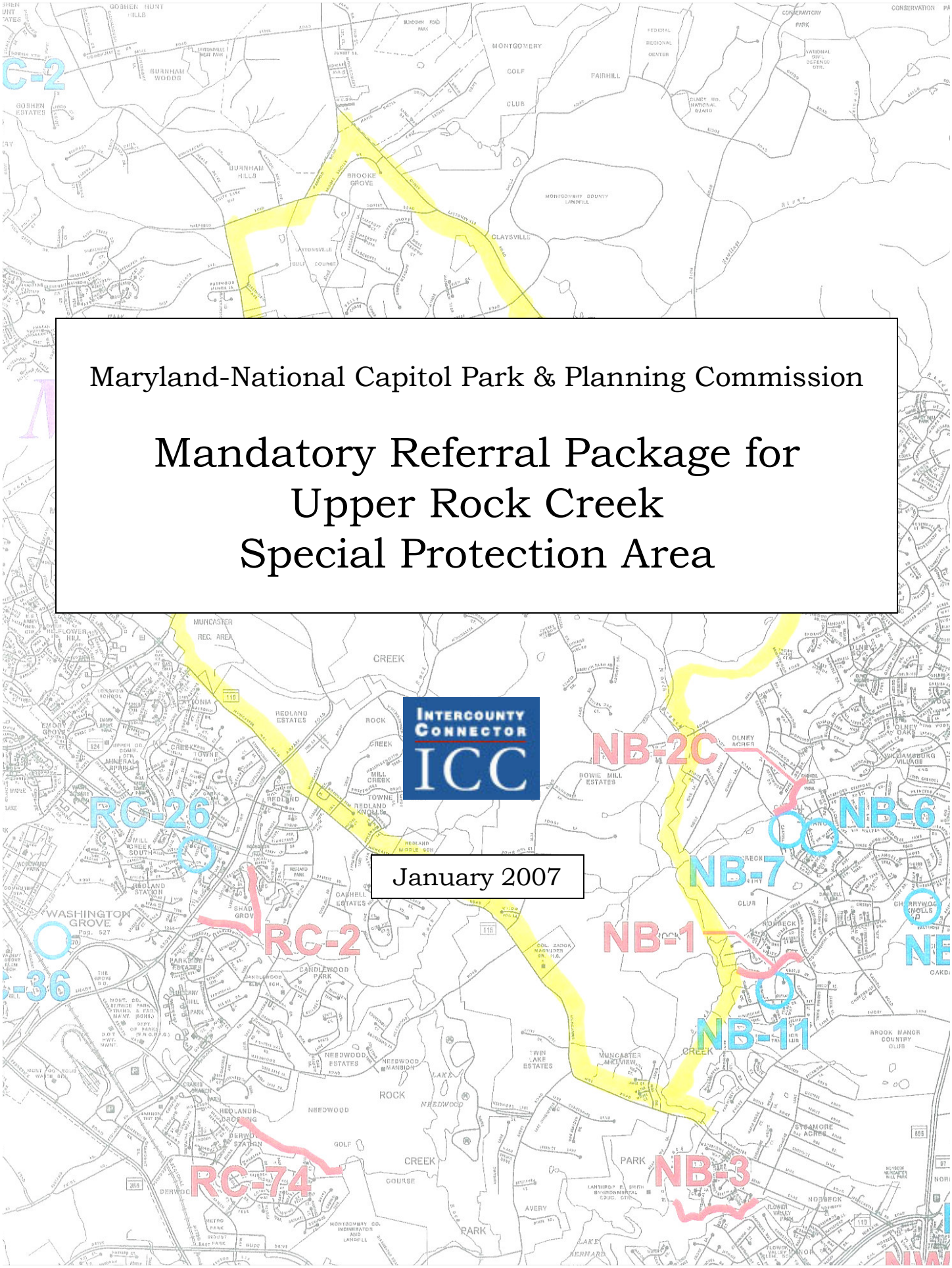

Maryland-National Capitol Park & Planning Commission

Mandatory Referral Package for Upper Rock Creek Special Protection Area

January 2007

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Intercounty Connector (ICC)

Mandatory Referral Submittal Package for Upper Rock Creek Special Protection Area

January 26, 2007

Introduction

This document follows the Montgomery County Department of Park and Planning Uniform Standards for Mandatory Referral Review (M-NCPPC, with updates through March 25, 2004) for issues relative to stormwater management and water quality in the Upper Rock Creek Special Protection Area.

This document is for the purpose of demonstrating to the MNCPPC Board, staff, and public that the Intercounty Connector (ICC) project merits approval through MNCPPC's Mandatory Referral process with regard to crossing Upper Rock Creek (URC) Special Protection Area (SPA). During the ICC planning process, extensive coordination, public involvement, environmental evaluation, and needs analyses were compiled in the Natural Environmental Technical Report (NETR), and Draft and Final Environmental Impact Statements (DEIS and FEIS), with FEIS commitments highlighted in the US Department of Transportation, Federal Highway Administration (FHWA) Record of Decision (ROD) and reinforced in permits issued for the project by Maryland Department of the Environment (MDE) and the US Army Corps of Engineers (Corps). Within this document, referenced sections of the NETR, FEIS, ROD and permits make the case that the ICC through Upper Rock Creek (URC) Special Protection Area (SPA) is in the public interest and is being pursued in an environmentally sensitive manner consistent with the intent of Montgomery County SPA regulations.

Section III: Submission Requirements:

III.1 Written Narrative:

The ICC is a multi-lane highway proposed from I-370 in the west to I-95/US 1 in the east. The planned roadway passes through the URC SPA between Muncaster Mill Road and the mainstem of North Branch near the Muncaster Mill View community. The highway is planned to be 3-lanes plus median and outside shoulders in each direction, and in certain locations will include an adjacent 10 foot paved pedestrian / bicycle path on the eastbound side of the highway. The highway through North Branch is planned to be at-grade with a bridge over North Branch

The lead agencies proposing the ICC include Maryland State Highway Administration (SHA), Maryland Transportation Authority (MdTA), and FHWA. The project has been through the National Environmental Policy Act (NEPA) process, including NETR, DEIS and FEIS, and FHWA issued a ROD on May 29, 2006 approving the project. The overall project has been segmented into up to 5 contracts, Contract A through E.

Contract A extends from I-370 to east of Georgia Avenue (MD 97) and affects the URC SPA. Contract A is being procured using Design-Build format, and presently SHA/MdTA is evaluating Design-Build proposals to begin final design and construction of Contract A in March 2007.

III.1.d. The proposed ICC typical section is included in MR-URC-Appendix B. Essentially the roadway consists of 3-12 foot lanes plus 2-10 foot shoulders in each direction, eastbound and westbound. The typical section meets the required standards for freeways as required by SHA/MdTA. There are no curbs or gutters within the URC SPA, the roadways drain by sheet flow to roadside and median ditches. The water quality component of the ICC stormwater management plan is based on meeting MDE Grass Channel Credit requirements throughout the project and including biofilters beneath the grass channels within Use III watersheds. URC SPA constitutes approximately 4,400 linear feet of roadway within 12,400 linear feet of Use III watershed being crossed by the ICC (approximately 35 percent of the Use III watershed is within SPA along the ICC right of way)(See RFP Plates in MR-URC-Appendix B).

III.3. Preliminary plan sheets are enclosed in MR-URC-Appendix B. These are the most current engineering drawings for the ICC through URC SPA. The plan sheets included herein are from the Request for Proposals (RFP) for Contract A. There are no buildings or parking spaces contemplated as part of the ICC in URC SPA.

III.6. A substantial amount of natural resources inventory / forest stand delineation work has been completed for the ICC. Documentation of existing natural resources within the study area can be found in the NETR (throughout) as well as FEIS Sections II.E through II.H (pages II-44 through II-162). In addition to the environmental documents for the ICC, MNCPPC staff has attended a number of meetings including Interagency Work Group (IAWG) and Brown Trout Work Group (BTWG) on the specific topic of sensitive area protection, have participated in field walks and reviews, and have had the opportunity to comment on the environmental documents as well as the draft RFP for Contract A (encompassing URC SPA).

III.7. Being a State facility, the ICC is not required to obtain a formal water quality plan approval from Montgomery County Department of Permitting Services (MCDPS). However, the intent of SHA/MdTA has always been to comply with the intent of the SPA requirements. To this end, SHA/MdTA has prepared a document entitled Montgomery County Special Protection Areas and the ICC (SPA and the ICC) and submitted copies to MCDPS and MNCPPC for review. SPA and the ICC attempts to document how each of the SPA Performance Goals is addressed by the ICC and includes references to various sections of the environmental documents, ROD and permits. The following is a summary of the SPA Performance Goals and how SHA/MdTA is addressing them for the ICC:

1. Stream / Aquatic Life Habitat Protection

The ICC includes many features that provide general stream and aquatic life protection. SWM requirements for the project follow the MDE stormwater Design manual procedures and exceed MDE requirements in several respects. The following is an excerpt from the Contract A RFP with regard to stormwater management requirements for Contract A to demonstrate how MDE requirements are exceeded in URC SPA:

3.7 STORMWATER MANAGEMENT GENERAL REQUIREMENTS

Stormwater management (SWM) Best Management Practices (BMPs) shall conform to MDE's *2000 Maryland Stormwater Design Manual, Stormwater Management Guidelines for State and Federal Projects*, and the following ICC commitments with regard to SWM:

A) In calculating Water Quality Volume using the *2000 Maryland Stormwater Design Manual*, the Design-Builder shall replace "P = rainfall depth in inches and is equal to 1.0" in the Eastern rainfall Zone and 0.9" in the Western Rainfall Zone (Fig. 2.1)" with "P = rainfall depth in inches and is equal to 1.5" for the ICC" in Table 2.1, and throughout the manual.

B) Within the Montgomery County Special Protection Areas (SPAs) and Use III watersheds, approximately between MD 115 and MD 97, in addition to MDE Grass Channel Credit criteria as found in Section 5.5 of the *2000 Maryland Stormwater Design Manual*, linear filtering devices shall be employed in outside and median ditches in accordance with "ICC Linear Stormwater Management Concept" (See MR-URC-Appendix E) dated November 2005.

C) The Design-Builder shall capture and provide water quality and quantity control for runoff from roadway and bridge decks within the SPA through methods acceptable to the Administration and MDE.

D) The Design-Builder shall demonstrate compliance with MDE's 12-hour Channel Protection Volume (Cpv) requirements in accordance with Table 2.1, 2000 Maryland Stormwater Design Manual. Cpv storage shall be provided either in dry surface ponds or dry underground chambers depending on available right of way and with concurrence from the Administration prior to construction (refer to Special Provisions).

E) Waivers of or variances from strict adherence with MDE requirements shall be evaluated on a case by case basis. No waivers from MDE's Cpv requirements shall be granted unless a stable outfall is documented.

3.7.1 BMP Selection

The Design-Builder shall present SWM facility types during Definitive Design for the Administration's consultation and written comment prior to advancing SWM design. The Administration will use the following criteria in evaluating proposed facilities:

A) The best fit given the site context and minimization of footprint shall be considered.

B) Grass Channels (see Grass Channel Credit paper included in this advertisement package for design guidance) and other non-structural practices shall be considered first when feasible.

C) BMPs requiring lower maintenance shall be considered first. Potential maintenance needs shall be considered when designing SWM facilities.

D) Maintenance access and frequency.

SHA/MdTA's commitments to providing enhanced SWM is found in FEIS section VII.B.5 - Stormwater Management Features (page VII-25), they are reiterated in the Contract Documents for Contract A with respect to the Use III watershed of Upper Rock Creek in the RFP Part 3, PS 303 – Drainage Performance Specification,

subsection 3.7 (above and in MR-URC-Appendix B), and in MDE and Corps permits for wetland and waterway impacts that have been issued for the project (See MDE permit Special Conditions nos. 8, 9, 10, 15, 17, 18, 19b(mod), c, g(mod), and h(mod), 20, 21, 22, 24, 35, 36, 37, 39, 46, 48, 49, 50, 51, 57, and 58, and Corps permit Special Conditions nos. 2, 3, 4c, g, and h, 6 through 9, 14, 15, 17 through 21, 25 through 28, 30 through 33, 35 through 39 in MR-URC-Appendix A). In FEIS Section VII.B.5 both the overall SWM requirements are detailed as well as what is different and more restrictive in the SPA. The anticipated effects of the ICC on stream / aquatic life habitat are explained in FEIS Section IV.F.5 - Surface Water Resources and Section IV.F.6 - Aquatic Biota (pages IV-151 and IV-195, respectively). Effects of the ICC on Montgomery County Unique and Sensitive Areas (primarily SPAs) may be found in FEIS Section IV.F.11 (page IV-299). An analysis of anticipated secondary and cumulative impacts resulting from the ICC on the environment may be found in FEIS Section IV.K.8 (page IV-415).

Culverts on the ICC shall be constructed with depressed inverts to maintain to the extent possible a natural substrate material in the culvert bottom. The natural material in the culvert bottom is for the purpose of accommodating passage of aquatic life. Culvert crossing locations in URC SPA are at Stations 300+60, 312+50, and 314+00 (east of equality at Station 327+80) (See RFP Plates in MR-URC- Appendix B).

To comply with NEPA and gain approval from FHWA, SHA/MdTA prepared a Compensatory Mitigation (CM) package for anticipated environmental impacts resulting from the ICC. A description of the CM proposed and accepted for the ICC may be found in FEIS Section VII.C.3 - Environmental Measures and Conceptual Mitigation (page VII-52). Within this section is a table listing each Compensatory Mitigation site, the watershed in which the site exists, the restoration objectives (e.g., restoration of X linear feet of stream), and a description of the mitigation concept.

SHA/MdTA has committed to constructing Environmental Stewardship (ES) projects that exceed the mitigation required under law. These ES projects are classified as either community/cultural or natural/environmental. The natural/environmental projects are intended to address existing problems in the natural environment that are not related to or caused by the ICC. Two examples of these projects are stormwater retrofits of existing, developed areas, and stream stabilization and restoration projects upstream of the ICC. Descriptions, concepts, and maps for each ES project may be found in FEIS Section VI. In URC SPA there are 2 stream sites and 4 stormwater management retrofits proposed. Concepts of the stream sites and SWM sites can be found in MR-URC-Appendix C. Locations of the stream sites and SWM sites are shown in Figure 1.

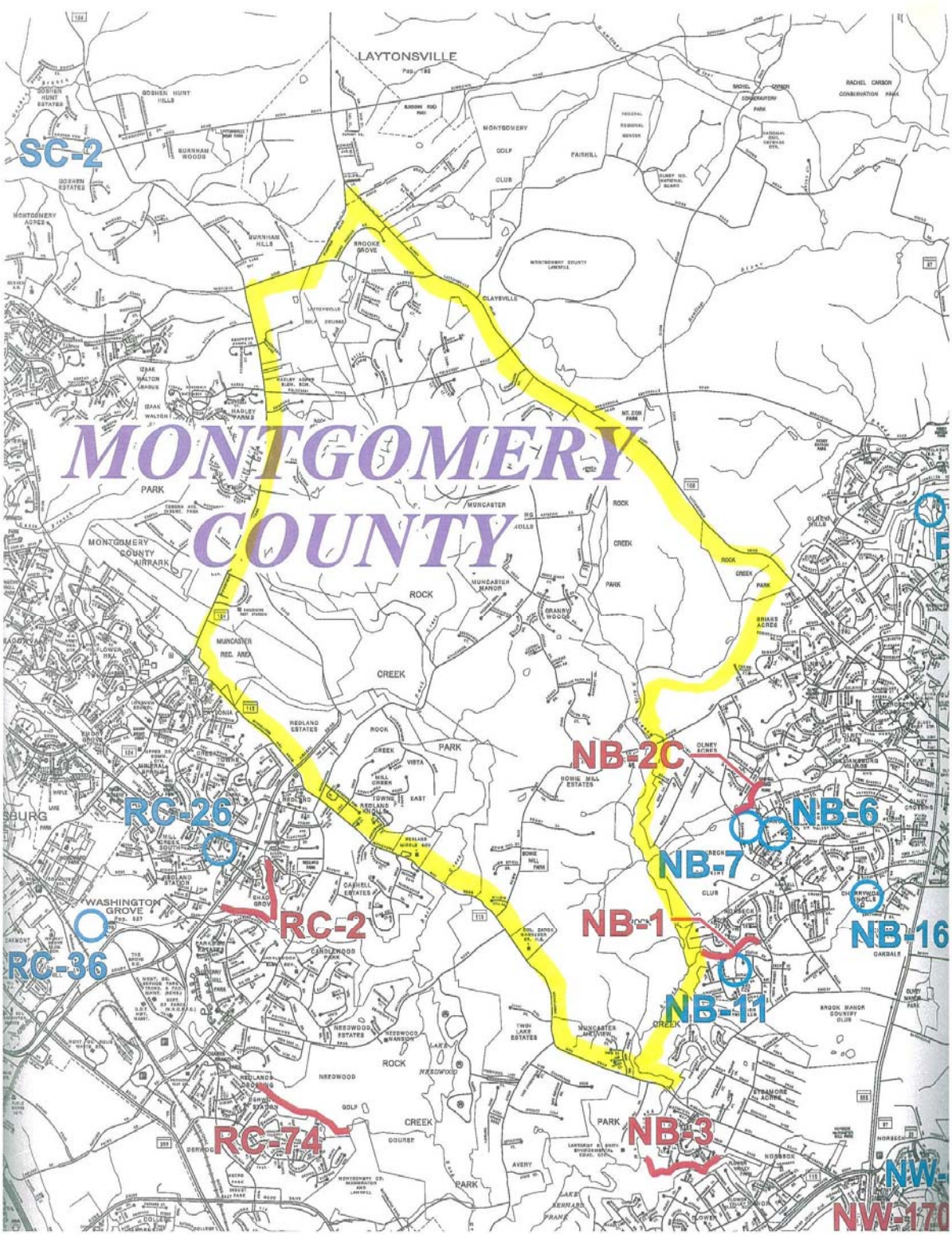

Figure 1: Upper Rock Creek SPA and Environmental Stewardship sites. ES sites in red are stream restoration and blue are stormwater retrofits. NB designation is for North Branch, RC is for Rock Creek and NWB is for Northwest Branch. NB 1, 2, 6, 7, 11 and 16 will improve water quality in the SPA by virtue of providing improved treatment of water that enters.

2. Maintain Stream Base Flow

A significant element of the project is the typical roadway cross section (see Part 6 – RFP Plans TS-3 (MR-URC-Appendix B). In the roadway cross section SHA/MdTA includes roadside swales throughout that will meet MDE's grass channel credit requirements, both inside and outside SPAs. Additionally, within SPAs the median is widened to 50 feet from 36 feet to allow room for redundant water quality treatment by grass channel credit and dry-swale (called Linear Filters in the FEIS). These features will promote infiltration of surface water to groundwater, thereby replenishing the groundwater table and augmenting dry weather baseflow in streams.

The planned dry-swale or bioswale is essentially a biofilter placed beneath grass channels to enhance chemical water quality and provide relief from runoff temperature spikes caused by impervious surface runoff. The bioswales will be constructed in short segments separated by storm inlets and / or check dams to prevent any system-wide failures. Inlets are required to be placed on intervals to prevent the discharge velocity from the 1.5 inch rainfall event from exceeding 1 fps. Check dams will be placed as necessary to keep the 10-year return period storm flow velocity below the erosive threshold. Bioswales will include a shallow depth of stone beneath the underdrain to allow infiltration to occur, thereby recharging groundwater (See Linear SWM Concept in MR-URC-Appendix D).

Within the SPA, SHA/MdTA has committed to providing infiltration where feasible based on soil test results. (See FEIS Section VII.B.5.c.). The infiltration method discussed there involves creating bottomless collection manholes downstream from the linear filter devices. The bottomless manholes will be set at an elevation that meets the separation distance minimum between the manhole device and groundwater as well as soil requirements found in MDE's 2000 Maryland Stormwater Design Manual.

Stormwater management water quantity control for the ICC in URC SPA will include, where possible outside of parkland, surface ponds that meet MDE's Channel Protection Volume (Cpv) requirements to address quantity management. Within parkland and where space is not available for surface ponds, Cpv will be addressed through underground storage either in pipes or concrete chambers. To meet Cpv criteria designers need to essentially store all of the runoff generated by the 1-year frequency storm (2.6 inch rainfall event) and allow it to drain very slowly back to the receiving stream. The purpose for the Cpv requirement is to reduce stormwater flow rates to protect stream banks from erosion, but a side benefit is augmentation of stream baseflow with slow Cpv release rates.

The permitting agencies included conditions within their permits to ensure that spring seeps and infiltration are maintained, groundwater impacts are minimized and mitigated, and unnecessary impacts to streams are avoided in SPAs and elsewhere along the project. MDE permit General Condition no. 16 and Special Conditions nos. 6, 9, 11, 17, 18, 19b(mod), c, g(mod), and h(mod), 22, 28 through 34, 49, 50, 51, 57, and 58, and Corps permit Special Conditions nos. 14, 15, 17 through 20 reinforce SHA/MdTA's commitments to maintain stream base flow (See MR-URC-Appendix A).

3. Protect Spring Seeps and Wetlands

Spring seeps and wetlands along the ICC are described in FEIS Section II.E.7 (page II-82). Great pains and coordination with agencies were taken by SHA/MdTA to minimize roadway footprint and concomitantly, environmental impacts, especially in areas of wetlands and seeps. The FEIS and RFP Plates include "Limits of Disturbance" or "LOD" lines set approximately 25 feet from the cut or fill limit of the roadway. The LOD line distance from the cut or fill limit was a compromise between ensuring that sufficient space is available for the Design-Builder to construct in an environmentally sensitive and innovative manner, and the push to minimize impacts. Bridges that span the floodplains (not just the stream channels) are included on the project to minimize impacts to wetlands, streams and spring seeps. Discussions regarding existing spring seeps and wetlands may be found in FEIS Section II.E.7 (page II-82) and avoiding spring seeps and wetlands may be found in FEIS Section IV.F.7.e (page IV-223).

Because saving wetlands and forests along the ICC is a priority, SHA/MdTA is offering incentives in the Design-Build contracts to further avoid impacting these areas. A description of the incentives to foster decreases and disincentives to prevent increases in wetland impacts may be found in RFP Part 3 – Design Requirements, PS 310 – Environmental Performance Specification, Section 3.3.4, subsections 3.3.4.8 through 3.3.4.10 for seeps and wetlands. In PS 310 – Environmental Performance Specification, Section 3.3.5, there are incentives to encourage the Design-Builder to avoid existing forested areas as well (See MR-URC-Appendix B).

Conditions placed within the issued permits ensure that the ICC avoids spring seeps and wetlands, and that unavoidable impacts are minimized and mitigated in SPAs and elsewhere on the project. Throughout both the MDE' permit and the Corps' permit, the agencies have reinforced regulatory requirements with regard to seep and wetland protection, as well as SHA/MdTA's commitments to avoid and minimize impacts to spring seeps and wetlands (See MR-URC-Appendix A).

4. Maintain On-site Natural Stream Channels

Similar to protecting seeps and wetlands, minimization of disturbance and encroachment on natural stream channels was performed to the extent practicable during the planning process for the ICC. The primary methods for avoiding natural stream channels were to minimize project footprint and use bridges longer than hydraulically necessary in most cases to span streams. Discussions regarding existing natural stream channels (Waters of the US) along the project may be found in FEIS Section II.E.7 (page II-82), and avoiding natural stream channels may be found in FEIS Section IV.F.7.e (page IV-223). Besides the bridge spanning North Branch, there are three (3) stream crossing culverts in the URC SPA, at Stations 300+60, 312+50, and 314+00 (east of equality at Station 327+80)(See RFP Plates in MR-URC-Appendix B).

Means and methods for maintaining on-site stream channels with respect to the Use III watershed of Upper Rock Creek may be found in the RFP for Contract A in Part 3 – Design Requirements, PS 310 – Environmental Performance Specification, subsections 1.1, 2.5, 3.1, and 3.3. In addition, discussions regarding incentives to reduce and

disincentives to increase impacts may be found in PS-310 subsections 3.3.4.9 and 3.3.4.10 (See RFP Part 3 in MR-URC-Appendix B).

Permit conditions ensure that the ICC avoids and maintains on-site natural stream channels and that unavoidable impacts are minimized and mitigated in SPAs and elsewhere on the project. MDE permit General Conditions nos. 16 through 21, and Special Conditions nos. 2 through 6, 8, 11, 17, 18, 19b (mod), c, g (mod), h (mod), 20, 23, 44, 45, and 49, and Corps permit Special Conditions nos. 1, 3, 4b, c, g, and h, 5, 15, 19, and 20, reinforce regulatory requirements and confirm SHA/MdTA's commitments to minimize impacts to natural stream channels (See MR-URC-Appendix A).

5. Minimize Storm Flow Runoff Increases

Within the SPAs and Use III watersheds, the linear filter system that addresses SWM water quality requirements also has a quantity management component. Where possible outside of parkland, surface ponds that meet MDE's Channel Protection Volume (Cpv) requirements are proposed to address quantity management. These dry, 12-hour Cpv ponds meet MDE requirements and minimize the potential for temperature increases from solar radiation. Within parkland and where space is not available for surface ponds, Cpv will be addressed through underground storage either in pipes or concrete chambers. Underground pipes or chambers should further mitigate thermal runoff concerns because underground storage by definition is shaded from the hot summer sun. Commitments to address storm flow runoff increases may be found in FEIS Section VII.B.5 Stormwater Management Features (page VII-25), and are reiterated in the Contract Documents for Contract A with respect to the Use III watershed of Upper Rock Creek in Part 3 – Design Requirements, PS 303 – Drainage Performance Specification, subsection 3.7 (See above and RFP Part 3 in MR-URC-Appendix B).

Because the environmental agency-members in the ICC Interagency Work Group (IAWG) expressed concerns about the effect of storm flow runoff increases in receiving streams, permit conditions have been included to ensure that impacts from potential runoff increases are minimized and mitigated. MDE permit Special Conditions nos. 6, and 28 through 34, and Corps permit Special Conditions nos. 14, 15, and 17 through 20, reinforce SHA/MdTA's commitments to minimize runoff increases (See MR-URC-Appendix A).

SHA/MdTA's commitment to construct Environmental Stewardship (ES) projects will help address runoff increase problems in other developed areas of URC SPA (See Figure 1). There are 4 stormwater management retrofit sites in URC that will benefit URC SPA by reducing flows from tributaries that drain to the SPA. Descriptions and mapping related to the ES sites in URC can be found in MR-URC-Appendix C.

6. Identify and Protect Stream Banks Prone to Erosion and Slumping

Stream bank conditions along the ICC have been assessed as part of the ICC Natural Environment Technical Report (NETR), the results of which have been incorporated into the FEIS, Part II - Affected Environment, Section E.5 - Surface Water Resources (page II-57), and discussions specific to North Branch and Upper Paint Branch stream characteristics may be found in this section.

A discussion about anticipated consequences of ICC construction related to stream bank erosion in North Branch SPA can be found in FEIS, Part IV - Environmental Consequences, Section F.5 - Surface Water Resources (page IV-151).

Means for protection of stream banks may be found in FEIS, Part VII - Preferred Alternative, Section C.3 - Environmental Measures and Conceptual Mitigation (pages VII-52 through VII-87), with streams addressed in general terms in subsection b (page VII-62). Additional measures for stream bank protection are offered in FEIS, Part VI - Environmental Stewardship, Section C.2.c - Stream Restoration Sites (page VI-11). This section provides a discussion on the repair and restoration of stream reaches in the study area that have degraded because of urbanization in the watershed and/or other factors not influenced by the ICC. ES stream restoration sites in URC can be found in MR-URC-Appendix C.

FEIS Part VI, Sections C.2.e and C.2.f (page VI-11) discuss stormwater management retrofits considered under the ES commitment. These stormwater retrofits include fulfilling recommendations made in watershed plans prepared by Montgomery County Department of Environmental Protection (MCDEP) to address existing water quality and water quantity control problems. In addition, SHA/MdTA identified a number of SPA Best Management Practices (BMPs) intended to improve stormwater runoff water quality and groundwater recharge from existing developed areas on a small scale, specifically within the SPAs. The SPA BMPs will reduce surface water discharges on a micro scale in the neighborhoods that drain directly to parkland in uncontrolled fashion.

The Contract Documents for Contract A with respect to the Use III watershed of Upper Rock Creek may be found in Part 3 – Design Requirements, PS 303 – Drainage Performance Specification, subsection 3.7 (See above or RFP Part 3 in MR-URC-Appendix B). General SWM requirements are set out in FEIS Section VII.B.5, as well as what is different and more restrictive in the SPAs.

Bridges proposed at major stream crossings generally span the floodplain, and, although temporary construction impacts may result at needed crossings, the ICC should not affect the long-term stability of streams under bridges. Bridge and culvert crossings of streams must conform to the conditions of the MDE and Corps permits, as well as Federal Emergency Management Agency (FEMA) floodplain requirements. The MDE permit was issued based on general, planning level analyses that will be refined during design of the project. As project design progresses, MDE must review and approve all engineering analyses of crossings to ensure that stream quality and geomorphic characteristics will be maintained in accordance with MDE permit General Conditions and Special Conditions. The Corps permit includes numerous conditions for bridge and culvert crossings to ensure stream protection as well. Permit conditions imposed by either MDE or the Corps can be found in MR-URC-Appendix A.

7. Minimize Increases to Ambient Water Temperature

During planning for the ICC, SHA/MdTA realized the sensitive nature of Use III and IV receiving streams within the ICC study area, and consequently obtained stream temperature data from MCDEP, and established a Brown Trout Work Group (BTWG) specifically to raise concerns and discuss impacts caused by runoff temperature

increases and measures to mitigate for them. BTWG held numerous meetings and field walks that included members and guests from MCDEP, M-NCPPC-MC, MDE, Maryland Department of Natural Resources (DNR), Federal Highway Administration, Corps, US Fish and Wildlife Service (FWS), US Environmental Protection Agency (EPA), and Metropolitan Washington Council of Governments. BTWG activities resulted in identification of important areas of North Branch and Upper Paint Branch to be avoided, and establishment of priorities for SWM BMPs. Indeed, it was through BTWG that the concepts of a wider median, use of infiltration, and use of linear filters in roadway side ditches were developed and refined, and presented to the permitting and other stakeholder agencies of the IAWG.

The linear approach to SWM for the ICC was well received when discussed at BTWG meetings and with MCDPS. This approach, being applied in Montgomery County SPAs and Use III watersheds (Upper Rock Creek and Upper Paint Branch), involves constructing stormwater filtering systems (bioretention or sand filtration) within the roadway cross section, e.g. in median and roadside ditches as appropriate, to address water quality. After roadway runoff passes by overland sheet flow through vegetation to the linear filtering systems, these systems will remove suspended sediments and attached pollutants prior to discharge into a pipe underdrain system then a storm drain. The storm drain will lead to a large pipe and outlet reducer designed to attenuate flows in accordance with water quantity control requirements. Where appropriate (in North Branch only), dry, 12-hour extended detention (ED) ponds or underground storage chambers may be constructed in place of linear pipe systems for the purpose of providing flow attenuation to meet MDE Cpv water quantity control requirements (See Linear SWM Concept in MR-URC-Appendix D).

To facilitate the linear approach, earthen checkdams would be placed in medians and roadside ditches where stormwater filtering systems will be employed to limit drainage areas treated to manageable sizes. The actual spacing of the earthen checkdams would vary depending on the roadway grade, and will help limit potential failures to short segments of median (less than approximately 600 feet) where they can be quickly identified and corrected when they occur.

Stormwater management facilities will be designed based on appropriate geotechnical studies. These studies would include careful evaluation of soil and in-situ permeability tests at the design depth of infiltration devices. Infiltration rates determined by the permeability tests would be used to evaluate the feasibility of providing infiltration in specific locations as well as to size the infiltration devices. Facility designs will be in accordance with procedures set forth in the 2000 Maryland Stormwater Design Manual (MDE, 2000) and substituting a rainfall depth of P=1.5 inches in place of the P=1.0 inch presented.

In addition to the infiltration that will occur through the bottom of the linear stormwater management approach, infiltration devices will be employed where feasible through the use of bottomless deep sump inlets and manholes to force treated water contact with native soils. Infiltration trenches and galleries will be provided where conventional approaches to stormwater management water quality treatment are being pursued. These practices will help offset the reduction in natural infiltration and recharge that occurs with construction of impervious surfaces and soil compaction.

Development of the concept and presentation to MCDPS and others specifically ensured that the concept was one that MCDPS typically would require of a developer in the SPA (See ICC SPA Meeting Minutes in MR-URC-Appendix D). SHA/MdTA moved forward with the linear filter concept based on feedback from the various groups involved in the meetings.

In addition, bridge deck drainage within SPAs, e.g. North Branch and Tributary to North Branch bridges, will be captured and treated by SWM measures prior to discharge. The commitment to capture and treat bridge deck runoff within the SPAs may be found in FEIS Part VII, Sections B.5.c page VI-27, with reinforcement in CORPS permit Special Condition no. 15, and MDE permit Special Condition no. 29 (See MR-URC-Appendix A.

The commitments mentioned here about minimizing ambient temperature increases are confirmed in FEIS Section VII.B.5 Stormwater Management Features (page VII-25), and are reiterated in the Contract Documents for Contract A with respect to the Use III watershed of Upper Rock Creek in the Part 3 – Design Requirements, PS 303 – Drainage Performance Specification, subsection 3.7 (See above and RFP Part 3 in MR-URC-Appendix B).

MDE permit Special Conditions nos. 6, and 28 through 34, and CORPS permit Special Conditions nos. 14, 15, and 17 through 20, reinforce SHA/MdTA's commitments to minimize runoff increases (See Permits in MR-URC-Appendix A).

8. Minimize Sediment Loading

SHA/MdTA has committed to exceed regulatory requirements to protect receiving streams from sedimentation both during and after construction. The FEIS speaks to existing soil conditions and meeting MDE requirements for erosion and sediment control measures during construction and limiting sediment as a water quality feature post construction in FEIS Sections II.E.1.a-b (pages II-44 through II-48), II.E.5.a-b (pages II-57 through II-68), III.E.1.b-c (pages III-27 through III-35), IV.A.1-7 (pages IV-1 through IV-11), IV.F.1 (pages IV-132 through IV-138), IV.F.5 (pages IV-151 through IV-187), IV.F.6.a-b (pages IV-195 though IV-207), VI.A-C (pages VI-1 through VI-12), VII.B.1 (page VII-4), VII.B.4-5 (pages VII-25 through VII-28).

SHA/MdTA has adopted several internal, voluntary upgrades to MDE minimum erosion and sediment control inspection and compliance requirements over the last several years. These upgrades are included in ICC performance specifications and the ICC Project Management Plan. For example, SHA/MdTA is employing an Independent Environmental Monitor (IEM) who inspects the construction project for adherence to environmental commitments and reports directly to the permitting agencies (See MDE permit Special Condition no. 10 and Corps permit Special Condition no. 44 in MR-UPB-Appendix A). In addition, SHA/MdTA has detailed ESC requirements for personnel working on ESC as well as implementation of the ESC plans themselves, including construction performance incentives and liquidated damages pertaining to ESC. ESC is addressed in the Contract Documents for Contract A Part 3 – Design Requirements, PS 303 – Drainage Performance Specification, subsection 3.8 (See RFP Part 3 in MR-URC-Appendix B).

Furthermore, SHA/MdTA has committed to make a lump sum payment for ESC maintenance to the Design-Builder whenever any rainfall amount of 3.0 inches is exceeded in a 24 hour period. The Severe Weather Event specification in Contract A Part 3 – Design Requirements, PS 303 – Drainage Performance Specification, subsection 3.14, ensures the Design-Builder will be compensated for repairing ESC devices damaged by severe weather without worry that the Design-Builder's original bid did not cover such a storm event.

Within the SPA, ESC specifications exceed regulatory requirements by requiring the Design-Builder to provide a narrative commitment describing construction methodologies within the SPA that incorporate the mandatory primary and supplemental ESC devices within the SPA as set out in Contract A Part 3 – Design Requirements, PS 303 – Drainage Performance Specification, subsection 3.15.

9. Minimize Nutrient Loading

ICC SWM facilities are designed and constructed to reduce nutrient loads from urban runoff as provided in MDE's 2000 Maryland Stormwater Design Manual (See "http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater;" select "2000 Maryland Stormwater Design Manual" from the left column). ES projects that repair failing stream banks and retrofit existing developed area with SWM BMPs will reduce nutrient loads reaching receiving waters as well. A spreadsheet computer model developed to assess water quality impacts associated with the ICC as compared to existing land uses within the project right of way (See FEIS Section IV.F.5.b (page IV-172) demonstrates that the sections of Rock Creek (Table IV- 58, page IV-182) and the Anacostia River (Table IV-59, page IV-183) crossed by the ICC will see reductions in Total Nitrogen after construction of the ICC when compared to loadings from the existing, pre-construction land uses.

During construction, SHA/MdTA will minimize nutrient loading by requiring the Design-Builder to develop Nutrient Management Plans. (See RFP Part 3 PS 301 – Planting and Landscape Architectural Performance Specification, subsection 5.2 in MR-URC-Appendix B). SHA/MdTA coordinated with the local planning agency and others to develop Planting and Landscape Architectural Performance Specifications that rely heavily on use of native plant materials to limit the need for long term maintenance and reduce the need for fertilizers and additional nutrients that may otherwise be required for maintenance. The discussion of use of native plan materials may be found throughout Contract A Part 3 – Design Requirements, PS 301 – Planting and Landscape Architectural Performance Specification, and specifically subsection 4.1.1.

Nutrients in stormwater often attach to sediment particles being transported through stream systems. A number of the ES projects in the URC are for the purpose of either attenuating flows to reduce downstream stream bank instability and erosion or repairing existing eroded stream banks to stem future erosion. Under either scenario the underlying goal is to reduce stream erosion and the subsequent sediment transport that carries nutrients to receiving waters. For ES projects in URC see MR-URC-Appendix D. Within MR-URC-Appendix D is a document titled Water Quality Benefits of Stream Restoration in Upper Rock Creek to provide more detail about the reason for performing stream restoration as ES.

10. Control Insecticides, Pesticides, and Toxic Substances

SHA/MdTA has set out requirements to control insecticides, pesticides, and toxic substances during construction (See the RFP Part 3, PS 301 - Planting and Landscape Architectural Performance Specification, subsection 4.2.1, and PS 310 – Environmental Performance Specification, subsection 3.6. in MR-URC-Appendix B). SHA/MdTA coordinated with M-NCPPC and others to develop Planting and Landscape Architectural Performance Specifications that rely heavily on use of native plant materials to limit the need for long term maintenance and reduce the need for insecticides, pesticides, and toxic substances that may otherwise be required for maintenance. The discussion of use of native plan materials may be found throughout Contract A Part 3 – Design Requirements, PS 301 – Planting and Landscape Architectural Performance Specification, and specifically subsection 4.1.1 (See RFP Part 3 in MR-URC-Appendix B.

III.10. Preliminary stormwater management concepts are described herein with regard to URC SPA (Ref. **III.7** above). Because the project is being procured using D-B format, stormwater management calculations except those generated to establish right of way needs have not been performed. SHA has published a guideline to be used to determine right of way needs to accommodate SWM at the planning level. SHA's guidelines are included in MR-URC-Appendix D.

Impervious Surface

The ICC roadway adds approximately 14 acres of impervious surface to the URC SPA and the proposed pedestrian / bike path adds approximately 1.25 acres. Just within the highway right-of-way in URC SPA that equates to approximately 50 percent impervious. When considering the extra land owned by SHA within the URC SPA that is therefore protected from development (approximately 42.2 acres), the impervious percentage drops to just over 33 percent.

The Compensatory Mitigation and Environmental Stewardship projects combined provide treatment and protection of streams serving 756 acres of URC (not all within the SPA, but all drain to the SPA). If that 756 acres, discounted 60 percent for impervious and 20 percent for "treatment", were to be considered offset by the CM and ES projects, and included in the "pervious" side of the calculation, then SHA/MdTA's effective impervious area would drop to approximately 10.5 percent.

To offset the total 15.25 acres of impervious from the roadway and pedestrian / bike path at a maximum of 8 percent impervious, almost 200 acres of pervious land would be required.