241 -- These sections list only Federal and State laws and permits. County laws and permits should also be listed, such as laws, regulations, and guidelines that apply in Special Protection Areas.

Page IV- 275 -- First full paragraph, the discussion should at least reference the Planning Board's transportation noise guidelines, briefly discuss the differences, and state whether or not SHA believes the guidelines can be met. It should further be noted that the Montgomery County Department of Public Works and Transportation uses SHA/FHWA noise criteria for review of its local roadway projects.

Page IV-279 -- The last sentence should be amended to read, "If a build alternative is selected, a study of alternative cost optimized methods of mitigation would be conducted, and the "reasonable and feasible" determination refined based on the mitigation optimization analysis".

Page IV-360 -- This concerns construction impacts. This section is inadequate for local review. Since blasting is a possibility for the alternatives, it should be listed. Also, there should be language included that discusses mitigation of construction noise impacts to the greatest extent possible to comply with the Montgomery County noise ordinance (property line) standards through such means as source controls (e.g., use of mufflers), restricting construction hours and/or use of noisy equipment when in proximity to sensitive receptors, etc.)

Page VI-17 -- The description of the progression of a stream from a C4 to an E4 (C4 to G4 to F4 to E4) ends with the statement "... the stream can revert to a stable E4." The example did not start with a stable E4, so it cannot revert to one. The sequence appears to be taken from Rosgen's writings (cf. Rosgen, 1996, Applied River Morphology, Figure 6-5). This is an inappropriate use of this example.

Page VI-2 -- "...cobble-sized gravel...", Cobble and gravel are not the same. Substrate types should be defined.

Page VI-48 -- It is stated that 19°C and above is stressfully warm for brown trout. In Appendix III, annotated checklist of fish, 18-24°C is listed as optimum temperature for brown trout.

Pages IV-231-234 -- In the section on forest interior birds, in addition to the recalculations of acreage, additional maps that clearly show the forest stands (and other habitat types) with the proposed roadway superimposed would be most helpful in illustrating the loss of habitat associated with each alignment.

Page III-139-140 -- As with the contiguous forested tracts, information on the generalized location of RTE species should be presented on a map so that areas of impact per alternative choice can be determined.

Page III-142 -- Mention of DNR information could be made here and the letter included in the glossary. The species listed by DNR Heritage Group from their most recent studies (completed this year during their study of selected park properties commissioned by M-NCPPC) should certainly be listed by name.

Page XI-295 -- The letter from Maryland Heritage and Biodiversity Conservation Programs (1/28/97) is included here in the correspondence section. Why is this information not fully displayed in Vol.2, Section 4, with a listing of species names (and park sitings if the information is available)?

Appendix A contains tables showing forecasted traffic volumes and traffic speeds. However, a written explanation should have been given on page 33 on how those values were used to calculate the background levels of CO. Appendix B is replete with input files for the MOBILE5a Mobile Source Emission Factors Model and Appendix C is similarly replete with input files for

the CAL3QHC dispersion model. It would have been better to omit this rather voluminous and unintelligible data from the report and concentrate on how the data was used.

Volume 2 provides detailed mapping of the various alternatives. On the whole, the mapping is fairly readable, given the amount of detail and the scale that was used.

Comments on the Natural Environmental Technical Report and Associated Appendices

Page III-20 and III-21 -- Data/analysis on SHA monitoring of air and water temperatures at State Operation Centers is missing.

Pages III-38 and III-43 -- Assumptions for effectiveness of certain types of SWM facilities (e.g., 90% recharge effectiveness for infiltration measures, etc.) need to be referenced. What are sources for estimates?

Page II-35 -- It would be useful to show on a map or maps that drainage areas that were delineated for watershed imperviousness calculations for each watershed.

Figure II-4 -- Paint Branch Watershed Boundary and monitoring extends beyond (i.e. downstream of ICC study area boundary). None of the other watershed monitoring boundaries appear to extend beyond the ICC study area. This raised a concern as to imperviousness estimates. Would the imperviousness estimates for Paint Branch be different if the downstream boundary line coincided with the ICC study area boundary?

Pages V-25-34 -- Most of the text pertaining to wildlife is taken directly from Volume 2 of the DEIS and is commented on above.

Figure V-1 -- Map identifies areas of contiguous forest and delineates forest interior bird (FIB) nesting habitat greater than 100 acres. Again definitions and methods of delineating FIB habitat are not explained. Map is too small of scale and does not show road alignments to be useful in interpreting any of the data presented in tables. There should be detailed maps of forest stands, FIB habitat and proposed road alignment to better illustrate impacts to these resources.

Table V-11 -- No explanation as to how this data set was calculated. Most forest stands greater than 100 acres are not included. (see section on Forest Interior Birds).

Table V-11A-V-11C -- Again, no explanation as to how data were calculated. The major point of discussion in the text - forest fragmentation - is ignored in these tables. Tables should include information on size of forest units remaining after fragmentation - similar to what is shown on tables V-2B-V-2D.

Page VI-22 -- Two statements appear to be contradictory: "It is widely recognized that urbanization leads to increased runoff and river channel enlargement." and "Few studies have demonstrated that urbanization has caused a measurable increase in river channel size."

Pages VI-22 and VI-23 -- The Paint Branch study analyzes impervious surfaces vs. Channel enlargement. How were sub basin imperviousnesses calculated? Were they calculated in the same way (i.e., using state land planning information as that described for other watersheds? Or was the data showing actual impervious surfaces in the drainage area used? If state data were used in this part of the Paint Branch study, this is different that calculations referred to in the DEIS for Paint Branch. (See pages IV-198 and IV-202).

Figure VI-4 -- It would be useful if the graph identified what location of what stream each point (imperviousness vs. channel area) represents.

Figure VI-16 -- Hollywood Branch and Left Fork have predicted channel enlargement ratios over time. What are the predicted ratios over time for Good Hope ? (There is only one point shown.)

Pages VI-36 and VI-37 (also in Section III of DEIS) -- Comparisons are made of the Paint Branch trout biomass for 1995-96 to some other Maryland trout streams for 1993-95. Is there data for Paint Branch (e.g. from DNR) for 1993-95 that could be compared with he 1993-95 data from other streams?

Pages V-1-4, Table V-1, Table V-2, and Tables V-2A through 2D -- The proportions of individual natural cover types within the Alternatives ROW's and the direct impact to large forest tracts are important, but information on the *quality* of the forest impacted would also be important.

Page V-4 and Tables V-3A thru 3D -- Although 58 trees between 40 and 68" d.b.h. are listed on these tables, ideally, trees over 30" d.b.h. should have been included in order to give a better picture of the number of truly impressive trees to be impacted by the various alternatives. See also staff's comments under major issues.

Figure V-1 -- The actual proposed road alignments should be traced on this map in order to assess the true impact to contiguous tracts larger than 100 acres.

Page V-21 and Table V-4 -- Were the potential occurrences of Coastal Juneberry checked out in March and April, 1997?

Table V-7 and V-8 -- Tables listing the occurrences of RTE and Watchlist species are good. But anyone reviewing these findings should be made aware (perhaps by some notation right on the table) that these sitings are certainly not the *only* examples of occurrences on the various alignment alternatives. It should be clearly stated in the text of the DEIS and accompanying

Natural Resources Technical Report what exactly constitutes an "occurrence". For example, with the Watchlist species Quercus imbricaria listed in Table V-8, does the total of "5 occurrences" mean that 5 individual shingle oaks were seen on the ICC alternatives, or 5 small populations of several shingle oaks each? Also, what constitutes a population if we are talking groups of plants?

Pages V-23 and 24, and Table-9 -- It's very good to have the acreage of direct losses of plant communities per ICC Alternative in table form. However, stronger emphasis should be placed on the paragraph concerning the very real changes in plant community structure and composition that will occur when edge habitats or ecotones are created. With the construction of a highway through the middle of a forest, new edge habitats will allow much more light to reach the forest floor, brighter and drier conditions will cause plant species to change, and the probability of the invasion of exotic species will increase greatly.

Pages V-24 and V-25 -- The actual direct damage to our counties' population of RTE species with the construction of various ICC Alternatives can not be accurately assessed at this time. As with the indirect impacts on flora in general, impacts extend beyond the actual alternative routes. Land clearing disturbances often speed the establishment of exotic invasive species which displace native plants. Changes in ecosystem brought on by highway construction (like addition of toxics, erosional effects) and changes due to edge effect (like more light, more grazing by herbivores) are a few of the potential indirect impacts which must be considered.

Table V-10A -- The same comments can be made regarding the 19 sitings of 6 watchlist species listed in Table V-10A as were made above previously, i.e., this number is undoubtedly an under representation. The National Heritage information listed in the Glossary gives an additional 8 watchlist species which should certainly be mentioned with the 6 discussed in this table. Also information from February 1997 report should be referenced.

Appendix III-F (Report entitled: "Stormwater Management Design Criteria for Intercountry Connector"), page 1 of RKK sub-report -- It is stated that outfall locations on Bel Pre Road and Norbeck Road are constrained because dense residential development abuts parkland of Class III trout streams. Norbeck Road crosses Rock Creek, where it is the boundary between Use IV water (upstream) and Use I water (downstream), and ends in the Northwest Branch watershed, which is Use IV. Bel Pre Road is in the Use I portion of the Rock Creek watershed and in the Northwest Branch watershed. No portion of either road is in a Use III drainage.

Appendix III-F, Table I of RKK sub-report --

- Most of the Use class designations in this table are incorrect.
- The report on the proposed Groundwater Syphon is unclear. As a minimum, a structural diagram needs to be included.

- Trout are stocked every year at and immediately upstream of the MPA crossing of Northwest Branch. Paint Branch is noted as having "limited fishing opportunities": Paint Branch upstream of Fairland Road is a MD DNR designated catch-and-return trout fishing area.

Appendix V-A -- Concerning the "List of Common to Scientific Names" placed in Appendix V...The list is acceptable, but a number of obvious plants have been left out. (egs. Ilex verticillata, Viburnum prunifolium), and the herbaceous list is definitely on the scanty side. with several of the Watchlist species given by the Heritage Program not even noted.

Correspondence section-- Copies of the same letters placed in the Glossary of the DEIS are included here; again, the RTE information described here should be put in the actual body of the EIS proper.

Appendix V-C -- The chart "Phenology and habitats for rare plant species reported from within the vicinity of proposed corridors of the inter-county connector" is interesting, but again, this is basically an expanded plant list--was any attempt made to find any of these species?

ENVIRON.REV

Intercounty Connector Draft Environmental Impact Statement Review  
PARKS/RECREATION AREAS AND HISTORIC SITES

*Preparers: Bill Gries, Park Planning and Development Unit and Perry Kephart and Jim Sorensen, Ph.D., Historic Resources Unit*

**SECTION V. 4(F) IMPACTS - PARKS/RECREATION AREAS AND HISTORIC SITES**

**SUMMARY**

Section V, Volume 2 of the Intercounty Connector DEIS titled "Section 4(f) Evaluation" is included in the DEIS in conformance with federal law that has been in existence in some form since 1966. The national policy established by Section 4(f) of the Department of Transportation (DOT) Act 49 U.S.C. 303(c) reads as follows:

It is the policy of the United States Government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

The Secretary (of Transportation) may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if--

1. there is no prudent and feasible alternative to using that land; and
2. the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Two broad categories of resources are subject to 4(f) evaluation:

- 1.) Park/Recreation Areas  
and
- 2.) Historic Sites ( Standing Structures and Archaeological Sites)

In this Section the reader will find the following information:

A brief description of the ICC project with identification of the five alternatives under consideration.

A brief description of the resources impacted.

This is followed by a more detailed description of each 4(f) resource impact by alternative. Park impacts discussed include a description of acreage taken and impacts to existing and planned facilities, wetlands and upland habitat loss and visual and noise impacts. The individual impact descriptions are followed by a section on "avoidance options" and a section on "measures to minimize harm".

Tables summarizing impacts.

Brief description of coordination and consultation undertaken to prepare the 4(f) evaluation.

#### Section 4(f) Effects on Park/Recreation Areas

Table V-3 in the Section 4(f) Evaluation, page V-84 and Table 2 in the Overview, page 32 summarize the impacts of the various alternatives on the 4 (f) park resources. Where acreage is required by an alternative, the amount needed is indicated. Staff has not verified the acreage figures provided but has concluded that they appear to be reasonable estimates. Any facilities impacted by an alternative are identified as well. Staff's review has generally confirmed that this information is correct.

In addition to identifying the impacts of each alternative on the various park and recreation areas, the 4 (f) evaluation also looked into avoidance options for those alternatives. This investigation is in keeping with the Federal requirement that avoidance of 4(f) resources must be considered. These options basically consisted of 1) selecting a lessor or non-impacting alternative, 2) moving the alignment in one direction or another, 3) reducing the width of a typical road section or 4) incorporating retaining walls into the construction program so as to totally or partially avoid the park and recreation area. Seven avoidance options were considered in the DEIS.

Finally, the 4 (f) evaluation also identified and described measures to minimize the harm that may come to any resource area as a result of implementing the various alternatives. These measures included:

1. Replacement land of equal or greater natural resource and economic value would be provided in a manner to be agreed upon by M-NCPPC and the State Highway Administration.
2. Erosion and sediment control measures, strictly enforced to minimize impacts to water quality.
3. Retaining walls (also an avoidance tool) to reduce land disturbance and taking.
4. Bridges to accommodate trail underpasses and facilitate wildlife passage.



5. Replacement of impacted wetlands.
6. Additional appropriate mitigation measures such as landscaping to be further developed/ detailed through coordination with M-NCPPC.
7. Relocation and or replacement of any facilities impacted by the various alternatives.

The suggested avoidance options and measures to minimize harm to 4(f) resources will be subject to further coordination with appropriate agencies.

#### Section 4(f) Effects on Historic Sites

A survey and evaluation of all historic resources within the 170 square mile geographic area of the five ICC alternatives in both Montgomery County and Prince George's County determined that 37 sites in both counties are on or eligible for the National Register of Historic Places and are negatively affected by one or more of the route alternatives.

Of these, a total of 10 historic sites would require "use" under Section 4(f). This means either 1) the acquisition of or adverse occupancy of the historic site (including its environmental setting), or 2) proximity impacts that are so great that the site is substantially impaired. Of the ten sites affected, two would lose not only acreage, but would have historic structures demolished.

Wherever possible, the ICC proposed routes have been relocated or redesigned to minimize impact on historic resources. Where that was feasible, mitigation efforts have been suggested.

For areas where right-of-way acquisition would require demolition of an historic site, mitigation would include recordation of the property through research and photography in consultation with the State Historic Preservation Officer.

For less extreme cases, retaining walls, vegetation or other screening, and design modifications have been suggested. In most cases, the retaining walls were considered unsatisfactory as being too expensive or themselves creating adverse effects.

For most of the historic sites, noise barriers were considered not feasible or reasonable and no alternative method of noise abatement was offered.

#### Section 4(f) Effects on Other Resources

Finally, the Section 4(F) Evaluation of the DEIS also addressed the impacts of the five

ICC alternatives on four other publicly owned 4(f) resources including: 1) Dr. Charles R. Drew Elementary School, 2) T. Howard Duckett Watershed Property, 3) Hampshire Greens Golf Course and 4) Little Paint Branch Stream Valley Park. These facilities are under the jurisdiction of the Montgomery County Board of Education, the Washington Suburban Sanitary Commission, the Revenue Authority and the Prince George's side of M-NCPPC, respectively. Staff has not commented here on how the DEIS addressed impacts to these facilities.

## ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED

There are seven issues which staff will need to acquire or develop more information about in order to evaluate the roadway alternatives, or would like to see included in the final environmental impact statement. There are detailed below:

- Characterization of habitats, ecological values (biodiversity) and functions -- While the 4(f) Section outlines the impacts to parkland in terms of acreage and facilities directly impacted, little or no reference is made to habitats that would be affected outside of the build zone. Nor is mention made of the ecological values and functions in these areas. This information is desirable in order to compare between the alternatives, and should consist of a characterization containing information similar to that gathered for a *Forest Stand Map and Forest Survey* as described in the Trees Technical Manual (M-NCPPC, 1992). This information should be augmented by data on rare, watch-list, threatened, and endangered plants and information on aquatic resources (i.e., fish and macroinvertebrates) and stream habitat available from Montgomery County Stream Protection Strategy.

An example is an impacted area in Rock Creek Park. It is described on p. V-5 as "a mixture of upland hardwood forest, scrub shrub habitats, wetlands and floodplains." In reality, the MPA and the Rock Creek Options pass through forests of good to excellent quality, where the dominant trees are 16 to 25" d.b.h. with many scattered larger trees noted. The major portion of potentially impacted woods have good forest structure with relatively few exotic invasive species. The DEIS mentions only 2 state listed plants on p. V-5, while the letter from the Heritage and Biodiversity Program placed back in the Glossary at the end of Vol. 3 lists an additional 7 State Watchlist species. Additionally, the Maryland DNR Heritage and Biodiversity Program botanists have suggested that the section of Rock Creek Park through which both the MPA and the Rock Creek Option run be granted a special protection status. (See recent report dated 2/97 and previous report dated 1993 for more information.) They call this area the "Needwood North Protection Area" and point out that such comparatively large contiguous blocks of forest in the county are few. (This information is found in a 327 page document prepared by the Maryland Heritage and Biodiversity Conservation Program entitled "Inventory of Rare Threatened and Endangered Plant Populations and Significant Habitats on Select Park Lands of the M-NCPPC in Montgomery County (1993). This data was given to SHA previously.)

In addition, the 4(f) writeup for the Paint Branch Stream Valley Park should reference the DEIS's comprehensive characterization of the trout resource found within the park and its significance and importance at the State and local levels, and cross reference the additional detail in the section on aquatic resources. This type of information should be included in the final environmental impact statement.

- Mitigation of Park and historic impacts -- Depending on the alternative chosen, there will be an issue in how to replace the parkland impacted. While the DEIS does not develop detailed mitigation plans, it does outline conceptual mitigation measures which could be undertaken to offset the various impacts. In the FEIS a detailed mitigation plan will need to be developed in coordination with the Commission. Related to development of this mitigation plan, reference should be made to the Memorandum of Understanding (MOU) between M-NCPPC and SHA which provides a basic framework for such a mitigation plan.

The level of detail in the discussion of conceptual avoidance and mitigation efforts for historic resources fulfills the requirements of the DEIS, but is not sufficient to allow either avoidance or mitigation efforts to be included productively in the decision making. Greater detail should be included in the FEIS.

- Lack of archaeological studies -- No archaeological sites were discussed in the 4(f) section as no 4(f) effects to them have been found to date. A number of the known and prospective archaeological sites are in parks or near historic standing structures. Impacts to these, if any are found in the currently ongoing studies, should be included as part of the final environmental impact statement along with discussion of avoidance and mitigation efforts to satisfy 4(f) requirements.

- Noise/visual impacts to wildlife and passive park use -- Reference is made to increased noise levels that are expected to occur for distances varying from 100 feet to 350 feet from the right-of way. Noise levels from a multi-lane highspeed roadway carry well beyond this distance and have a significant effect on wildlife by interfering with courtship calls. Noise also seriously degrades aesthetic values for park visitors. It would be helpful if there was a brief discussion of what is considered to be acceptable or not acceptable levels of noise within a 4 (f) resource for this information to be meaningful. Perhaps some of the noise analysis information found in Section IV - Environmental Consequences of the DEIS may be used to infer impacts on parkland.

- Parkland definition -- The DEIS was prepared using the definition for "parkland" normally accepted by the Federal Highway Administration. That is, publicly owned land is considered to be a park, recreation area, or wildlife and waterfowl refuge when the land has been officially designated as such by the agency owning or administering the land. In the DEIS, publicly owned land other than that which was specifically acquired for the ICC (i.e. ALARF acquired property) was generally considered to be parkland regardless

of its master plan designation. It could be argued that not all of these lands are parkland since various master plans for many years have designated much of it for future road purposes. As a planning agency, the Commissions definition of parkland may be different from FHA.

- Park values and passive recreation -- The section 4(f) analysis focuses primarily on the value of parkland for active recreation. Additionally, parkland is used for passive recreational activities such as fishing, bird-watching, wildflower viewing, etc. Inherent park values related to these activities and the amenity of park setting are difficult if not impossible to quantify. As a result, any evaluation of the various ICC alternatives will require significant subjective reasoning in determining the differences in the four build options. The DEIS does not identify these inherent park values as an impact; however, they are considerations in rendering judgments on the difference between alternatives.

### Technical Comments

With respect to further technical comments regarding Section 4(f) the following points are offered.

- A portion of Northwest Branch Park (32.5 acres) has for years been developed as Layhill Local Park and should be considered a separate facility. The report does not differentiate between Layhill Local Park and Northwest Branch Recreational Park. Table V-3 on pages V-84 and V-85 should also show this as a separate facility.
- Two sites eligible for the National Register of Historic Places, Woodlawn and Holland Store and House, have been omitted from the study. Both sites may be negatively affected by the MM198 Alternative. Specifically, Woodlawn may lose acreage and suffer noise impacts. Holland Store and House would be displaced by road widening. Adding these two historic sites brings the total to 12.
- In Section V-E-4, Drayton and Edgewood II should be listed separately. The impacts, avoidance, and mitigation issues for the two are substantially different.
- Page V-34 indicates that 16.6 acres would be required from North Branch Stream Valley Park for the MPA and NA. This is inconsistent with Table V-3 on page V-84 where 19.5 acres is shown as being required by these alternatives.
- North Branch Stream Valley Park as discussed throughout the report should be specifically identified as North Branch Stream Valley Park, Unit 11.
- Page V-40 discusses the Partial Park Avoidance Option for Northwest Branch Stream Valley Park, Unit 5. This discussion may be confusing to those who are not aware that the MPA does not follow the highway corridor reservation which was established in

1973, suggesting the need for an additional explanation as to why and when this shift out of the highway corridor occurred, would be helpful.

- Page V-52 should have mentioned that the UERA impact on Paint Branch Stream Valley Park, Unit 6 includes a storm water management pond as shown on figure V-54.
- Page V-55 refers to Winters Run Local Park shown on figure V-39. The correct figure is V-40.

4(f).rev

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Intercounty Connector Draft Environmental Impact Review  
TRANSPORTATION

Preparer: George Cardwell, Transportation Planning Unit

**SECTION VI - TRANSPORTATION IMPACTS**

**SUMMARY**

The Transportation Planning staff has reviewed Section VI which presents the transportation impacts associated with each of the alternatives for the Intercounty Connector (ICC) as found in the *Draft Environmental Impact Statement (DEIS) and Major Investment Study (MIS) for the Intercounty Connector (I-270 to US 1)*. In addition to the DEIS/MIS document, there is a 15-volume *Travel Analysis Technical Report (TATR)*. Both of these publications were released for public review on or about April 11, 1997. In addition to highway capacity improvements, each of the five alternatives includes additional transit service, multi-use trails, as well as transportation demand management (TDM) strategies to reduce demand and transportation system management (TSM) strategies to enhance transit and highway operations. Greater description regarding specific alignments for each alternative is provided under Section II. Alternatives.

Similar to the evaluation process of other impacts, the evaluation of transportation-related impacts of the various alternatives relies on the development of review factors which provide the measures of effectiveness (MOE) which are used to determine how well a particular alternative meets the objectives of the proposed facility, as defined in the purpose and need portion of the study.

Transportation Methodology Used to Develop and Determine the Review Factors

The size of the study area and the number of alternatives and variations within alternatives dictate a need to develop a computerized travel demand forecast model which includes both highway and transit networks. To accomplish this task, the Metropolitan Washington Council of Governments (MWCOC) model process which includes the Round 5.2 Cooperative Forecast of land use activity and the Constrained Long Range Plan (CLRP) of transportation was used.

The MWCOC travel demand forecast model uses a 1478-zone structure and covers a geographic area from Baltimore County south to Stafford County, Virginia east to the Chesapeake Bay Bridge west to Jefferson County, West Virginia. It includes transportation detail of all bus routes and rail transit lines and collector, arterial, major highway and freeway facilities. Because this regional model was used to develop corridor-level traffic and intersection volumes, greater detail in both traffic zone geography as well as highway network was added. Approximately 80 traffic analysis zones were added to this model. In adding this level of information, it was necessary to validate the model's travel volume output against actual

observed travel volumes. This validation exercise is only satisfied when the modeled volume output is within 10 percent of observed volumes. Model validation data supplied by MWCOG indicates that this step was satisfied.

The Cooperative Forecast is developed by the member jurisdictions of the MWCOG showing changes in population and employment over a period of time (in this case up to 2020) and is arrayed in five-year intervals. The current MWCOG Cooperative Forecast is 5.3 and the MWCOG staff is performing a sensitivity analysis to determine if the changes between the current and previous (5.2) round will change the average daily travel demand within the study area.

The CLRP consists of a substantial increase in highway and transit service capacity primarily in the form of multiple highway link and transit route (plus improved headways) improvements throughout the network in the study area. These projects are identified by local transportation agencies through a regional process and consist of those improvements for which either Federal funds are being sought, or which will require an affirmative Federal action such as the granting of a wetlands permit, or some other level of environmental assessment, and for which the transportation agency can identify a source of funds (Federal, State, Local, Private). Typically these projects consist of arterial highways with a distance of more than one mile. They normally do not include intersection improvements such as those required as conditions of development approval. The CLRP network is maintained by the MWCOG and is used as the basis of comparison for all DEIS/MIS-type studies in the Metropolitan Washington area. *The CLRP is used interchangeably with the terms "No Build" and "Baseline."*

Layered upon the "No Build" network each of the build alternatives (Up Grade Existing Roads, MidCounty Highway/ MD 198, Master Plan Alignment and Northern Alignment) have been coded and an average daily travel (ADT) assignment calculated. This machine output version of the ADT assignment is then processed through a series of regional screen lines and then refinement screen lines in a procedure consistent with National Cooperative Highway Research Program Report No. 255, Highway Traffic Data for urbanized Area Project Planning and Design, (NCHRP 255) as prepared by the Transportation Research Board of the National Research Council.

Since the level of analysis used in both the impact assessment and the design of intersections and interchanges is based on peak hour travel demand, the refined ADT output from the screen line process is further refined to develop peak hour link volumes and turning movement counts. This is accomplished by using procedures in NCHRP 255 and National Cooperative Highway Research Program Report No. 187, Quick-Response Urban Travel Estimation Techniques and Transferable Parameters, (NCHRP 187) as prepared by the Transportation Research Board of the National Research Council. The ADT is then reduced to peak hour counts based on a percentage (a "K" factor) of the ADT and into directional volumes (a "D" factor) to permit evaluation of intersection, interchange and mainline operations which would be forecast to occur as a result of the construction of any of the build alternatives. The

DEIS/MIS evaluated the impact of the various alternatives at 54 key signalized intersections within the study area and 134 highway segments.

The impact of intersection, interchange and mainline volumes on the capacity of those selected major facilities within the study area were evaluated using Critical Lane Volume (CLV) and portions of the Highway Capacity Manual (HCM). These methods are regularly used by the Maryland State Highway Administration (SHA) as well as the Park and Planning Department, Transportation Planning staff and the Montgomery County Department of Public Works and Transportation staff in evaluation of the impact on highway facilities.

Other review factors regarding person trips, travel time, origins and destinations, are also derived from components of the travel demand forecast model in terms of trip tables and link performance files. These data are also evaluated against observed or surveyed data and must be found to be compatible prior to the satisfaction of the calibration.

In short, the process followed to develop the travel forecast data used in the review factors is consistent with procedures followed by the Transportation Planning staff as well as other planning agencies.

#### Methods of Comparison

The DEIS and the supporting Travel Analysis Technical Reports (TATR) set provide a framework for comparison of the impact to the transportation network within the study area. This comparison among the alternatives is made using review factors and measures of effectiveness (MOE). These factors and MOEs become the means of evaluating each alternative's ability to meet the stated transportation-related objectives. The State Highway Administration (SHA) and its consultants developed the set of review factors and accompanying MOEs. The four transportation-related objectives identified in the DEIS include:

1. Accessibility which is the means of gaining vehicle access to concentrations of employment (based on the MWCOG Round 5.2 forecast of employment and population), improving the ease of access to east-west travel (measured in person trips), and increasing the opportunity to use transit services and transit ridership (measured in percent of work trips that could use transit and forecast person trips using transit, or transit mode share).
2. Mobility is measured as the change in both travel patterns and numbers of trips as measured across screen lines. Included in the presentation of mobility is an evaluation of area congestion as measured at various intersections within the study area. Mobility also includes changes of travel patterns whereby longer-distance, higher-speed trips are diverted from local roadways to facilities designed to accommodate these trips, and changes in operating conditions at several key intersections within the study area. Please note that not all intersections were



evaluated in this DEIS/MIS, however, a significant number of major intersections (54 in total) were evaluated to determine the relative change of impact associated with each of the alternatives. The measures of effectiveness (MOE) used to gauge each alternative's support of the mobility objective included: peak hour level of service (LOS) using the critical lane volume (CLV) procedure; daily traffic volumes along 134 roadway segments and across five north-south screen lines; freeway LOS (measured on the mainline); delay at major intersections; travel time from selected origins and destinations; and percent of total vehicle travel along congested roadway segments.

3. Safety is measured as the reduction in the number of conflict points, and in the mixture of trip purposes competing for the same roadway segment. The DEIS/MIS evaluates the alternatives using estimated safety impacts of limited access roadways and provides 1"-to-300' scale drawings identifying conflict points for each alternative. Also important as a safety issue is the design consideration for transit patrons and bus operations for each of the alternatives.
4. Connectivity is an objective to provide a clearly identifiable connection between the major Interstate highway corridors within the study area (I-270 and I-95) and major transit facilities and routes. This objective uses MOEs such as the percent of travel along "local roads," and the generalized location of origins and destinations within and/or outside the study area. It provides qualitative measures such as the extent of motorist convenience and identity of route choice.

## ISSUES - ADDITIONAL INFORMATION AND CLARIFICATION NEEDED

### Possible Additional Review Factors

The Transportation Planning staff does note that there are possible additional objectives which could be evaluated using the review factors noted. These data needed to satisfy the questions posed by the review factors should be available from the SHA and its consultants. However, these factors would require some post processing and analysis by the Transportation Planning staff. In each of the five alternatives, there is a significant increase in transit service (both in the number of routes, and the improvement in headway) over current levels. The Transportation Planning staff believes that more emphasis on transit's role as a component in any of the alternatives should be provided:

1. In addition to those factors presented in the DEIS/MIS document and supporting TATR concerning Accessibility, changes in accessibility to jobs and housing by transit should also be included in the evaluation. This belief is based on the concern that the alternatives should provide the best possible improvement to the overall transportation system which includes an increasing amount of transit linkages and improvements.

2. In addition to the criteria used to evaluate the alternatives in the DEIS/MIS concerning Mobility, the change in travel time for bus transit between selected origins and destinations should be included in the evaluation. This belief is also based in the need to identify which of the alternatives provides the best overall system improvement.

There is at least one other objective which could be evaluated and used as a basis of comparison among the five alternatives. This is identified as energy efficiency. Some MOE that compares energy use for each alternative in some standardized method would be valuable.

Given these objectives and measures of effectiveness, the Transportation Planning staff believes that the document and its 15 appendices which comprise the TATR provide sufficient information to compare the relative impacts resulting from the various alternatives. We believe that a greater emphasis should be placed on the transit aspects of each of the alternatives, as any selected alternative should be viewed as more than a roadway segment as it will be a component of a regional transportation network including transit and automobile capacity.

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Intercounty Connector Draft Environmental Impact Statement Review  
SUMMARY OF FACTORS

Preparer: Joe Anderson, Environmental Planning Division

**SECTION VII. COMPARISON OF COSTS/BENEFITS AND FINANCING**

**SUMMARY**

This section of the DEIS summarizes a variety of evaluative measures for comparing alternatives. During the course of the study a set of goals and objectives was developed for the project. Specific quantitative and qualitative measures, called "measures of effectiveness" were identified for each objective. These measures indicate the relative differences between alternatives in each category. The goals, objectives and related measures address concerns relative to social, economic, environmental, transportation and cost factors.

A description of each measure is provided followed by a tabulation of the results for each alternative. The results are provided for each of the four *basic* alignment alternative (and the No-Build where appropriate); results for the *options* for many of the measures are tabulated in summary tables in the initial summary section of the DEIS.

Comparative benchmark information is provided in the description of most measures in order to provide some context for the information. The major categories of factors included among the measures of effectiveness are:

- transportation conditions - accessibility, mobility, safety
- environmental/park impacts - extent and type of resource disturbance, air quality, noise
- land use/community impacts - displacements, plan consistency, growth accommodation
- cost - capital, operating, life cycle

**ISSUES - ADDITIONAL INFORMATION OR CLARIFICATION NEEDED**

The No-Build alternative is carried forward in the study as a baseline against which other build alternatives are compared. The No-Build will be implemented regardless of the outcome of the study. However, it needs to be clarified that in comparisons where "o" has been shown for the No-Build it is a relative figure and not that there are literally "no impacts" associated with implementing already-programmed projects.

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