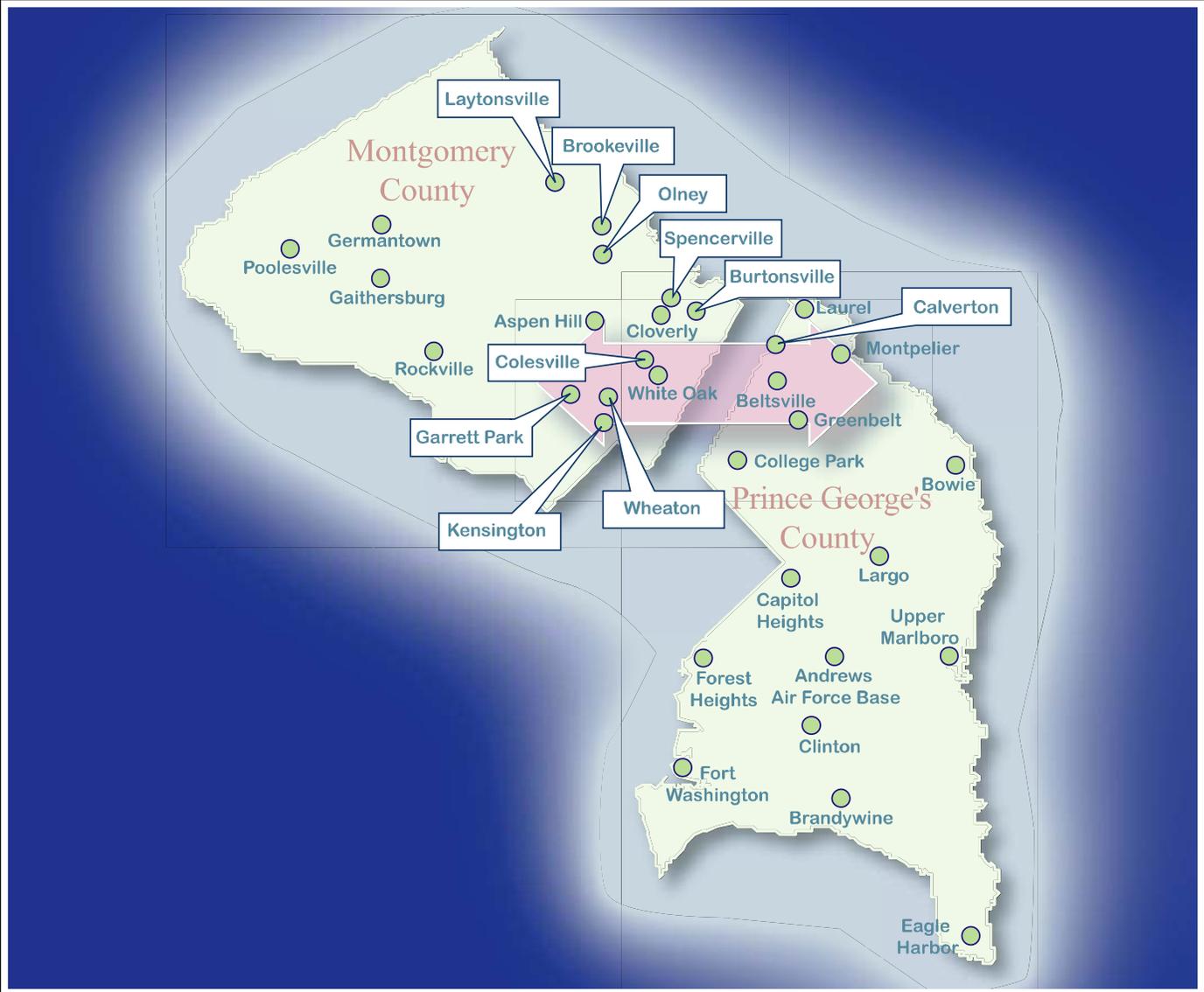




ICC SCEA

Secondary & Cumulative Effects Analysis
Technical Memorandum

I-270 to US 1



US Department of Transportation
Federal Highway Administration
Maryland Department of Transportation
State Highway Administration
Maryland Transportation Authority

November 30, 2004

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A. SECONDARY AND CUMULATIVE EFFECTS ANALYSIS

This Secondary and Cumulative Effects Analysis (SCEA) is compliant with the National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations that require the secondary and cumulative effects of a project to be examined along with direct impacts (40 CFR § 1508.25 (c)).

Secondary (indirect) effects are defined as, “Effects which are “caused” by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR § 1508.8(b)). Cumulative effects are defined as, “Impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR § 1508.7).

The process for conducting secondary and cumulative effects analysis for the ICC project is depicted on *Figure 1*. Each element of this process will be described in this section.

The SCEA is divided into the following sections: Scoping, Land Use Development and Resource Analysis. The scoping section identifies the environmental resources, data availability, SCEA geographical boundary, and the time frame for the analysis. The SCEA resources/analysis and the conclusion sections describe the past, present, and anticipated future impacts to resources within the SCEA boundary as well as any secondary and/or cumulative impacts that may occur in the future time frame. An overview of the public land use plan, policies and laws as well as an advisory Expert Land Use Panel (ELUP) is described along with the integration of ELUP results with SCEA. The ELUP section describes the purpose of the panel in helping to identify future land use allocation projections in households and employment.

1. Overview

SCEA Approach

The ICC secondary and cumulative effects analysis was conducted in accordance with the Maryland State Highway Administration’s June 2000 SCEA Guidelines for Environmental Impact Statements and Environmental Assessments (SHA 2000). The assessment of secondary and cumulative effects involves the assessment of past, present and reasonably foreseeable future impacts. The time frame established for this SCEA was 1964 through the future time frame of 2030 (the following SCEA Scoping section details the temporal and geographic boundaries established for this project) (in 1964 the Maryland National Capitol Park and Planning Commission adopted the General Plan “On Wedges and Corridors” and the Capital Beltway opened).

Past resource impacts were assessed primarily through overlay of past and present land use and resource maps to identify changes in land use, and the implications of those land use changes on resources. Resource impacts expected to occur in the present time frame

Process for Conducting Secondary and Cumulative Effects Analysis (SCEA) for the InterCounty Connector

Step 1

SCEA Scoping

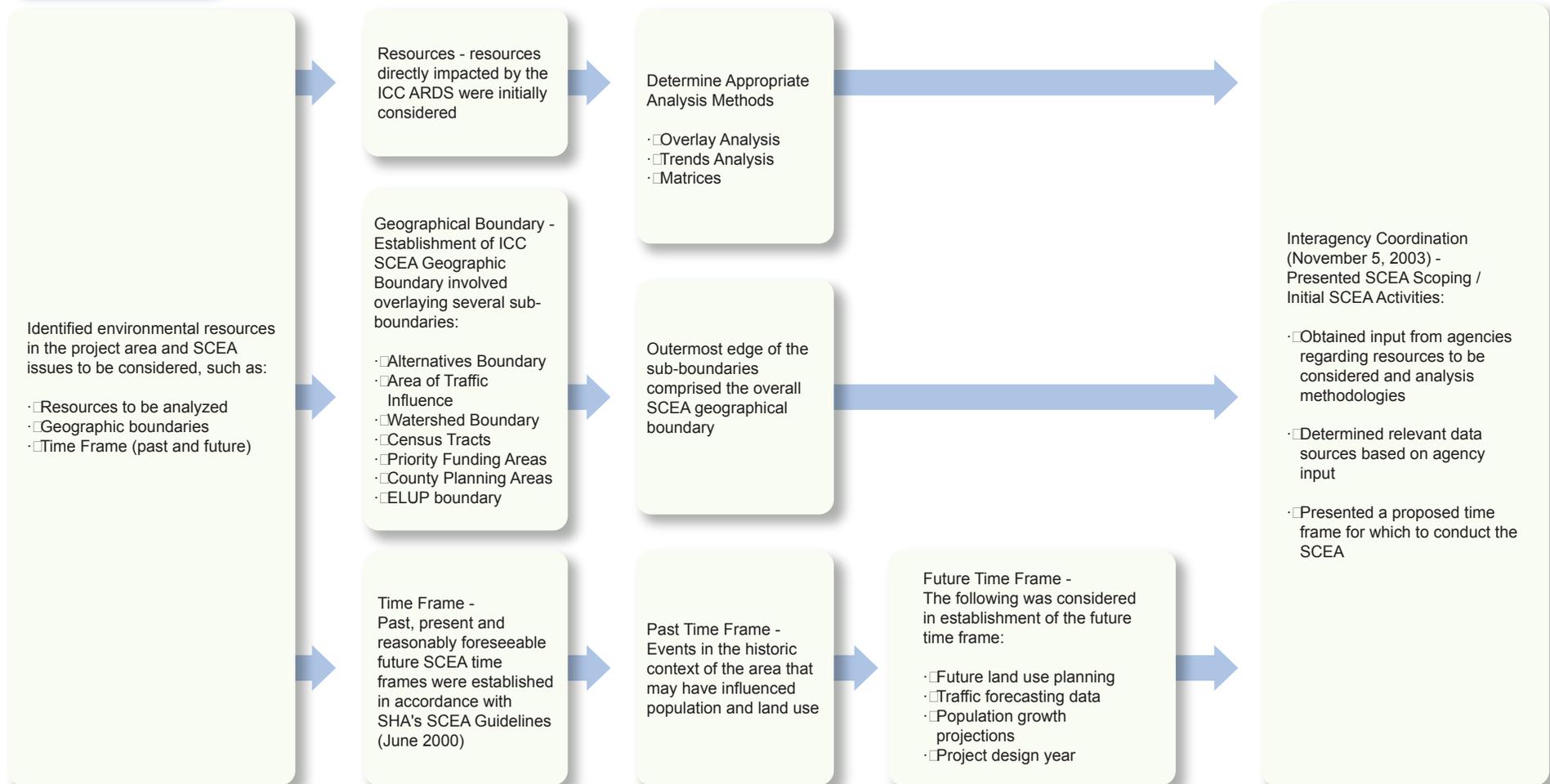


Figure 1, Sheet 1 of 5
Process for Conducting SCEA
for the ICC

Process for Conducting Secondary and Cumulative Effects Analysis (SCEA) for the InterCounty Connector (continued)

Step 2

Obtained Existing Resource Mapping

Obtain readily available existing resource data for use in overlay analysis. Existing resource data to include Residential / Business Communities (MNCPPC-Prince Georges County, MNCPPC-Montgomery County), Parklands / Recreational Facilities (MNCPPC-Prince Georges County, MNCPPC-Montgomery County, ESRI), Minority / Low Income Populations (Census Bureau), 100 year floodplains (DNR), WUS/Streams (DNR), Wetlands (NWI, DNR), Farmlands (MDP Landuse), Forests / Terrestrial Habitat (MDP Landuse), Groundwater (DNR), Rare, Threatened and Endangered Species (DNR - SSPRA), Archeological / Cultural Resources / Historic Sites / Districts / Properties - (MHT)

Step 3

Conducted Past Resource Impact Assessment

Obtained Past Land Use Map (MDP, 1973)

Reviewed Historic Aerial Photos to supplement MDP, 1973 Past Land Use Mapping

Reviewed Existing Literature / Publications documenting past impacts / trends since the past time frame

Overlaid Past Land Use Map with existing resource mapping and reviewed aerials and literature to assess past impact trends.

Step 4

Conducted Present / Near Future Impact Assessment

Base existing Land Use map was compiled from existing sources including Montgomery County and Prince George's County Land Use and MDP statewide land use for the remaining counties in the SCEA boundary.

Identified MDOT CLRP Highway and Transit Projects to be constructed by 2010, and other state and locally approved projects / developments to be constructed by 2010 (based on readily available data and coordination with counties).

Superimposed identified near future projects / developments to base existing land use map to complete the adjusted existing / near future land use map.

Assessed present (to 2010) impacts by overlaying existing resources with adjusted existing / near future land use map



Figure 1, Sheet 2 of 5
Process for Conducting SCEA
for the ICC

Process for Conducting Secondary and Cumulative Effects Analysis (SCEA) for the InterCounty Connector (continued)

Step 5

Integration of ELUP Estimates and Preparation of Future Land Use Maps (2030)

The ELUP was provided with MWCOGs/BMC's Round 6.3 2030 forecasts for households and employment for 34 TADs surrounding the ICC Study Area. These 34 forecast zones represented the study area originally considered by the ELUP.

The ELUP estimated their own allocations per zone for households and employment for all ICC ARDS:

- No-Action
- Corridor 1
- Corridor 2

MWCOGs/BMC's Round 6.3 Projections were compared to the ELUP's No-Action estimates per forecast zone.

Note - ELUP's No-Action estimates became the new baseline from which to compare the ELUP's build estimates for Corridors 1 and 2.

Compared ELUP's No-Action estimates for households and employment to Corridor 1 and Corridor 2 ELUP estimates

Identified forecast zones that showed a 5% change between the ELUP's No-Action estimates and the build estimates (note - the 5% change criteria was applied to the estimates of both households and employment levels and for both build alternatives).

For zones that showed a 5% change, future land use maps were prepared for all ICC ARDS including the No-Action, Corridor 1 and Corridor 2

Assumption - 5% was established as a threshold that would represent a potentially noticeable change in land use between a No-Action and Build alternative



Figure 1, Sheet 3 of 5
Process for Conducting SCEA
for the ICC

Process for Conducting Secondary and Cumulative Effects Analysis (SCEA) for the InterCounty Connector (continued)

Step 6
Preparation of Future Land Use Maps
No-Action

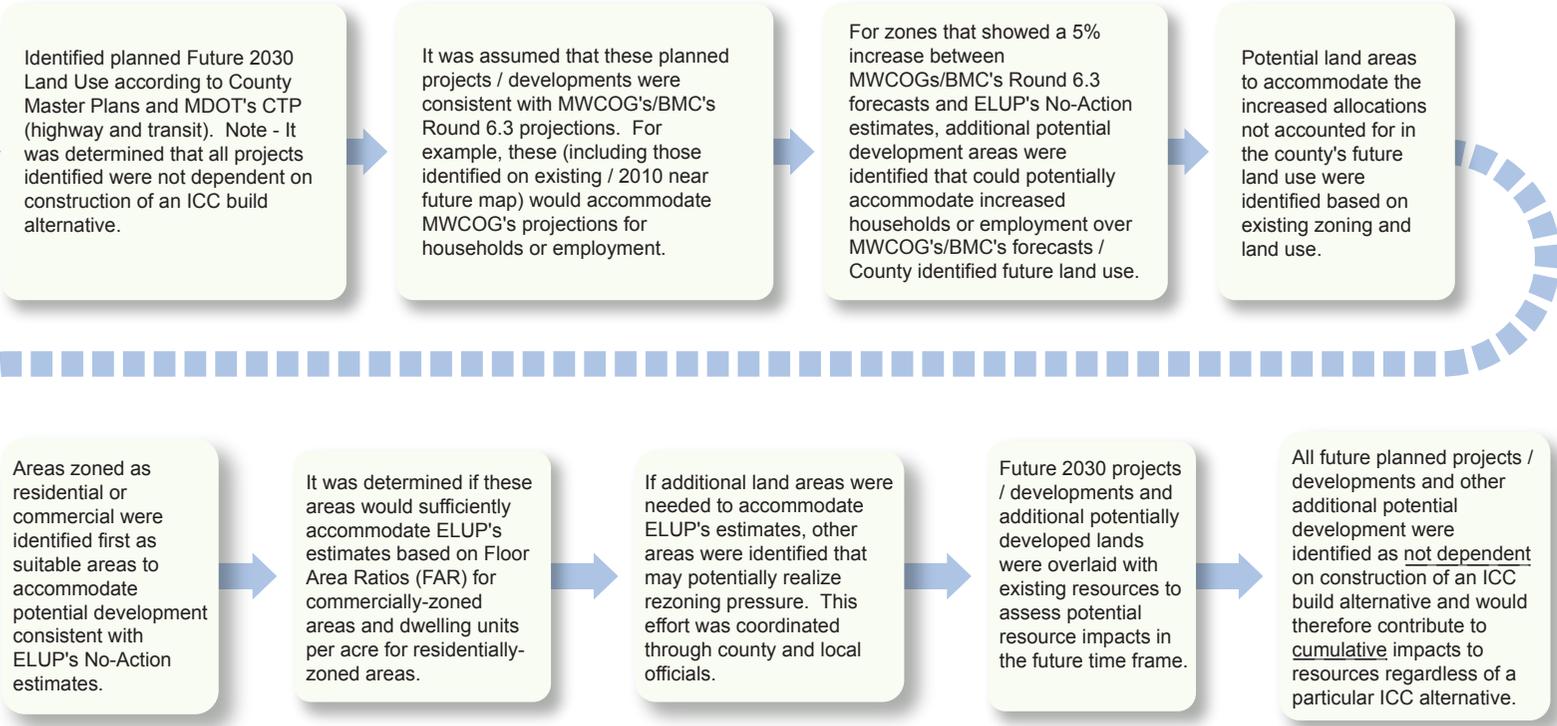



Figure 1, Sheet 4 of 5
Process for Conducting SCEA
for the ICC

Process for Conducting Secondary and Cumulative Effects Analysis (SCEA) for the InterCounty Connector (continued)

Step 6 (continued)

Preparation of Future Land Use Maps (continued)

Corridors 1 and 2

The No-Action 2030 Future Land Use Map (planned and potential development) was used as the base for preparing the Build 2030 Future Land Use Maps.

For those zones that showed a 5% increase between ELUP's Corridor 1 (or 2) estimates and ELUP's No-Action estimates, additional land areas were identified that could potentially accommodate increased households or employment estimates over the No-Action estimates

Potential land areas to accommodate the increased estimates not accounted for in the No-Action scenario were identified based on existing zoning and land use.

Areas zoned as residential or commercial were identified first as suitable areas to accommodate potential secondary development associated with the build alternatives.

It was determined if these areas would sufficiently accommodate ELUP's estimates based on Floor Area Ratios (FAR) for commercially-zoned areas and dwelling units per acre for residentially-zoned areas.

If additional land areas were needed to accommodate ELUP's estimates, other areas were identified that may potentially realize rezoning pressure. This effort was coordinated through county and local officials.

Future 2030 planned and potential development and secondary development areas were overlaid with existing resources to assess potential resource impacts in the future time frame.

Secondary and Cumulative effects will result from construction of either Corridor 1 or 2. Secondary effects are those impacts associated with additional development that will potentially result under the Corridor 1 or 2 alternatives. Cumulative impacts are all past, present and future impacts, regardless of what agency undertakes the action.

involved overlay of existing land use/resources with planned/pipeline projects/developments as identified in the National Capital Region Transportation Planning Board’s (TPB) Constrained Long Range Plan (CLRP), in county Master Plans and through coordination with county planners. The assessment of present impacts considers projects expected to occur within the next five to six years (through 2010).

The approach for assessing reasonable foreseeable future impacts integrated estimates from an expert land use panel (ELUP). The ELUP process is included as part of SHA’s SCEA Guidelines (SHA, 2000) in special cases. The purpose of ELUPs is to identify future land use scenarios, particularly if a project is especially complex or if local jurisdictions, agencies or special interest groups disagree that a particular land use will or will not occur. The ELUP estimated future 2030 population and employment allocations for each of the ICC build alternatives and the No-Action Alternative for 34 forecast zones surrounding the ICC study area. Future land use scenarios for each of the ICC alternatives were posited based on allocations suggested by the Panel.

Prior to integrating results from the ELUP, a base future 2030-land use map was prepared. It was assumed that the base map is consistent with the MPO household and employment projections. The base map included future 2030 projects/developments as identified in the CLRP, in county Master Plans and through coordination with county planners. Household and employment allocations/projections were then compared between the MPO projections and ELUP’s allocations. In some areas, the differences between the MPO projections and greater ELUP allocations suggested that additional development would be likely beyond what is currently planned for by the Counties. In these areas, the future land use maps were adjusted accordingly to accommodate the ELUP allocations (*see Section A.5.c for details*).

Although the overall future land use maps were prepared according to ELUP’s suggested allocations, and resource impacts were assessed based on these land use scenarios, it should be noted that there are other factors to consider that may affect future land use that may or may not have been considered by the ELUP as a whole. The ELUP was comprised of 15 individuals, all of whom had their own viewpoints and opinions. For the purposes of the SCEA, results from all 15 individuals were processed into one representative allocation per forecast zone (one household and one employment) using a statistical average. This statistical average does not always allow for individual panelist viewpoints and opinions to be clearly represented. Potential development acreages that were derived from the ELUP estimates are to be viewed more as projections of general development trends, rather than specific predictors of potential development.

Existing Land Use Management and Controls

In addition to the advisory ELUP, other factors highlighting public plans, policies and laws are critical in reviewing and contemplating potential future land use for each of the ICC alternatives. Many of these factors were considered and discussed among panelists, but there was not necessarily consensus among panelists regarding the influence of such factors on future land use.

One of the most important factors is the influence of state and local development policies. Montgomery and Prince George’s Counties have had very strict planning frameworks in

place to guide the location, pattern and pace of growth for each county over the past 75 years. The M-NCPPC is a nationally famous bi-county agency established by the Maryland General Assembly in 1927 to acquire, develop, maintain and administer the local and regional park system within Montgomery and Prince George's Counties, and to develop and guide land use planning for the physical development of the two counties.

M-NCPPC coordinates and acts on matters of land use interest to both counties. Members of the Commission from each county serve as separate Planning Boards to facilitate, review and administer the land use matters affecting their respective counties. As a result, it is the responsibility of M-NCPPC to protect and steer land use and development in a way that safeguards resources vital to each county.

The General Plan and Area Master Plans are used as a critical tool by each county to guide development and land use. Importantly, they balance land use and transportation. They play an important role in the lives of community residents in that the plans provide a documented agreement between residents and the counties so it is clear what development and conservation areas are recommended and anticipated for specific areas within the respective counties over the next 10 to 20 years. Development is centered around the urban ring, suburban communities, designated transportation corridors and designated town and transit centers. Major conservation, agricultural and rural areas are in northern and western Montgomery County and eastern and southern Prince George's County. The citizens of the counties depend on the General Plan and Master Plan process, and make housing, business, school, and overall life choices based on the Plans. Plans take several years of extensive public involvement, including drafting, advisory committees, public hearings and forums, and work sessions, before approval by the respective County Council and adoption by M-NCPPC. Officials and citizens alike closely follow them.

Zoning is another key factor as it implements land use planning in Montgomery and Prince George's Counties. The link between master planning and zoning is critical. Zoning controls are based on sound planning principles as set forth in approved and adopted plans by both counties. Although the recommendations in master plans for these counties shape communities by recommending the location, type and density of land use, and proposing a desirable zone for particular tracts of land, these recommendations are largely implemented through the zoning process.

Zoning is the legal tool to implement master plan recommendations, and is a legislative action taken by the County Council of each county. Zoning involves imposing specified conditions regulating the use of a particular parcel or parcels of land. Comprehensive rezonings occur after the adoption of the Master Plans.

Within Montgomery and Prince George's Counties, it is also important to recognize that other nationally recognized growth management techniques are in place to regulate development based on the capacity of public infrastructure, including roads, transit and schools. These techniques include Adequate Public Facilities Ordinances and an Annual Growth Policy as well as an Agricultural Preserve covering one-third of Montgomery County and a Rural Tier covering one-third of Prince George's County. It is deemed crucial by local

officials that these growth management techniques be followed in order for planned development to stay within the control of the respective county.

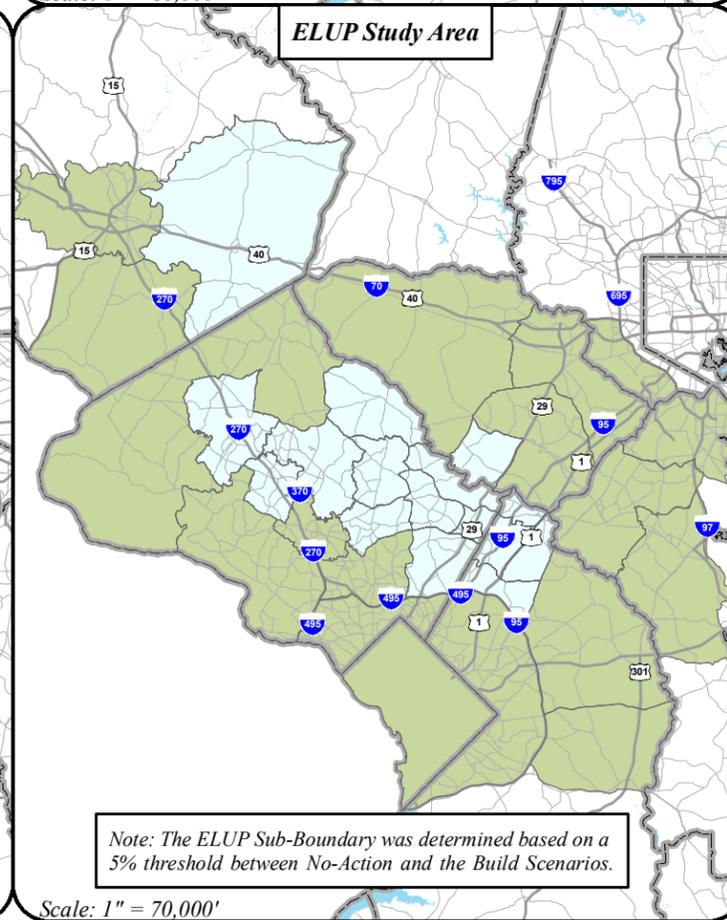
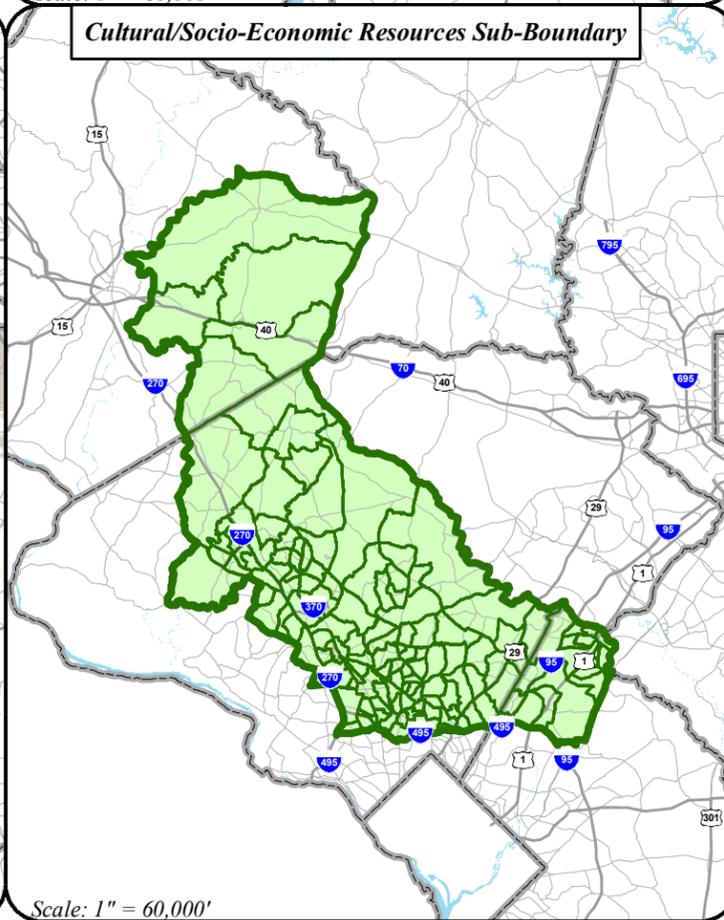
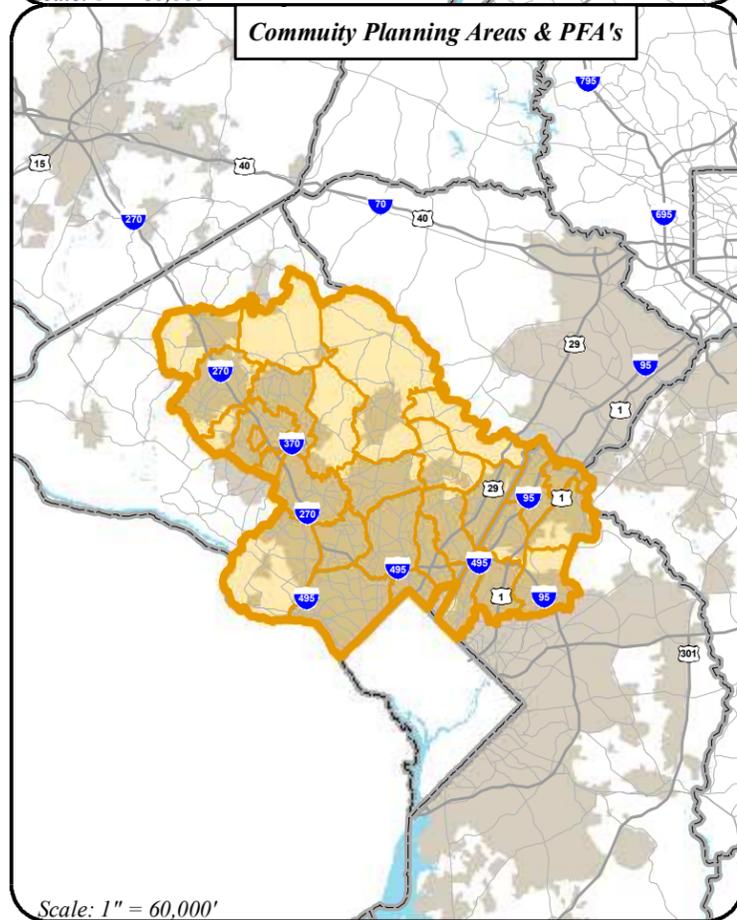
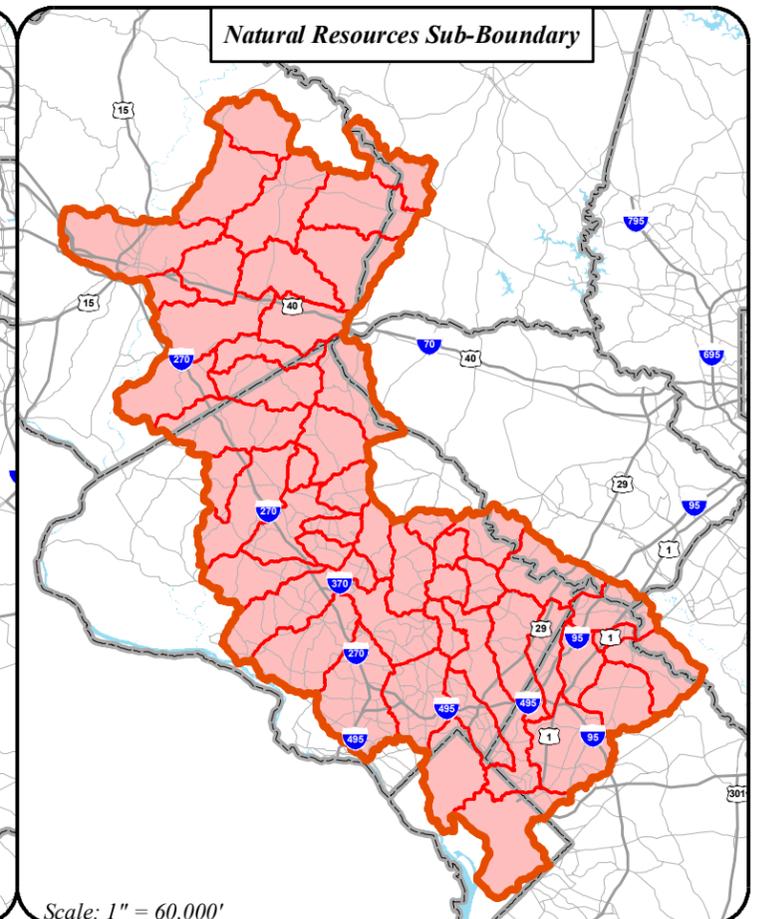
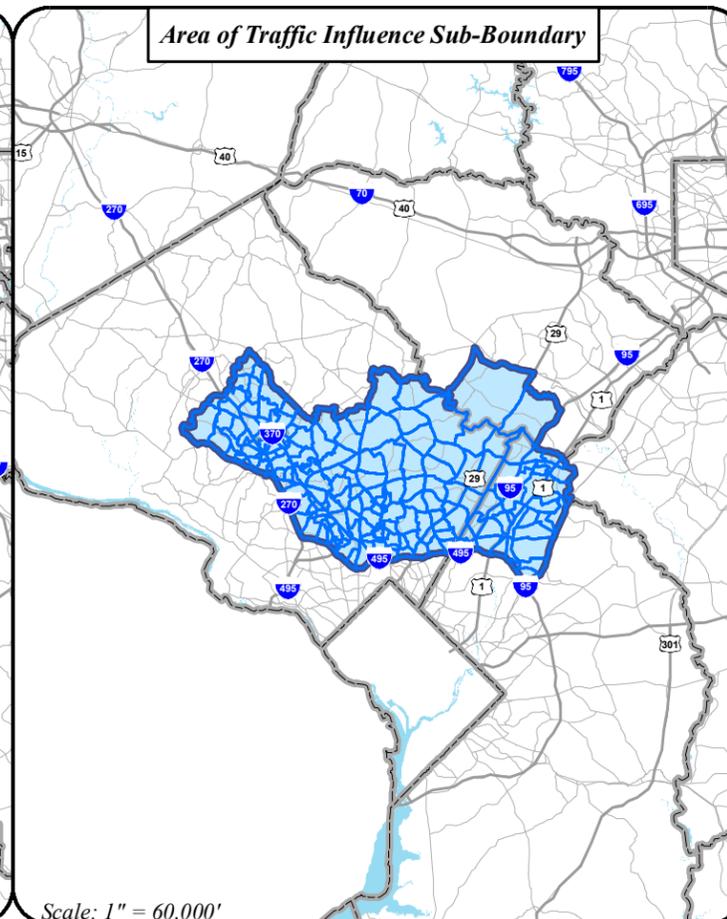
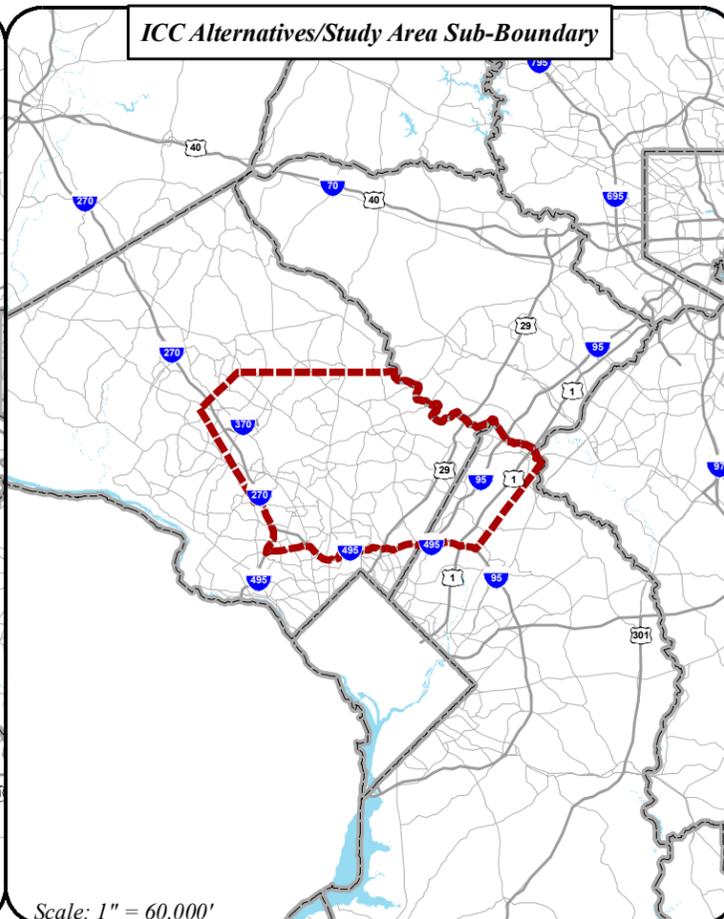
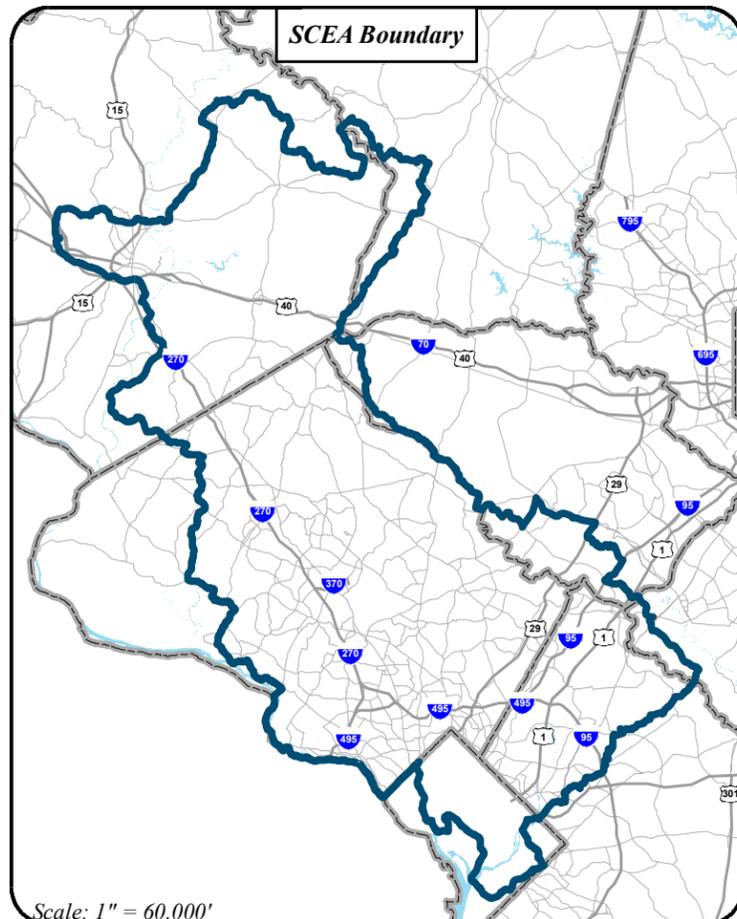
There are also State “Smart Growth” policies in place to help manage development pressures and conserve critical areas. Since 1974, the Maryland Department of Planning (MDP) can participate in any state, local or land use proceeding in order to communicate the State’s views to decision-makers and to encourage the decision-maker to take action consistent with the general welfare of the State and its citizens. The State’s 1992 *Economic Growth, Resource Protection, and Planning Act* requires that local jurisdictions address several planning visions which are centered around concentrating development in suitable areas, protecting sensitive areas, and establishing funding mechanisms to achieve these visions.

The 1997 Maryland General Assembly passed five pieces of legislation and budget initiatives to promote smart growth in Maryland, including the PFA Act. This legislative package is known collectively as the Smart Growth Initiatives. Smart Growth Initiatives geographically target areas for growth investment and related infrastructure. Encouraging growth within a PFA ensures that existing communities are guaranteed a high quality of life and that resources existing outside a PFA are protected through land conservation (*Figure 2*).

Maryland’s nationally recognized Smart Growth initiatives help ensure that land inside PFAs are efficiently used in order to reduce the amount of sprawl outside PFAs. This is commonly referred to as “Making Smart Growth Smarter”. Additionally, there are over 80 other State programs that contribute to Smart Growth goals that include supporting existing communities by targeting resources to support development in areas where infrastructure exists; preserving and protecting valuable natural resources; and saving taxpayers from the high costs associated with sprawl development. Numerous programs were established prior to 1997 and were either already consistent with the Smart Growth initiatives or redirected to be more supportive of the Smart Growth philosophy. The State Smart Growth program applies to state-funded projects, and its goals are paralleled through local governmental policies such as the strict planning, zoning growth policy and preservation policy employed by M-NCPPC and the two counties for decades. Indeed, Maryland’s Smart Growth initiatives take Montgomery/Prince George’s policies statewide.

SCEA Findings

It was determined that additional development is likely throughout the SCEA boundary regardless of construction of the ICC. The highest concentrations of development for Montgomery County in the future 2030 time frame are anticipated in Germantown (Seneca Creek watershed), Gaithersburg and Rockville (Potomac River Montgomery County primarily), Wheaton (Rock Creek), and White Oak (Paint Branch). Substantial development is also expected in the Green Valley area of Frederick County, within the Lower Monocacy River watershed, in the Fulton area of Howard County, within the Middle and Little Patuxent River watersheds, and throughout most of the Prince George’s County area within the SCEA boundary (Upper Patuxent River and Little Paint Branch watersheds). These areas will experience the greatest resource impacts in the future time frame (regardless of an ICC alternative) due to anticipated land use changes, increased populations, as well as stresses to the natural environment resulting from decrease of forest and increase of impervious surfaces



LEGEND

- Interstate
- US
- SCEA Boundary
- ICC Alternatives/Study Area Sub-Boundary
- Area of Traffic Influence Sub-Boundary
- Area of Traffic Influence
- Natural Resources Sub-Boundary
- Natural Resources Boundary
- Community Planning Areas
- Community Planning Area Sub-Boundary
- Priority Funding Areas
- Cultural and Socio-Economic Sub-Boundary
- Cultural and Socio-Economic Boundary
- ELUP Sub-Boundary
- ELUP Study Area
- County Boundary
- Water

INTERCOUNTY CONNECTOR **ICC** **FIGURE 2**
Composite of Study Area Sub-Boundaries

within these watersheds and related to the extent of development that currently exists within these areas.

The amount of secondary development associated with construction of an ICC is estimated by the advisory ELUP to range from approximately 4,945 acres for Corridor 1 to 5,546 acres for Corridor 2. These estimates are in addition to what is planned for the No-Action Alternative. The areas that would likely absorb most of this secondary development would coincide with the areas that would more likely experience the most substantial community and/or natural environmental impacts. In general, based on ELUP's estimates the areas that would undergo substantial secondary development for either Corridor 1 or 2 include Green Valley in Frederick County (Lower Monocacy), Burtonsville (Rocky Gorge), Montgomery Village, Olney, Laytonsville and Cloverly (Rock Creek, Rocky Gorge and Paint Branch) in Montgomery County, and Beltsville and Muirkirk in Prince George's County (Little Paint and Indian Creek). The ELUP estimates secondary development would be greater for Corridor 2 in the Green Valley area, with approximately 280 acres of more development estimated by ELUP, which may contribute to greater environmental impacts as compared to Corridor 1. Similarly, the Burtonsville area is expected to undergo greater secondary development within the Rocky Gorge watershed under the Corridor 2 Alternative as compared to Corridor 1 (685 acres for Corridor 2 and 292 acres for Corridor 1).

According to Montgomery County planning officials, additional development pressures on land would be likely with the selection of the northern Corridor 2 alignment (as compared with the southern Corridor 1 alignment) because settled expectations from Master Plans, zoning and land uses contemplate the ICC in the Corridor 1 area. Montgomery County officials have also expressed the likelihood for additional development pressures along Corridor 2 through rezonings in the northern area of the county.

The selection of Corridor 1 would not likely prove a change or mistake because the existing Master Plans contain this alignment. However, potential changes could arise, where interchange locations in the vicinity of US 29 are different from those recommended in the Master Plan, or if the Rock Creek Option C alignment is chosen as it deviates significantly from the Master Plan alignment. Both cases would likely incur minor master plan amendments however changes in zoning would not be likely.

Under the Maryland Change or Mistake Rule, rezoning of individual parcels is justified where there was a mistake in the existing zoning or a substantial change in the character of the neighborhood has occurred. Selection of Corridor 2 would likely be deemed a change in the character of the neighborhoods it would traverse. If Corridor 2 is selected, additional development in the northern area of the county may very well occur beyond the existing control of Montgomery County since it would be inconsistent with the Master Plans and related existing zoning. Montgomery County officials acknowledged that a Corridor 2 alignment would likely lead to greater development pressures in the northern area of the county given the planning disruption.

As stated above, Montgomery County officials have expressed concern that Corridor 2 has a likely potential to trigger additional development within the northern portion of Montgomery County, much of which would likely occur in areas outside of PFA boundaries, in locations

not currently served by community water and sewer facilities. Any development that would occur outside PFAs and areas not currently served by community water/sewer would incur additional costs to the county to provide the necessary public facilities required to handle development. By comparison, Corridor 1 would allow for the continued maintenance of land use policies within areas currently served (or planned for service) by adequate public facilities (as well as within PFAs).

If either the No-Action or Corridor 2 alignment is selected it would likely trigger a full master plan amendment for all area and functional plans where the selected alternative is significantly different from the existing Master Plans. The Master Plan process would then evaluate the availability of (or potential for) extending community water and sewer infrastructure. Similarly, the validity of functional plans, such as the Preservation of Agricultural and Rural Open Space and their supporting policies would also need to be reviewed and revised.

Ultimately if the Corridor 2 alignment is chosen, the appropriate zoning for the former master plan right-of-way, planned interchanges and intersections, and the effect on properties surrounding the new alignment would all have to be evaluated. Significant pressures from landowners to increase zoning pressures with the selection of Corridor 2 are anticipated. Corridor 2 vastly increases accessibility to areas where such accessibility was not planned. Landowners would likely want zoning that takes the greatest advantage of this increased accessibility.

All of the long-standing land use factors mentioned above are worthy of noting when contemplating future land use scenarios between the ICC corridors. The ELUP's suggested allocations provided a framework from which to work as it relates to the secondary and cumulative effects analysis. The ELUP was established as an advisory committee, and their work has been integrated into the SCEA as one means of assessing future resource impacts. There are numerous opinions and viewpoints regarding future land use within the SCEA boundary, all of which should be factored into consideration when contemplating the likelihood of future development pressures.

2. Expert Land Use Panel (ELUP)

The ELUP was established as an advisory group for the ICC project to estimate differences in the amount and location of future households and jobs (secondary development) for the Alternatives Retained for Detailed Study (ARDS), including the No-Action Alternative. The ELUP process is included as part of SHA's SCEA Guidelines (June 2000) in special cases. The purpose of ELUPs is to identify future land use scenarios, particularly if a project is especially complex or if local jurisdictions, agencies or special interest groups disagree that a particular land use will or will not occur. The results of the panel's estimates were then used in developing future land use maps for use in the SCEA. The selection process for panel members was conducted through nominations by federal, state and local agencies, a credential review and through a series of interviews by the panel's facilitator. The ELUP convened six times, beginning with their first meeting on November 25, 2003 and concluded on May 26, 2004 with their final meeting.

The ELUP used a well-developed research technique known as the Delphi process to determine their estimates. This process is a highly structured technique in which participants provide their assessment of likely future events. This process was administered through each panelist completing iterative rounds of questions, and having a moderator tally and summarize the results of each round to provide overall results. Panelists were asked to allocate estimates of households and employment within 34 forecast zones surrounding the ICC study area and for three different scenarios: No-Action, Corridor 1 and Corridor 2. Each panel member was provided with Metropolitan Washington Council of Government’s (MWCOC/BMC) Round 6.3 2030 household and employment forecasts. Additionally, the panel was provided information regarding the details of the Alternatives Retained for Detailed Study (ARDS). Descriptions of each corridor along with specific interchange locations and the fact that the roadway would be a six-lane, multi-modal, controlled access facility were all presented to the panel.

The panel initially estimated households and employment allocations for the No-Action Alternative. The No-Action Alternative allocation estimates served as the baseline for comparison with Corridor 1 and Corridor 2 allocations. Ultimately, the ELUP’s suggested allocations for each of the ARDS were used to prepare future land use maps (one for each of the ARDS). A comparison of future suggested land use between each of the ARDS was then evaluated, and future secondary and cumulative resource impacts were assessed.

3. SCEA Initiation/Scoping

SCEA scoping was conducted in accordance with the SHA’s June 2000 SCEA Guidelines for Environmental Impact Statements and Environmental Assessments (SHA 2000). Scoping activities include the following and define the parameters for conducting the resource analysis:

- Defining resources to be analyzed in the SCEA
- Establishing the SCEA geographical boundary
- Establishing the SCEA past and future time frames

a. Resources

Resources that would be directly impacted by the proposed alternatives were first identified in order to determine environmental resources to be evaluated in the SCEA. *Table 1* lists those resources assessed in the secondary and cumulative effects analysis. Boundaries for these resources were used to create the overall SCEA boundary.

b. Geographical Boundaries

Geographic limits were first identified in which the secondary and cumulative effects analysis would be conducted. The SCEA boundary covers sufficient area to allow for flexibility in the development of alternatives and encompasses all areas that may be directly affected. Secondary and cumulative effects are further removed from the project alternatives than direct impacts; therefore, the geographic limits for the analysis of secondary and cumulative effects reach beyond the defined project study area.

Table 1
SCEA Resources

<i>Resource</i>	<i>Representative Sub-Boundary</i>
Residential/Business Communities	Community Planning Areas
Farmlands	Watersheds
Parks/Recreational Facilities	Census Tracts
Forests/Terrestrial Habitat	Watersheds
Low-Income/Minority Populations	Census Tracts, Community Planning Areas
Rare, Threatened, and Endangered Species (RTE)	Watersheds
Floodplains	Watersheds
Cultural Resources	Community Planning Areas
Surface Water/Aquatic Habitat	Watersheds
Wetlands	Watersheds

Multiple resource boundaries were reviewed to determine appropriate SCEA sub-boundaries using the environmental resources that may be affected by direct or secondary impacts of the project as a guide. The SCEA involves natural environmental, socioeconomic, and cultural resources. In addition to environmental resource boundaries, the area of traffic influence was also considered in establishment of the overall SCEA boundary, as were the ELUP’s land use estimates. Established sub-boundaries were overlaid onto one composite map to determine the outermost boundary extent (*see Figure 2*). The outermost extent of all sub-boundaries comprise the overall SCEA boundary. The sub-boundaries considered in establishing the SCEA boundary are described below.

Alternatives/Study Area Boundary

The Alternatives/study area sub-boundary was included in the SCEA Analysis since it contains the direct impacts from the build alternatives. The study area boundary is the area expected to contain the direct impacts of the no-action and build alternatives (*Figure 2*). Alternatives mapping and the study area boundary were overlaid to ensure the SCEA boundary encompasses the entire project study area. It should be noted that the overall SCEA boundary extends beyond the Alternatives/study area sub-boundary.

Area of Traffic Influence

The Travel Forecasting Group has defined the Area of Traffic Influence (ATI) (*Figure 2*). The traffic volumes developed for this SCEA are based on the Metropolitan Washington Council of Governments (MWCOC) Round 6.3 Constrained Long-Range Plan (CLRP). Home Interview Surveys, which help identify origins and destinations of trips generated from various jurisdictions in the MWCOC region, were used in part to calibrate the model. A Difference Plot was prepared to show the percent increase or decrease between the 2030 No Action and 2030 Build conditions. Based on these plots, the model shows that traffic volumes along various east-west roadways and parallel facilities will decrease or increase with the construction of the new facility. The Difference Plot identified Traffic Analysis Districts (TADs) that may be influenced by the ICC project.

The ATI sub-boundary was established by identifying the TADs that had a 10% difference between the build and No Action scenarios. The TADs are further divided into smaller Traffic Analysis Zones (TAZs). The ATI is comprised of 22 TADs that encompass 191 TAZs. TAZs were considered a sub-boundary because MWCOG/BMC uses TAZs to develop population and employment data, as well as future land use and development planning. The ATI formed the portion of the SCEA boundary, which extends into Howard County.

Natural Resources

The watershed sub-boundary was used to assess potential impacts to natural environmental resources affected by the project, specifically wetlands, surface water/aquatic habitat, floodplains, terrestrial habitat (including forest interior dwelling species) and any Rare, Threatened and Endangered (RTE) species (*Figure 2*). A total of 53 third-order subwatersheds fall within or partially within the alternative/study area sub-boundary.

There are three watersheds (MDE 6-digit), the Middle Potomac River, the Washington Metro and the Patuxent River, within the SCEA boundary. Each of these watersheds is divided into smaller drainage areas, subwatershed (MDE 8-digit) and third-order watersheds (MDE 12-digit).

The Middle Potomac River watershed is in the northwestern portion of the SCEA boundary. It is mostly within Frederick County with portions of it crossing into Carroll County to the east and Montgomery County to the south. The Lower Monocacy River and Double Pipe Creek are the only two subwatersheds that have portions within the SCEA boundary of the five subwatersheds in the Middle Potomac River. Drainage within the Middle Potomac River flows towards central Frederick County and is carried by the Monocacy River into the Potomac River. The Potomac River carries the flow to the Chesapeake Bay.

The Washington Metro watershed makes up the largest portion of the SCEA boundary, as it includes the majority of Montgomery County, Prince George’s County and the District of Columbia. A small area of the northwestern portion of the watershed is within Frederick County. The Potomac River (Montgomery County), Seneca Creek, Rock Creek, Cabin John Creek and the Anacostia River are the only five subwatersheds that occur within the SCEA boundary of the eight subwatersheds in the Washington Metro. Drainage within the Washington Metro watershed flows southwesterly within each subwatershed into the Potomac River, which carries the flow into the Chesapeake Bay.

The Patuxent River watershed makes up the smallest portion of the SCEA boundary and includes the northeast portions of Montgomery County and Prince George’s County and all of the Howard County and Anne Arundel County portions that are within the SCEA boundary. Of the eight subwatersheds in the Patuxent River, six occur within the SCEA boundary, including Brighton Dam, Middle Patuxent River, Rocky Gorge Dam, Patuxent River Upper, Little Patuxent River, and Western Branch. Drainage within the Patuxent River watershed flows southeasterly within each subwatershed into the Potomac River, which carries the flow into the Chesapeake Bay.

The natural resources sub-boundary was extended farther south within Washington, D.C. to address potential secondary and cumulative effects to downstream water quality including the lower reaches of Rock Creek and the Anacostia River; therefore, the southern portion of the overall SCEA boundary is formed from the watershed sub-boundary. This sub-boundary also forms portions of the northern boundary of the overall SCEA boundary, which encompasses the New Market and Germantown zones. The sub-boundary also forms the overall SCEA boundary in Anne Arundel County, portions of Prince George’s County and the western portion of Montgomery County within the SCEA boundary. The natural resources sub-boundary encompasses a total of 53 third-order sub-watersheds (*Figure 2*).

Community Planning Areas

Planning area boundaries were used as a SCEA sub-boundary encompassing the publicly owned public parks, community resources and cultural resources in the ICC project area. Community planning areas were obtained through coordination with M-NCPPC and include Montgomery and Prince George’s counties only. The community planning area sub-boundary includes all the planning areas that are contained within or are partly overlapping the study area sub-boundary. A total of 26 community planning areas fall within or partially within the study area sub-boundary (*Figure 2*). This sub-boundary forms the overall SCEA boundary in the southwestern portion of Montgomery County, two portions of Prince George’s County and the mid-portion of Montgomery County.

Public Sewer and Water Service Areas

Community Sewer and Water Service Areas were considered in establishment of the overall SCEA boundary because they generally represent growth areas that are planned for future development growth. Sewer and water areas closely resemble the boundaries of PFAs. Please refer to *Figure 2* for PFA locations for all of the counties within the SCEA boundary.

Census Tracts

Census tract boundaries were used as a resource sub-boundary in the overall SCEA boundary representing the cultural and socioeconomic resources affected by the project. The census tract sub-boundary was established by using census tract data (census tracts contained within or partially within the study area sub-boundary) for Montgomery, Prince George’s, Anne Arundel, Howard and Frederick counties. The census tract boundary forms a small portion of the overall SCEA boundary located within western Montgomery County.

This sub-boundary was extended further north to encompass the New Market and Germantown forecast zones. The census tract sub-boundary encompasses a total of 142 census tracts (*Figure 2*).

Expert Land Use Panel Boundary

An additional ELUP boundary was considered in the establishment of the overall SCEA boundary. Members of the project team, regional agencies and input from the ELUP decided the original extent of the ELUP boundary. This boundary included 34 zones surrounding the ICC study area, and extended into six different counties and the District of Columbia (*Figure*

2). These counties include Anne Arundel, Baltimore, Howard, Frederick, Montgomery and Prince George's. Although the ELUP considered geographical areas far outside of the defined SCEA boundary, it was determined that the areas outside the SCEA boundary showed less than a 5 percent allocation difference between the No-Build and either of the build alternatives. For those zones that were within this 5 percent threshold, the estimates suggest that land use would not be substantially different between the No-Build and either of the build alternatives. The allocation estimates established by the ELUP suggests that population and/or employment growth would not be dependent on a particular ICC alternative, and that similar growth would occur regardless of the selected alternative.

The ELUP sub-boundary was refined to include those zones that experienced greater than a 5 percent change in allocation between the No-Action and either Corridor 1 or Corridor 2 (household or employment). Those zones having greater than 5 percent allocation difference represent areas that may experience potential secondary effects and the most measurable changes in land use between a No-Action and build scenario.

c. Time Frames

The SCEA must consider past, present and reasonably foreseeable future actions. The past time frame 1964 marks the opening of the Capital Beltway (I-495) as well as the adoption by M-NCPPC of *On Wedges and Corridors: A General Plan for the Maryland-Washington Regional District* (M-NCPPC, 1964). The opening of the Capital Beltway and later Metrorail were important factors influencing development patterns in both Montgomery and Prince George's counties. The beltway is the region's circumferential highway transportation facility. The subway is a major component of the region's hub and spokes transportation facility. And I-270 and I-95 are major north-south corridors. Coupled with the local planning philosophy of wedges, corridors and centers, the stage was set for the development that would occur as a result of the substantial population growth since World War II.

It was determined that five years from present (2010) would adequately assess the present/near future timeframe. In addition, construction of an ICC is also planned to begin within the 2010 timeframe.

The future time frame 2030 was determined primarily based on the project's design year, 2030, and is derived based on future land use assumptions. In addition, population projections are available through 2030, allowing a more accurate depiction of the future population within the SCEA boundary.

Past and Present Time Frame

The types of data collected to determine the past time frame include events in the historic context of the area that may have influenced population and land use. The historic timeline of significant events is displayed in *Figure 3*.

Historic and Projected Timeline of Significant Events

Transportation Event 

Land Use Event 

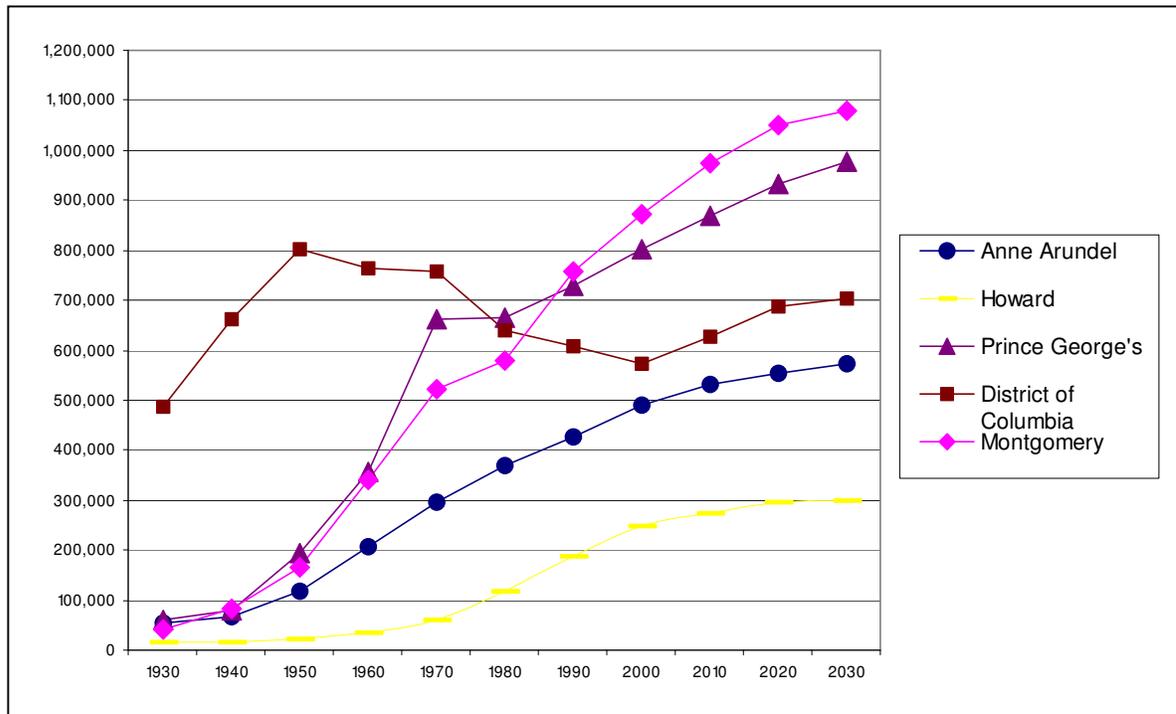
Military Event 

Decade	Event
1940 - 1950	1940 - Naval Surface Warfare Center (NSWC) relocates to the Bethesda Area, which later becomes the Carderock Division
	1945 - World War II Ends (Beginning of Baby Boom)
	1944 - Naval Ordnance Laboratory opened in White Oak, which later becomes the Naval Surface Warfare Center
	1947 - Construction of Friendship Airport begins, which later becomes BWI
1950 - 1960	1953 - First section of I-270 opens between Route 109 and US 15 (now MD 85)
	1954 - Joint Commission convened to Study Mass Transit
	1954 - I-270 / MD 118 interchange complete
	1954 - MD 295 opened as the Baltimore / Washington Parkway
	Late 1950's - Construction of US 240 (now I-270) was completed
	1957 - Construction begins on I-495 in Maryland
1960 - 1970	1959 - Construction begins on the Capital Beltway in Montgomery County
	1960 - US 240 was redesignated as I-70S and connected to I-495/I-270 (west Spur)
	1960 - National Capital Transportation Act signed
	1964 - "On Wedges and Corridors: A General Plan for the Maryland-Washington Regional District" is published by M-NCPPC.
	1964 - I-495 in Maryland is completed and open to traffic
	1967 - Construction begins on I-95 South outside the Capital Beltway
	1969 - WMATA adopts revised Rapid Rail Plan & Program including relocation of 3 stations.
1970 - 1980	1969 - The Montgomery County General Plan Update is published by M-NCPPC. It reinforces the "Wedges and Corridors" concept and revised the goals and objectives.
	1971 - I-95 North of the Capital Beltway is opened to traffic (4 lanes in each direction)
	1971 - Third lane added to I-270 between the Y-split at I-495 and MD 118
	1972 - Capital Beltway widened to 4 lanes in each direction from the Woodrow Wilson Bridge to Linden Lane
	1972 - The State of Maryland buys Friendship Airport and renames it the Baltimore Washington International Airport (BWI)
	1973 - Washington Metropolitan Area Transit Authority begins MetroBus service
1980 - 1990	1974 - Prince George's County publishes the Subregion V Plan
	1982 - Prince George's County publishes the "General Plan"
	1984 - The "Red Line" opens (a WMATA Metro line), from DC through the I-270 corridor cities
	1987 - 1989 - Capital Beltway widened to 4 lanes in each direction (Linden Lane to I-270 & MD 190 to American Legion Bridge)
	1989 - SHA completed I-495 west of I-270 to west of MD 97 as an eight lane freeway widening and reconstruction
1990 - 2000	1989 - I-495 is widened from 6 lanes to 8 lanes between I-270 and MD 97
	1990 - Red Line begins operating north of Silver Spring to Forest Glen and Wheaton stations, adding 3.2 miles to system.
	1990 - I-270 widening to 8 lanes completed on Y-split to Middlebrook Road
	1990 - I-270, 2 Collector-Distributor lanes added between Montrose Road and CSX bridge
	1990 - I-370 was constructed
	1990 - Prince George's County publishes the "Subregion I Plan"
	1991 - I-495 is widened between MD 190 to the C&O Canal Bridge
	1992 - The Maryland General Assembly adopts the Economic Development, Resource Protection and Planning Act of 1992 .
	1993 - M-NCPPC publishes the "General Plan Refinement."
	1993 - I-495, Auxiliary lanes on the Outer Loop between US 1 and MD 650 completed
2000 - 2010	1996 - I- 270, from MD 118 to MD 121 widened to 3 lanes in each direction and HOV lanes are opened
	1997 - The Maryland General Assembly enacted the Neighborhood Conservation and Smart Growth Initiatives.
	1997 - I270/I-495 HOV ramp connection to west spur added
	January 2000 - "Green Line" (a WMATA Metro Line), completed, final section from Anacostia to Branch Ave
	2002 - The "Prince George's County Approved General Plan" was adopted by Prince George's County Council in October.
	2002 - Konterra Business Campus Development building permits approved for mixed-use urban development between US 1 and I-95 in Prince George's County.
	2002 - The mixed-use development for Fairland Golf Community receives preliminary approval in Prince George's County
	2003 - Project Scoping begins for the Bi-County Transitway (Purple Line), Bethesda to New Carrollton.
	2003 - US 1 widened from 4 lanes to 6 lanes between I-495 and Sunnyside Avenue
	2004 - Anticipated completion of the Laurel MARC Station Improvements
	2004 - I-270/Westlake Terrace HOV connection expected to be opened
2020 - 2030	2006 - Corridor City Transitway project planning expected to be completed, providing an essential connection between the Washington, DC metropolitan area and central and western Maryland
	2007 - ROD for Bi-County Transitway (Purple Line) Bethesda to New Carrollton expected
	2025 - Bi-County Transitway (Purple Line), Bethesda to New Carrollton, western 4.4 mile long western end expected to be completed (WMATA)
	2025- I-270 Multi-Modal study, Corridor Cities Transitway, 14 mile long section, Rockville, Gaithersburg, Germantown to Clarksburg expected to be completed, terminates at Shady Grove Metro Station where it is expected to connect to the ICC
	2030 - Design year of the ICC

General Population Trends

Populations within the SCEA boundary were analyzed to determine trends and a suitable past time frame based on existing population census data from 1930 to present. *Figure 4* highlights population trends between the 1930s until the 2030s per county.

Figure 4
Population Change



Montgomery and Prince George’s counties have experienced substantial population growth over the last 70 years. A past time frame was determined by examining population trends. The 1960s time frame was evaluated since the population in Montgomery and Prince George’s counties grew dramatically throughout the 1960s (53 percent and 85 percent growth, respectively) and a dramatic slow down of population growth occurred during the 1970s in Montgomery (11 percent) and Prince George’s (1 percent) counties. This slow down in population could be attributed to land use management initiatives set forth by Montgomery and Prince George’s Counties with the adoption of their General Plans. Both Montgomery County published “On Wedges and Corridors: A General Plan for the Maryland-Washington Regional District” in 1964 with an update to it published in 1969. Prince George’s County published the “Subregion V” Plan in 1974 and the “General Plan” in 1982. Montgomery and Prince George’s Counties have managed growth since the 1960s. East Coast and regional population growth in the 1950’s and 1960s contributed to transportation projects within the region such as the Capital Beltway (I-95/I-495), I-95, the Baltimore Washington Parkway (MD 295) and I-270 in addition to the creation of the Metrorail and Metrobus system.

The population of Howard County experienced a steady growth from 1950 to the present. Much of this growth is attributed to the planning and construction of Columbia starting in the 1960s, although the county did not experience the same degree of population growth as Montgomery and Prince George's counties during this period. Anne Arundel, Frederick and Carroll counties also experienced population growth during the 1950s and 1960s similar to the population trends of Howard County, as residential, commercial and industrial development continued.

The following major transportation projects affected land use within the SCEA boundary:

- **Opening and Expansions of the Capital Beltway (I-495 and I-95) in Maryland**

Construction began on I-495 in 1957 with 3 lanes in each direction. The Maryland portion of the highway was completed and open to traffic in 1964. Substantial development also occurred within Montgomery and Prince George's counties around this time frame, and population grew dramatically during the 1960s. Rapid growth and the construction of major roadways appears to have occurred in tandem, and rapid growth in the Counties corresponds with declining growth in DC. It is likely that the decline of growth in DC may have occurred as people moved further out to the county suburbs.

- **Opening and Expansions of I-95 in Prince George's County**

Construction on the Prince George's County portion of I-95 from the Capital Beltway north towards Baltimore began in 1967. This section of I-95 opened in 1971 with 4 lanes in each direction. I-495 from I-95 south towards the Woodrow Wilson Bridge is also designated as I-95. This section of I-95 helped to support the rapid growth that occurred in the 1960s.

- **Opening and Expansions of I-270 in Montgomery County**

The first section of I-270 between MD 109 and US 15 (Now MD 85) opened in 1953. Construction was completed between the Capital Beltway and MD 118 by 1960, and the road was designated as I-70S. The opening of I-270 changed then-existing land use to transportation, and encouraged a shift in development from Washington DC to outlying counties due to the roadway improvements that provided more convenient commutes between the suburbs and DC. Opening and Expansions of the Washington Region Metrorail (subway)

In 1976 the Washington Metrorail opened making commuting from surrounding counties more accessible, thereby encouraging development in areas that were previously considered undesirable due to commuting constraints. The first Maryland station opened in 1978, while others followed in the 1980s and 1990s.

Future Time Frame

The reasonable foreseeable future time frame selected was the project’s design year (2030). The year 2030 is also the year for which travel forecasting, population growth projections and land use assumptions have been made.

4. Data Availability/Analysis Methodology

The availability of data was identified during the initiation phase of the SCEA and is summarized in *Table 2*. The table shows the resources used in the analysis and the data used for determining potential secondary and cumulative effects.

Maps of each socioeconomic, cultural, and natural resource were overlaid on current and future land use maps to determine if secondary or cumulative development would affect that resource. Trend analyses, matrices, and overlays comparing past conditions to existing conditions assessed probable future conditions within the SCEA boundary and time frames. *Table 2* shows methods used to perform analysis for each resource incorporated in the SCEA. Master Plans were used as supplemental data sources and in various trend analyses (*Table 3*).

5. Land Use and Development

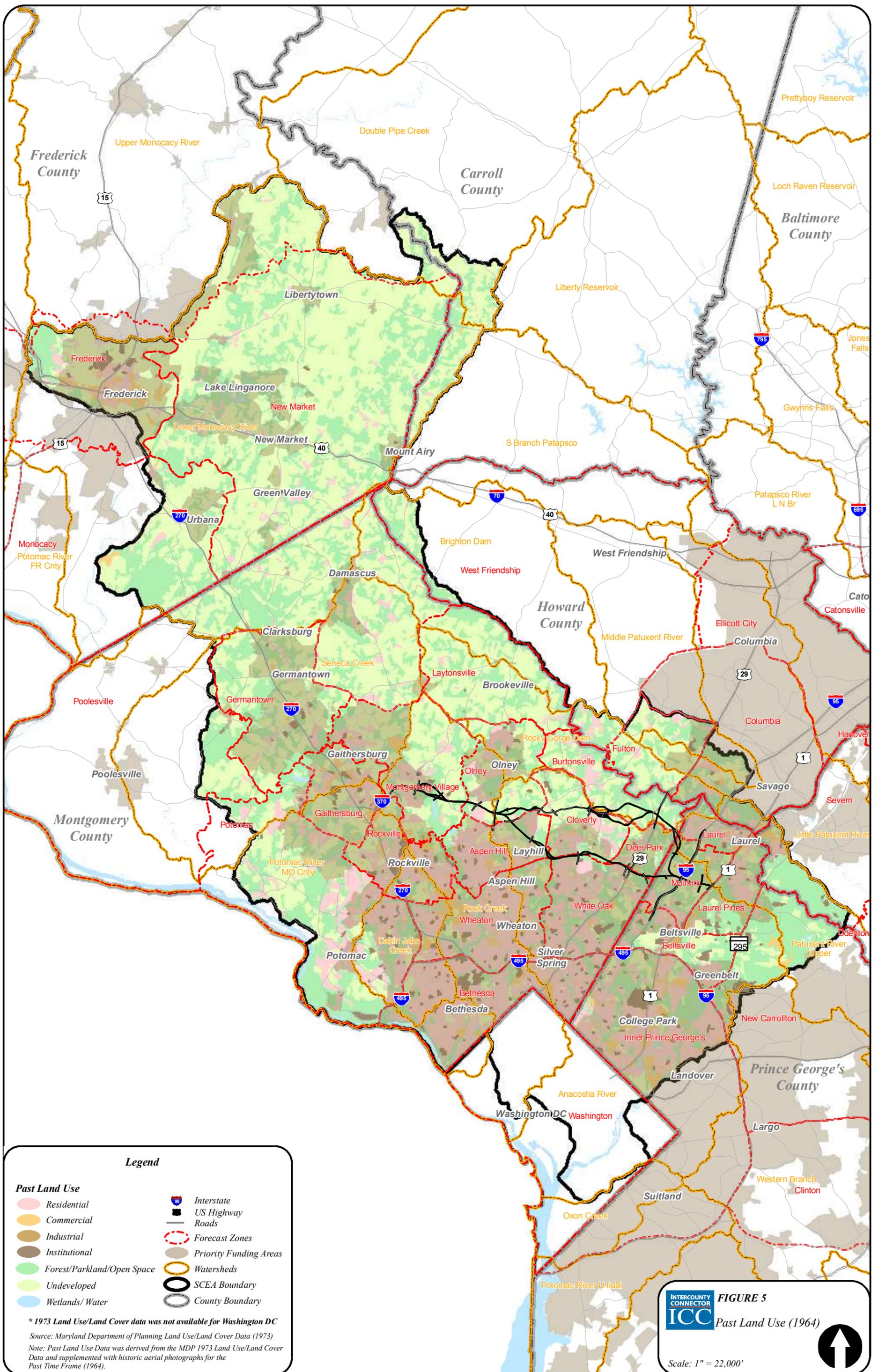
Three land use scenarios (past, existing/near future, and future) and corresponding maps were prepared for the overlay analysis and in identifying trends in land use from the past to present time frame. In addition, anticipated future land use mapping has been prepared. *Figure 5*, shows past land use within the SCEA boundary.

a. Past Land Use

The past land use map was obtained from MDP from 1973. Past land use mapping was not readily available for 1964, however, historic aerial photographs, from various county planning departments, were used to supplement the 1973 land use map in the SCEA.

Montgomery County

In 1973, the dominant land use in portions of Montgomery County within the SCEA boundary was agricultural or open urban land, comprising approximately 32 percent. Water bodies within Montgomery County within the SCEA boundary include the Potomac River, Little Seneca Lake, Clipper Lake, Lakes Needwood and Frank, the Triadelphia and T. Howard Docket Reservoirs along the Howard County border, as well as several smaller lakes or ponds.



Past Land Use

- | | |
|----------------------------|------------------------|
| Residential | Interstate |
| Commercial | US Highway |
| Industrial | Roads |
| Institutional | Forecast Zones |
| Forest/Parkland/Open Space | Priority Funding Areas |
| Undeveloped | Watersheds |
| Wetlands/ Water | SCEA Boundary |
| | County Boundary |

* 1973 Land Use/Land Cover data was not available for Washington DC
 Source: Maryland Department of Planning Land Use/Land Cover Data (1973)
 Note: Past Land Use Data was derived from the MDP 1973 Land Use/Land Cover Data and supplemented with historic aerial photographs for the Past Time Frame (1964).

FIGURE 5
INTERCOUNTY CONNECTOR (ICC)
 Past Land Use (1964)
 Scale: 1" = 22,000'

Table 2
Data Availability and Analysis Methodology

<i>Resource</i>	<i>Analysis Methodology</i>	<i>Data Availability/Sources</i>
Residential/ Business Communities	<p><u>Overlays, Trends Analysis</u></p> <p>Overlays Determine past impacts/disruptions to residential/business communities based on overlay of past land use map with existing resource mapping to assess past activities that have divided, displaced or otherwise impacted residential communities. Near future and future development projects were overlaid with existing communities to assess potential near future and future impacts to communities.</p> <p>Trends Analysis Trends in residential development patterns or residential growth centers were identified (if possible) by conducting overlays of past, present and future land use planning maps.</p>	Master Plans; Census Tract Information; County Planning Departments; Land Use Mapping; Maryland-National Capital Park and Planning Commission (M-NCPPC); Maryland Department of Planning (MDP); Metropolitan Washington Council of Government (MWCOG), Baltimore Metropolitan Council (BMC)
Agricultural Land	<p><u>Overlays, Trends Analysis/Matrix</u></p> <p>Overlays Determine past agricultural land impacts by overlaying past land use map with existing resource mapping to evaluate development activities that impacted past agricultural lands (i.e., construction of roadways, change in land use, residential and commercial development, etc.). Present (near future) and future agricultural impacts were also assessed by overlaying existing resource mapping with near future and future land use maps. By conducting these overlay analyses, future impacted areas were determined by identifying existing agricultural land and conflicting future land uses (e.g., roads, development).</p> <p>Trends Analysis/Matrix MDP Land use data was used to conduct a quantitative trends analysis to determine if agricultural land has declined throughout the SCEA timeframe.</p>	Master Plans; County Planning Departments; County Soil Surveys; Natural Resource Conservation Service (NRCS); M-NCPPC; Land Use Mapping, Center for Agricultural and Resource Economics (AREC)
Cultural Resources (Historic Structures/ Archaeological Sites)	<p><u>Overlays</u></p> <p>Overlays Obtain data from the Maryland Historic Trust regarding National Register and/or Maryland Inventory sites. Present (near future) and future impacts were determined by overlaying existing resource mapping with near future and future land use maps. When assessing present and future impacts, existing laws currently being implemented to protect these resources were considered. This analysis methodology is based on current data and is limited to the accuracy of the data sources, which do not include structures that may become historic in the future time frame. Private development projects are not held to the same standard of protection for these resources as are state and federally funded projects, which must comply with state and federal law and regulations.</p>	Maryland Historic Trust (MHT) Tool Box; Local Historic or Preservation Group data; Land Use Mapping; Local Historic or Preservation Groups; M-NCPPC; National Register

Table 2
Data Availability and Analysis Methodology

<i>Resource</i>	<i>Analysis Methodology</i>	<i>Data Availability/Sources</i>
Minority and/or Low Income Populations	<p><u>Overlays, Trends Analysis</u></p> <p>Overlays If possible, past, present (near future) and future land use maps were overlaid with identified minority and/or low-income census tracts to determine past and potential near future and future impacts to these populations. Near future and future land use overlays included near future and future planned projects and other potential development.</p> <p>Trends Analysis Trend analysis was conducted by comparing census tract data to determine average income levels, employment numbers and ethnicity composition from various years within the SCEA boundary.</p>	<p>Census data (1960, 1970, 1980, 1990, 2000); Department of Health and Human Services (DHHS); county Master Plans; Housing and Urban Development (HUD) data; County Planning Departments; M-NCPPC</p>
Parklands/ Recreation Facilities	<p><u>Overlays, Trends Analysis</u></p> <p>Overlays Analysis was conducted by overlaying past, present (near future), and future land use with existing park and recreational resources to assess past and future impacts. These overlays were used to identify conflicting land uses that would impact existing parks in the future.</p> <p>Trends Analysis Trend analysis was conducted, if possible, by searching available literature, Master Plans and other county sources for data to determine trends related to parks and recreation facilities.</p>	<p>County Master Plans; Land Use Mapping; County Planning Departments; M-NCPPC; National Park Service (NPS)</p>
Rare, Threatened and Endangered (RT&E) Species	<p><u>Overlays, Trends Analysis</u></p> <p>Overlays Conduct an overlay of existing resource map with the past, present (near future), and future land use maps. Environmentally sensitive habitats that are known to contain RT&E species were assessed for potential impacts from past, present and future development. Potential conflicting land development activities were identified that may potentially impact RT&E habitat in the future.</p> <p>Trends Analysis Data obtained from DNR and USFWS regarding RT&E species within the SCEA boundary was reviewed to determine any trends throughout the SCEA time frame.</p>	<p>County master plans; Maryland Department of Natural Resources (DNR) Sensitive Species Protection Areas/Tool Box Data; DNR Environmentally Sensitive Areas (ICC Study area only); US Fish and Wildlife Service (USFWS); Maryland Department of the Environment (MDE); Land Use Mapping</p>
Wetlands	<p><u>Overlays, Trends Analysis, Matrix</u></p> <p>Overlays Past impacts to wetlands and Wetlands of Special State Concern may be difficult to assess because past wetlands mapping does not exist within the SCEA boundary</p> <p>Determine the change (loss/gain) in wetland acreage based on an</p>	<p>National Wetlands Inventory Maps (USFWS); DNR Wetlands Data; “Wetlands of Maryland” – USFWS; National Wetlands Inventory</p>

Table 2
Data Availability and Analysis Methodology

<i>Resource</i>	<i>Analysis Methodology</i>	<i>Data Availability/Sources</i>
	<p>overlay of past land use mapping with existing resource mapping to identify the net loss/gain from past to present. Near future and future impacts were assessed by overlaying existing resource mapping with present and future land use mapping to estimate potential near future/future impacts. Present and future impacts also considered wetlands regulations currently being implemented that protect these resources.</p> <p>Identify Wetlands of Special State Concern (on existing resource mapping) and overlay near future and future land use maps to determine present (near future) and future potential impacts to these sensitive resources. Regulations currently being implemented were considered when assessing future impacts.</p> <p>Trends Analysis Trends were identifiable by overlaying National Wetland Inventory Maps, DNR wetland maps and reviewing existing wetland literature that documents general trends in wetland loss as well as loss of function and value.</p> <p>Matrix Available data was summarized in matrix format to compare and display the results of the overlay and trends analysis over the SCEA time frame.</p>	(NWD); Aerial Photography; Land Use Mapping; County Master Plans; MDE; MDP
Impervious Area/Reservoirs	<p><u>Overlays, Trends Analysis, Matrix</u></p> <p>Overlays Determine the change in the amount of impervious surface based on land use changes and development over the SCEA time frame. This was determined by overlaying existing resource mapping with past, present (near future) and future land use maps to identify pervious and impervious areas.</p> <p>Trends Analysis/Matrix A Matrix was used to compare Impervious Areas per watershed within the SCEA boundary throughout the past and present time frames.</p>	USGS Topographic Mapping; MDE Stormwater Management Regulations; DNR – Monitoring and Assessment Division; Land Use Mapping; Maryland Biological Stream Survey (MBSS); EPA; USGS
Floodplains	<p><u>Overlays, Trends Analysis</u></p> <p>Overlays Overlay existing resource map (including FEMA floodplains) with past, present/near future and future land use maps to determine present and anticipated future impacts. Floodplain regulations were considered when assessing impacts.</p> <p>Trends Analysis Floodplains data, from federal, state and local sources that encompass the SCEA time frame and boundary were qualitatively reviewed to identify any trends in floodplain loss.</p>	FEMA Maps; USGS Topographic Mapping; MDE Stormwater Management Regulations; DNR – Monitoring and Assessment Division; USGS; EPA; MDE; M-NCPPC

Table 2
Data Availability and Analysis Methodology

<i>Resource</i>	<i>Analysis Methodology</i>	<i>Data Availability/Sources</i>
Surface Water/Aquatic Habitat and Wildlife (Water Quality)	<p><u>Trends Analysis</u></p> <p>Trends Analysis Conduct a quantitative trend analyses by comparing water quality data (chemistry and biology) at specific monitoring sties over the SCEA time frame.</p> <p>Assess past, present, and potential future impacts to aquatic habitat based on water quality data associated with past and present land use scenarios. Water chemistry data were correlated with land use, and floodplain data to evaluate impacts. This comparison assisted in identifying trends over time that show how water quality may change as development grows and expands within a watershed.</p> <p>Maryland Biological Stream Survey (MBSS) data and the Indices of Biologic Integrity (IBI) were be used to compare watersheds and determine stream health using macroinvertebrate and fish communities.</p>	<p>MBSS Data; Large scale wetland mapping; macroinvertebrate data; USGS QWDATA (Database); EPA STORET Database; NWI; DNR;</p>
Terrestrial Habitat and Wildlife (Forests, Forest Interior Dwelling Species, etc.)	<p><u>Overlays, Trends Analysis, Matrix</u></p> <p>Overlays Overlay existing resource mapping and past land use maps to calculate change in forest cover from past to present. This allowed for the determination of terrestrial habitat impact trends from the past to the present. For anticipated present (near future) and future impacts, near future and future land use maps (forested areas) were overlaid with existing resource mapping to calculate potential future impacts.</p> <p>Trends Analysis Existing literature, county data, DNR data and historic aerial photos were reviewed to determine if any trends over the SCEA time frame could be identified. The reduction of forested areas may be quantified using historic aerial photos to determine impacts to wildlife and habitat.</p> <p>Matrix Data obtained by conducting literature reviews and existing agency data was presented in matrix format to determine if any trends emerged. MDP Land use data was used to conduct a quantitative trends analysis to determine if forestland has declined throughout the SCEA timeframe.</p> <p>Regulations, such as the Maryland Forest Conservation Act and local ordinances were being taken into consideration when determining impacts to forests within the SCEA boundary.</p>	<p>County master plans; FEMA Floodplain Mapping; Land Use Mapping; M-NCPPC; DNR; MDE</p>
Groundwater	<p><u>Trends Analysis</u></p> <p>Trends Analysis Review data sources to determine ground water level data. Comparisons of groundwater levels in developed areas with and without public water supplies were conducted, where data was available. Comparisons of increasing impervious surface area</p>	<p>Groundwater Aquifer Maps; Technical Reports; Aquifer Monitoring well data; MDE; USGS; Maryland Geological Survey</p>

Table 2
Data Availability and Analysis Methodology

<i>Resource</i>	<i>Analysis Methodology</i>	<i>Data Availability/Sources</i>
	<p>was conducted to identify trends between decreasing surface area available for infiltration and groundwater table height during the SCEA time frame. This analysis was helpful in identifying trends between increased development and impervious surface as it relates to potential impacts to the underground water table. This information can be compared over time.</p>	<p>(MGS)</p>

Table 3
Master Plans Referenced as part of the SCEA Analysis

Montgomery County		
• East Silver Spring Master Plan – 2000	• North and West Silver Spring – 2000	• Germantown Master Plan – 1989
• Gaithersburg Vicinity Master Plan – 1990	• Kensington-Wheaton Master Plan – 1989	• Cloverly Master Plan – 1997
• Shady Grove Study Area Master Plan – 1990	• Shady Grove Sector Plan – Transit Area Station – 1977	• Aspen Hill Master Plan – 1994
• Potomac Subregion Master Plan – 2001	• Upper Rock Creek Master Plan – 2003	• Clarksburg Master Plan and Hyattstown Special Study Area – 1994
• Kemp Mill Master Plan – 2001	• Sandy Spring/ Ashton Master Plan – 1998	• Olney Master Plan – Public Hearing Draft – 2003
• General Plan Elements: A Summary – Montgomery County – 1964	• Takoma Park Master Plan – 2000	• Boyds Master Plan – 1985
• Four Corners Master Plan – 1996	• Sector Plan – Kensington-Wheaton Plan – 1989	• White Oak Master Plan – 1997
• Damascus Master Plan – 1985	• Fairland Master Plan – 1997	• Park, Recreation, and Open Space Master Plan - 1998
• The Master Planning Process – 1997		
Prince George’s County		
• Prince George’s County General Plan – 2002	• Countywide Green Infrastructure Plan - 2003	
Anne Arundel County		
• BWI/ Linthicum Small Area Plan – 2003	• Odenton Small Area Plan 2003	• Severn Small Area Plan 2002
Carroll County		
• Carroll County Challenges and Choices – A Master Plan for the Future – Adopted 2000		
Frederick County		
• Frederick County Comprehensive Plan – Volume I (Countywide Plan) - 1998	• City of Frederick Comprehensive Plan - 2004	
• New Market Region Plan – 2003	• Town of Mt. Airy Master Plan – 2003	
• Walkersville Region Plan – 1995	• Urbana Region Plan - 2004	
Howard County		
• Howard County General Plan – 2000		
Washington, D.C.		
• Takoma Central District Plan – 2002	• Georgia Avenue Revitalization A Commitment to Neighborhoods – 2000	• Progress Report on Implementing the Land Use Element of the District of Columbia Comprehensive Plan for Years 1999-2002 -2003

The I-270 Corridor was already a center of development with commercial land in the county existing along the southern portion of the 34-mile long roadway in 1973, especially in the vicinity of Gaithersburg and Rockville. The majority of residential and commercial land use at that time was located in the southern portion of the county, near the Washington, D.C. boundary, in Silver Spring and Bethesda. The major industrial area in Montgomery County at the time was land at the northwest border of the county owned by PEPCO, a power supplier serving Washington, D.C. and neighboring counties. Notable institutional land included the National Institutes of Health in Bethesda, the Naval Surface Warfare Center in several locations, the Department of Energy in Germantown, and the National Institute of Standards and Technology in Gaithersburg, as well as various hospitals, schools and government buildings located throughout the county.

Inside the existing I-495, the Capital Beltway, virtually all land in Montgomery County was residential, commercial, industrial or institutional. This area includes Bethesda, Chevy Chase, Silver Spring, and Takoma Park.

Prince George's County

Residential and forested land were the dominant land uses within the SCEA portion of Prince George's County in 1973, comprising 30 percent and 40 percent of the area, respectively. The majority of forested land was located in the southeastern section of the county, along the southeastern corner of the SCEA boundary. Residential land was located primarily in the southern portion of the included area, particularly near the areas of University Park, Hyattsville and New Carrollton. Agricultural and open land was interspersed throughout the area.

Commercial land was evident in 1973 along the US 1 corridor, particularly in the vicinity of Greenbelt, College Park and Hyattsville. Also classified, as commercial land use was the Beltsville Airport, which shared property with the NASA Goddard Space Flight Center, an institution located just east of Greenbelt.

Institutional land totaled approximately five percent of the total acreage within Prince George's County inside the SCEA boundary. Institutional land was comprised of the NASA Goddard Space Flight Center, the University of Maryland, College Park (UMCP), and several facilities associated with the U.S. Department of Agriculture Research Center.

Large bodies of water within Prince George's County include the Anacostia River, Cash Lake and Greenbelt Lake.

Transportation land use was comprised primarily of the Baltimore-Washington Parkway, US 1 and the Capital Beltway (I-495). The development of I-95 outside the Capital Beltway began in 1967. The revised Rapid Rail Plan and Program was adopted in 1969. The inclusion of I-95 and the rail system into the land use plan would convert land previously designated as various land use types to transportation land use. Transportation land use was not classified as such in 1973 and was, therefore, not reflected in land use data.

Howard County

A small portion of southeastern Howard County is included in the SCEA boundary. In 1973, land use in Howard County within the SCEA boundary was dominated by agricultural and forested land use (40 percent and 41 percent, respectively). Three commercial areas were present, the largest located in the eastern corner. One small industrial area totaling approximately 28 acres is the Maryland-Virginia Milk Producers Co-Op, which is currently in operation. Five small institutional areas were evident totaling one percent of the area. The Montpelier Research Park comprised a majority of this land. Residential development totaled approximately 13 percent and was interspersed throughout the area. The community of Columbia began development in 1964 and accounts for a substantial portion of this residential development.

Anne Arundel County

A small portion of Anne Arundel County (5,163 acres) is included within the SCEA boundary. Approximately 81 percent of this area was forested in 1973, located within the Fort George G. Meade military site. Residential, commercial, and institutional development in the northern portion of the residential communities was located between the Baltimore-Washington Parkway and the Prince George's County boundary, an area now known as Maryland City. Approximately three percent of land in Anne Arundel County was institutional, comprised of several religious facilities, schools, and facilities associated with Fort Meade.

Frederick County

Agricultural and forested land (93 percent) dominated land use within Frederick County inside the SCEA boundary in 1973. Small sections of residential and commercial land were spread throughout the county. The City of Frederick primarily consisted of residential, commercial and institutional land. Institutional land can be attributed largely to Fort Detrick, Frederick Community College and Hood College. An area of extractive land (quarry) was present southeast of Frederick, as well as near the northern border of the SCEA boundary due to a limekiln. Waterways included the Monocacy River, Lake Linganore and Linganore Creek.

Carroll County

Land use in Carroll County within the SCEA boundary was predominantly forested or agricultural (68 percent and 28 percent, respectively) in 1973. Small residential and few commercial areas were interspersed throughout the region. There was evidence of concentrated development in the vicinity of Mount Airy at the southern Frederick County boundary.

Washington D.C.

Land use/land cover data was not readily available for the Washington D.C. area for 1973.

b. Present/Near Future Land Use

MDP Land Use data (MDP, 2000) was used to analyze present land use trends. In addition, data was obtained regarding approved projects/developments expected to be constructed in the 2010 near future time frame (*Appendix 1 and 2*). These projects were considered in assessing secondary and cumulative effects in the present and near future time frame. Near future development was identified using county and planning district Master Plans and information obtained from various county planning offices. Please refer to *Figure 6* for Present/Near Future Land Use within the SCEA boundary.

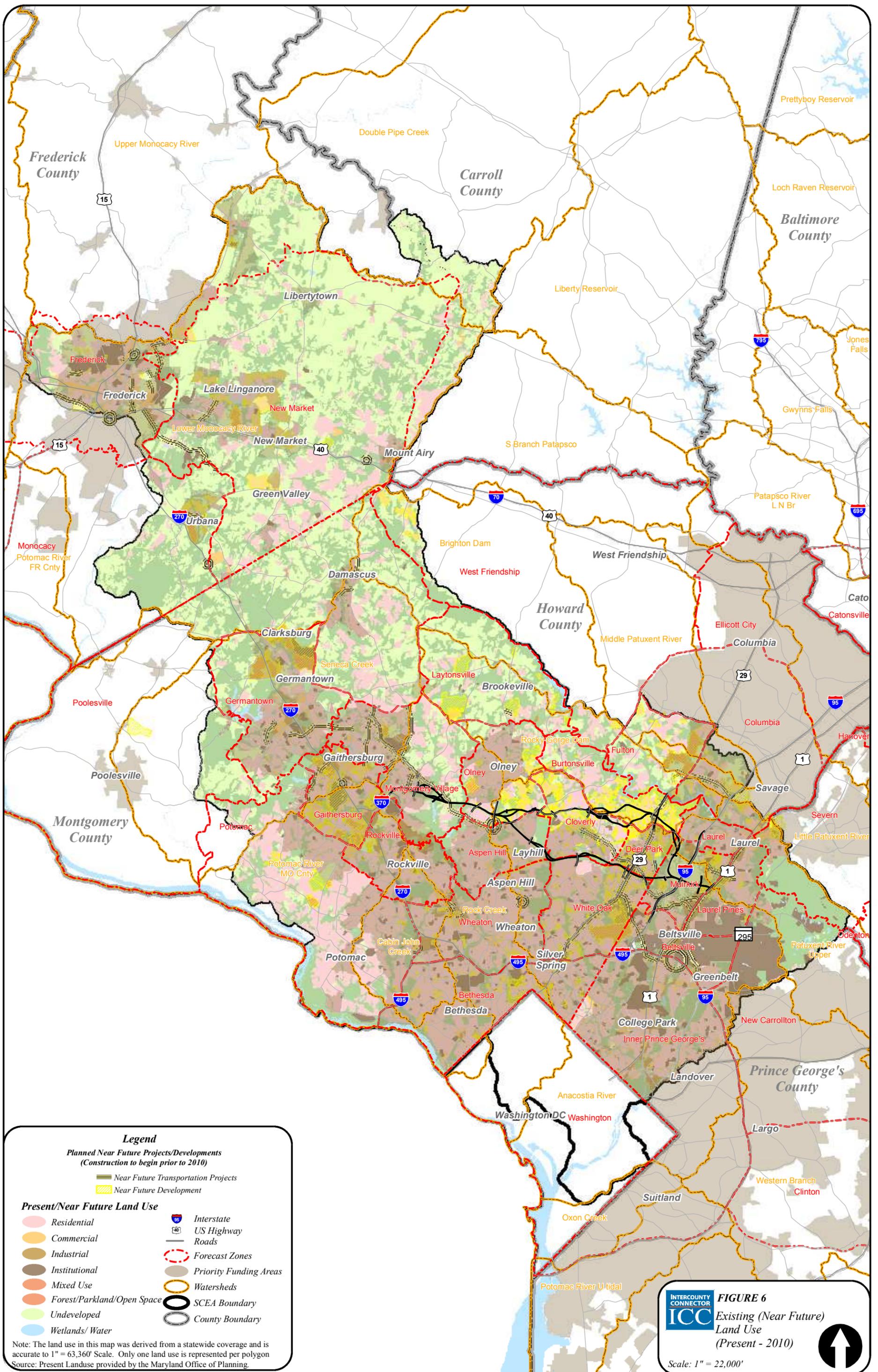
Montgomery County

Montgomery County is heavily dominated by residential and commercial land use within the SCEA boundary, although the northern and northwestern section of the county is primarily agricultural or forested land (45% of the entire county consists of Agricultural Preserve and parkland). Commercial, residential, industrial and institutional properties are most prominent along the I-270 Corridor, primarily near Germantown, Gaithersburg, and Rockville, in the mid-county, Silver Spring, Bethesda and along US 29. Institutional land is spread throughout the southern and central portions of the county in many locations. Water bodies in Montgomery County falling within the SCEA boundary, as in 1973, include the Potomac River, Little Seneca Lake, Clopper Lake, Lakes Needwood and Bernard Frank, the Triadelphia and T. Howard Duckett Reservoirs along the Howard County border as well as several smaller lakes or ponds.

Near future projects/developments expected to be constructed in Montgomery County by 2010 are depicted on *Figure 6* and shown in *Appendix 1 and 2*. The greatest change in land use would occur in the eastern portion of Montgomery County where residential development would convert other various land uses to residential. Several areas of forested land are proposed to be protected throughout the county, including large areas in the Brookeville and Laytonsville vicinities.

Land is proposed for mixed-uses in the Gaithersburg area, including a medical research center, various other commercial development and residential communities. Residential, institutional and commercial development is anticipated near Bethesda and Silver Spring. Potential expansion of the regional transit system (Metrorail and Metrobus), as well as proposed transportation projects, would convert currently residential, commercial and forested land in Montgomery County to transportation land use.

Approximately 14,909 acres of planned development is slated to occur by the Near Future Time Frame under the No-Action Alternative for Montgomery County (*Appendix 3*). This approximate acreage was derived from the planned developments as identified in *Appendix 2*. Land use categories such as open space and parkland were omitted from the planned development estimates, as these areas will not really contribute to land development but have been identified as planned preservation areas. This would account for approximately 61 percent of the total planned development expected to occur within the entire SCEA boundary. This total only takes into consideration planned development projects. The construction of Corridor 1 would result in direct land development impacts and is projected



Legend

**Planned Near Future Projects/Developments
(Construction to begin prior to 2010)**

- Near Future Transportation Projects
- Near Future Development

Present/Near Future Land Use

- | | |
|----------------------------|------------------------|
| Residential | Interstate |
| Commercial | US Highway |
| Industrial | Roads |
| Institutional | Forecast Zones |
| Mixed Use | Priority Funding Areas |
| Forest/Parkland/Open Space | Watersheds |
| Undeveloped | SCEA Boundary |
| Wetlands/Water | County Boundary |

Note: The land use in this map was derived from a statewide coverage and is accurate to 1" = 63,360' Scale. Only one land use is represented per polygon. Source: Present Landuse provided by the Maryland Office of Planning.

FIGURE 6
Existing (Near Future)
Land Use
(Present - 2010)

Scale: 1" = 22,000'



to induce additional development that, when added to the known planned development would result in a total of 15,918 acres of development in the county. Corridor 2, however, would result in a total of 15,981 acres of development. Both would account for 61 percent of the entire SCEA boundary. According to county planning officials a Corridor 2 selection would open more area to development than a Corridor 1 selection, and the area opened in more rural in character.

Prince George's County

Prince George's County is currently dominated by residential land interspersed with commercial, industrial, institutional and open urban land within the SCEA boundary. Some portions include mining operations (one-third of the county lies in a designated Rural Tier, which is in the eastern and southern areas).

Twenty-four percent of the SCEA boundary within Prince George's County is institutional land. The National Agricultural Research Center in Beltsville occupies a substantially large amount of this land. The University of Maryland College Park accounts for the majority of additional institutional land.

Approximately 23 percent of the SCEA boundary within Prince George's County is forested land. A large forested area in the northeastern section of the county occupies the southern portion of the Patuxent Research Refuge, located primarily in Anne Arundel County. Additional forested land is comprised largely by Greenbelt Park, Northway Fields Park and Indian Creek Stream Valley Park.

Open land surrounds the Anacostia River located in the western portion of the county near the Washington D.C. boundary. Seven percent of additional open land is scattered throughout the SCEA boundary within Prince George's County.

Commercial development encompasses approximately five percent of the area, primarily located along the US 1 corridor, and in the Greenbelt, Laurel and Bowie areas. Industrial land accounts for four percent of Prince George's County land. This land is located mostly along US 1 and in the vicinity of Cheverly, near the Washington D.C. border.

About two percent of the land within the SCEA area is used for surface mining operations. The Konterra Corporation, formerly known as Laurel Sand and Gravel, owns this land along the I-95 corridor.

The majority of Prince George's County land use would remain unchanged by near future development. A portion of federal land near the National Agricultural Research Center in Beltsville would be developed on what is currently institutional land.

The proposed Metrorail system expansion, including additional transit stations, and proposed transportation projects shown in *Figure 6*, would convert current residential, commercial and forested land in western Prince George's County into transportation land use.

Approximately 1,384 acres of planned development is slated to occur under the No-Action Alternative (*Appendix 3*). This would account for three percent of the total planned

development expected to occur within the SCEA boundary. The ELUP suggests that planned development and the construction of Corridor 1 would require approximately 2,061 acres of development, and Corridor 2 would require 2,132 acres of development. Both amounts would account for nine percent of the total within the SCEA boundary.

Howard County

According to MDP data from 2000, land within the SCEA boundary in Howard County is dominated by residential and forested land use. Residential land use totals 31 percent of the area, while forested comprise 34 percent. Residential, forested and agricultural land uses are interspersed in large areas throughout the study area. Small areas of commercial land totals approximately two percent of the area.

Development within the near future time frame in Howard County mostly consists of converting forested/open space land to residential development. There are isolated parcels throughout the portion of Howard County, which is encompassed in the SCEA boundary. There are two larger areas within the boundary that will be converted into commercial development. Two proposed church locations would convert currently agricultural land to developed land. Three transportation projects would convert portions of currently residential, forested and open land to transportation land use.

Approximately 2,652 acres of planned development is slated to occur under the No-Action Scenario (*see Appendix 3*). This would account for 12 percent of the total planned development expected to occur within the SCEA boundary. Additional development associated with the construction of Corridor 1 or Corridor 2 is not expected.

Anne Arundel County

Approximately 81 percent of forested land remained in Anne Arundel County in 2000 within the SCEA boundary. Most of this land is contained within the Fort George G. Meade military site. Development is mainly in the northern portion of the area, including the Laurel Racetrack and surrounding commercial area. Residential development exists near Maryland City, close to the Baltimore-Washington Parkway. Several institutional lands exist, comprised of schools, churches, and a small amount of facilities associated with Fort Meade.

Development within Anne Arundel County for the near future time frame mainly consists of converting forested land to residential and industrial development. The areas of near future development exist along the Howard/Anne Arundel County line. The residential areas are fairly small in size while the industrial sites are much larger.

Approximately 315 acres of planned development is slated to occur under the No-Action Scenario (*see Appendix 3*). This would only account for one percent of the planned development expected to occur within the SCEA boundary. Additional development associated with the construction of Corridor 1 or Corridor 2 is not expected within Anne Arundel County.

Frederick County

Land use within the SCEA boundary in Frederick County is predominantly agricultural or forested (47 percent and 29.3 percent, respectively). Residential land is interspersed throughout the southeastern portion of the county, primarily near the Montgomery County boundary in the vicinity of Mount Airy and New Market. Residential land is also located in the central portion of the county, near the City of Frederick and the Lake Linganore. Institutional land exists in Frederick County mostly around the City of Frederick and Lake Linganore, including Fort Detrick, the Frederick Municipal Airport, Frederick Filtration Plant and Frederick County Landfill. Commercial property is located predominantly near the City of Frederick, with small commercial areas also located near the cities of New Market, Libertytown, Mt. Airy and Urbana. The Montecito Business Center (Urbana) and the 75-80 Drag Strip (Green Valley) accounts for much of this commercial land. Water bodies within the SCEA are the Monocacy River, Lake Linganore, Whittier Lake, Lake Keller and Lake Jennifer.

Over 25 new residential areas are identified for near future development in Frederick County. These residential developments would convert current forested or agricultural land to residential. A majority of this residential land is anticipated near the City of Frederick, and near the towns of New Market, Lake Linganore, Urbana and Walkersville.

At least ten commercial developments are expected in Frederick County by the near future time frame, six of which are located in or near New Market. This development includes a greenhouse, go-kart facility, shopping center and several strip malls. A new shopping center near Walkersville and an office facility near Urbana are also anticipated. Mixed-use development includes a Corporate Center and Town Center near Urbana and a Town Center near New Market. These developments would convert currently agricultural, forested and residential land to commercial or mixed-use.

Approximately 4,357 acres of planned development is slated to occur under the No-Action Scenario (*see Appendix L, L-3*). This would account for 20 percent of the total planned development expected to occur within the SCEA boundary. Additional development associated with the construction of Corridor 1 or Corridor 2 is not expected within Frederick County.

Carroll County

Fifty-two percent of land use in Carroll County inside the SCEA boundary is agricultural. Developed and forested lands comprise another 45 percent of the area. Residential land is spread throughout the county, but a majority is concentrated in the southern portion near Mt. Airy and Dorceytown. A small amount of commercial land is evident just below Route 26, near Taylorsville.

No near future development was identified in Carroll County within the SCEA boundary based on available data.

Washington D.C.

Near future planned development would not change the land use within Washington D.C. significantly. Significant changes to the land use are not foreseeable since Washington D.C. is so highly developed. Additional land use would most likely be redevelopment.

c. Future Land Use and Integration of ELUP’s Results

Future development is defined as development within the SCEA boundary that would occur between the 2010 to 2030 timeframe. Future development was initially identified through county Master Plans and was overlaid with existing/near future land use mapping to determine potential changes in land use. ELUP allocations were also considered in terms of how land use may be influenced in the 2030 future time frame for each alternative, including No-Action, Corridor 1 and Corridor 2. *Figure 7* depicts future land use and *Appendix 4 and 5* lists planned development projects in the future timeframe.

Integration of ELUP with SCEA

The following steps were used in the SCEA analysis to integrate ELUP suggested estimates with future land use mapping:

Map County-Identified Future 2030 Land Use

County Master Plans/Sector Plans were referenced to identify future 2030 land use as identified by the counties. It was assumed that near future and future projects/developments identified by the county were consistent with MWCOG’s/BMC’s Round 6.3 forecasts. A baseline map was prepared that depicted future 2030 County-identified projects/developments.

Prepare a No-Action Future Land Use Map

A No-Action future land use map was prepared by overlaying county-identified future land use with the existing/near future land use, which became the baseline Future 2030 land use map. This map showed future development consistent with MWCOG’s/BMC’s Round 6.3 forecasts. This map was then supplemented with zones having a five percent allocation difference between MWCOG/BMC and ELUP No-Action allocations. Additional land areas were identified to accommodate ELUP’s increased allocations based on existing zoning and land use classifications. *(Please refer to Appendix 6 for the detailed process and assumptions used in converting the ELUP estimates into developable land.)* Lands zoned to accommodate future development that are currently undeveloped were identified first as areas likely to accommodate additional future development. This adjusted No-Action Future 2030 land use map was then used as the baseline map for which both build scenarios were compared.

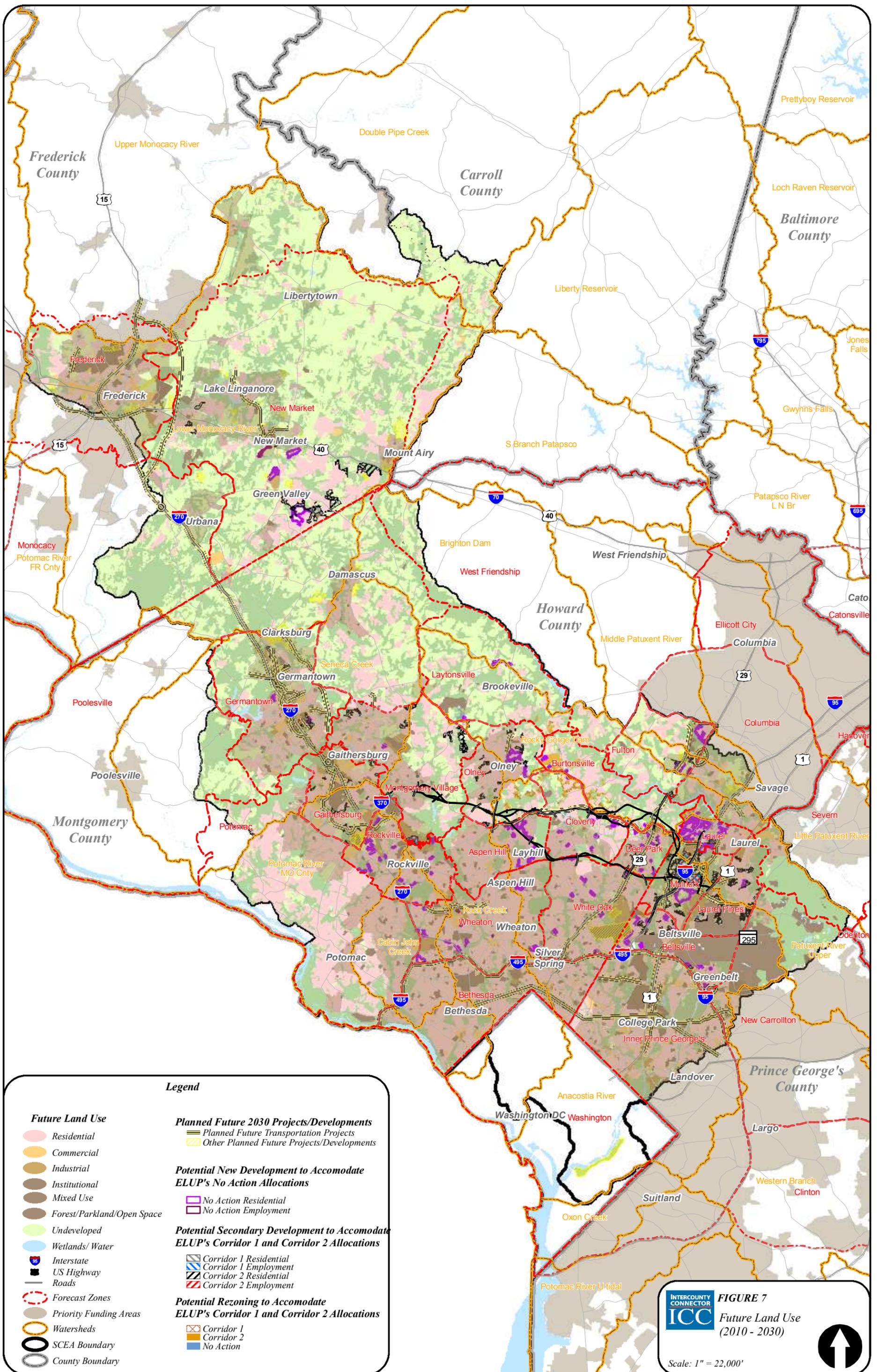


FIGURE 7
Future Land Use (2010 - 2030)
 Scale: 1" = 22,000'

Prepare Corridor 1 and Corridor 2 Future Land Use Maps

Future 2030 land use scenarios were developed for Corridors 1 and 2. These maps showed future land use identified by the counties along with additional land areas necessary to accommodate ELUP’s suggested allocations for Corridors 1 and 2.

Additional land areas were first identified based on existing zoning and land use. Lands zoned to accommodate future development (i.e. residential, commercial) and current undeveloped land use (i.e. open space, agricultural, forested) was identified first as areas likely to accommodate additional future development.

The amount of available land for future development was then assessed to determine if the ELUP’s allocations could be accommodated within the identified areas. Dwelling units per acre were used to calculate the number of households that could potentially be accommodated based on land acreage zoned as residential. For commercial/industrial-zoned lands, Floor Area Ratio (FAR) was used to calculate the number of employees that could potentially be accommodated within the areas identified as available for future development.

Rezoning would apply to land areas that are not currently suited to accommodate development based on their existing zoning designation or protective status. Identification of lands that could potentially be rezoned was coordinated with individual counties. It should be noted that any lands identified as having the potential for rezoning would involve extensive coordination within the counties, and may also involve policy changes and Master Plan amendments.

Additional future land use areas identified were based on best professional judgment and are not currently planned, nor represent any development approvals from the County or any other agencies. The future land use maps accommodate ELUP’s suggested projections and are only intended to depict potential future land use scenarios and assess potential future resource impacts.

Advisory Expert Land Use Panel Estimates

The advisory ELUP was provided with household and employment estimates for the year 2030 from the MWCOG and the Baltimore Metropolitan Council (BMC) for 34 zones surrounding the ICC study area. Please note that these forecast zones were created through a collaborative process between the members of the project team, regional agencies and input from panel members. In addition to defining forecast zone boundaries, the ELUP team also established a place name to reference each forecast zone. In order to maintain consistency with the ELUP naming conventions, the reference names of the zones were carried through to the SCEA analysis in all cases except for one. The forecast zone formerly referred to as “Urbana” has been renamed to “New Market.” The former Urbana forecast zone was renamed because the actual town of Urbana falls within the Monocacy forecast zone. New Market better represents the area associated with that forecast zone.

Once the zones were geographically defined the ELUP then established their own 2030 allocation projections for households and employment for each of the proposed alternatives, including the No-Action Alternative. In addition to the MWCOG/BMC forecasts, additional supporting data was provided for the ELUP's use. The following information/data was provided to assist panel members in establishing future 2030 allocations for households and employment for each of the alternatives:

- Existing Transportation in the study area
- Planned Transportation System Improvements
- Transportation System Performance within the ICC study area
- Demographic Trends
- Development Growth Trends
- Land Use Policy
- Future Growth

No-Action

The ELUP's No-Action estimates are listed in *Table 4*. The No-Action Alternative was evaluated to provide a baseline for which to compare to the ELUP's build allocations. This table compares MWCOG's/BMC's estimates to ELUP's No-Action estimates. *Figure 8* shows the percent change per zone between MWCOG's/BMC's and ELUP's No-Action estimates. In nearly every zone, the ELUP's No-Action allocations were greater compared to MWCOG's/BMC's allocations for households. This finding suggests that these greater allocations (as compared to MWCOG/BMC) are not dependent on construction of an ICC since these allocations were based on a No-Action scenario.

Corridor 1

The ELUP's Corridor 1 estimates are listed in *Table 5*. The Corridor 1 Alternative was evaluated and compared to the baseline/No-Action allocations. *Figure 9* shows the percent change per zone between the ELUP's No-Action and Corridor 1 estimates. The greatest changes between No-Action and Corridor 1 occurred mostly within the central portions of the ELUP study area, with one exception. The New Market zone within Frederick County also experienced a greater than five percent change in employment.

Corridor 2

The ELUP's Corridor 2 estimates are listed in *Table 6*. The Corridor 2 Alternative was evaluated and compared to the baseline/No-Action allocations. *Figure 10* shows the percent change per zones between the ELUP's No-Action and Corridor 2 estimates. The greatest changes between No-Action and Corridor 2 occurred mostly within the central portions of the ELUP study area, with one exception. The New Market zone within Frederick County also experienced a greater than five percent change for both households and employment.

Table 4
ELUP No-Action Estimates

Forecast Zone	MWCOG/ BMC Household 2030	ELUP Household No-Action	Difference	Household Percent Change	MWCOG/ BMC Employment 2030	ELUP Employment No-Action	Difference	Employment Percent Change
Frederick	48,198	48,684	486	1.01 %	119,488	111,543	-7945	-6.65 %
Monocacy	7,370	7,808	438	5.94 %	25,535	24,644	-891	-3.49 %
New Market	26,333	27,195	862	3.27 %	14,098	14,503	405	2.88 %
Poolesville	14,612	15,166	554	3.79 %	6,835	6,920	85	1.25 %
Germantown	47,435	47,801	366	0.77 %	55,952	54,905	-1047	-1.87 %
Potomac	34,114	34,879	765	2.24 %	16,319	16,422	103	0.63 %
Gaithersburg	35,309	35,137	-172	-0.49 %	99,221	98,996	-225	-0.23 %
Montgomery Village	29,140	29,665	525	1.80 %	37,406	37,144	-262	-0.70 %
Olney	12,690	13,441	751	5.92 %	7,440	7,533	93	1.25 %
Laytonsville	1,656	1,825	169	10.22 %	349	330	-19	-5.42 %
Burtonsville	1,899	2,012	113	5.97 %	2,143	2,121	-22	-1.02 %
Rockville	30,255	32,530	2275	7.52 %	136,594	138,442	1848	1.35 %
Aspen Hill	26,237	27,238	1001	3.81 %	8,562	8,625	63	0.74 %
Cloverly	6,606	6,993	387	5.86 %	2,053	2,037	-16	-0.76 %
Deer Park	9,041	9,237	196	2.17 %	4,765	4,763	-2	-0.05 %
Bethesda	80,879	83,097	2218	2.74 %	174,071	179,365	5294	3.04 %
Wheaton	60,110	64,687	4577	7.61 %	110,959	112,003	1044	0.94 %
White Oak	27,230	29,001	1771	6.50 %	38,621	39,630	1009	2.61 %
West Friendship	16,545	18,493	1948	11.78 %	16,182	16,123	-59	-0.36 %
Fulton	4,752	5,145	393	8.27 %	14,669	14,924	255	1.74 %
Columbia	58,486	66,615	8129	13.90 %	147,046	160,024	12978	8.83 %
Ellicott City	41,937	48,199	6262	14.93 %	72,001	78,359	6358	8.83 %
Catonsville	19,289	19,311	22	0.12 %	27,383	27,364	-19	-0.07 %
Muirkirk	10,358	10,842	484	4.67 %	42,553	38,607	-3946	-9.27 %
Laurel	7,464	8,559	1095	14.67 %	8,489	8,460	-29	-0.35 %
Laurel Pines	11,206	11,759	553	4.93 %	17,855	16,832	-1023	-5.73 %
Beltsville	11,212	11,910	698	6.22 %	26,807	25,118	-1689	-6.30 %
New Carrollton	58,891	59,312	421	0.72 %	78,586	72,320	-6266	-7.97 %
Inner Prince George's	163,361	161,226	-2135	-1.31 %	256,809	229,468	-27341	-10.65 %
Clinton	29,760	30,539	779	2.62 %	27,078	25,631	-1447	-5.35 %
Severn	32,294	34,376	2082	6.45 %	64,702	70,098	5396	8.34 %
Hanover	31,443	33,153	1710	5.44 %	106,603	116,257	9654	9.06 %
Odenton	30,724	34,471	3747	12.20 %	21,009	22,644	1635	7.78 %
Washington	304,972	290,748	-14224	-4.66 %	832,142	829,021	-3121	-0.38 %

Represents forecast zones which exceed the 5% threshold

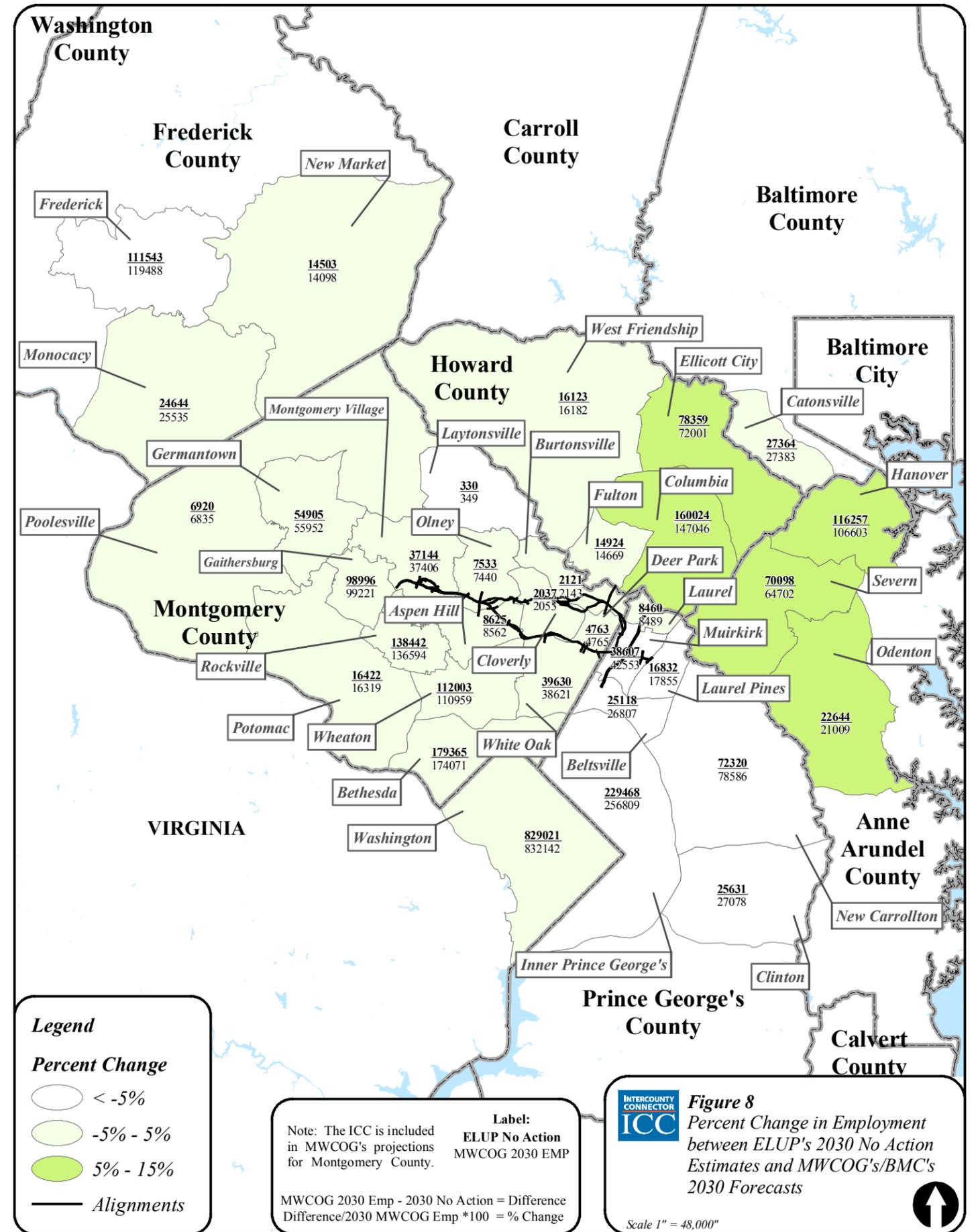
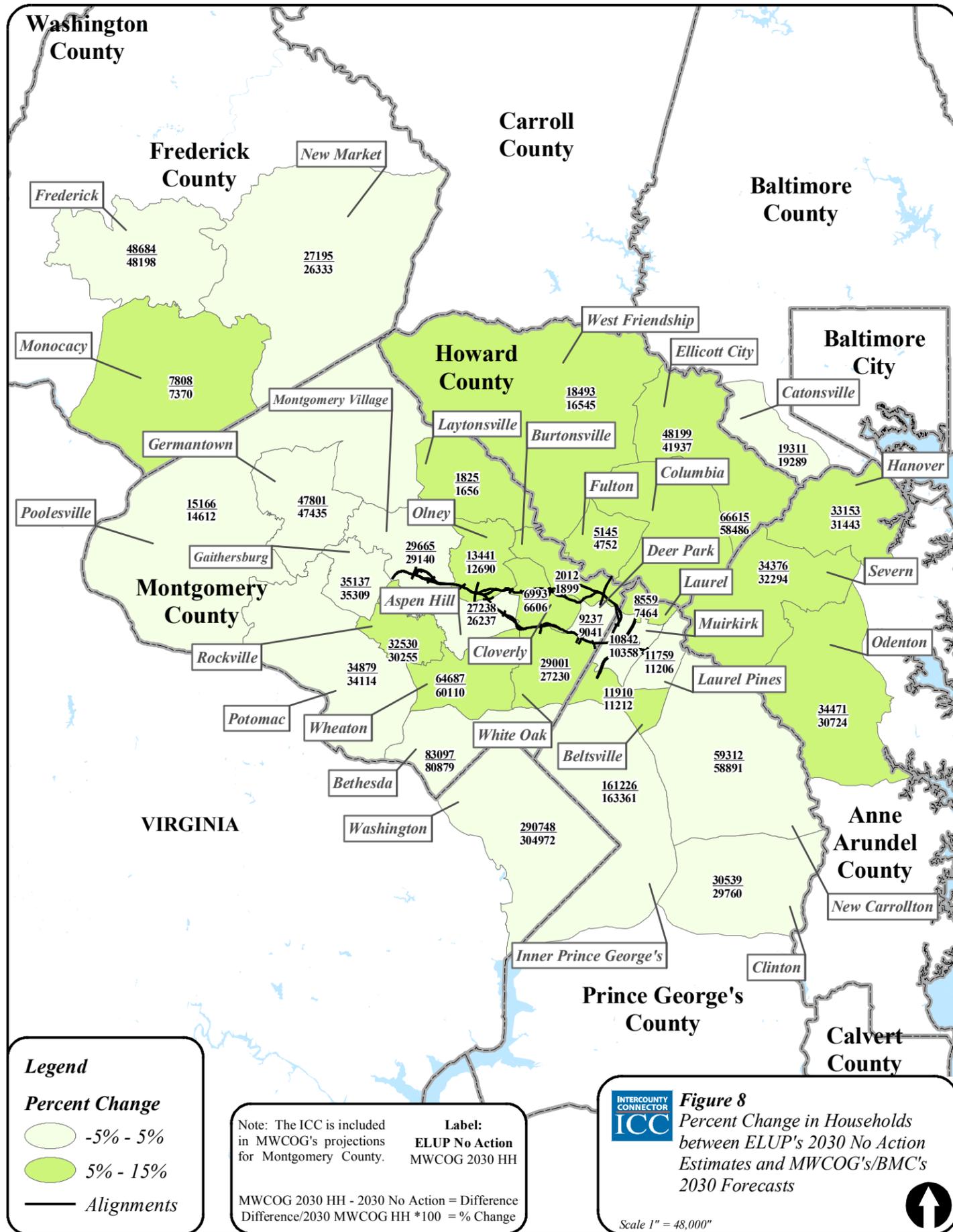


Table 5
ELUP Corridor 1 Estimates

Forecast Zone	ELUP Household No-Action	ELUP Household Corridor 1	Difference	Corridor 1 Percent Change (Households)	ELUP Employment No-Action	ELUP Employment Corridor 1	Difference	Corridor 1 Percent Change (Employment)
Frederick	48,684	48,501	-182	-0.37 %	111,543	111,031	-512	-0.46 %
Monocacy	7,808	7,911	104	1.33 %	24,644	25,161	517	2.10 %
New Market	27,195	28,259	1,064	3.91 %	14,503	15,276	773	5.33 %
Poolesville	15,166	15,283	117	0.77 %	6,920	6,938	18	0.26 %
Germantown	47,801	49,499	1,699	3.55 %	54,905	57,691	2,785	5.07 %
Potomac	34,879	35,632	753	2.16 %	16,422	16,297	-125	-0.76 %
Gaithersburg	35,137	37,151	2,014	5.73 %	98,996	104,192	5,196	5.25 %
Montgomery Village	29,665	31,263	1,598	5.39 %	37,144	40,397	3,253	8.76 %
Olney	13,441	14,697	1,256	9.34 %	7,533	8,008	474	6.30 %
Laytonsville	1,825	1,967	142	7.76 %	330	381	51	15.52 %
Burtonsville	2,012	2,624	611	30.38 %	2,121	2,975	854	40.27 %
Rockville	32,530	33,970	1,440	4.43 %	138,442	138,510	68	0.05 %
Aspen Hill	27,238	28,584	1,347	4.94 %	8,625	9,862	1,237	14.34 %
Cloverly	6,993	8,175	1,182	16.91 %	2,037	3,108	1,071	52.55 %
Deer Park	9,237	10,780	1,542	16.70 %	4,763	5,607	845	17.73 %
Bethesda	83,097	83,300	202	0.24 %	179,365	179,430	65	0.04 %
Wheaton	64,687	65,475	788	1.22 %	112,003	114,075	2,072	1.85 %
White Oak	29,001	30,562	1,561	5.38 %	39,630	43,619	3,990	10.07 %
West Friendship	18,493	18,517	24	0.13 %	16,123	16,196	73	0.45 %
Fulton	5,145	5,418	273	5.31 %	14,924	15,682	758	5.08 %
Columbia	66,615	67,482	867	1.30 %	160,024	161,050	1,026	0.64 %
Ellicott City	48,199	48,244	45	0.09 %	78,359	78,276	-83	-0.11 %
Catonsville	19,311	19,336	25	0.13 %	27,364	27,383	19	0.07 %
Muirkirk	10,842	12,885	2,043	18.85 %	38,607	44,291	5,685	14.72 %
Laurel	8,559	9,750	1,191	13.92 %	8,460	9,600	1,141	13.48 %
Laurel Pines	11,759	13,393	1,634	13.90 %	16,832	19,064	2,232	13.26 %
Beltsville	11,910	12,774	865	7.26 %	25,118	27,263	2,145	8.54 %
New Carrollton	59,312	59,312	-1	0.00 %	72,320	72,202	-119	-0.16 %
Inner Prince George's	161,226	161,584	358	0.22 %	229,468	229,968	500	0.22 %
Clinton	30,539	30,486	-53	-0.17 %	25,631	25,583	-48	-0.19 %
Severn	34,376	35,332	956	2.78 %	70,098	72,172	2,075	2.96 %
Hanover	33,153	33,142	-10	-0.03 %	116,257	115,522	-735	-0.63 %
Odenton	34,471	34,502	31	0.09 %	22,644	22,521	-123	-0.54 %
Washington	290,748	290,206	-542	-0.19 %	829,021	827,886	-1,136	-0.14 %

Represents forecast zones which exceed the 5% threshold

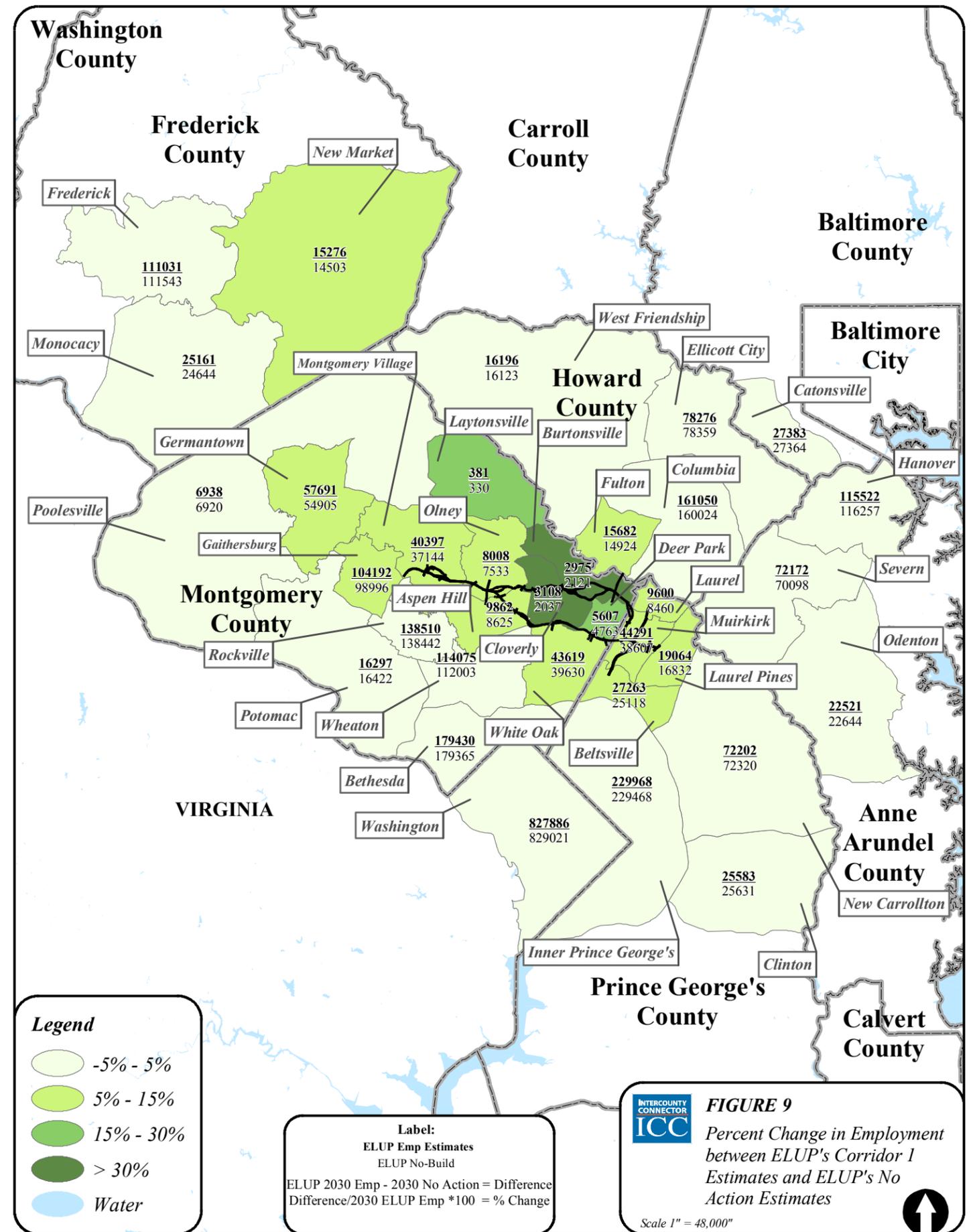
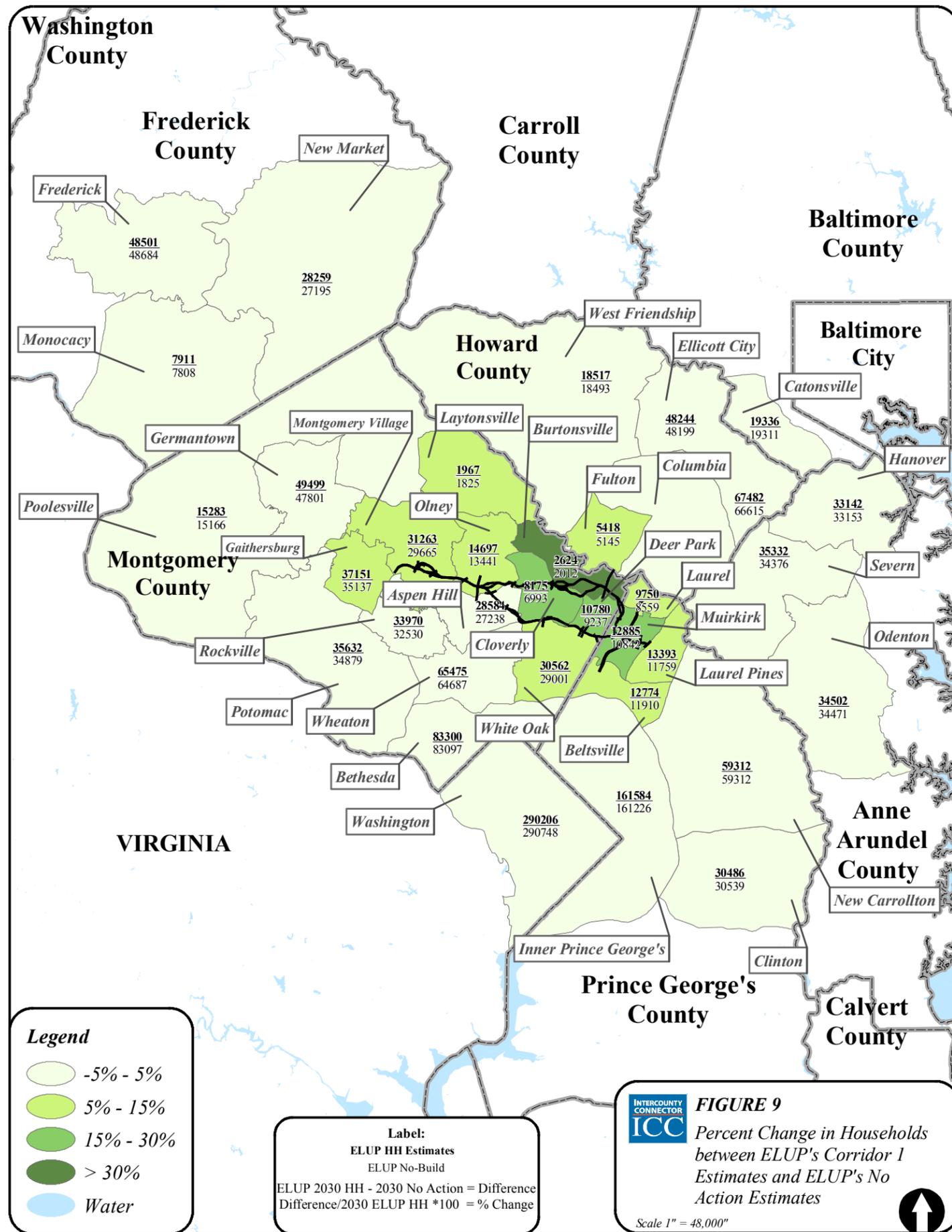
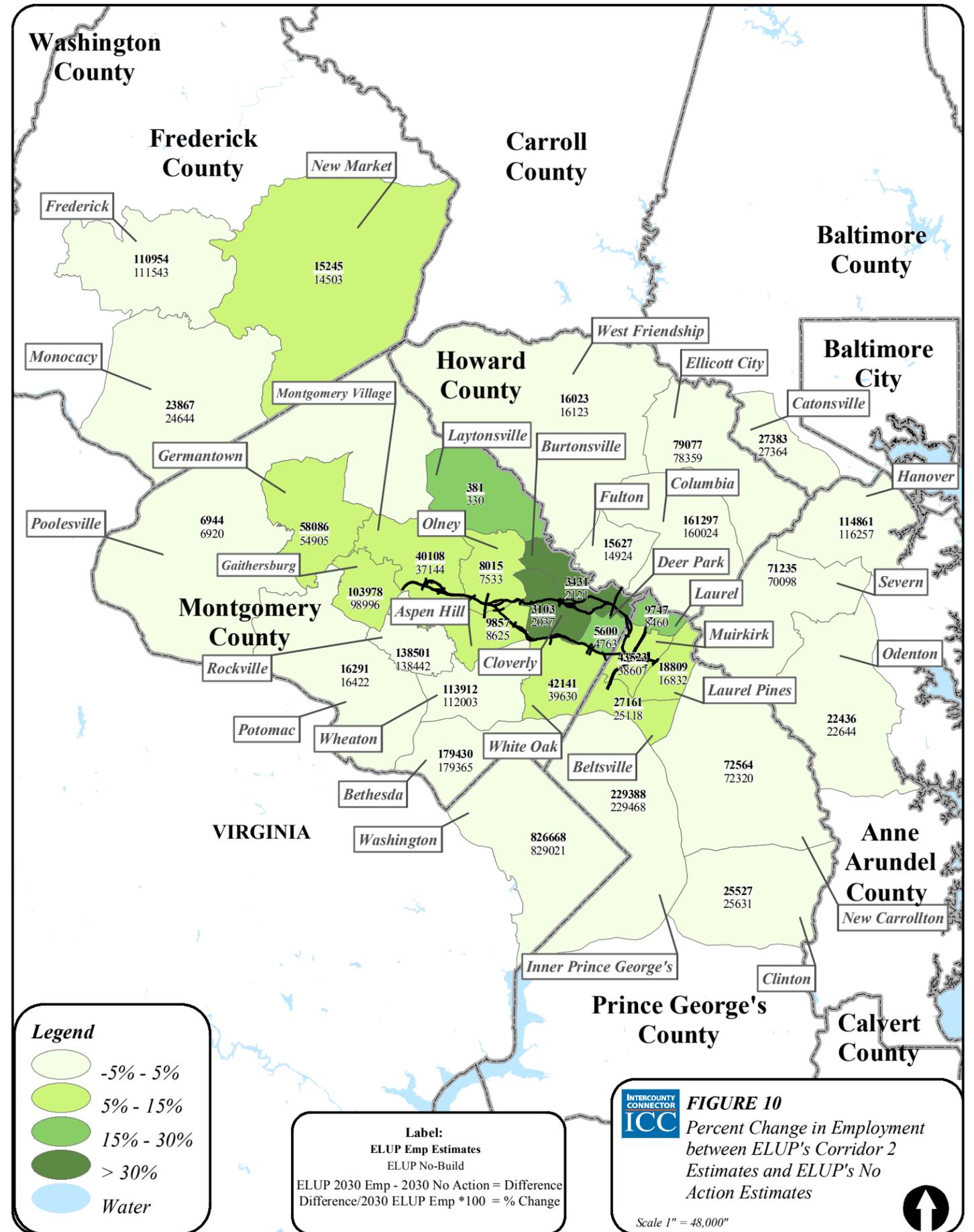
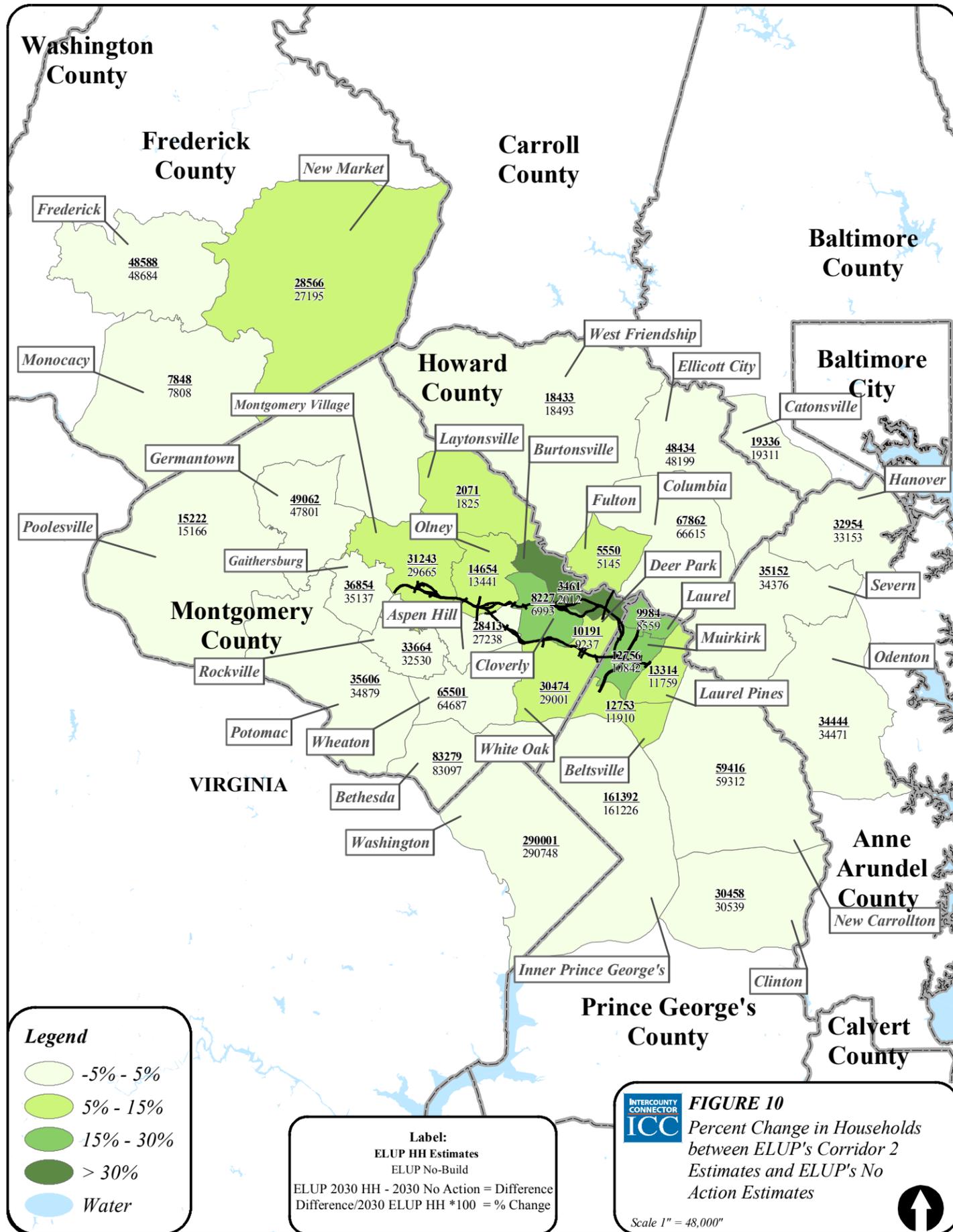


Table 6
ELUP Corridor 2 Estimates

Forecast Zones	ELUP Household No-Action	ELUP Household Corridor 2	Difference	Corridor 2 Percent Change (Household)	ELUP Employment No-Action	ELUP Employment Corridor 2	Difference	Corridor 2 Percent Change Employment
Frederick	48,684	48,588	-96	-0.20%	111,543	110,954	-589	-0.53%
Monocacy	7,808	7,848	40	0.51%	24,644	23,867	-777	-3.15%
New Market	27,195	28,566	1,371	5.04%	14,503	15,245	742	5.11%
Poolesville	15,166	15,222	56	0.37%	6,920	6,944	24	0.35%
Germantown	47,801	49,062	1,261	2.64%	54,905	58,086	3,180	5.79%
Potomac	34,879	35,606	727	2.08%	16,422	16,291	-131	-0.79%
Gaithersburg	35,137	36,854	1,717	4.89%	98,996	103,978	4,981	5.03%
Montgomery Village	29,665	31,243	1,579	5.32%	37,144	40,108	2,964	7.98%
Olney	13,441	14,654	1,212	9.02%	7,533	8,015	481	6.39%
Laytonsville	1,825	2,071	246	13.48%	330	381	51	15.43%
Burtonsville	2,012	3,461	1,449	71.99%	2,121	3,431	1,310	61.77%
Rockville	32,530	33,664	1,133	3.48%	138,442	138,501	59	0.04%
Aspen Hill	27,238	28,413	1,175	4.31%	8,625	9,857	1,232	14.28%
Cloverly	6,993	8,227	1,234	17.65%	2,037	3,103	1,066	52.31%
Deer Park	9,237	10,191	953	10.32%	4,763	5,600	837	17.57%
Bethesda	83,097	83,279	182	0.22%	179,365	179,430	65	0.04%
Wheaton	64,687	65,501	814	1.26%	112,003	113,912	1,909	1.70%
White Oak	29,001	30,474	1,473	5.08%	39,630	42,141	2,511	6.34%
West Friendship	18,493	18,433	-60	-0.32%	16,123	16,023	-100	-0.62%
Fulton	5,145	5,550	405	7.88%	14,924	15,627	703	4.71%
Columbia	66,615	67,862	1,247	1.87%	160,024	161,297	1,273	0.80%
Ellicott City	48,199	48,434	235	0.49%	78,359	79,077	718	0.92%
Catonsville	19,311	19,336	25	0.13%	27,364	27,383	19	0.07%
Muirkirk	10,842	12,756	1,914	17.65%	38,607	43,523	4,916	12.73%
Laurel	8,559	9,984	1,425	16.65%	8,460	9,747	1,288	15.22%
Laurel Pines	11,759	13,314	1,555	13.22%	16,832	18,809	1,978	11.75%
Beltsville	11,910	12,753	843	7.08%	25,118	27,161	2,043	8.13%
New Carrollton	59,312	59,416	104	0.17%	72,320	72,564	244	0.34%
Inner Prince George's	161,226	161,392	165	0.10%	229,468	229,388	-80	-0.03%
Clinton	30,539	30,458	-81	-0.26%	25,631	25,527	-104	-0.41%
Severn	34,376	35,152	776	2.26%	70,098	71,235	1,137	1.62%
Hanover	33,153	32,954	-199	-0.60%	116,257	114,861	-1,396	-1.20%
Odenton	34,471	34,444	-28	-0.08%	22,644	22,436	-208	-0.92%
Washington	290,748	290,001	-747	-0.26%	829,021	826,668	-2,354	-0.28%

Represents forecast zones which exceed the 5% threshold



Summary of Future Land Use

The future 2030 land use assessment is based on planned future development or transportation projects (as identified by County master plans and the CLRP) as well as other potential areas that may become developed, but are not currently identified for future 2030 development by the Counties. These other potential development areas have been identified based on allocations provided by the ELUP (*see Section A.5.c.*). It should be noted that these areas represent areas that may become developed based on existing zoning and land use, and do not represent specific projects. None of these potential areas have been identified or approved by the Counties or any other regulatory agency.

According to the ELUP households and employment allocation estimates, all three ICC alternatives under consideration would experience additional development beyond what has been identified by the counties. The ELUP provided allocations based on an ICC No-Action Alternative to provide a baseline condition for which to compare the ICC build alternatives. In general, the advisory group allocations estimated for a No-Action Alternative were greater than MWCOC's/BMC's Round 6.3 forecasts (which are consistent with county land use scenarios), which suggests that additional development might be likely (beyond what has been planned by the county) regardless of construction of an ICC.

Several future planned development and transportation projects have been identified within the 2030 future time frame (*Appendix 4 and 5*). Please note that there are several transportation and development projects listed in both the near future and future time frames. This is a result of projects beginning in the near future time frame and continuing through to the future time frame. Several small residential, commercial and institutional development projects are planned in Frederick County. A Town Center and Gateway 270 Corporate Park have been planned in the Germantown area. Adding additional facilities onto the Shady Grove Life Sciences Center is proposed in the Gaithersburg area, and White Oak has plans for a Biotechnology Park as well as increased expansion of the FDA Headquarters complex. The Clarksburg Towne Center is proposed in the northern portion of Montgomery County. The majority of other future planned projects are scattered throughout the SCEA boundary. Approximately 7,700 acres (*Appendix 7*) of planned development is expected within the SCEA boundary for the future time frame.

Please note that the future 2030-planned development does not account for future unforeseen private development projects since the smaller projects that may be related to the private enterprise have not been fully accounted for. This is because unlike major government funded capital improvements (including transportation projects) private development projects are normally undertaken within shorter planning periods. The more major government funded capital improvements are typically programmed/planned for in advance to initiate appropriation of needed public funds. Consequently, these smaller private development projects are not known since the planning for these types of projects has not yet been initiated. This does not indicate that this type of development will not occur in the future time frame, however, the extent, size and location of these projects is not known at this time. Therefore, the total planned future development likely does not completely account for the future 2030 time frame (for the No-Action time frame).

Although it is unclear at this time what exactly is proposed in the private development pipeline (size and location) some general assumptions can be made. After reviewing household and employment forecasts between the years 2010 through 2030 from MWCOG, it is clear that considerably more residential development is anticipated than commercial development.

Based on MWCOG’s projections, forecast zones that anticipate a large amount of residential development include New Market, Gaithersburg, Germantown, Montgomery Village, Rockville, Muirkirk and Wheaton. Based on existing zoning, it is likely that New Market, Germantown, Montgomery Village and Muirkirk would be able to accommodate the increases in residential development. However, Gaithersburg, Rockville and Wheaton would likely require redevelopment projects to handle the population estimates. Based on MWCOG’s employment estimate commercial/industrial development would be much less than residential. The most significant amounts of commercial/industrial development are anticipated within the Germantown, Gaithersburg, Rockville and Muirkirk forecast zones. Existing zoning would likely accommodate the development within Germantown and Muirkirk, however rezoning and/or redevelopment may be likely within the Rockville and Gaithersburg forecast zones.

Please refer to *Appendix 7* for the estimated acreage of planned development in addition to additional potential development based on the ELUP suggested estimates for the No-Action, Corridor 1 and Corridor 2 scenarios by zone, county and for the entire SCEA boundary. In addition to potential development, this table also highlights the approximate amount of land (acres) that may require rezoning on currently undeveloped lands. This table also highlights those zones that may experience redevelopment and the remaining number of households or jobs that would need to be accommodated. It should be noted that all potential development acreages derived from the ELUP estimates are to be viewed more as projections of general development trends, rather than specific predictors of potential development.

No-Action Alternative

In addition to planned projects, and based on ELUP allocation projections for households and employment, other potential developments were identified under a No-Action Alternative. It was determined that additional development is likely throughout the SCEA boundary even without construction of an ICC Alternative, according to the ELUP. Based on ELUP’s allocations, approximately 2,512 acres of additional potential development (not currently planned) is expected under the No-Action scenario (*Appendix 7*). Potentially substantial residential development is likely to occur in Prince George’s County, in the Laurel area. Frederick County is also likely to experience other potential future development beyond what is planned according to the ELUP. In Montgomery County, Rockville and Gaithersburg are also expected to experience some additional potential development. Other areas of potential future development are sparsely scattered throughout the SCEA boundary (*Figure 7*).

Based on the ELUP’s suggested projections for either households or employment, and based on available land areas to accommodate potential development, the following zones may experience rezoning pressures of currently undeveloped lands under a No-Action Alternative: Olney, Laytonsville, Rockville, Cloverly and White Oak. Rezoning of undeveloped lands

may occur because insufficient land areas currently zoned to handle development were not able to fully accommodate the number of households or jobs allocated by the ELUP. Based on ELUP’s allocations, approximately 194 acres could potentially be rezoned under the No-Action Scenario to accommodate allocations projected by the ELUP (*Appendix 7*).

Redevelopment would most likely occur within areas that are already highly developed, which have little undeveloped, vacant parcels, such as White Oak, Wheaton, Aspen Hill and Rockville. No specific redevelopment areas were identified as part of this effort.

Corridors 1 and 2 (Secondary Development)

The ELUP also established allocations for both Corridor 1 and Corridor 2 Alternatives, which were then compared to the No-Action allocations (*see Section A.5.c.*). The difference between ELUP’s suggested build allocations and No-Action allocations represents household and employment growth that could potentially occur if an ICC build alternative is selected, according to the ELUP. Therefore, the additional household and employment growth would occur “but for” construction of an ICC. Based on the estimates of the ELUP, potential development areas to accommodate the increase in allocations over the No-Action Alternative are considered secondary development areas associated with the ICC build alternatives (*Figure 7*).

Based on ELUP estimates, secondary development is likely to occur in scattered locations throughout the SCEA boundary for both alternatives (*Figure 7*). Much of the potential secondary development would be similar between zones. According to the ELUP projections, Burtonsville would likely require approximately 685 acres of land for rezoning under the Corridor 2 Alternative as compared to approximately 292 for Corridor 1. New Market and Fulton would also require more secondary development for Corridor 2 in order to accommodate the ELUP allocations. ELUP’s suggested allocations between build alternatives were similar for most areas within the SCEA boundary. The areas where the ELUP’s suggested allocations are substantially different between the two alternatives, and where there is existing available land zoned to accommodate growth, are consistent with the areas that would experience more (or less) secondary development. If it was thought that undeveloped and adequately zoned lands were not available to accommodate ELUP’s suggested build allocations, then it was assumed that rezoning of undeveloped lands or redevelopment may occur in those areas.

Based on the ELUP scenarios, potential secondary development would likely occur under both Corridor 1 and 2 Alternatives throughout the SCEA boundary. According to the advisory group, for either corridor, both residential and commercial secondary development is more likely in the western portion of Prince George’s County, in the vicinity of Laurel and Muirkirk. In Montgomery County, according to the advisory group scenario, it is more likely to occur within the central portions of the county in the vicinity of Burtonsville, Olney, Montgomery Village and Cloverly, and within Frederick County, Urbana. *Table 7* is a summary of the advisory group land use estimates, highlighting differences between the two corridors.

Table 7
Summary of Advisory Group Land Use Estimates

Greatest Areas of Secondary Development (Acres)		
Forecast Zones	Corridor 1	Corridor 2
Frederick County		
New Market	580	863
Montgomery County		
Burtonsville	292	685
Montgomery Village	530	520
Olney	536	506
Cloverly	288	287
Gaithersburg	297	297
Germantown	270	250
Laytonsville	61	112
Prince George's County		
Beltsville	255	245
Laurel Pines	365	348
Muirkirk	1,280	1,130
Howard County		
Fulton	140	265
Greatest Difference in Secondary Development between Corridors 1 and 2		
Frederick County		
New Market	580	863
Howard County		
Fulton	140	265
Montgomery County		
Burtonsville	292	685
Laytonsville	61	112
Prince George's County		
Muirkirk	1,280	1,130
Areas with the Greatest Potential for Rezoning (Acres)		
Montgomery County		
Burtonsville	272	685
Olney	276	246
Laytonsville	61	112
Cloverly	287	287
Prince George's County		
Laurel	81	81
Beltsville	130	130
Areas where existing zoning appears sufficient in accommodating Secondary Development		
Frederick County		
New Market		
Howard County		
Fulton		
Montgomery County		
Germantown, Montgomery Village		
Prince George's County		
Muirkirk, Laurel Pines		
Areas where Redevelopment may be likely in order to support Secondary Development:		
Montgomery County		
Gaithersburg, Aspen Hill, Cloverly, Deer Park, White Oak		
Prince George's County		
Laurel, Beltsville		

Overall, it appears that Corridor 2 would contribute to more secondary development as compared to Corridor 1. Based on the ELUP’s estimates, Corridor 2 could anticipate approximately 5,546 acres of secondary development where Corridor 1 could anticipate approximately 4,945 acres. The zones under Corridor 2 that anticipate greater amounts of secondary development include New Market, Fulton, Burtonsville and Laytonsville (*Table 7*). Zoning within the New Market and Fulton zones appear to be sufficient in accommodating the additional secondary development. However, Burtonsville and Laytonsville would both require additional undeveloped lands for rezoning (*Table 7*).

The following zones do not sufficiently accommodate all of ELUP’s Corridor 2 allocations (for either households or employment): Gaithersburg, Olney, Laytonsville, Burtonsville, Aspen Hill, Cloverly, Deer Park, White Oak, Laurel and Beltsville. Based on ELUP’s allocations, approximately 1,578 acres of land could potentially be rezoned in order to accommodate the additional ELUP allocations for Corridor 2 (*Appendix 7*). Forecast zones that would likely require some redevelopment include Gaithersburg, Aspen Hill, Cloverly, Deer Park, White Oak and Laurel.

Appendix 7 identifies those zones that may require rezoning, and an approximate acreage for each in order to accommodate the additional ELUP allocations. This appendix also highlights the zones that would likely undergo some redevelopment. A Corridor 2 selection would open up Corridor 1 lands planned for an ICC, to other uses.

If Corridor 1 is selected, ELUP estimates that small areas of secondary residential development might occur that may not occur as a result of Corridor 2. For example, if Corridor 1 is selected, that could open up available residential land parcels along the Corridor 2 alignment that could become developed, such as evident just west of US 29, in the Cloverly area. There are several small parcels that have the potential for becoming developed if Corridor 1 is selected. In addition, ELUP estimates that the Muirkirk area could experience some additional secondary residential development under the Corridor 1 scenario, as could Germantown. However, according to M-NCPPC officials a Corridor 1 selection, being in keeping with Counties’ plans, would make attempted rezonings legally unlikely under the Maryland Change or Mistake Rule.

It is important to recognize that although this future 2030 assessment considers existing zoning and land use, the pace and location of future growth will be influenced and controlled by State and County land use policies, plans and laws. Each county applies a wide range of growth management techniques to keep development at a pace consistent with transportation and other necessary infrastructure to accommodate planned growth. According to M-NCPPC, there would be far greater pressures for land use and zoning changes if Corridor 2 were selected because adopted master Plans and zoning contemplate a highway along Corridor1; therefore, better tools are in place for enforcing existing zoning and rejecting development activities that would be inconsistent with the County’s Master Plans and zoning. If Corridor 2 were selected, the likelihood for development and rezonings would be greater in the northern area of Montgomery County. This is because under the Maryland Change or Mistake Rule, individual rezonings are justified where there was a mistake in the existing zoning or a substantial change in the character of the neighborhood has occurred. The selection of Corridor 2 would most likely be deemed a change in the character of the

neighborhoods it would traverse such that zoning reclassifications would be much easier to obtain. Montgomery County has acknowledged that a Corridor 2 alignment would likely lead to greater development pressures in the northern area of the county. . In addition, the selection of Corridor 2 would likely trigger a full Master Plan Amendment for all area and functional master plans where the selected alternative is significantly different from the existing master plan.

No-Action Detailed Future Land Use Estimates

The discussion below provides a detailed description per county of the future land use scenarios anticipated for the year 2030 per ICC alternative suggested by the advisory ELUP. It also discusses planned development, potential development for the No-Action alignment and secondary development associated with Corridors 1 and 2. In addition, the results of the ELUP scenarios are presented based on the amount of potential development available per zone. Please refer to *Figure 7*, which represents future land use highlighting planned transportation and development projects. In addition, it also highlights the potential development that could potentially be necessary to accommodate the ELUP’s suggested allocations specific to the No-Action, Corridor 1 and Corridor 2 Alternatives.

Frederick County

No-Action Planned Development

Frederick County within the SCEA boundary is anticipated to experience more changes in land use than any other county within the SCEA boundary under the No-Action scenario based on planned developments identified in the future timeframe.

Several school facilities are planned in Frederick County within the SCEA boundary including an elementary school in Mount Airy, Monrovia High School, Meadow Elementary and the Ball Road Schools. Several unnamed elementary schools are also anticipated within the county. These schools would convert forested and agricultural land to institutional use. Institutional land would also be formed from currently agricultural land with the development of the Frederick Conference Center and potential Homeland Security Facility near the northern boundary of the City of Frederick.

Mixed-use land would become more prevalent in Frederick County due to the development of mixed residential/commercial properties in the vicinity of Mount Airy and the City of Frederick. Additional land would be converted to residential use due to the development of two residential properties in the Mount Airy vicinity. Both of these areas would convert forested and agricultural land to residential, as noted in the *Mount Airy Master Plan*.

Several future parks were also identified within the county, converting or utilizing currently agricultural, residential and forested lands for parklands.

Future transportation projects within Frederick County inside the SCEA boundary include various projects that would improve existing transportation facilities; therefore, only minor changes to land use are anticipated with these projects. Projects proposing new construction of transportation facilities in other areas would convert land use to transportation. Such

anticipated projects include construction of the Christopher Crossing, New Market Collector, North-South Parallel Road and the North Urbana Interchange at I-270/Park Mills Road. These projects are anticipated to convert areas of agricultural, forested and residential land to transportation.

Approximately 1,920 acres of planned development are anticipated within Frederick County regardless of an ICC alternative. This would account for 25 percent of the total planned development expected within the SCEA boundary for the Future Time Frame.

No-Action Potential Development

In addition to planned developments, Frederick County is expected to experience land use changes due to additional development and based on ELUP suggested allocations.

Land for potential development in the future was identified and analyzed in accordance with the ELUP suggested allocations. Frederick County is anticipated to experience additional growth regardless of construction of an ICC. Under the No-Action Alternative, agricultural land could potentially be developed to the west of Kemptown as well as along the MD 75 corridor near Monrovia and Fountain Mills. These developments would accommodate ELUP allocations for both increased residential and employment developments within the county. Development of this land to accommodate residential growth may change land use to residential or mixed-use. To accommodate employment needs, this agricultural land may change in land use to commercial, industrial or institutional. The New Market zone was the only zone that fell within the Frederick County portion of the SCEA boundary. For households, the New Market zone met the ELUP allocation for the amount of developable residential land.

Approximately 410 acres would be required in order to accommodate the number of households and jobs allocated by the ELUP within Frederick County for the No-Action Scenario. This would account for 17 percent of the total potential development that can be expected for the No-Action alignment.

Montgomery County

No-Action Planned Development

Planned future development in the portion of Montgomery County within the SCEA boundary is anticipated to consist of residential, commercial, institutional and transportation developments (*Figure 7*).

The residential developments of the Warfield property, Kingstead Farm and Burdette Farm will convert currently agricultural land to residential land use in the vicinity of Damascus in northeastern Montgomery County. In addition, an area of land currently owned by the Washington Suburban Sanitation Commission (WSSC) is anticipated to be developed into a residential community, converting a small area of land from forested to residential in the Norbeck area.

Two development sites would convert land to commercial land use. A planned Bio Tech Park Research Center would convert land that is currently forested with some small industrial development into commercial property, as defined by the *White Oak Master Plan*. The construction of the Gateway 270 Corporate Park in Clarksburg would convert approximately 71 acres of forested land to commercial use. Other proposed commercial development includes the consolidation of the Food and Drug Administration (FDA) Headquarters in Silver Spring's/White Oak area. This property currently consists of fragmented defense department facilities and will be reconstructed to accommodate FDA's needs. This land is currently classified as commercial; therefore, no change in land use is anticipated. One proposed development, the research, development and administrative facilities for Human Genome Sciences, Inc., would convert forested land to institutional use in Trivilah as stated in the *Potomac Master Plan*.

Mixed-use land would be created from the development of three sites in Montgomery County. Construction of a Life Sciences Center at the intersection of Darnestown and Shady Grove Roads would convert land from institutional to mixed-use. The Fortune Parc development (office space, townhomes, apartments) in Rockville would convert forested land to mixed-use, while the development of the Clarksburg Town Center in Clarksburg would convert forested and agricultural land to mixed-use.

Future planned transportation projects in Montgomery County are included on **Appendix 4**. Many of these transportation projects involve widening or improving existing roadways; therefore land use would incur only minor potential changes due to these projects. New construction of transportation facilities would convert land use to transportation use. These projects are included in **Table 8**.

Table 8
Anticipated Transportation Facilities to be Newly Constructed in Montgomery County

<i>Project</i>	<i>Land Use Converted</i>	
	<i>From:</i>	<i>To:</i>
Extension of Mid County Highway	Agricultural Forested	Transportation
Midcounty Highway – From Shady Grove Road to ICC Alignment*	Unknown	Transportation
Montrose Parkway West from Tildenwood Drive to Old Georgetown Road	Forested Institutional Residential	Transportation
Purple Line Transit Study from Bethesda to New Carrollton	Agricultural Commercial Forested Residential	Transportation (transit)
Interchange at Watkins Mill Road	Agricultural Forested	Transportation
MD 97/Brookeville	Residential Parklands	Transportation

* Further Study Required (Transportation Policy Report II)

Approximately 3,300 acres of planned development are anticipated within Montgomery County regardless of an ICC alternative. This would account for 43 percent of the total planned development expected within the SCEA boundary for the Future Time Frame.

No-Action Potential Development

The advisory ELUP suggested that additional residential development in Montgomery County is likely in Rockville, Aspen Hill, Wheaton and White Oak with lesser amounts likely in Germantown, Montgomery Village, Olney, Laytonsville, Burtonsville, Cloverly, and Deer Park forecast zones. Land that would potentially become developed or redeveloped for residential accommodations in all of these zones would convert forested, agricultural and open urban land to residential or mixed-use (**Figure 7**). The additional need for access to residential areas may require some surrounding land uses to be converted to transportation use.

Approximately 1,144 acres of development would be required in order to accommodate the suggested number of households and jobs allocated by the ELUP within Montgomery County for the No-Action Scenario. This would account for 48 percent of the total potential development that could occur within the SCEA boundary. This does not account for the additional acres that would require redevelopment in the Rockville, Aspen Hill, Wheaton and White Oak forecast zones.

Howard County

No-Action Planned Development

According to ELUP’s suggestions, changes to the land use in Howard County would have minimal affects based on the planned future development. The Maple Lawn Farms residential development would convert agricultural land to residential use. The Emerson residential development would convert forested and agricultural lands to residential use.

One transportation project is anticipated to impact land use in Howard County, the construction of an interchange at US 29/Gorman-Hopkins Road. This interchange would convert land to transportation from industrial, commercial, residential, forested and agricultural use. Other planned transportation projects within the county take place on existing transportation facilities and are, therefore, anticipated to cause little change to land use.

Approximately 480 acres of planned development are anticipated within Howard County regardless of an ICC alternative. This is six percent of the total planned development expected within the SCEA boundary.

No-Action Potential Development

In addition to previously planned developments, existing undeveloped land that may experience development in the future timeframe was identified and analyzed in accordance with ELUP suggested allocations for household and employment growth.

Along US 29, a large forested area of land just southwest of the MD 32 interchange, and a small-forested area just north of the Scaggsville Road interchange would potentially be developed. An agricultural section of land south of the planned Maple Lawn Farms residential community would also be possibly available for development. Development located on the larger forested land or the large agricultural land would convert land use in these areas to residential or mixed-use. Development of the smaller forested area north of Scaggsville Road would convert land to commercial, industrial or institutional use.

The Fulton forecast zone was the only zone that fell within the portion of Howard County that is incorporated in the SCEA boundary. Approximately 170 acres would be required in order to accommodate the number of households and jobs allocated by the ELUP within Howard County for the No-Action Scenario. This would account for six percent of the total potential development that could occur within the SCEA boundary for the No-Action alignment.

Prince George’s County

No-Action Planned Development

According to the advisory ELUP, changes to land use in the future timeframe in Prince George’s County would be primarily due to transportation projects. The majority of transportation projects identified in the future time frame in entail improvements to existing facilities. These developments are anticipated to have only minor impacts on land use. Projects anticipated to cause land use changes due to the construction of new transportation facilities include the extension of Old Baltimore Pike, the Purple Line transit study, and interchanges at I-95/Contee Road and the Baltimore-Washington Parkway/Greenbelt Road. These developments would convert forested, agricultural, residential and commercial land to transportation use.

The FDA Headquarters consolidation project was also identified in the future time frame in Prince George’s County. The FDA Headquarters, as previously stated, currently consists of fragmented federal facilities and will be consolidated to accommodate the FDA’s needs. This area lies within Prince George’s and Montgomery Counties, but will not change land use. The facility will be consolidated on land previously occupied by the FDA and will, therefore, remain as commercial.

Approximately 1,600 acres of planned development are anticipated within Prince George’s County regardless of an ICC alternative. This would account for 21 percent of the total planned development expected for the Future Time Frame.

No-Action Potential Development

Land available to accommodate additional potential development is located primarily in the northwest portion of the county near the I-95 corridor. This land may experience residential development growth. This development would convert currently forested or agricultural land use to residential or mixed-use. Although this area of Prince George’s County is already highly developed, available undeveloped land could accommodate predicted growth in each forecast zone. Rezoning is available in the northwestern quadrant of the area where forested

land currently exists; however, this area is primarily residential and is not likely to be rezoned for commercial development. Other large areas that could potentially be developed include large forested areas in the Amundale and Calverton vicinities and within Konterra. Some smaller sections of land for potential development are scattered throughout the northwestern portion of the county.

A total of four forecast zones exist within the Prince George’s portion of the SCEA boundary and each of those four met the ELUP suggested allocations for the amount of developable land required to accommodate growth for households in the No-Action Scenario.

The ELUP suggested allocations for employment in the No-Action scenario indicate a decrease in jobs for each of the above four zones. Therefore, developable land for employment would not be necessary for the No-Action Alternative.

Approximately 792 acres would be required in order to accommodate the number of households and jobs allocated by the ELUP within Prince George’s County for the No-Action Scenario. This would account for 30 percent of the total potential development that is expected for the Future Time Frame within the SCEA boundary.

Anne Arundel and Carroll Counties

No planned or potential developments were identified in the future time frame in Anne Arundel or Carroll County inside the SCEA boundary.

Washington D.C.

No-Action Planned Development

Within Washington D.C. there is one proposed planned development project along the eastern portion of the Anacostia River. Plans for Poplar Point include a large water front park supported by a mix of development, cultural destinations, environmentally restored areas and community-serving amenities.

Approximately 360 acres of planned development are anticipated within Washington D.C. regardless of an ICC alternative. This would account for five percent of the total planned development expected within the SCEA boundary for the Future Time Frame.

No-Action Potential Development

No potential development of vacant land is expected in the future time frame for Washington D.C.

Corridor 1 Detailed Future Land Use Assessment

Planned development projects discussed above will also occur under the Corridor 1 scenario. In addition to these developments and based on ELUP suggested allocation projections for households and employment, other potential secondary development may occur under the build alternatives. Land available to accommodate these developments was identified and analyzed for possible changes in land use patterns.

Frederick County

In addition to the previously discussed planned projects, additional secondary residential development is estimated by ELUP in Frederick County. Under the Corridor 1 scenario this development could be accommodated primarily in the Kemptown vicinity near the Montgomery County boundary along Fingerboard Road. These agricultural and forested lands would provide sufficient developable area to accommodate ELUP allocations for future households. Development to accommodate increasing households would convert the land to residential or mixed-use.

With the selection of Corridor 1, secondary development to accommodate increase in employment could potentially be located on either side of I-70, near New Market. Development for this reason would likely convert land to commercial, industrial or institutional use. Land in this vicinity is primarily agricultural, with some forested use.

Approximately 580 acres are estimated for secondary development by the ELUP within Frederick County for additional residential and employment growth under the Corridor 1 Alternative (*Appendix 7*). This would account for 11 percent of the total secondary development, which could potentially occur under the Corridor 1 Alternative.

Montgomery County

Future land use under the Corridor 1 Alternative is similar to the No-Action Alternative; however, some additional development is likely based on the suggested allocation results from the advisory ELUP. Please refer to *Figure 7* for locations.

Based on ELUP's suggested allocations, approximately 2,197 acres may be required for secondary development within Montgomery County for additional residential and employment growth under the Corridor 1 Alternative (*Appendix 7*). This would account for 46 percent of the total secondary development, which could potentially occur under the Corridor 1 Alternative according to the ELUP.

Howard County

In Howard County, secondary development under the Corridor 1 ELUP scenario may occur in three locations along US 29. Between the planned Maple Lawn Farms residential community and US 29 lie two areas of undeveloped land; one forested and one agricultural. The small-forested area may be developed for employment purposes, converting that forested land to commercial, industrial or institutional. The agricultural section of land may be developed for residential or mixed-use. The planned transportation improvements in this vicinity (Sanner Road and the Hopkins/Gorman interchange, *Figure 7*) are anticipated to further support secondary development in that area.

A third area of forested land located along the Rocky Gorge at the Montgomery County boundary was identified as another area that may experience secondary development pressures. This area lies within the T. Howard Duckett Watershed Property and would likely remain undeveloped.

Approximately 140 acres are estimated by ELUP for secondary development within Howard County for additional residential and employment growth under the Corridor 1 Alternative (*Appendix 7*). This would account for three percent of the total secondary development, which could potentially occur under the Corridor 1 Alternative.

Prince George’s County

Residential and commercial secondary development are likely to occur in Prince George’s County according to the advisory ELUP, although a greater amount of land is available for residential development than for employment. The Muirkirk area is anticipated by ELUP to experience the most secondary development as compared to other areas in the SCEA boundary.

Land potentially available development, based on the ELUP suggested results, exists in the northwestern region of the County, primarily along the I-95 and US 1 corridors in Laurel, Muirkirk and Laurel Pines. This land is primarily forested with some agricultural areas interspersed. Other areas of potential secondary development are distributed throughout the northwestern region, outside the I-495 corridor. Development of this land would convert forested or agricultural land to commercial, industrial or institutional use throughout these corridors, as well as to residential or mixed-use in the vicinity of Konterra.

Based on ELUP’s suggested allocations, approximately 2,028 acres are available for secondary development within Prince George’s County for additional residential and employment growth under the Corridor 1 Alternative to accommodate allocations projected by the ELUP (*Appendix 7*). This would account for 40 percent of the total secondary development, which could potentially occur under the Corridor 1 Alternative.

Anne Arundel and Carroll Counties

ELUP suggested allocations did not require the identification of land for potential secondary development within this portion of the SCEA area.

Washington D.C.

ELUP suggested allocations did not require the identification of land for potential secondary development within this portion of the SCEA area.

Corridor 2 Detailed Future Land Use Assessment

Frederick County

According to ELUP land use changes under a Corridor 2 scenario would be very similar to Corridor 1 with one notable difference. While undeveloped land available for development occurs in the same agricultural and forested areas near Kemptown and New Market, under this scenario, additional land is available for development along the I-70 corridor west of Mount Airy. If this land were developed in the future, it would likely be due to pressures for employment associated with the selection of Corridor 2. Land use in this area is currently

forested, but would likely be converted to commercial, industrial or institutional. All ELUP suggested allocations for the Corridor 2 scenario could be accommodated.

In general, ELUP estimated that secondary development in Frederick County inside the SCEA boundary would primarily be located south of I-70, in the southeastern portion of the county. The largest area of land available for potential secondary development under either build scenario is located in the Kemptown region on either side of Fingerboard Road near the Montgomery County boundary. Area just west of this region would be the largest area likely to accommodate future development under the No-Action Alternative.

Available land for development does not appear to be substantially different under the Corridor 1 and Corridor 2 advisory group scenarios in the portion of Frederick County within the SCEA boundary. The potential for secondary residential development in one area, forested land west of Mount Airy along I-70, is the only additional secondary development area that was not identified for Corridor 1. Corridor 2 appears to accommodate more future residential development than Corridor 1, due to this additional area. Both build scenarios are estimated to accommodate development near Kemptown and New Market, as well as in some smaller forested areas to the west along I-70.

Frederick County within the SCEA boundary appears to have sufficient land overall to accommodate development needs due to planned projects, as well as secondary development under each ICC alternative, with no rezoning or redevelopment pressures anticipated in the future time frame.

Approximately 863 acres (15 percent) are anticipated for secondary development within Frederick County for additional residential and employment growth under the Corridor 2 Alternative (*Appendix 7*), 283 acres is more than what is anticipated for Corridor 1 according to the ELUP.

Montgomery County

The most land available in Montgomery County for secondary residential development under Corridor 2 according to the advisory ELUP is in Montgomery Village, Germantown, Gaithersburg, and Olney forecast zones, with most ELUP estimated residential development located in the Gaithersburg and Montgomery Village zones.

Potential development locations for secondary employment growth under the Corridor 2 ELUP scenario in Montgomery County are similar to the Corridor 1 scenario. Land available for potential secondary development to accommodate employment needs is nearly entirely forested land located along the I-270 and I-370 Corridors in Germantown and Montgomery Village, with most development pressures anticipated in these zones as well as Gaithersburg.

Development to accommodate employment needs would convert primarily agricultural or forested lands to commercial, institutional or industrial. Access to these facilities may cause additional land to be converted to transportation use.

According to the advisory group, land potentially developable in Montgomery County under the Corridor 1 and 2 scenarios is very similar. Corridor 2 provides more land for residential

development due to small areas of land available under the Corridor 2 scenario in the vicinity of the Corridor 1 alignment. Other primary differences between land availability in the two corridors are evident in the vicinity of the Burtonsville/Cloverly/Deer Park forecast zones intersect. Some areas of land in this region could potentially be developed for residential property under the No-Action or Corridor 1 scenario only.

Differences between potential commercial land developments under the ELUP Corridors scenarios in Montgomery County are minor. Three small areas of difference would be developable for commercial development under only one of the two Corridors, western Montgomery Village and southern Burtonsville, under Corridor 1, and eastern Germantown, under Corridor 2.

Potential rezoning areas are significantly higher for the ELUP Corridor 2 scenario than they are for the ELUP Corridor 1 scenario. Burtonsville and Laytonsville would require much more land for rezoning to fully accommodate the ELUP allocations (*Figure 7*).

Based on ELUP's estimates, approximately 2,570 acres (47 percent) could be available for secondary development within Montgomery County for additional residential and employment growth under the Corridor 2 Alternative (*Appendix 7*), 373 acres more than what is anticipated for Corridor 1. This difference can be attributed to the additional land required for rezoning.

Howard County

According to ELUP estimates, potential secondary development in Howard County under the Corridor 2 scenario would be located in locations similar to those under Corridor 1. Two small areas of exception include a small forested and agricultural area west of US 29. These areas are surrounded by mixed-use and residential land. They would likely be converted into the same type of development.

According to ELUP's suggestions, these areas are the only areas potentially available for development under Corridor 2 only. Areas identified for potential development are identical under each build corridor with this exception. In general, future potential development in the portion of Howard County within the SCEA boundary would lie along the US 29 corridor. ELUP estimated allocations would be sufficiently accommodated by these areas, therefore rezoning or redevelopment would not be anticipated due to construction of an ICC.

Approximately 265 acres (five percent) are anticipated for secondary development within Howard County for additional residential and employment growth under the Corridor 2 Alternative (*Appendix 7*). This is 125 acres more than what is estimated by ELUP for Corridor 1.

Prince George’s County

According to ELUP estimates, potential secondary development under the Corridor 2 scenario in Prince George’s County is anticipated to be similar to that under Corridor 1. Several small areas are available for potential secondary residential development under either Corridor 1 or 2 only; however, most of these areas are small and do not significantly change the anticipated use of land due to secondary development except within the vicinity of Konterra.

Overall, potential future development would remain in the northwestern portion of the county near the I-95/US 1 corridors. Potential residential secondary development could be accommodated with available land more sufficiently than commercial development; however, each build scenario may require some rezoning to fully accommodate ELUP estimated growth projections. Land may be required to be rezoned in the most northwestern portion of the county, near the Montgomery/Howard County intersect for either build scenario.

Based on ELUP’s suggested allocations, approximately 1,849 acres (32 percent) are anticipated for secondary development within Prince George’s County for additional residential and employment growth under the Corridor 2 (*Appendix 7*). This is 179 acres less than what is anticipated by the advisory group under the Corridor 1 scenario.

Anne Arundel and Carroll Counties

ELUP allocations did not require the identification of land for potential secondary development within this portion of the SCEA area.

Washington D.C.

ELUP allocations did not require the identification of land for potential secondary development within this portion of the SCEA area.

6. Summary of Secondary and Cumulative Effects

This section describes the potential secondary and cumulative effects to environmental resources within the SCEA geographical boundary and associated with an ICC project. Secondary and cumulative effects were assessed for the past (from about 1964 to present), present/near future (present to 2010) and future (2010 to 2030) time frames (In 1964, the M-NCPPC adopted the General Plan “On Wedges and Corridors” and the Capitol Beltway opened).

Secondary effects include indirect impacts, which are caused by the action (i.e., construction of an ICC build alternative), and are later in time or farther removed in distance, but are still reasonably foreseeable. Secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate. The time frame used for the assessment of reasonably foreseeable secondary impacts was 2030, which is the design year for the project (and also the time frame for which ELUP allocations were projected). The ELUP suggest that secondary effects are likely to result in

certain areas within the SCEA boundary from either ICC build alternative, and that the extent of secondary effects would be similar between the two ICC build corridors.

According to M-NCPPC, the planning and land use agency for Montgomery and Prince George’s Counties, secondary development would be much better controlled under a Corridor 1 scenario than a Corridor 2 scenario. This is because Corridor 1 best resembles their Master Plans and would be consistent with the planned and orderly growth as developed in these plans. If Corridor 1 were selected, proven tools are in place to enforce existing zoning and reject proposed development activities inconsistent with existing zoning and Master Plans. In most cases, the results from the ELUP do not reflect that consideration based on comparison of suggested allocations between the two corridors. The resource impact assessments are based on results from the ELUP, and, therefore, impacts associated with Corridor 1 secondary development would represent greater impacts than M-NCPPC would anticipate based on its experience and ability to control development pressures if Corridor 1 is selected (which would result in less resource impacts).

Cumulative effects to resources include impacts on the environment which would conceivably result from the incremental impact of the ICC project when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Therefore, cumulative effects would include all past impacts that have occurred within the ICC SCEA boundary, impacts associated with the ICC project itself, and all present/near future and future 2030 planned projects (including transportation and county-approved development projects). In addition, secondary development impacts contribute to the overall cumulative effects. The following resource impact sections discuss past, present and future projects that have or would likely contribute to cumulative effects to resources. For example, MD 28/198 and Contee Road transportation projects have associated impacts that contribute to overall cumulative resource effects within the ICC SCEA boundary. Numerous projects contribute to cumulative impacts and are referenced throughout the SCEA analysis if specific impact information/computations were available.

Overall, given the growth of the National Capital region, substantial development is expected in the future 2030 time frame. Therefore, cumulative effects are anticipated to result regardless of what ICC alternative is selected. ELUP’s estimates suggests that under the No-Action Alternative, approximately 33,778 acres of development is estimated; Corridor 1 development is estimated at 40,095 acres; Corridor 2 is estimated at 41,144. The acreage of development difference between the No-Action and the build alternatives represents the approximate acreage of anticipated secondary development for each of the build corridors. It is important to note that these computations are based on suggested results from the advisory ELUP and should be viewed more as projections of general development trends, rather than specific predictors of potential development. These computations do not reflect M-NCPPC’s experience and ability to control development pressures under a Corridor 1 versus Corridor 2 scenario. Corridor 1 generally follows local planning and zoning policies while Corridor 2 does not.

Overall, cumulative effects to natural, socio-economic and cultural resources have occurred within the SCEA geographical boundary due to substantial land use changes associated with

increased growth within the region. Land has been developed and urbanized over time to accommodate the rapid and continuous population and employment increases this area has experienced since 1964. The first Metrorail station in Montgomery County opened in 1978, and lines and stations continued to open in Montgomery and Prince George's County during the 1980's and 1990's. Based on ELUP estimates, this area will continue to increase in both population and employment through 2030. As a result of land use changes including redevelopment, associated environmental resource impacts have occurred throughout this region's watersheds and communities. In general, although resource impacts will continue into the future 2030 time frame, the pace and extent of those impacts will not be as substantial as compared to past effects. This is largely due to the fact that growth is not expected to continue at the same rate as in the past. In addition, many environmental resources are better protected than in the past due to more stringent federal, state and local environmental laws and regulations. It should also be noted that although negative impacts have occurred within this area, there have also been substantial positive developments associated with the growth and land use changes, particularly relating to the socio-economic environment. Since the 1964 time frame, communities have formed and become established, which has created a sense of community and cohesion among and between communities in this area. In addition, many businesses have settled into this region, providing high-paying jobs and benefiting the local and regional economies. The following sections will describe specific environmental resource impacts that have occurred in the past, and that may be experienced in the near future and future 2030 time frames.

a. Past Impacts

Past impacts are based primarily upon land use changes from 1964 to the present time frame for the individual resource assessments described in the following sections. The most substantial land use changes and associated environmental impacts have occurred in the eastern-central portion of Montgomery County within the SCEA boundary. This area includes Aspen Hill, Olney, Rockville, Germantown, Gaithersburg and Montgomery Village (primarily within the Upper Rock Creek, North Branch Rock Creek, and Seneca Creek watersheds). Portions of Frederick County within the SCEA boundary have also experienced substantial residential growth, including the City of Frederick and Urbana and the southeastern portion of the county in the Monocacy River Watershed. The small portion of Howard County within the SCEA boundary has also undergone extensive development. This area coincides with portions of the Little and Middle Patuxent River Watersheds.

b. Near Future Impacts

Present to near future (2010) impacts are based upon an overlay analysis of planned near future development or transportation projects with existing land use/existing resources. Resource impacts that would potentially result from these near future projects will be considered in the overall assessment of cumulative effects to resources as none of the identified near future planned projects are directly dependent on construction of an ICC build alternative; therefore, none of these projects are considered secondary development. It has been determined that these projects are proposed regardless of an ICC selected alternative. Resource impacts anticipated during the near future time frame would be similar between the

No-Action, Corridor 1 and Corridor 2 alternatives, with the exception of the impact differences associated with the ICC direct project impacts.

Planned projects that are proposed within the present to near future time frame total approximately 23,617 acres (*Appendix 3*). Certain areas will undergo substantial near future development as compared to other areas within the SCEA boundary. Substantial near future development is proposed within the eastern portion of Montgomery County, along the US 29 corridor, near Fairland and Burtonsville (Rocky Gorge Dam Watershed and Little Paint Branch Watershed). The Cloverly, White Oak and Olney areas, within the Paint Branch and Northwest Branch watersheds, also show substantial development in the near future time frame. Gaithersburg and Germantown, within the Potomac River Montgomery County and Seneca Creek watersheds, respectively, also show substantial near future development. The Fulton and Scaggsville areas, within portions of the Lower and Middle Patuxent River watersheds of Howard County, show planned growth in the near future, as does the Urbana area of Frederick County (Lower Monocacy River).

Impacts to resources in the near future time frame will correlate to the areas expected to experience the greatest land use changes. This is because greater development increases the population in those areas, impacts forests and other wildlife habitat areas and increases the amount of impervious surface within watersheds. Increased population can lead to community impacts relating to increased traffic congestion and quality of life impacts. Increased impervious surface has the potential to diminish the quality of watersheds, including water quality and wildlife and fisheries habitat. More detailed information regarding proposed near future projects will be described in the following section.

c. Future Impacts

The future 2030 impact assessment is based on planned future development or transportation projects (as identified by county Master Plans and the CLRP) as well as other potential areas that may become developed (as identified by the ELUP), but are not currently identified for future 2030 development by the Counties. Future impacts to specific resources will be based on the location and extent of future development expected within the SCEA boundary. Please note that resource impacts in the future 2030 time frame may include smaller private development projects that have not fully been accounted for. These smaller projects are not known at this time since these types of private development projects typically have shorter planning time frames, and planning has therefore not yet been initiated. The extent, size and location of these projects is not known at this time.

The advisory ELUP households and employment allocation estimates suggested that all three ICC alternatives under consideration would experience additional development beyond what has been identified by the Counties. Therefore, cumulative impacts to resources are anticipated even under the No-Action Alternative.

No-Action Alternative

In addition to planned projects, and based on ELUP allocation estimates for households and employment, other potential developments were identified under a No-Action Alternative. It was determined by ELUP that additional development is likely throughout the SCEA boundary even without construction of an ICC. The highest concentrations of development for Montgomery County in the future 2030 time frame are anticipated in Germantown (Seneca Creek watershed), Gaithersburg and Rockville (Potomac River Montgomery County primarily), Wheaton (Rock Creek), and White Oak (Paint Branch). Substantial development is also expected in the Urbana area of Frederick County, within the Lower Monocacy River watershed, in the Fulton area of Howard County, within the Middle and Little Patuxent River watersheds, and throughout most of the Prince George's County area within the SCEA boundary (Upper Patuxent River and Little Paint Branch watersheds). These areas will experience the greatest resource impacts in the future time frame (regardless of an ICC alternative) due to anticipated land use changes, increased populations, as well as stresses to the natural environment resulting from decrease of forest and increase of impervious surfaces within these watersheds and related to the extent of development that currently exists within these areas.

Corridors 1 and 2 (Secondary Development)

The amount of secondary development associated with construction of an ICC is estimated by the advisory ELUP to range from approximately 4,945 acres for Corridor 1 to 5,546 acres for Corridor 2 (as explained above, M-NCPPC officials expect Corridor 2 to have far greater secondary effects because of strong planning and zoning policies and laws). These estimates are in addition to what is planned for the No-Action Alternative. In general, under the ELUP's scenario the areas that would undergo substantial secondary development for either Corridor 1 or 2 include New Market in Frederick County (Lower Monocacy), Burtonsville (Rocky Gorge), Montgomery Village, Olney, Laytonsville and Clovery (Rock Creek, Rocky Gorge and Paint Branch) in Montgomery County, and Beltsville and Muirkirk in Prince George's County (Little Paint and Indian Creek). The ELUP estimates secondary development would be greater for Corridor 2 in the New Market area, with approximately 283 acres of more development estimated by ELUP, which may contribute to greater environmental impacts in that area as compared to Corridor 1. Similarly, the Burtonsville area is expected to undergo greater secondary development within the Rocky Gorge watershed under the Corridor 2 Alternative as compared to Corridor 1 (685 acres for Corridor 2 and 292 acres for Corridor 1). The difference of approximately 393 acres in this area would likely contribute to greater environmental impacts. It should be noted that this area is currently not highly developed, and is not zoned to absorb substantial development today. The anticipated future development is based on suggested allocations from the ELUP, and if this development occurs, the Rocky Gorge watershed would undergo impacts to wildlife and fisheries habitat, and may potentially impact water quality by the decrease of forested lands and the increase of impervious area. Corridor 2 would also be more impactful to the Laytonsville area, also within the Rocky Gorge watershed (61 acres for Corridor 1 compared to 110 acres for Corridor 2). Please note that potential development associated with potentially rezoning areas was used as a conservative assessment of secondary impacts to resources. County Master Plans are in place in order manage growth, therefore the extent of

rezoning may be overestimated assuming that the County's are able to manage and control development consistent with existing zoning and Master Plans.

7. Detailed Secondary and Cumulative Effects Per Resource

a. Residential/Business Communities

Secondary and Cumulative impacts to residential and business communities will occur within the SCEA boundary. Planned development slated to occur regardless of an ICC would result in additional traffic congestion on local roadways, increased noise levels and diminished visual quality by removing forested areas. The planned potential developments are consistent with County master plans and correspond to the surrounding land uses.

Secondary development as a result of construction of Corridor 1 or Corridor 2 would add additional impacts to residential and business communities. Secondary development is anticipated for both build scenarios, although the anticipated growth areas differ. Corridor 1 anticipates growth to occur within the southern portion of the ICC study area, which would rely in part on redevelopment. Corridor 2 anticipates secondary development within the northern portion of the ICC study area, relying mostly on rezoning. This would have a greater impact on communities within this area because Corridor 2 is not consistent with Montgomery and Prince George's counties' Master Plans; therefore, communities and land uses within this area have not planned for the construction of it. Corridor 1 would be less impactful since an ICC along this corridor is included in the Master Plan and land use patterns and the existing surrounding communities are aware of the Master Plan/Corridor 1 alignment and zoned and developed accordingly.

Corridors 1 and 2 both link two key PFA boundaries along I-270 and I-95; however, portions of both corridors fall outside of a PFA boundary, substantially more of Corridor 2 than of Corridor 1 (*Figure 2*). In cases where proposed projects are not fully proposed within PFA boundaries but connect PFAs, approval from the Board of Public Works is required. Of the proposed 18-mile Corridor 1 alignment, three sections fall outside of a PFA. One section extends from just east of the I-370/Shady Grove Road interchange to just east of MD 97/Georgia Avenue interchange, a distance of approximately four miles. The second is within the Northwest Branch Recreational Park, a distance of approximately 0.5 mile. The third section is located along Upper Paint Branch Stream Valley Park, from MD 650/New Hampshire Avenue to west of US 29/Columbia Pike, a distance of approximately 1.6 miles. In total, approximately 6.5 miles, or 36 percent, along Corridor 1 falls outside of a PFA. MD 97/Georgia Avenue is the only interchange along Corridor 1 that is completely outside of a PFA (though it lies between to nearby PFAs). The MD 650/New Hampshire Avenue interchange is partially outside of a PFA. At this location the area west of MD 650 is within a PFA, and the area east of MD 650 is outside of a PFA.

Of the proposed 20-mile Corridor 2 alignment, one main section falls outside of a PFA boundary. This section is approximately 13 miles in length, or 65 percent of Corridor 2, and extends from just east of the I-370/Shady Grove Road interchange to east of US 29 at Sandy Spring Road. Several proposed interchanges along Corridor 2 fall outside of a PFA boundary, including MD 97/Georgia Avenue, MD 182/Layhill Road, MD 650/New

Hampshire Avenue, and US 29/Columbia Pike. MDP, SHA and MDOT will perform the analysis of the proposed alternatives to determine the connecting PFA’s status of the Build Alternatives in accordance with Section 5-7B-05 of the Annotated Code of Maryland.

Potential development that could occur under the No-Action Alternative would require approximately 2,512 acres of land according to the ELUP estimates. Of the potential development required, approximately 81 percent falls within the PFA. Under Corridor 1, approximately 4,945 acres would be required for potential development. Approximately 72 percent of the potential development would fall inside the PFA. Under Corridor 2, approximately 5,546 acres of land would be required for potential development. Of this, 64 percent falls within the PFA.

Past

Communities and businesses have developed since the past time frame in response to regional development projects such as the opening/expansion of I-495, I-95 (in Prince George’s County) I-270 (in Montgomery County) and the Washington Metro as well as population growth and expansion of government facilities. Numerous developments have occurred also in the surrounding counties that have influenced growth in the past time frame.

Montgomery and Prince George’s Counties

During the past time frame, residential and business communities flourished in areas surrounding Washington D.C., which may likely have been attributed to the expansion of the federal government. Tracts of land that were easily served by utilities and offered direct access to the city were quickly developed. Growth then spread further out, following no particular pattern except what was dictated by the existing road and sewage facilities (1964 General Plan).

Residences in Montgomery and Prince George’s counties were primarily detached, single family homes. There were approximately 140,488 single-family homes in 1960, which housed 75 to 80 percent of the total population. The rise in population in Montgomery and Prince George’s counties ultimately increased the need for multi-family housing, particularly apartments. In response to the rapid residential increase, commercial development increased. Much of the commercial development consisted of retail sales (e.g., barber shops, hotels, credit agencies, etc.); however, the majority of the job force/employment centers servicing these populations were located within Washington D.C.

Anne Arundel County

The emergence of the National Security Agency (NSA) spurred additional residential and commercial development within eastern Anne Arundel County. NSA is one of the largest employers in the state of Maryland (National Security Agency). In 1957, NSA consolidated its headquarters operations at the Fort George G. Meade military base (National Security Agency).

In addition to the opening of the NSA, the BWI Airport, formally called the Friendship Airport, resulted in commercial and business development in the surrounding area. The

Baltimore Aviation Commission selected a 3,200-acre site near Friendship Church in Anne Arundel County, ten miles south of Baltimore and 30 miles north of Washington D.C. and in 1950, the Friendship Airport (now BWI) was opened.

The opening of I-97, a vital link between Baltimore and Annapolis, has supplied economic growth and development in the county. Since opening in 1987, it has become a key north/south highway in the county, with volumes approaching 50,000 vehicles per day (*Odenton Small Area Master Plan*).

Howard County

In August 1965, Howard County adopted a "New Town District" zoning ordinance and granted zoning for Columbia's development (Howard County Office of Planning). The city of Columbia is the most substantial development project within Howard County. It consists of both residential and commercial development and was created to provide jobs, recreation, shopping and health care, industrial development, and a broad range of housing choices.

Carroll County

1964 marked the adoption of Carroll County's Master Plan and first Water and Sewer Master Plan. Both plans emphasized the county's development pattern for future decades.

Frederick County

The 1960's marked the beginning of sprawling low-density development patterns supported by suburban-standard zoning regulations. This development trend continued throughout the 1970's and into the 1980's.

Transportation networks changed in response to the economic and population trends following World War II. In the 1970's, the Interstate Highway system began to replace or supplement highway arterials. Interstate 70, connecting with Baltimore, followed generally the same route as US 40 from east to west across the county and I-270 extended through the southeastern corner of the county to the Washington metropolitan area. This corridor provided transportation to the population moving outward from Washington D.C.

Present and Near Future

The assessment of direct impacts on communities within the ICC study area showed both adverse impacts as well as benefits (*See Section IV.B.3. in the DEIS or the Community Impact Assessment (CIA) Technical Document for details*). Various types of land use changes to transportation and changes to economic conditions are expected to occur under either of the build alternatives. Communities along Corridor 1 would mainly be affected by visual impacts (**Table 9**). Residential displacements along Corridor 1 would also occur, however they would vary depending on the combination of options. Communities along Corridor 2 could potentially be impacted mostly by residential displacements and community cohesion issues (**Table 9**). Residential displacements along Corridor 2 would also vary depending on the combination of options.

Table 9
Impacts to Communities From the Build Alternatives

Community	Alternative Impact		Type of Impact
	Corridor 1	Corridor 2	
Sycamore Acres	✓	✓	Residential Displacement Community Cohesion Impacts Access Impacts Noise Impacts Visual Impacts Park Impacts
Longmead	✓		Residential Displacement Noise Impacts Visual Impacts
Parkside Estates	✓	✓	Noise Impacts Visual Impacts Park Impacts
Redland	✓	✓	Residential Displacement Park Impacts
Stonegate	✓		Community Facility Impacts
Saddle Creek		✓	Residential Displacement
Calverton	✓		Residential Displacement Community Cohesion Impacts Access Impacts Noise Impacts Visual Impacts Park Impacts
Mayfair/Muirkirk	✓	✓	Residential Displacement
Muncaster Manor/Bowie Mill Estates	✓	✓	Residential Displacement Community Cohesion Impacts Noise Impacts
Muncaster Mill View	✓	✓	Residential Displacement Community Cohesion Impacts Visual Impacts
Colesville	✓		Residential Displacement Isolation Impacts Noise Impacts Visual Impacts Park Impacts
Colesville Farms/Paint Branch Farms			Visual Impacts Park Impacts
Bel Pre Manor	✓		Noise Impacts Visual Impacts Park Impacts
Spring Oak Estates	✓		Residential Displacement Community Cohesion Impacts Noise Impacts Visual Impacts Park Impacts
Oakdale	✓	✓	Noise Impacts Visual Impacts Park Impacts
Maydale/Gum Springs	✓		Noise Impacts Visual Impacts Park Impacts

Table 9
Impacts to Communities From the Build Alternatives

Community	Alternative Impact		Type of Impact
	Corridor 1	Corridor 2	
Fairland Community	✓		Residential Displacement Community Cohesion Impacts Noise Impacts Visual Impacts
Avonshire	✓		Residential Displacement Noise Impacts Visual Impacts
Tanglewood	✓		Noise Impacts Visual Impacts
Greencastle Manor Community	✓		Residential Displacement Noise Impacts Visual Impacts Park Impacts
Greencastle-Burtonsville Community	✓		Residential Displacement Community Cohesion Impacts Noise Impacts Visual Impacts
Allenwood/Norbeck Knolls/Stape Estates Community		✓	Residential Displacement Community Cohesion Impacts Visual Impacts Park Impacts
Millgrove Gardens/Hampshire Greens Community		✓	Noise Impacts Visual Impacts
Burtonsville Community		✓	Residential Displacement Community Cohesion Impacts Noise Impacts Visual Impacts
Blackburn Village/Saddle Creek Community		✓	Residential Displacement Community Cohesion Noise Impacts Park Impacts
Patuxent Watershed Community		✓	Residential Displacement Isolation Impacts Community Cohesion Impacts Noise Impacts Visual Impacts Park Impacts
Peach Orchard Heights/Good Hope Estates/Fairland Acres Community		✓	Residential Displacement Community Cohesion Impacts Vehicular Access Noise Impacts Visual Impacts
Cloverly/Spencerville Community		✓	Residential Displacement Isolation Impacts Community Cohesion Impacts Noise Impacts Visual Impacts Park Impacts
Norbrook Village Community		✓	Residential Displacement Isolation Impacts Community Cohesion Impacts Vehicular Access Noise Impacts Visual Impacts Park Impacts

Table 9
Impacts to Communities From the Build Alternatives

Community	Alternative Impact		Type of Impact
	Corridor 1	Corridor 2	
West Laurel Community		✓	Noise Impacts
Norwood Community		✓	Noise Impacts Visual Impacts Park Impacts
Forest Oak/Founders Mill	✓	✓	Noise Impacts Visual Impacts Park Impacts

Business displacements are also anticipated for Corridor 1 and Corridor 2. These businesses vary in type and are local businesses unique to the surrounding area.

Comparable real estate is available in close proximity for the majority of business relocations. Please refer to the *University of Maryland Economic Impact Study* for details on how business communities would be directly affected.

Since the build alternatives include roadway construction in a new location, there is a greater potential for indirect effects. New access into undeveloped locations can contribute to subsequent development activity, which can have an impact on the surrounding communities. However, the ICC is a limited access facility so subsequent development should not occur off the roadway itself. Corridor 1 would primarily follow a new alignment through undeveloped areas, mainly decreasing visual impacts. Corridor 2 would mainly follow an existing roadway except through the areas of Spencerville and Burtonsville, mainly disrupting community cohesion and displace existing residents.

Despite the residential and business displacements expected from the build alternatives, the SCEA boundary will generally continue to experience growth. Although several community facilities would be impacted by the build alternatives, overall the community facilities in the study area would benefit from the increased mobility and safety. Corridor 1 has the potential to displace the National Capital Trolley Museum with Northwest Branch Option A and Corridor 2 has the potential to displace the Korean Spencerville 7th Day Adventist Church and Academy with Spencerville Option B to Burtonsville A and B. The church and academy already had plans to move to a new location prior to an ICC. Additional impacts to community facilities include altering access to certain facilities and increasing travel times.

A bike/pedestrian route option is also being investigated within the ICC study area, dependent upon the ICC alternative chosen. This route would use a combination of areas along the ICC ROW as well as existing and planned bicycle/pedestrian facilities within and outside of the ICC ROW. This bicycle/pedestrian trail would provide an additional link between individual communities throughout the study area, improving community cohesion.

Each of the build alternatives would require property acquisition resulting in loss of land from tax base. Montgomery and Prince George’s counties assess property taxes based on

market value. These acquisitions would result in a loss of property tax revenues; however, it is relatively small compared to the total tax base of all the counties.

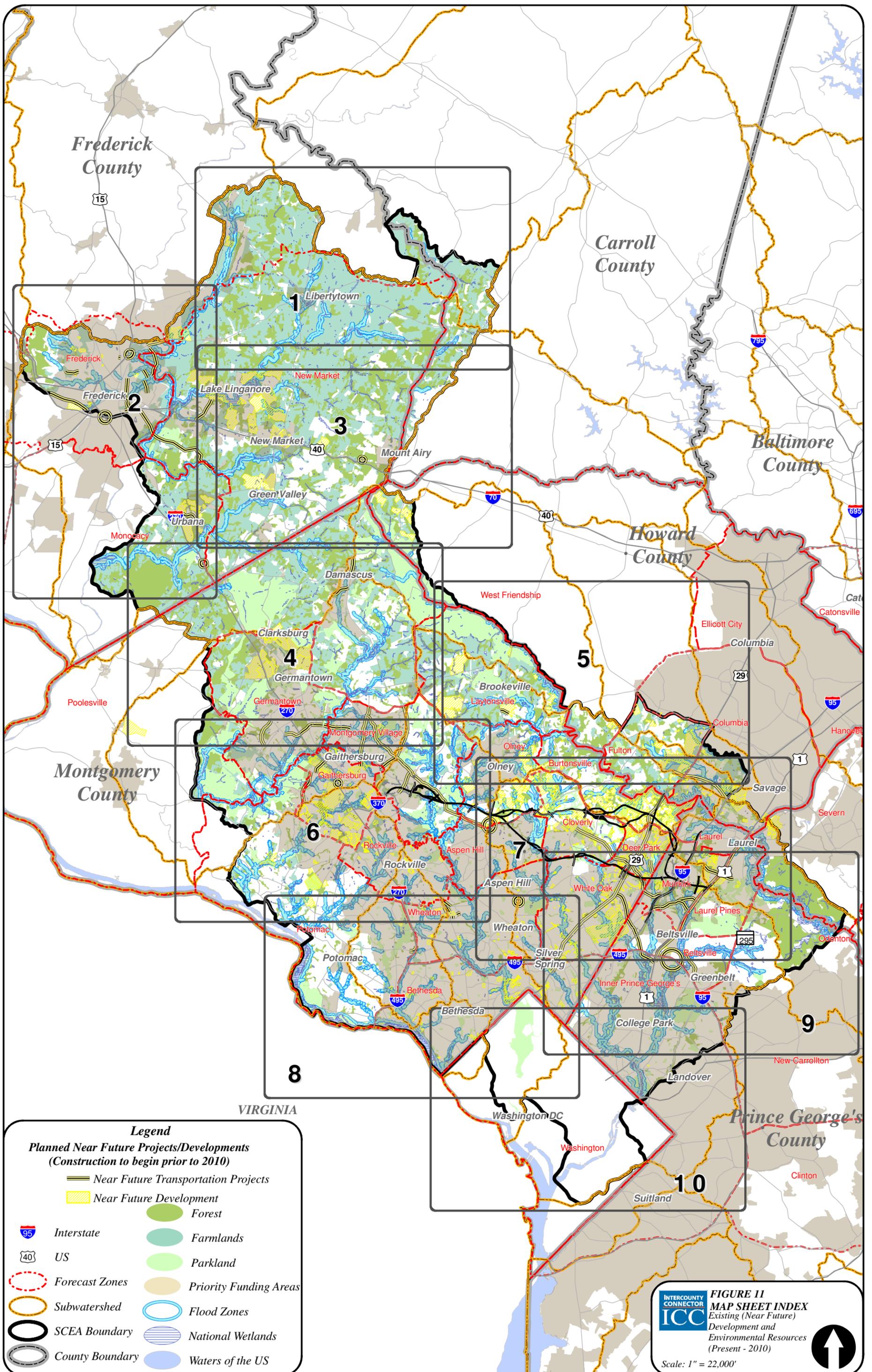
Near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with existing community resources to evaluate impacts. *Appendix 1 and 2 and Figure 11* highlights the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore are not dependent on construction of the ICC. Together these projects in addition to all other past, present and reasonably foreseeable future projects regardless of what agency under takes the action will contribute to cumulative impacts to resources. Quantitative impacts were assessed from other proposed transportation projects when impact calculations were available through available NEPA documentation (*Table 10*).

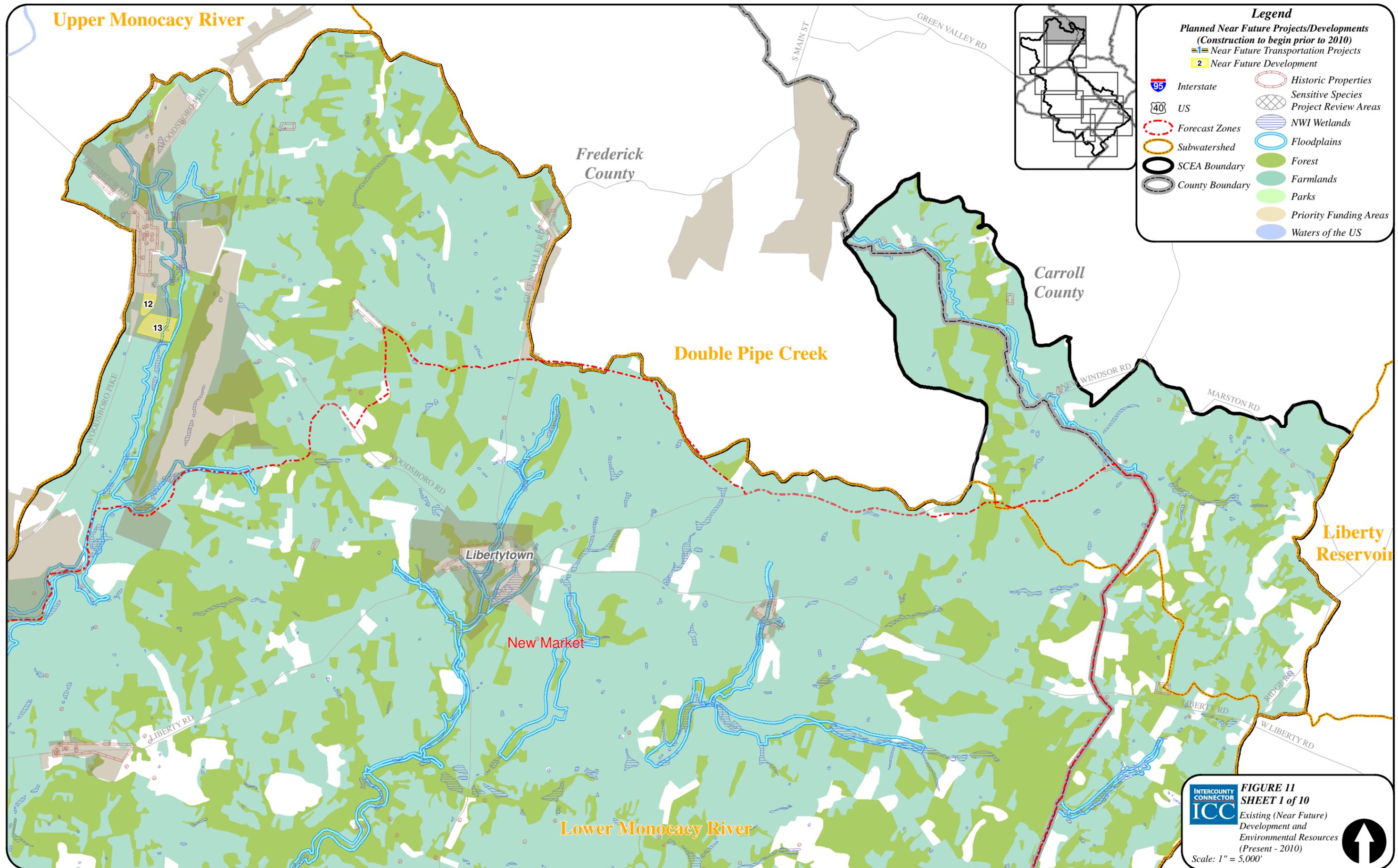
Two of the near future proposed transportation projects would require displacements to residents or businesses. The MD 28/MD 97 project would require three commercial displacements while MD 115, Muncaster Mill Road would require between six and 16 residential displacements and between zero and two commercial displacements, depending on the alternative.

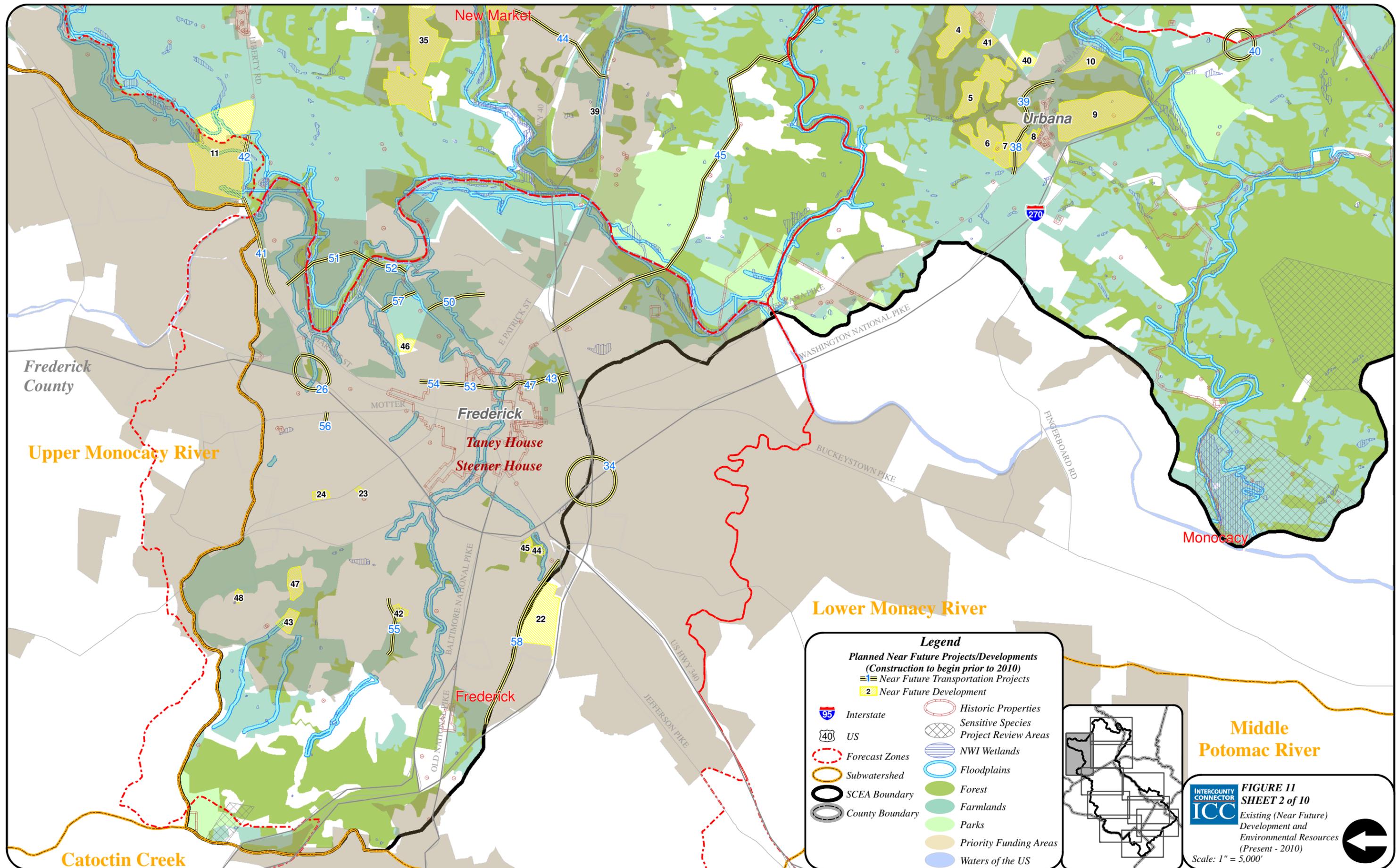
The majority of residential development, slated to occur is concentrated in the eastern portion of Montgomery County. This would mainly consist of forested land or open space being transformed into residential development. Areas that would be affected the most by this planned development are the communities just north of the Corridor 2 and communities adjacent to Corridor 1 within eastern Montgomery County. Other areas of development that are slated to occur are within Frederick County and small pockets throughout central Montgomery County and the western portion of Howard County. These areas are expecting fewer isolated areas of proposed development.

Communities north of Corridor 2 include Norbrook Village, Norwood, Burtonsville, Patuxent Watershed, Spencerville Knolls and Blackburn Village. Within the Norbrook Village and Norwood Communities, located within the northeast corner of the proposed MD 97/ICC Corridor 2 interchange, a number of development projects are slated to occur. The majority of the proposed development consists of vacant/forested plots of land being transformed into large residential developments. The majority of the development exists in areas adjacent to the proposed ICC Corridor 2 alignment. Currently the area contains mostly residential development to the north and smaller residential developments to the south.

Very large residential developments are slated to occur within the Burtonsville, Patuxent Watershed, Spencerville Knolls and Blackburn Village communities, which are all adjacent to the proposed US 29/ICC Corridor 2 interchange. These developments are within close proximity of the proposed Corridor 2 alignment and are anywhere from 20 acres to 300 acres in size. Currently, these areas have not been subjected to much development except within southwest quadrant of the proposed US 29/ICC Corridor 2 interchange (Blackburn Village), which contains mostly residential development.



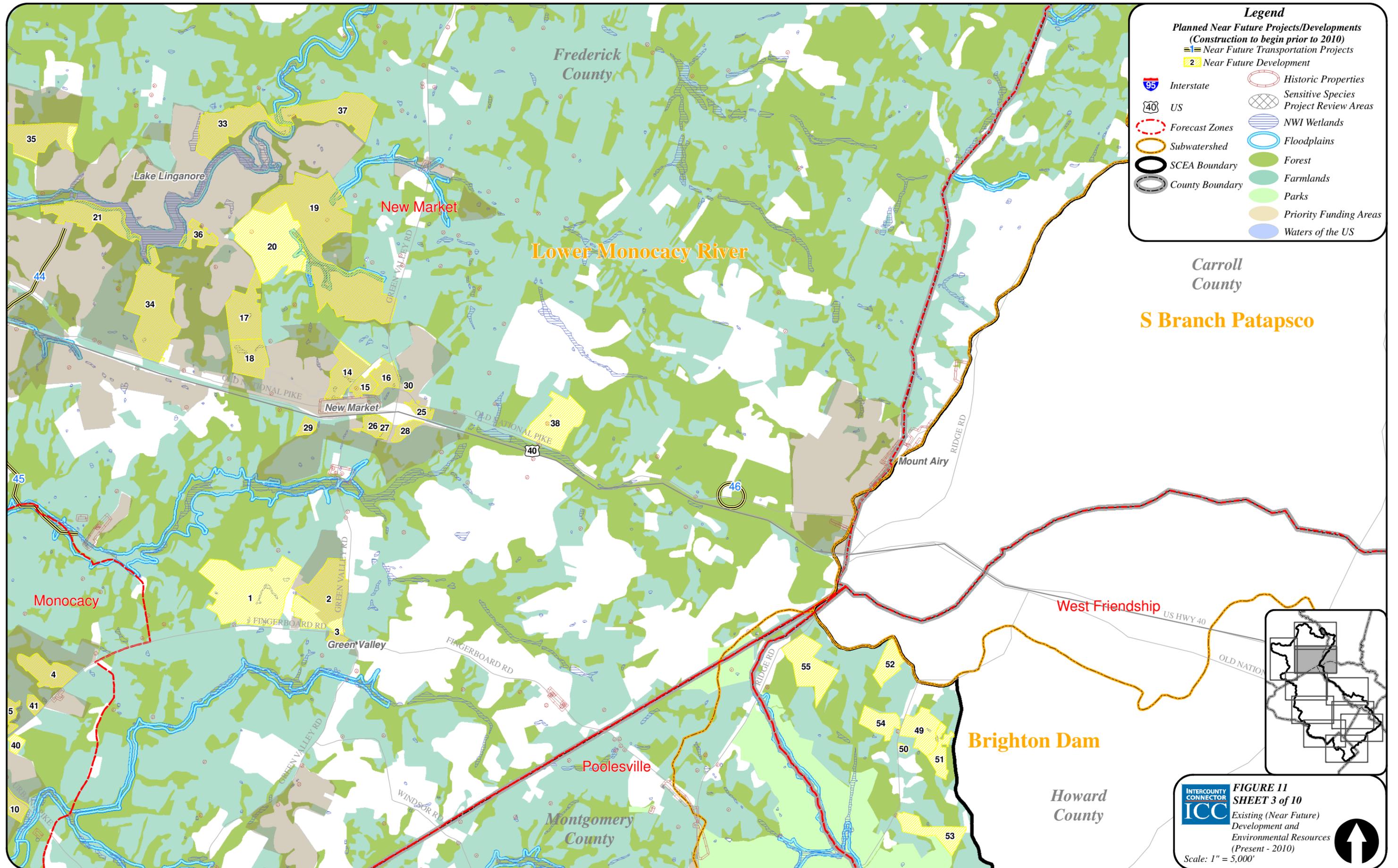




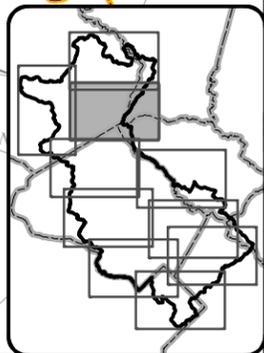
Middle Potomac River

FIGURE 11
SHEET 2 of 10
 Existing (Near Future) Development and Environmental Resources (Present - 2010)
 Scale: 1" = 5,000'





INTERCOUNTY CONNECTOR
ICC
FIGURE 11
SHEET 3 of 10
 Existing (Near Future)
 Development and
 Environmental Resources
 (Present - 2010)
 Scale: 1" = 5,000'

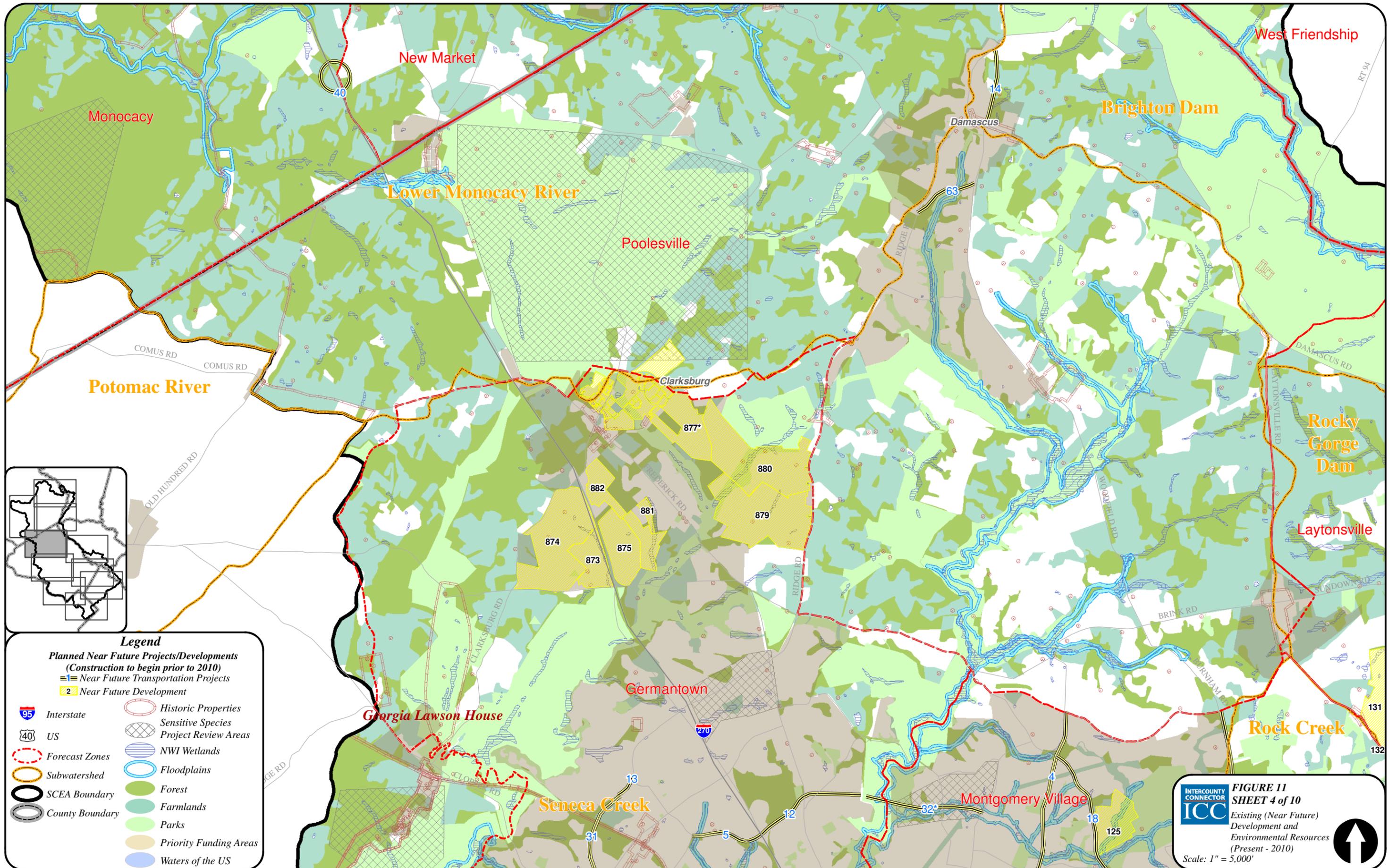
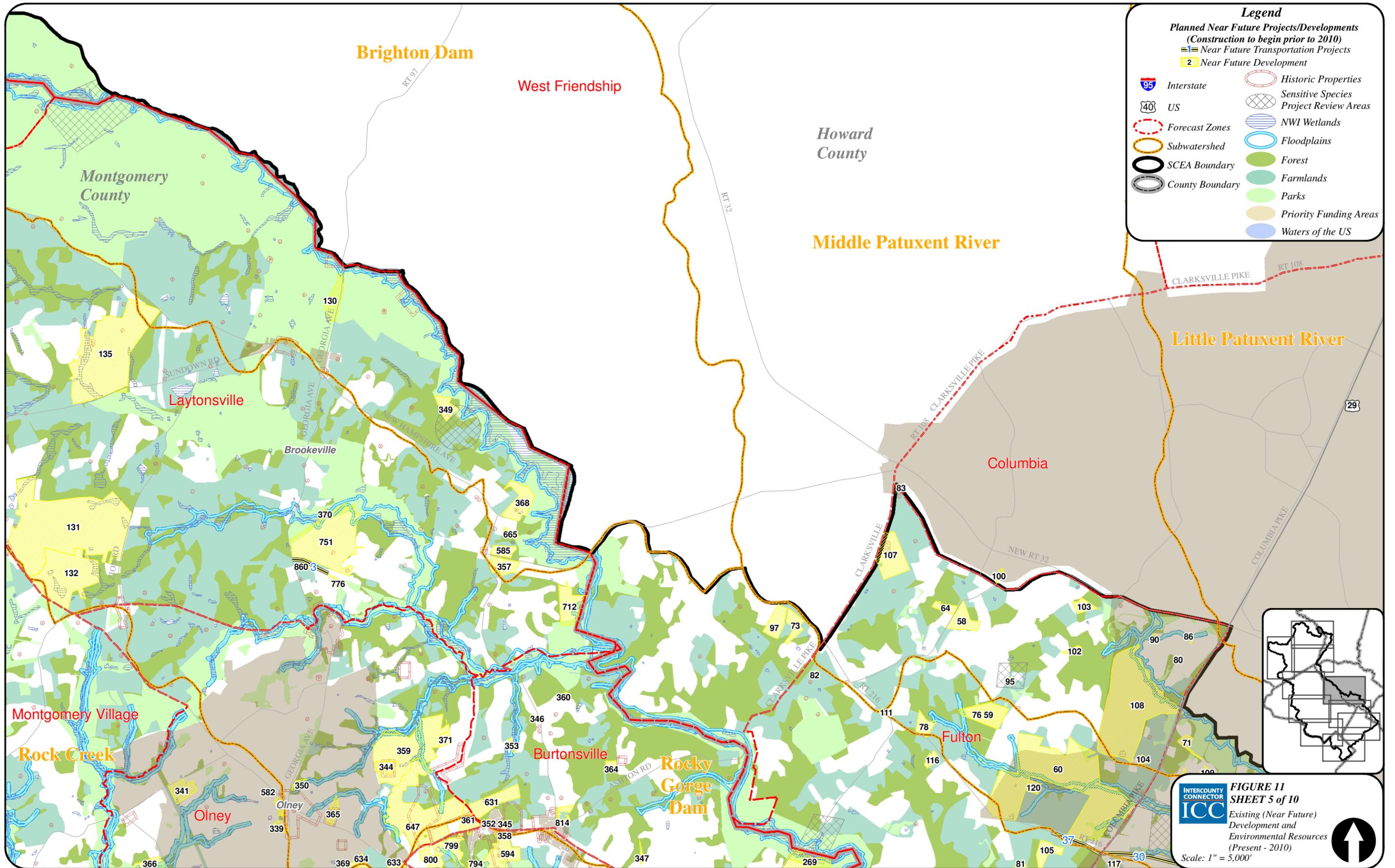


FIGURE 11
SHEET 4 of 10
 Existing (Near Future)
 Development and
 Environmental Resources
 (Present - 2010)
 Scale: 1" = 5,000'





Legend

Planned Near Future Projects/Developments (Construction to begin prior to 2010)

- ▬ Near Future Transportation Projects
- ▨ Near Future Development

	Interstate		Historic Properties
	US		Sensitive Species Project Review Areas
	Forecast Zones		NWI Wetlands
	Subwatershed		Floodplains
	SCEA Boundary		Forest
	County Boundary		Farmlands
			Parks
			Priority Funding Areas
			Waters of the US

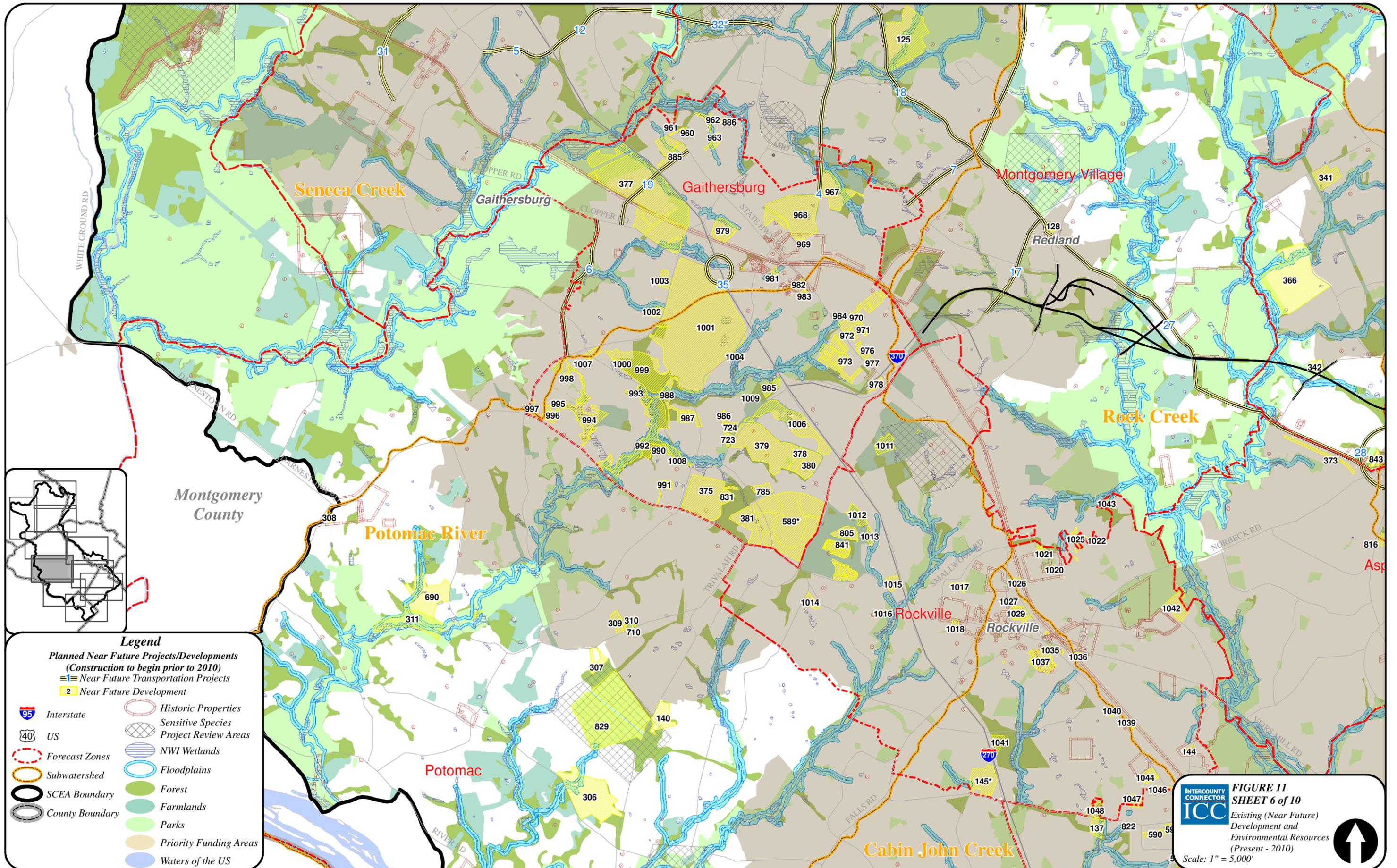
INTERCOUNTY CONNECTOR
ICC

FIGURE 11
SHEET 5 of 10

Existing (Near Future)
Development and
Environmental Resources
(Present - 2010)

Scale: 1" = 5,000'





Legend

**Planned Near Future Projects/Developments
(Construction to begin prior to 2010)**

- Near Future Transportation Projects
- Near Future Development

- Interstate
- US
- Forecast Zones
- Subwatershed
- SCEA Boundary
- County Boundary
- Historic Properties
- Sensitive Species Project Review Areas
- NWI Wetlands
- Floodplains
- Forest
- Farmlands
- Parks
- Priority Funding Areas
- Waters of the US

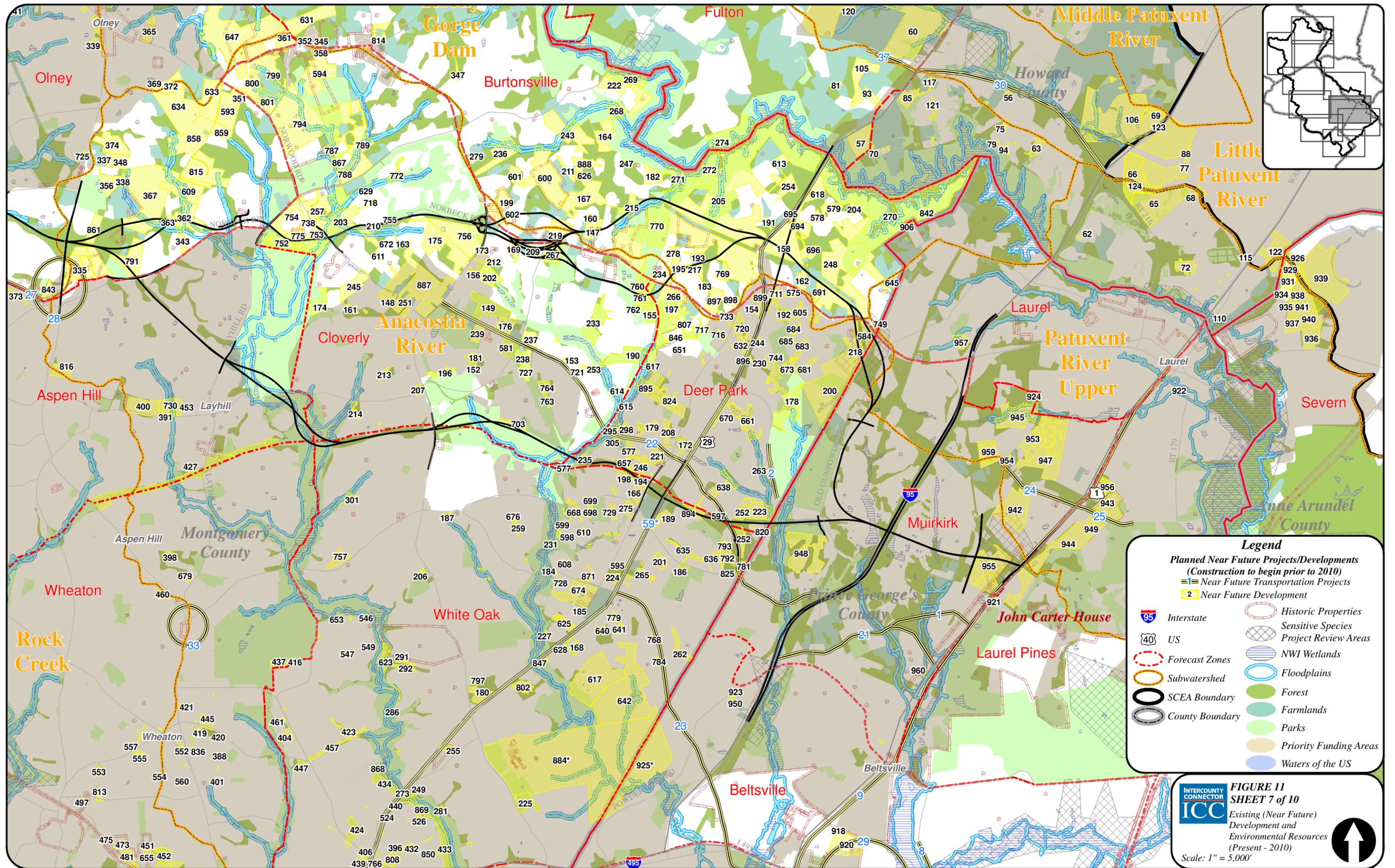
INTERCOUNTY CONNECTOR
ICC

FIGURE 11
SHEET 6 of 10

Existing (Near Future)
 Development and
 Environmental Resources
 (Present - 2010)

Scale: 1" = 5,000'





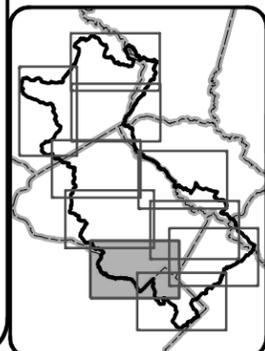


Legend

**Planned Near Future Projects/Developments
(Construction to begin prior to 2010)**

- Near Future Transportation Projects
- Near Future Development

- Interstate
- US
- Forecast Zones
- Subwatershed
- SCEA Boundary
- County Boundary
- Historic Properties
- Sensitive Species Project Review Areas
- NWI Wetlands
- Floodplains
- Forest
- Farmlands
- Parks
- Priority Funding Areas
- Waters of the US

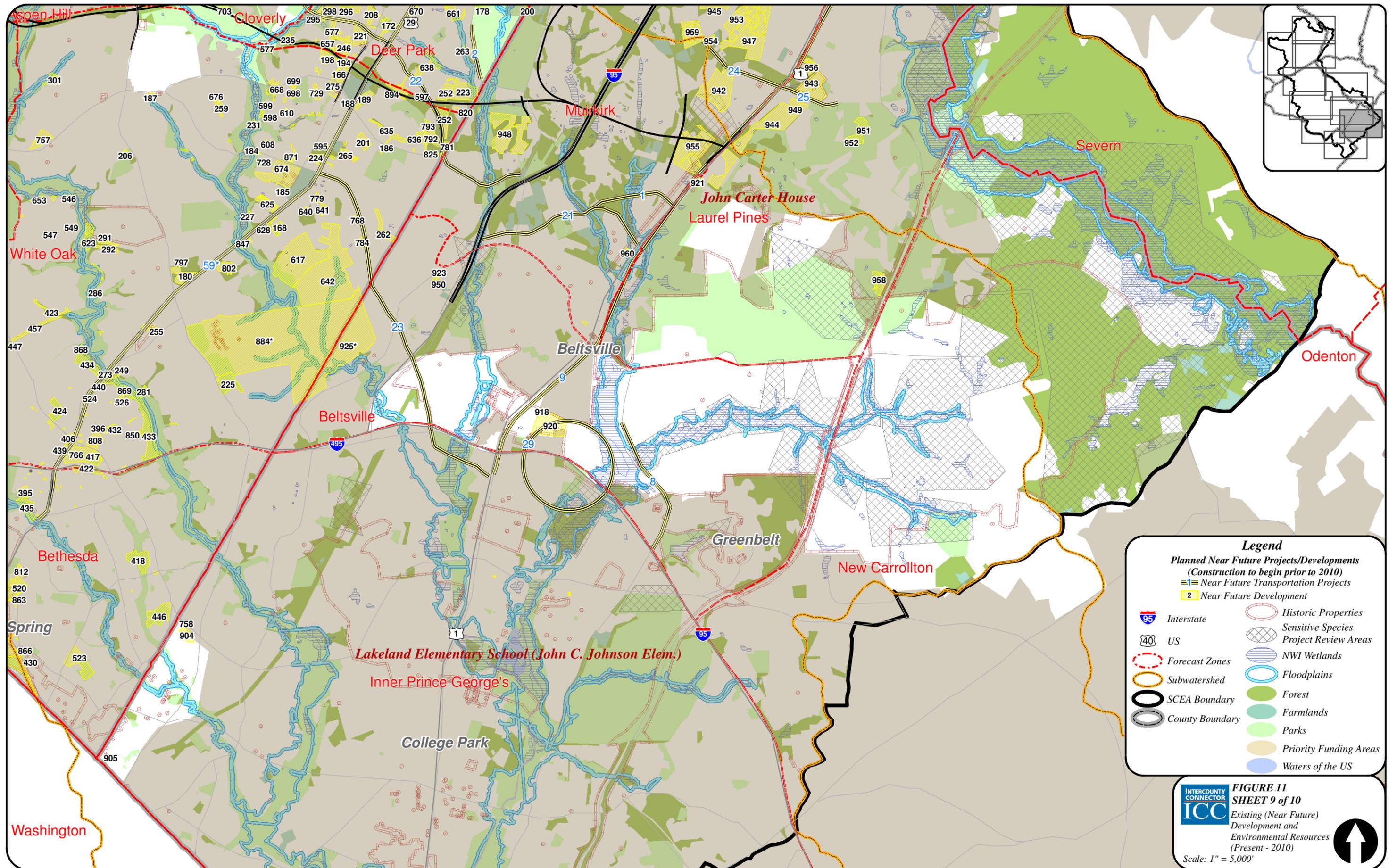


**INTERCOUNTY CONNECTOR
ICC**

**FIGURE 11
SHEET 8 of 10**

Existing (Near Future)
Development and
Environmental Resources
(Present - 2010)

Scale: 1" = 5,000'



Legend

Planned Near Future Projects/Developments (Construction to begin prior to 2010)

- Near Future Transportation Projects
- ▨ Near Future Development

	Interstate		Historic Properties
	US		Sensitive Species
	Forecast Zones		Project Review Areas
	Subwatershed		NWI Wetlands
	SCEA Boundary		Floodplains
	County Boundary		Forest
			Farmlands
			Parks
			Priority Funding Areas
			Waters of the US

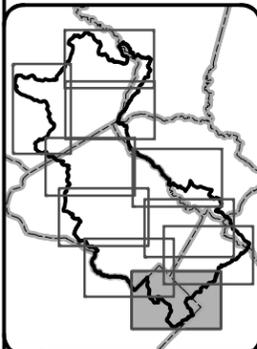
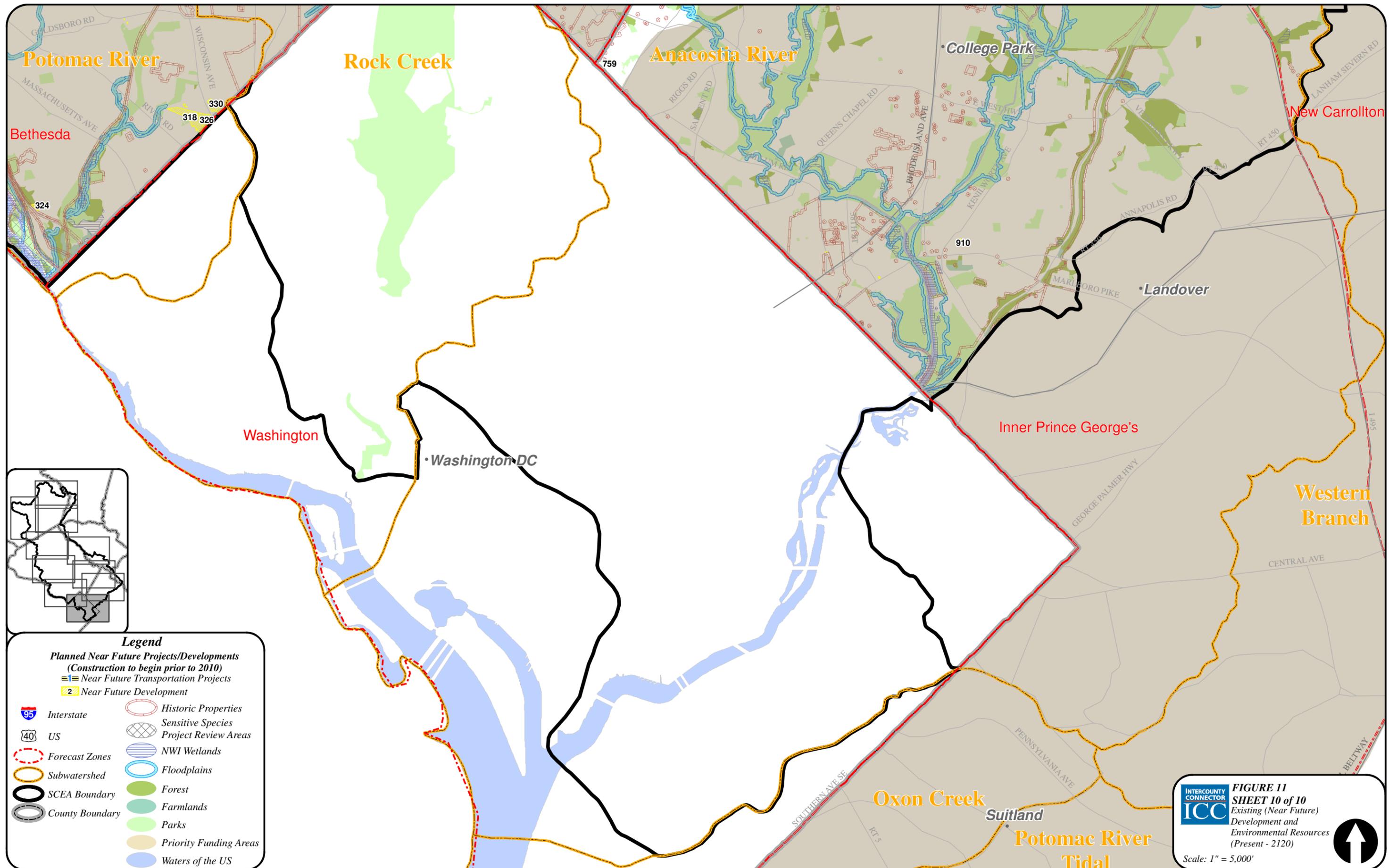
INTERCOUNTY CONNECTOR
ICC

FIGURE 11
SHEET 9 of 10

Existing (Near Future)
Development and
Environmental Resources
(Present - 2010)

Scale: 1" = 5,000'





Legend

**Planned Near Future Projects/Developments
(Construction to begin prior to 2010)**

- Near Future Transportation Projects
- Near Future Development

- Interstate
- US
- Forecast Zones
- Subwatershed
- SCEA Boundary
- County Boundary
- Historic Properties
- Sensitive Species Project Review Areas
- NWI Wetlands
- Floodplains
- Forest
- Farmlands
- Parks
- Priority Funding Areas
- Waters of the US

INTERCOUNTY CONNECTOR
ICC

FIGURE 11
SHEET 10 of 10
Existing (Near Future)
Development and
Environmental Resources
(Present - 2120)

Scale: 1" = 5,000'

Table 10
Transportation Projects Within the SCEA Boundary and Their Potential Associated Impacts

County	Project	Build Year	Wetlands (Acres)	Woodlands (Acres)	Floodplains (Acres)	Streams (Stream Crossings/Linear Feet)	Displacements	Parkland Impacts	Cultural Resources (Archeological/Historical)	Low-Income/Minority Populations
<i>Near Future Transportation Projects (Present to 2010)</i>										
Prince George's	I-95/I-495 Greenbelt Metro Access Study	2010	2.0-2.1*	4.7-5.8*	2.8-4.2*	2 Stream Crossings	0	0	1 – BARC (No Adverse Effect) 0.30-0.80 ac. *	0
Montgomery	MD 28/ MD 97	2010	0.2	8.9	0	320 l.f.	0 Residential 3 Commercial	0	1 Adverse Effect (White's Hardware Store Complex)	0
Frederick	US 15/ MD 26	2010	0	80 l.f (removing a culvert to improve wetland)	0	0	0	0	0	0
Montgomery	MD 115, Muncaster Mill Road	2010	0.1-2.1*	1.8-29.3*	1.0-1.4*	6-8 Stream Crossings*	6-16 Residential, 0-2 Commercial*	3.9-11.1 acres*	1-4 Historic Properties*	Unknown
Prince George's	I-495/I-95 at Arena Drive	2010	0-5.4;*	0	0-1.1*	2-7 Stream Crossings*	0 Residential 0 Commercial	0	0	0
Howard	MD 216 Relocated	2005	2.0	35.0	4.0	5 Stream Crossings	0 Residential 0 Commercial	0	Unknown	Unknown
<i>Future Transportation Projects (2010 to 2030)</i>										
Montgomery & Prince George's	MD 28/MD 198 Corridor Improvement Study	2025	0.02-1.37	10.5-18.1	5.7-6.3	165-980 l.f. *	3-26 Residential 5-7 Business 1 Church	0.4-1.8 acres*	0-2 Displaced Historical Adverse Effect on Archeological Sites	EJ Impacts – but not adverse or disproportionate
Montgomery	MD 97 – Brookeville Transportation Study	2015	0.12	9.02	3.22	1,212 l.f.	0	1	1 Historic - Adverse Effect on the Brookeville Historic District 1 Archeological - Newlin/Downs Mill Complex (Site 18MO368)	Unknown

Table 10
Transportation Projects Within the SCEA Boundary and Their Potential Associated Impacts

County	Project	Build Year	Wetlands (Acres)	Woodlands (Acres)	Floodplains (Acres)	Streams (Stream Crossings/Linear Feet)	Displacements	Parkland Impacts	Cultural Resources (Archeological/Historical)	Low-Income/Minority Populations
Prince George's	I-95/Contee Road Transportation Improvement Study	2015	1.3-2.7	7.9-20.9*	0-0.10*	162-308 *	0	0	Potential for archeological resources are present.	Unknown
Montgomery	MD 28/Rockville Town Center	Unknown (only funded through planning)	0.2	0	0	0	12-22 Residential 0-1 Commercial*	0	0	0
Montgomery	I-270/ Interchange at Watkins Mill Road Extended	2025	0.76	30.9	6.4	1,730	0 Residential 0 Commercial	1 -Great Seneca Park	0	EJ Impacts – but not adverse or disproportionate
Montgomery	MD 355 Montrose Road/Randolph Road	2015	0	9.00	0	0	0 Residential 22 Business (6 Buildings)	0	0	0
Prince George's	US 1/MD 201 Corridor Study	Unknown	0.4-17.5*	4.6-38.9*	4.8-34.8 *	367-6,524*	5-11 Residential 1-29 Commercial*	0-0.41 acres*	4 Historic Properties	Potential EJ Impacts*
Montgomery	Goshen Road South	Unknown	Yes	Yes	Yes	Yes	Potentially Impacted	4 Parks	0	0
Frederick/ Montgomery	I-270/US 15 Multimodal Corridor Study	2025	0.5-11.6	180-199	3-24	13,407-16,331*	59-385- Residential 2-11 Commercial*	0-48 acres*	0-7* Historic Properties Potential for archeological resources are present.	EJ Impacts – but not adverse or disproportionate
Montgomery /Prince George's	Bi-County Transitway	Environmental impacts are unknown at this time.								

* Dependent on Alternative Selected

The smaller residential communities within these areas will be exposed to additional residential development, which would result in increased traffic congestion on local roads. The Blackburn Village community contains smaller areas slated for residential development within already existing communities. This would result in removal of forested buffers for residents already residing in these areas. Removing forested buffers may decrease visual quality but will not increase noise volumes.

Additional smaller amounts of residential in-fill development are planned in the vicinity of Stonecrest, Avonshire, Tanglewood and Fairland. These areas are adjacent to the proposed US 29/Corridor 1 Interchange. The majority of the development that is slated to occur is smaller areas of residential development nestled within already existing communities. Currently this is a highly developed residential area. Any additional development would add to traffic congestion and remove forested buffers within already existing communities, however this in-fill type development would not substantially affect existing communities in the area.

It is anticipated that all of these areas would experience increased traffic congestion associated with additional residential development by adding additional vehicles to the local roadway system. These communities may also experience noise impacts as well as visual impacts. The removal of forested buffer areas within existing communities may decrease visual quality however will not increase noise volumes.

In addition to development projects, there are three proposed transportation projects in the eastern portion of Montgomery County including the widening of Briggs Chaney, Cherry Hill and Greencastle Roads. These projects are relatively small in size and impacts to communities or businesses are not anticipated as a result of these projects.

Cumulative impacts for the No-Action Alternative would likely have a minimal impact on communities within the SCEA boundary. Based on development and transportation improvement projects slated to occur, it is likely that the area within the SCEA boundary would closely resemble conditions, as they exist today. No major improvements are expected so any type of major benefit to the area is not foreseeable. The local roadway network will however continue to experience congestion and other traffic related issues by increasing the amount of vehicles using local roads. With either Corridor 1 or Corridor 2 the operation of the local roads may improve because through traffic would primarily use the new roadway, thus improving congestion on local roads.

Corridor 1 would likely improve communities within the SCEA boundary as compared to the No-Action Alternative. It is anticipated that with the planned development and transportation projects slated to occur along with construction of Corridor 1, communities within the SCEA boundary would likely improve in access and mobility throughout the area. The construction of Corridor 1 would further improve movement throughout the SCEA boundary by providing a major east west connection, which would alleviate congestion on local roadways. Corridor 1 is also Master Plan consistent so the majority of communities adjacent to this alignment have built around the reserved ROW knowing that an ICC would eventually be constructed. Communities within this area could

potentially be impacted by minimal noise and visual impacts associated with construction of a new roadway.

Cumulative impacts for Corridor 2 would likely have a much greater impact on communities within the SCEA boundary than the Corridor 1 Alternative. It is anticipated that with the planned development and transportation projects slated to occur along with construction of Corridor 2 the majority of communities would improve in mobility throughout the SCEA boundary. It is anticipated however that communities, which exist within a close proximity to Corridor 2, would suffer from major community cohesion issues, numerous residential displacements and access issues. The large amount of development, which is slated to occur within eastern Montgomery County, would put increased development pressures within this area and further impacting existing communities. This, coupled with the construction of Corridor 2, would add to the impacts.

The majority of near future business development slated to occur regardless of an ICC, is concentrated into small pockets throughout the SCEA boundary. The larger areas of business development exist within the Germantown, Gaithersburg and Rockville areas, which generally follow the I-270 Corridor up through Frederick County. Additional areas exist within Howard County and throughout Montgomery County. As these areas increase in the number of jobs it is likely that the local economy would benefit from that increase.

The majority of the planned near future transportation projects within the SCEA boundary consist of constructing new roadways, upgrading existing roadways and widening existing roadways. One project within Frederick County consists of constructing the Urbana Bypass, which would relocate MD 355. This relocation would redirect traffic through the proposed Urbana Town Center, which would benefit proposed businesses in this area. This area would also benefit from the proposed interchange to be constructed at MD 75 and I-270. Additional transportation projects within the SCEA boundary that would likely benefit business accessibility include:

- Construction of the Midcounty Highway
- Construction of Watkins Mill Road
- Construction of Woodfield Road
- Construction of Contee Road
- Relocation of MD 212

The above projects all connect existing business/residential communities through the construction of new roadways throughout the SCEA boundary. (*Appendix 1 and 2 and Figure 11 for locations*).

Over half of the residential and business development that will occur throughout the study area in the near future time frame exists within the county-identified PFAs. Public sewer and water areas also closely resemble the PFA boundaries. This means that growth is generally most encouraged within these areas largely because public/sewer and water

and other infrastructure are typically in place for these areas. The highly concentrated area of near future development within eastern Montgomery County will not fall within the PFA, nor do smaller areas in western Montgomery County and western Howard County. Near future planned development outside the PFA would contribute to pressures of sprawl. Any development proposed outside of existing sewer/water areas will rely on groundwater and on-lot septic systems or the existing infrastructure will require expansion in these areas.

Community facilities within the SCEA boundary may also be subjected to an increase in population pressures, however public facilities such as schools and recreational centers should adequately accommodate the increase in population. It is anticipated that emergency services and hospitals will be able to adequately handle the increase.

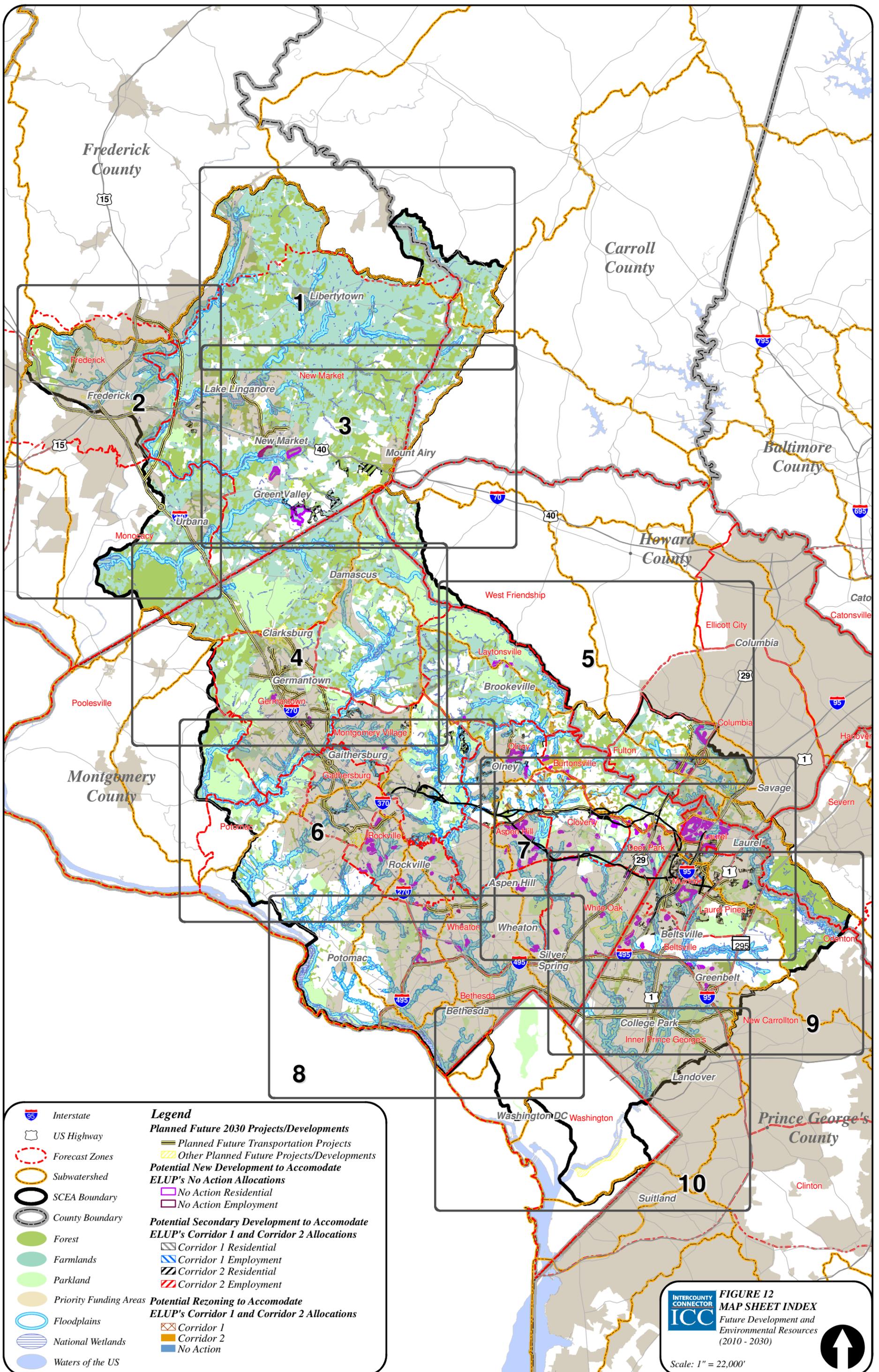
Traffic volumes would most likely increase through local communities with all of the proposed near future residential development, as well as population increase. Additional transportation improvements to serve planned development are foreseeable through existing local master plans. However, an ICC and other transportation projects would improve local access and traffic conditions and reduce traffic through some neighborhoods and communities, thereby potentially improving the quality of life. Near future planned development will have an affect on residential and business communities within the SCEA boundary by altering access/mobility and in some cases, increasing noises levels and decreasing visual quality.

Effects on business communities would primarily result from the ICC project and other proposed transportation projects. Commercial displacements are expected from both the ICC and other transportation projects. However, improved access and traffic conditions will stimulate business growth within the SCEA boundary, thus generally encouraging future business development. The Summary Report of the Economic Impact Study of the Intercounty Connector indicates that the ICC could increase the following in Montgomery and Prince George's Counties: accessibility to places of employment, attractiveness of already-established businesses and overall economic activity (MTI 2004). Existing and future businesses located along the ICC project area that are not displaced by the project will benefit from its improved safety, mobility and access to the region.

Future

No-Action – Planned Development

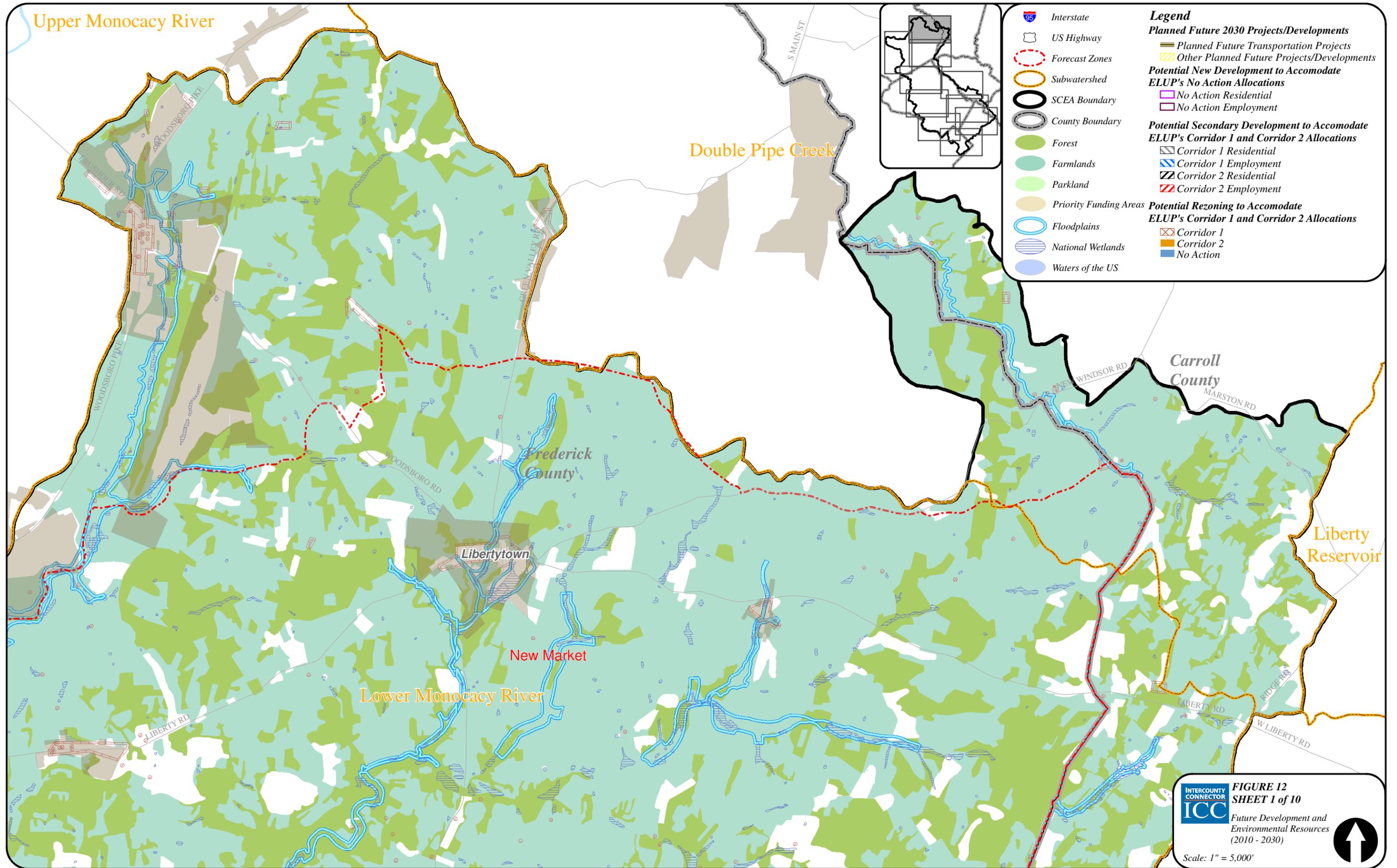
Planned future transportation and development projects slated to occur regardless of an ICC for the future time frame have been identified throughout the SCEA boundary (*Appendix 4 and 5 and Figure 12*). These projects would have a minimal impact on residential communities and a slightly greater impact on business communities throughout the SCEA boundary. There are far less development projects in the pipeline proposed for the future time frame then there are for the near future time frame. This can be attributed to the numerous private development projects that will likely occur however



	Interstate	Legend	
	US Highway		
	Forecast Zones		
	Subwatershed		
	SCEA Boundary		
	County Boundary		
	Forest		
	Farmlands		
	Parkland		
	Priority Funding Areas		
	Floodplains	Planned Future 2030 Projects/Developments	
	National Wetlands		Planned Future Transportation Projects
	Waters of the US		Other Planned Future Projects/Developments
		Potential New Development to Accomodate ELUP's No Action Allocations	
			No Action Residential
			No Action Employment
		Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations	
			Corridor 1 Residential
			Corridor 1 Employment
			Corridor 2 Residential
			Corridor 2 Employment
		Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations	
			Corridor 1
			Corridor 2
			No Action

FIGURE 12
MAP SHEET INDEX
 Future Development and Environmental Resources (2010 - 2030)

Scale: 1" = 22,000'



Upper Monocacy River

Double Pipe Creek

Lower Monocacy River

Libertytown

New Market

Frederick County

Carroll County

Liberty Reservoir

Legend

Planned Future 2030 Projects/Developments

- Planned Future Transportation Projects
- Other Planned Future Projects/Developments

Potential New Development to Accomodate ELUP's No Action Allocations

- No Action Residential
- No Action Employment

Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1 Residential
- Corridor 1 Employment
- Corridor 2 Residential
- Corridor 2 Employment

Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1
- Corridor 2
- No Action

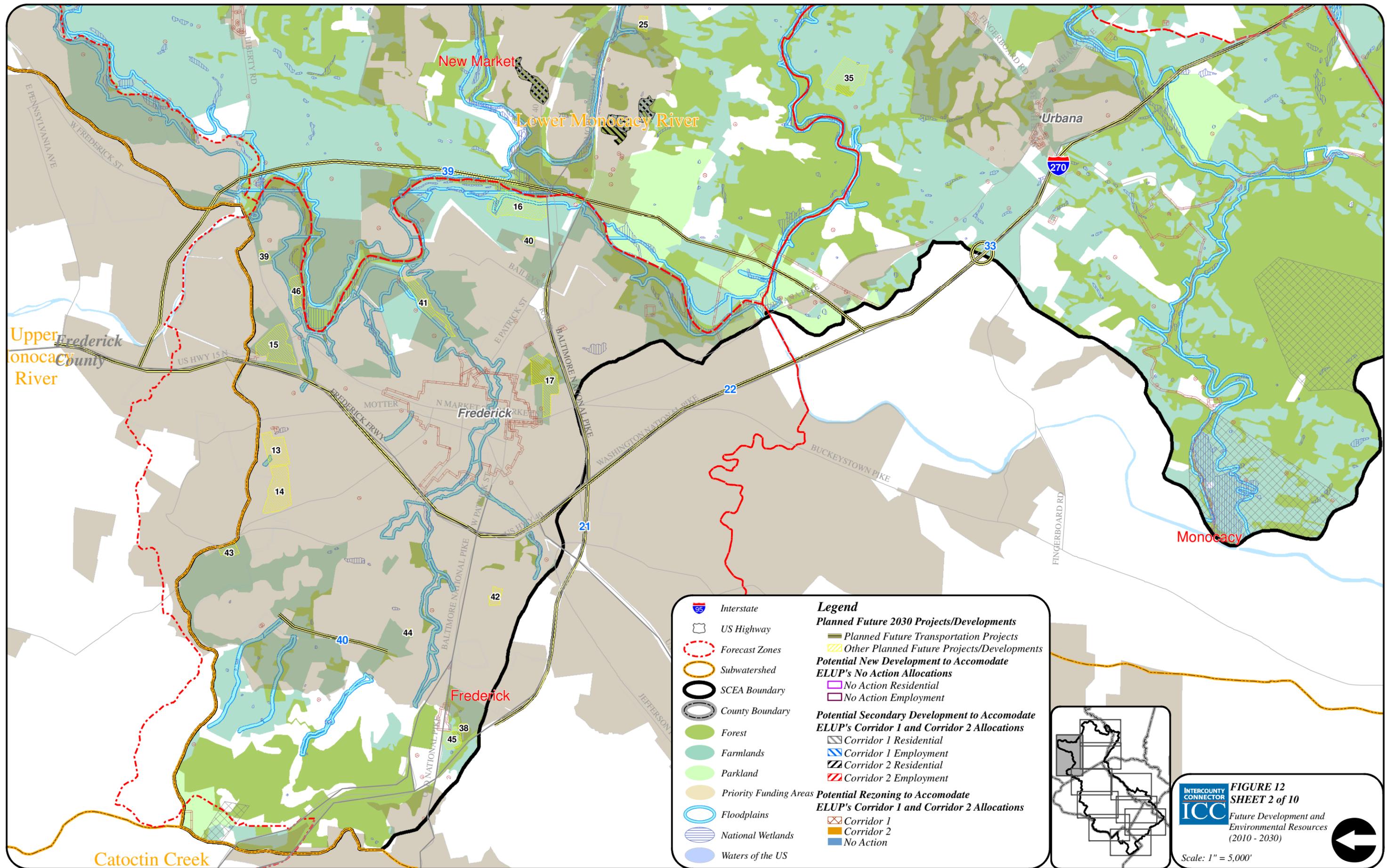
- Interstate
- US Highway
- Forecast Zones
- Subwatershed
- SCEA Boundary
- County Boundary
- Forest
- Farmlands
- Parkland
- Priority Funding Areas
- Floodplains
- National Wetlands
- Waters of the US

INTERCOUNTY CONNECTOR
ICC

FIGURE 12
SHEET 1 of 10

Future Development and Environmental Resources (2010 - 2030)

Scale: 1" = 5,000'



Legend

	Interstate		Planned Future Transportation Projects
	US Highway		Other Planned Future Projects/Developments
	Forecast Zones	Potential New Development to Accomodate ELUP's No Action Allocations	
	Subwatershed		No Action Residential
	SCEA Boundary		No Action Employment
	County Boundary	Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations	
	Forest		Corridor 1 Residential
	Farmlands		Corridor 1 Employment
	Parkland		Corridor 2 Residential
	Priority Funding Areas		Corridor 2 Employment
	Floodplains	Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations	
	National Wetlands		Corridor 1 No Action
	Waters of the US		Corridor 2 No Action

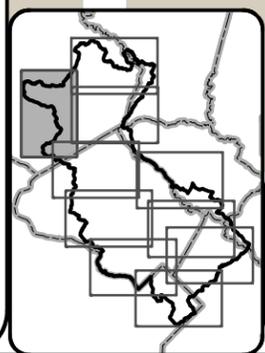
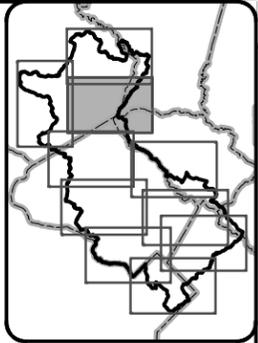
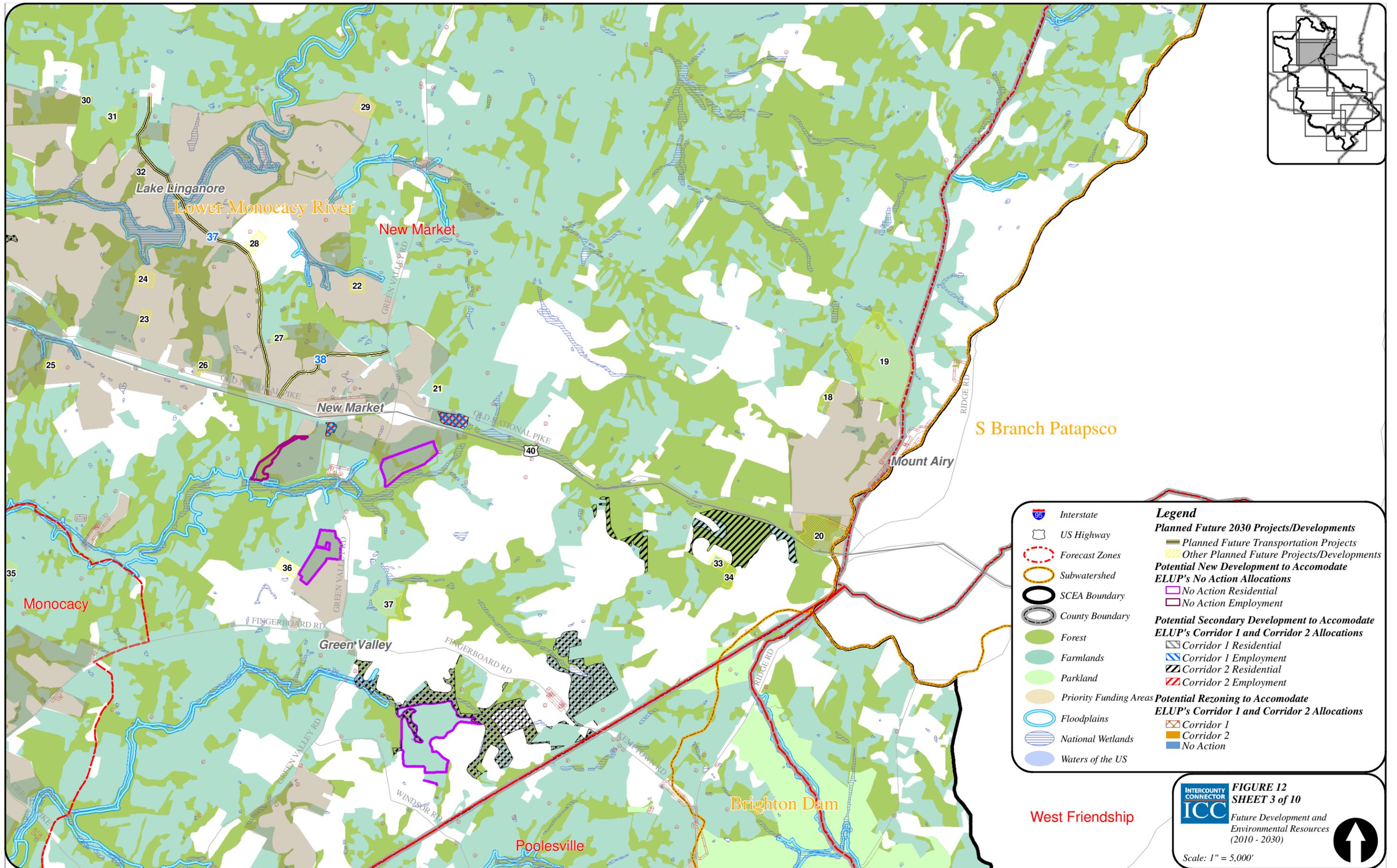


FIGURE 12
SHEET 2 of 10
 Future Development and Environmental Resources (2010 - 2030)
 Scale: 1" = 5,000'



Legend

Planned Future 2030 Projects/Developments

- Planned Future Transportation Projects
- Other Planned Future Projects/Developments

Potential New Development to Accomodate ELUP's No Action Allocations

- No Action Residential
- No Action Employment

Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1 Residential
- Corridor 1 Employment
- Corridor 2 Residential
- Corridor 2 Employment

Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

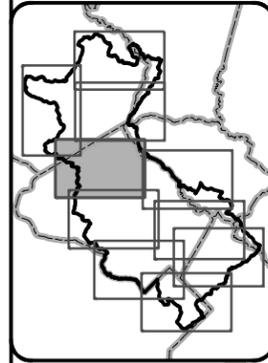
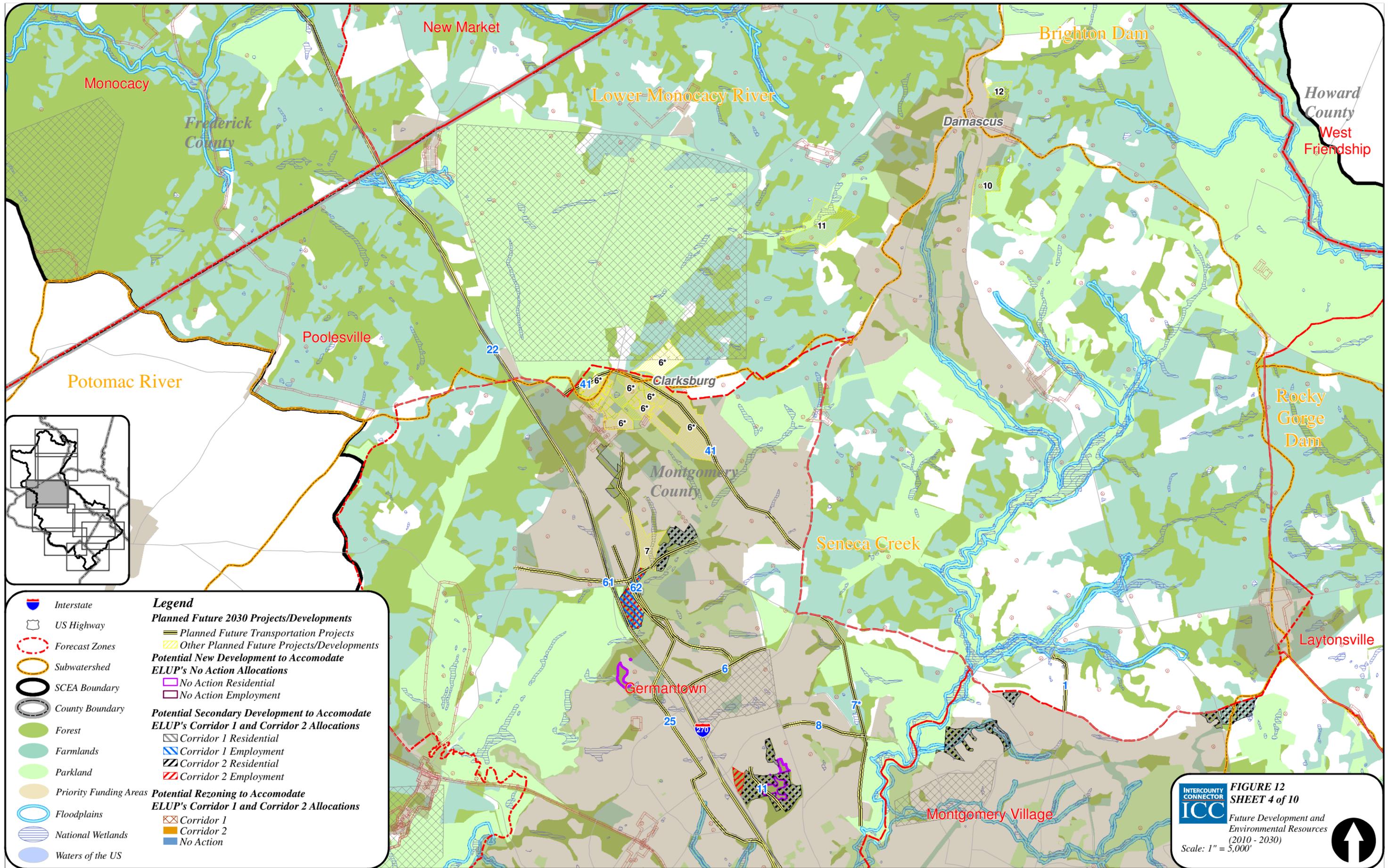
- Corridor 1
- Corridor 2
- No Action

INTERCOUNTY CONNECTOR
ICC

FIGURE 12
SHEET 3 of 10

Future Development and Environmental Resources (2010 - 2030)

Scale: 1" = 5,000'



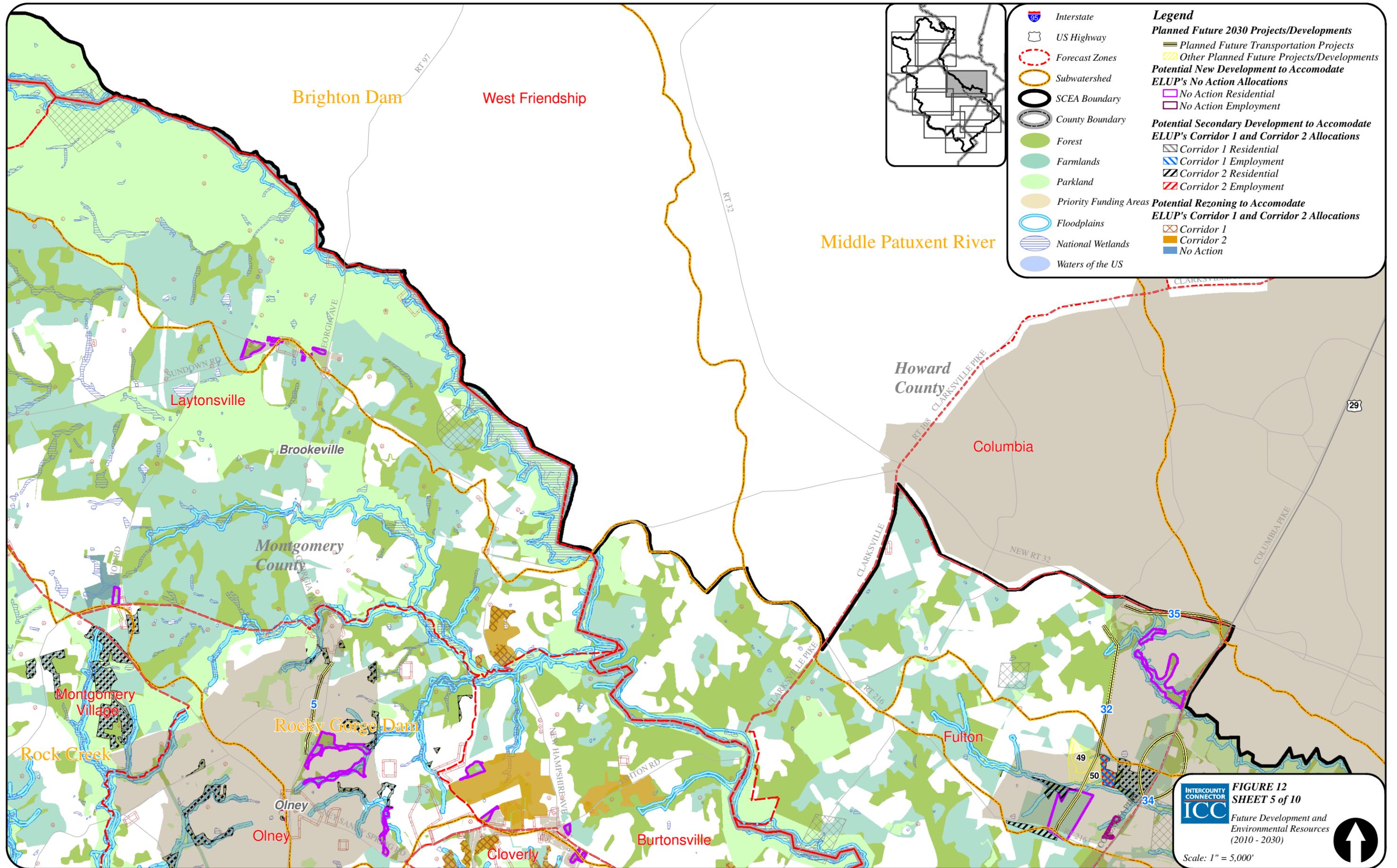
- Interstate
- US Highway
- Forecast Zones
- Subwatershed
- SCEA Boundary
- County Boundary
- Forest
- Farmlands
- Parkland
- Priority Funding Areas
- Floodplains
- National Wetlands
- Waters of the US

- Legend**
- Planned Future 2030 Projects/Developments**
- Planned Future Transportation Projects
 - Other Planned Future Projects/Developments
- Potential New Development to Accomodate ELUP's No Action Allocations**
- No Action Residential
 - No Action Employment
- Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
- Corridor 1 Residential
 - Corridor 1 Employment
 - Corridor 2 Residential
 - Corridor 2 Employment
- Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
- Corridor 1
 - Corridor 2
 - No Action

INTERCOUNTY CONNECTOR
ICC

FIGURE 12
SHEET 4 of 10

Future Development and Environmental Resources (2010 - 2030)
 Scale: 1" = 5,000'



Legend

Planned Future 2030 Projects/Developments

- Planned Future Transportation Projects
- Other Planned Future Projects/Developments

Potential New Development to Accomodate ELUP's No Action Allocations

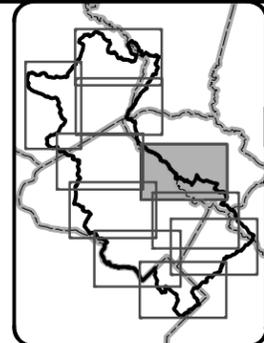
- No Action Residential
- No Action Employment

Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1 Residential
- Corridor 1 Employment
- Corridor 2 Residential
- Corridor 2 Employment

Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1
- Corridor 2
- No Action

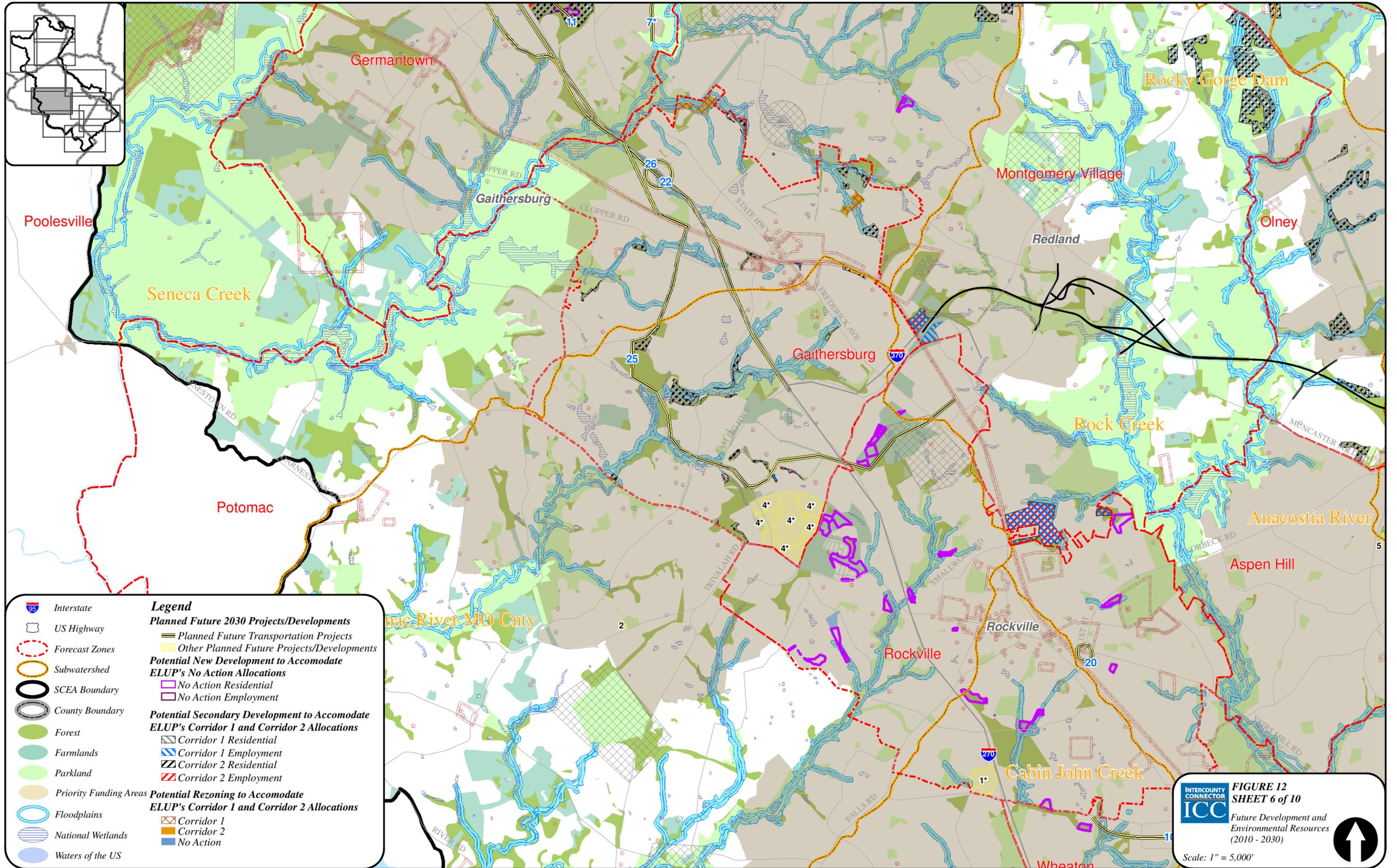


INTERCOUNTY CONNECTOR
ICC

FIGURE 12
SHEET 5 of 10

Future Development and Environmental Resources (2010 - 2030)

Scale: 1" = 5,000'



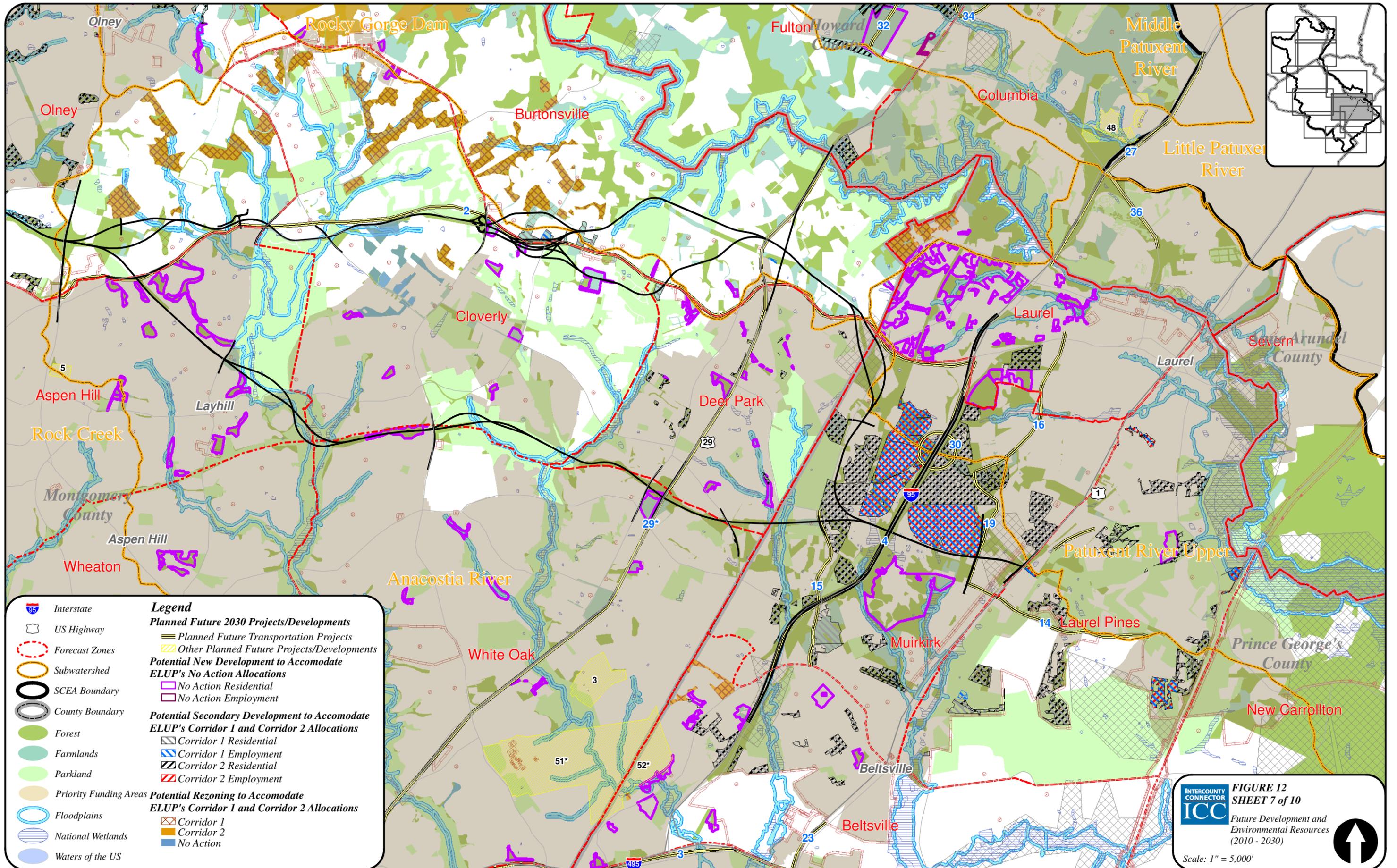
- Legend**
- Planned Future 2030 Projects/Developments**
- Planned Future Transportation Projects
 - Other Planned Future Projects/Developments
- Potential New Development to Accomodate ELUP's No Action Allocations**
- No Action Residential
 - No Action Employment
- Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
- Corridor 1 Residential
 - Corridor 1 Employment
 - Corridor 2 Residential
 - Corridor 2 Employment
- Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
- Corridor 1
 - Corridor 2
 - No Action

INTERCOUNTY CONNECTOR
ICC

FIGURE 12
SHEET 6 of 10

Future Development and Environmental Resources (2010 - 2030)

Scale: 1" = 5,000'



Legend

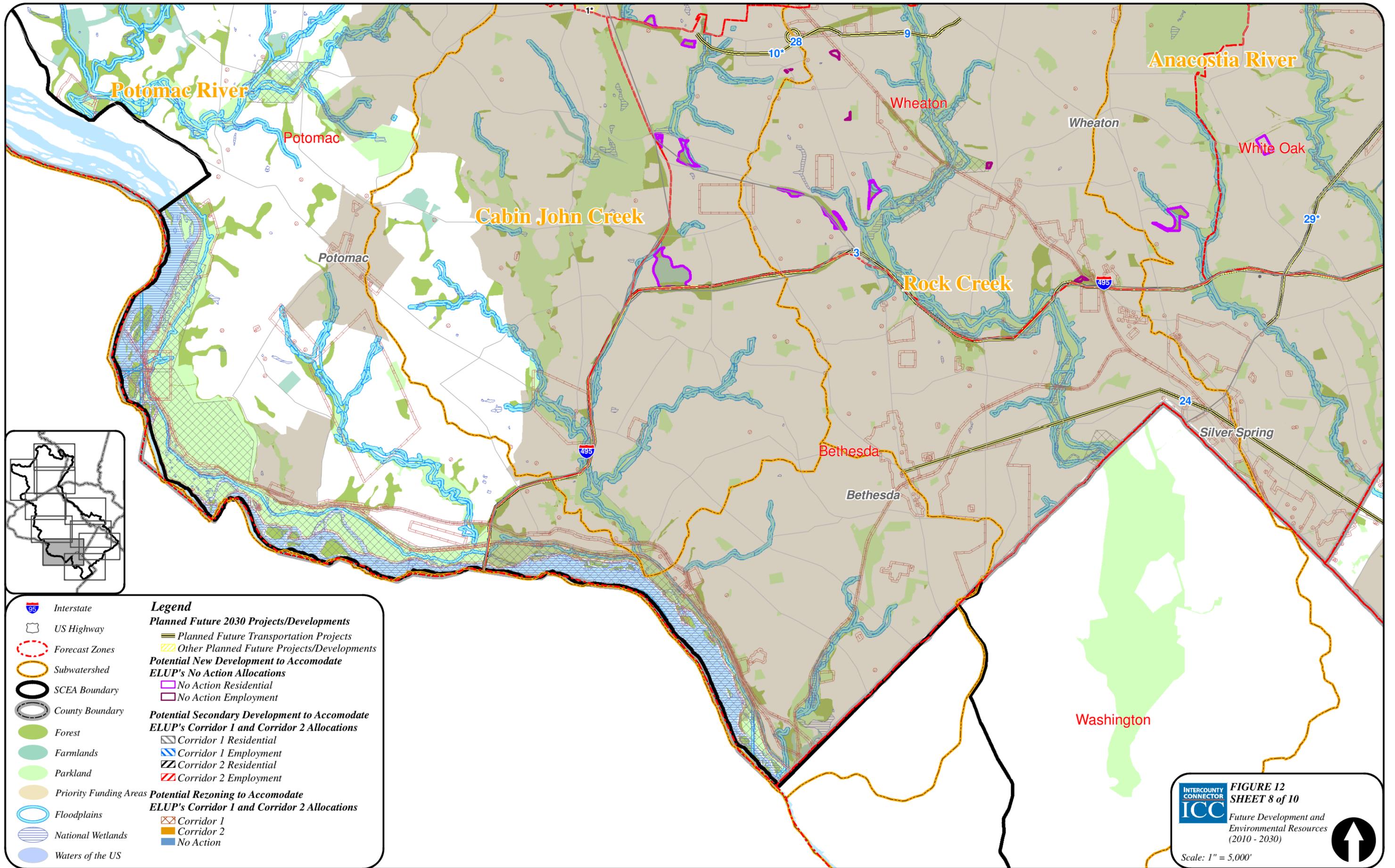
- Interstate
 - US Highway
 - Forecast Zones
 - Subwatershed
 - SCEA Boundary
 - County Boundary
 - Forest
 - Farmlands
 - Parkland
 - Priority Funding Areas
 - Floodplains
 - National Wetlands
 - Waters of the US
- Planned Future 2030 Projects/Developments**
- Planned Future Transportation Projects
 - Other Planned Future Projects/Developments
- Potential New Development to Accomodate ELUP's No Action Allocations**
- No Action Residential
 - No Action Employment
- Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
- Corridor 1 Residential
 - Corridor 1 Employment
 - Corridor 2 Residential
 - Corridor 2 Employment
- Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
- Corridor 1
 - Corridor 2
 - No Action

INTERCOUNTY CONNECTOR
ICC

FIGURE 12
SHEET 7 of 10

Future Development and
 Environmental Resources
 (2010 - 2030)

Scale: 1" = 5,000'



Legend

Planned Future 2030 Projects/Developments

- Planned Future Transportation Projects
- Other Planned Future Projects/Developments

Potential New Development to Accomodate ELUP's No Action Allocations

- No Action Residential
- No Action Employment

Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

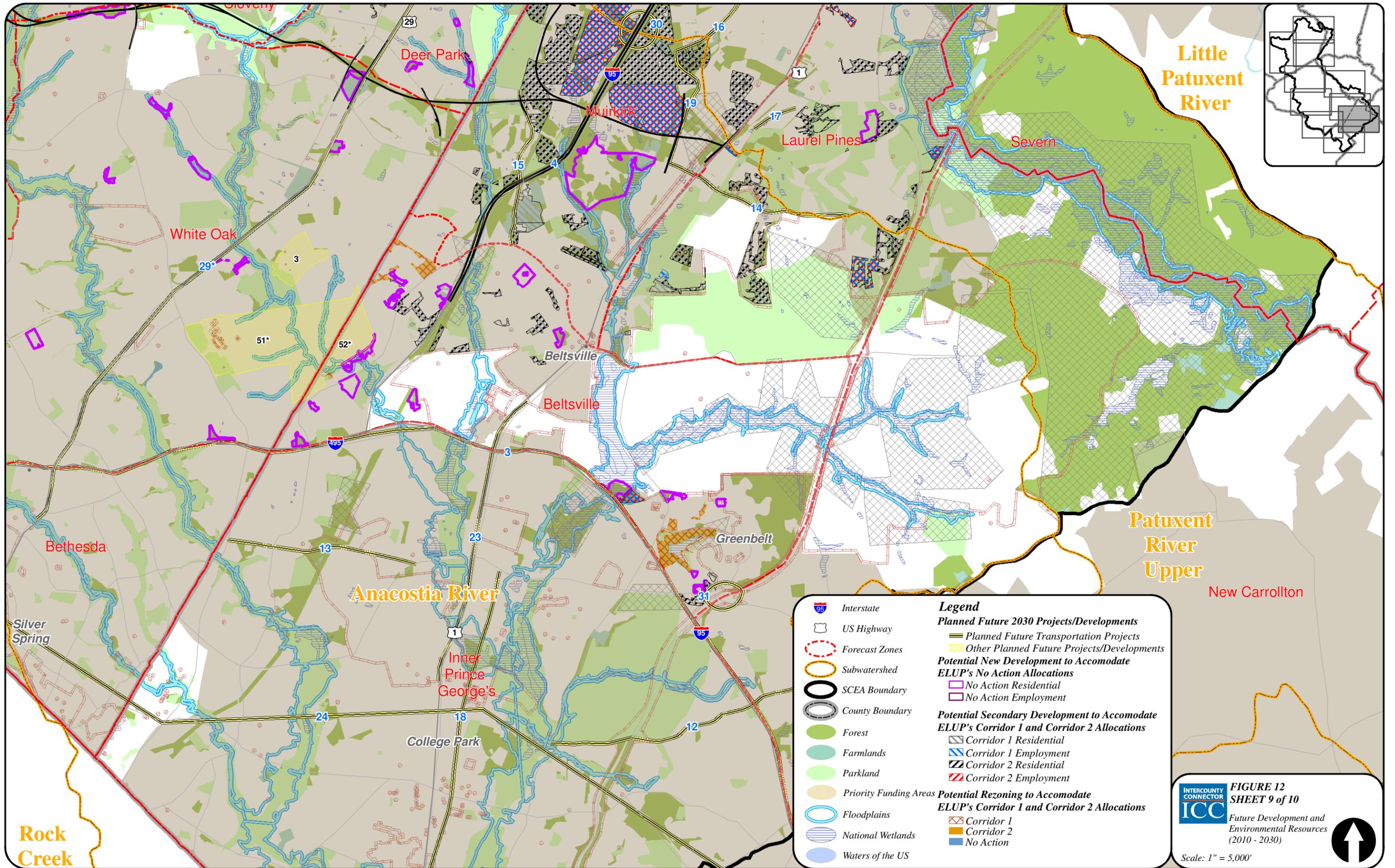
- Corridor 1 Residential
- Corridor 1 Employment
- Corridor 2 Residential
- Corridor 2 Employment

Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1
- Corridor 2
- No Action

FIGURE 12
SHEET 8 of 10
 Future Development and
 Environmental Resources
 (2010 - 2030)
 Scale: 1" = 5,000'





Little Patuxent River

Patuxent River Upper

New Carrollton

Anacostia River

Rock Creek

Legend

Planned Future 2030 Projects/Developments

- Planned Future Transportation Projects
- Other Planned Future Projects/Developments

Potential New Development to Accomodate ELUP's No Action Allocations

- No Action Residential
- No Action Employment

Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1 Residential
- Corridor 1 Employment
- Corridor 2 Residential
- Corridor 2 Employment

Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1
- Corridor 2
- No Action

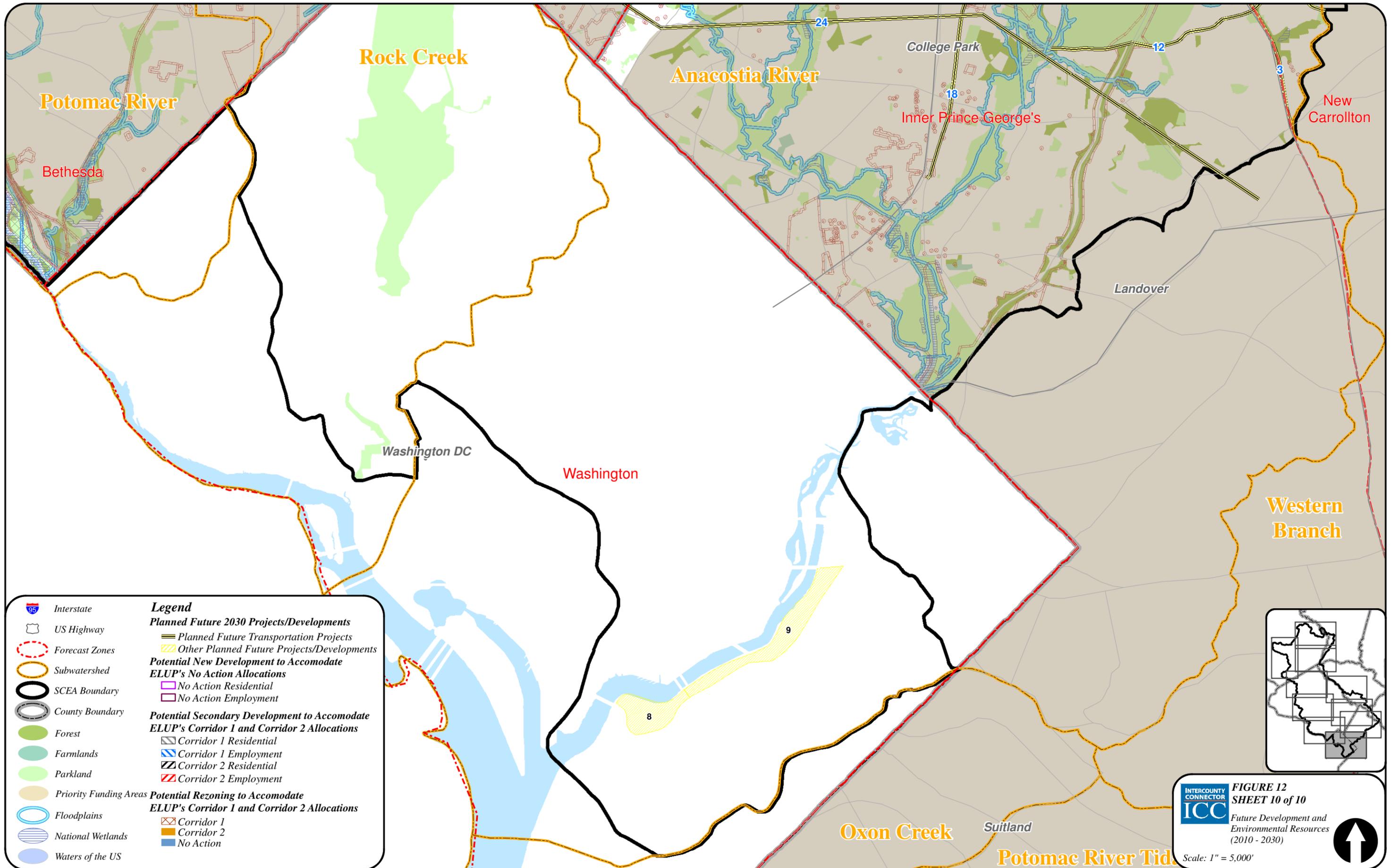
Other Legend Items:

- Interstate
- US Highway
- Forecast Zones
- Subwatershed
- SCEA Boundary
- County Boundary
- Forest
- Farmlands
- Parkland
- Priority Funding Areas
- Floodplains
- National Wetlands
- Waters of the US

FIGURE 12
SHEET 9 of 10

Future Development and Environmental Resources (2010 - 2030)

Scale: 1" = 5,000'



Legend

Planned Future 2030 Projects/Developments

- Planned Future Transportation Projects
- Other Planned Future Projects/Developments

Potential New Development to Accomodate ELUP's No Action Allocations

- No Action Residential
- No Action Employment

Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1 Residential
- Corridor 1 Employment
- Corridor 2 Residential
- Corridor 2 Employment

Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations

- Corridor 1
- Corridor 2
- No Action

INTERCOUNTY CONNECTOR
ICC

FIGURE 12
SHEET 10 of 10
 Future Development and
 Environmental Resources
 (2010 - 2030)

Scale: 1" = 5,000'

are not in the pipeline at this point. These types of projects have much shorter planning periods compared to major government funded capital improvements. The number of transportation projects are about the same compared to the near future time frame.

Planned development projects mainly consist of public facilities and mixed-use development. Although areas throughout the SCEA boundary are slated for future development, a large portion of development is expected within Frederick County. Public facilities within Frederick County include thirteen schools, a police station, a fire station, a conference center and a homeland security facility. An industrial airpark is also proposed within the county. The addition of numerous public facilities suggest that higher growth rates in these areas are expected even without the construction of an ICC alternative. Mixed-use planned development is mainly concentrated within Montgomery County and consists of Fortune Parc, the Life Sciences Center and the Clarksburg Town Center. Montgomery County also is proposing a good amount of commercial development including the Gateway 270 Corporate Park and the FDA Headquarters. Howard County is proposing four residential developments.

The majority of proposed development would benefit the local economy by increasing the number of jobs within the SCEA boundary. Frederick and Montgomery counties are proposing large employment areas that would provide jobs in this area. Although planned residential development does not appear extensive within the future 2030 time frame, it is important to note that private development projects (especially residential) typically require shorter planning periods and therefore, do not account for future unforeseen private development projects for the No-Action future 2030 time frame. It is likely that residential development will continue in the future 2030 time frame, however, the extent, location and size of these projects is not known since planning for these types of projects has not yet initiated.

The major employment centers being proposed within Montgomery and Frederick counties would contribute to congestion on major arterials such as I-95, I-270 and I-495. Communities where residential/mixed-use planned development are being proposed would likely increase traffic congestion on local roads. Congestion in these areas is not expected to increase substantially because there are very few isolated areas of planned residential/mixed-use development.

Major transportation projects proposed within the SCEA boundary for the future time frame include:

- I-270/US 15 Multi Modal Corridor Study
- I-495 Capital Beltway Study
- Upgrade of US 29
- Construction of a road from MD 28 to MD 198

These are projects that could support the additional commuters anticipated from the major employment areas. Quantitative impacts for additional transportation projects were assessed when impact calculations were available through NEPA documentation

and can be found in *Table 10*. Although residential and business displacements are anticipated with a number of these projects, the overall SCEA boundary will generally continue to experience growth.

Population growth is expected in this area throughout the future time frame. Community facilities, such as schools and recreational centers within the areas may also experience increased population pressures within some of the counties. Frederick County has proposed additional facilities, such as schools and fire and police stations, in order to absorb the expected increase in population. However there is concern in Montgomery and Prince George's counties of overcrowding in the public school systems. Although no additional facilities are proposed for the future time frame based on available data, public school systems are currently looking at ways to balance development with overcrowding within the public schools systems.

The proposed future development is consistent with the county PFA's and sewer and water service boundaries in most cases. There are a few isolated developments within Frederick County and Western Montgomery County that fall outside of these boundaries.

No-Action Potential Development

According to the ELUP households and employment allocation results, all three ICC alternatives under consideration would experience additional development beyond what has been planned and identified by the Counties. In addition to the planned projects, and based on ELUP allocation projections for households and employment, other potential developments were identified under the No-Action Alternative. Please refer to *Figure 12* for the location of potential development per ICC alternative. The No-Action Alternative would contribute to the cumulative impacts within the area because much of the planned potential development would occur regardless of an ICC. Potential development areas to accommodate the increase in allocations over the No-Action Alternative are considered secondary development areas associated with Corridors 1 and 2. The following sections will discuss how the potential development will effect residential and business communities based on the ICC alternatives.

Within the SCEA boundary, approximately 2,512 acres of land has been identified that can potentially support residential or commercial development under the No-Action Alternative (beyond what is currently planned) based on ELUP allocations. This also includes areas that would potentially require rezoning, however does not include areas that may require redevelopment in order to fully accommodate anticipated growth. Communities which anticipate the greatest amounts of additional potential development beyond what has been planned by the counties, include:

- Muirkirk
- West Laurel
- Laurel
- Rockville
- Shady Grove
- Urbana (Frederick County)

The majority of the development identified is smaller areas of residential development. In most cases, these areas are adjacent to existing communities. Therefore these potential development areas would fit in with the surrounding existing land uses. Business development is not as dominant under the No-Action Alternative. There are few isolated areas throughout the area.

Areas that would potentially require rezoning mainly exist in the eastern portion of Montgomery County. These areas are very rural and are in close proximity to the Patuxent River. Areas that may require redevelopment exist within highly urbanized areas such as Rockville, Gaithersburg, Springbrook, Calverton and Cloverly. Redevelopment in these areas would be required to fully accommodate ELUP's growth projections since available land for new development is currently limited in these areas.

Communities affected by development under the No-Action Alternative would likely have added congestion on existing roadways. With no major transportation improvements anticipated, additional vehicles throughout residential communities within the immediate study area would affect local roads, thus deteriorating mobility throughout the study area. In general, areas further removed from the immediate ICC study area but within the SCEA boundary would not experience the effects of the increased traffic to the same extent.

Cumulative impacts under the No-Action Alternative would contribute to additional residential and business development throughout the study area. This would lead to mobility and safety issues in existing communities. Existing public facilities close to the study area may also feel increased growth pressures by increasing the residential and business areas throughout the study area.

Corridor 1 - Secondary Effects

Within the SCEA boundary, approximately 4,945 acres of land has been identified that could potentially support either residential or commercial development based on ELUP's allocations projected by the ELUP. This takes into account the number of acres that would potentially need to be rezoned, however it does not account for areas that may require redevelopment in order to accommodate the anticipated growth.

Communities which anticipate the greatest amount of secondary development include those areas adjacent to the proposed I-95/ICC Corridor 1 Interchange. Communities within this area may be subjected to larger areas of residential and commercial

development in and around Konterra. Communities most likely affected by an increase in traffic congestion would be:

- Laurel
- Saddle Creek
- Mayfield/Muirkirk
- Calverton
- South Laurel

These communities currently consist of scattered residential and business development surrounding the Konterra area. However the potential secondary development in this area would increase traffic flows on nearby roads, particularly US 1 and Old Gunpowder Road.

Additional communities affected by Corridor 1 potential secondary development exist within the western portion of the study area, where Corridor 1 and 2 follow the same alignment. These areas are much smaller in size and are scattered to the north and south of the alignment. These areas would mostly accommodate potential residential development:

- Manor Woods
- Manor Village
- Longmead
- Sycamore Acres
- Muncaster Manor/Bowie Mill Estates
- Olney Acres/Cashell Manor

The potential secondary development that would occur would convert forested areas within existing communities to residential development. This would add congestion on existing local roadways in addition to removing forested buffers, which would not increase noise levels but may decrease visual quality in existing communities.

Existing communities within Frederick County, along the Montgomery County line, would also be affected by additional residential development likely to occur in this area. This area does not anticipate major changes based on the potential secondary development, however existing communities may experience additional traffic congestion and removal of some existing forested buffers. They include:

- Silver Manor Estates
- Maryland Manor
- Green Valley
- Kemptown

Smaller areas that could experience secondary development associated with Corridor 1 occur within the Spencerville/Burtonsville communities. There are four residential in-fill

type areas and one commercial area, which could accommodate smaller amounts of additional secondary development. It is not likely that these areas would significantly contribute to additional traffic congestion.

Business development is anticipated in the areas adjacent to the proposed I-95/ICC Corridor 1 Interchange and along the I-270 Corridor. Other additional areas would likely be developed under the Corridor 1 Alternative to fully accommodate the projected growth. These areas would likely require rezoning or redevelopment. Communities affected by this additional development would likely exist within the Gaithersburg and Rockville areas as well as areas adjacent to the Montgomery County /Prince George's County Line in the vicinity of the proposed ICC. Since both of these areas are very urbanized, it is likely that redevelopment will occur in the future time frame. Redevelopment within these areas would add additional traffic congestion on local roadways. However with the construction of the Corridor 1 Alternative, operation of the local roads may improve because through traffic would primarily use the new roadway, thus improving congestion on local roads.

Cumulative impacts under the Corridor 1 Alternative would contribute to increase residential development in two main locations, Gaithersburg/Rockville and around the Montgomery Prince George's County line. Potential secondary development would add to an increase in traffic congestion on the local roadways. Public facilities within these areas would likely feel additional pressures of the increased growth. As discussed in *Chapter 1, Purpose and Need*, the study area residents and businesses suffer from a severe lack of mobility and accessibility. An ICC would provide choices for the people who live, work, and recreate in the. The traffic studies show that in addition to providing this choice for study area travelers, an ICC would help to alleviate and minimize some of the growing traffic congestion. The ICC build alternatives, to varying degrees, would help to relieve this mounting congestion. Moreover, this transportation choice would extend to the residents of the study area the opportunity to reach more jobs within a reasonable commute time. Corridor 1 would benefit areas such as White Oak and Muirkirk and by improving the local economy. The ELUP anticipates employment growth to be strong in these areas if the Corridor 1 Alternative is chosen.

Corridor 2 – Secondary Effects

Within the SCEA boundary, approximately 5,546 acres of land has been identified by the ELUP that could potentially support either residential or commercial development. This takes into account the number of acres that would potentially require rezoning, however does not take into account the acres required for redevelopment.

Secondary development associated with Corridor 2 closely resembles secondary development discussed under Corridor 1 so community impacts would also be similar. The areas available for development around the Spencerville/Burtonsville area would not be developed due to the close proximity of the Corridor 2 Alternative. However, there are two areas adjacent to the proposed Corridor 1, which would likely handle residential in-fill type development if Corridor 2 was selected. These areas would occur in the

Colesville and Avonshire communities but it is not likely that these areas would contribute to additional traffic congestion on local roadways.

Other additional areas would likely be developed under the Corridor 2 Alternative to fully accommodate projected growth. These areas would likely require rezoning or redevelopment. Communities affected by this additional development would likely exist within the Patuxent Watershed and include Burtonsville and Spencerville Knolls communities. Since this area is mostly rural, it is likely that rezoning would occur. There are very large areas of land in this area that could potentially be rezoned. It is likely that areas such as these will require rezoning in order to fully accommodate employment and residential development. This would increase traffic congestion and could take away from the visual quality that exists for other communities within this rural area by removing forested areas. These areas exist outside of the PFA and water/sewer boundaries, therefore county approval will need to be obtained before any development could occur in this area.

Cumulative impacts under the Corridor 2 Alternative would contribute to increase residential development within eastern Montgomery County. Within a rural area the potential secondary development would add to an increase in traffic congestion on the local roadways and would remove portions of the visual appeal this area currently has. Public facilities within these areas would likely feel additional pressures of the increased growth.

b. Parklands/Recreational Facilities

The establishment of Rock Creek Park in 1890 for the scenic and recreational enjoyment of residents began the preservation of natural parks within the Washington DC Metropolitan Region. Followed by the 1901-02 McMillan Plan, Washington DC's Urban Plan, which enforced the establishment of a park system within the city. In 1930 the Capper Cramton Act authorized funding for the acquisition of lands in Washington DC, Maryland and Virginia for the park and parkways system of national capitol. In the 1960s, Maryland began a 30-year active period of acquisition and development of parks. Moreover, in 1961, a special Commission of Forests and Parks recommended long-term goals and strategies for state park development. The Maryland Outdoor Recreation Land Loan Act of 1969, which established Program Open Space (POS), along with Federal aid, made possible accelerated park acquisition, but there was never a dedicated commitment of funding for facility development or, especially, for operation and maintenance. In its first 20 years, POS added nearly 60,000 acres to Maryland's state park holdings, a 57 percent increase.

Following the Montgomery and Prince George's County *1964 Wedges and Corridors Plan*, a General Plan update was published in 1993, which highlighted changes in the area from 1970 to 1991. However, the 1993 update focused primarily on Montgomery county. Information regarding Prince George's County parks during this time was unavailable. According to the *1993 Update*, parklands increased from 14,500 acres to 27,611 acres between 1970 and 1991 in Montgomery County (an 88 percent increase).

New parks were added in all categories: two large regional parks in upper Montgomery County and one in the eastern portion. In the 1970s, several large, new parks were established in the Rockville, Gaithersburg and Germantown areas. New parklands were acquired in areas with the greatest population growth, primarily in the I-270 Corridor.

Due to stringent federal, state and local laws and regulations preserving parklands, it is not anticipated that parklands and recreational facilities would be significantly impacted within the SCEA boundary in the present to 2030 timeframe. Protection under Section 4(f) of the USDOT Act of 1966 will assure that direct impacts to public parkland that could result from the ICC would be minimal and that all possible planning would occur to minimize harm. Impacts that may occur would be indirect and may include improved access and mobility, decreased air quality, increased noise levels or impacts to natural environmental resources should the ICC be built. In addition, private developments in the SCEA boundary are planned to be consistent with regional and county master plans, dedicated to the conservation of parklands and natural conservation areas. An example of this is Montgomery County where, as of December 1998, the entire park system totaled 28,354 acres of which 25,565 acres (90%) was identified as County-Wide Parks including 11,983 acres (42%) as Stream Valley, 7,827 acres (28%) as Regional, 2,709 acres (10%) as Recreational, 2,167 acres (8%) as Conservation Areas and 879 acres (3%) as Special Parks. The remaining park system included 2,789 acres (10%) of local Community-Use Parks including 22 acres (< 1%) as Urban, 595 acres (2%) as Neighborhood, 1,928 acres (7%) as Local and 244 acres (< 1%) as Neighbor Conservation Area.

Past

Existing parkland in the early 1900's consisted of several stream valley parks in Montgomery and Prince George's Counties, as shown on a map created in 1930 by the National Capital Park and Planning Commission (Gutheim 1977). All readily available historic aerial photography did not delineate parkland boundaries and the 1973 land use mapping did not include a specific designation for parks/recreational facilities. Therefore, a trend analysis was conducted on parks/recreational facilities within the SCEA boundary that involved reviewing past master plans that included information on existing parklands. Past master plans of Howard, Frederick and Anne Arundel Counties did not provide detailed information regarding parklands. However, information was available for Montgomery and Prince George's County, per the *Wedges and Corridors Plan of 1964*.

Since 1964, there was a substantial increase in parks/recreational facilities within Montgomery and Prince George's County. According to the *Wedges and Corridors Plan of 1964*, the total parkland holdings within Montgomery and Prince George's counties for the year 1963 were 6,500 acres. During this time, the majority of parklands were located within stream valleys (approximately 2/3 of all parklands). In addition, the first regional park was acquired in Prince George's County within the vicinity of Clinton. According to the 1964 plan, the projected parkland holdings would be approximately 40,000 acres in Prince George's and Montgomery Counties.

Please refer to **Figure 13** for locations of parklands/recreational facilities within Montgomery and Prince George’s County, as identified in the *1964 Wedges and Corridors Plan*.

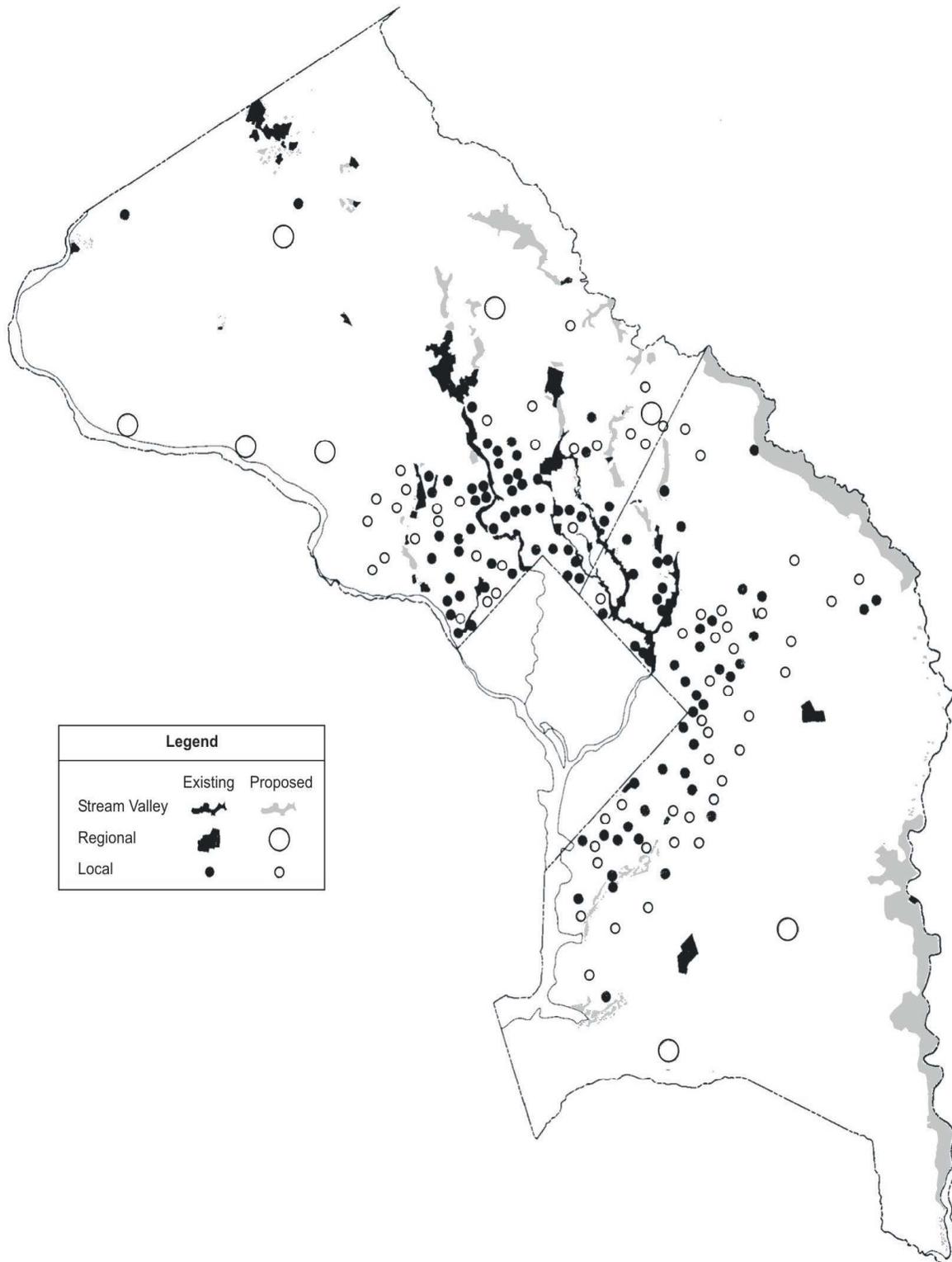
Present/Near Future

There are over 300 parklands including both public and private (i.e. swim clubs, golf courses) recreational facilities within the SCEA boundary. The majority are public parkland/recreational facilities are located on forested or open land throughout the SCEA boundary. Most parklands/recreational facilities within the SCEA boundary are located in Montgomery County and consist of regional stream valley parks. By definition, these are interconnected linear parks along major stream valleys that provide conservation and recreational areas. Parks and recreational facilities in the ICC Study are described in *Chapter II Community Facilities and Services*. **Chapter V of the DEIS, Section 4(f) Evaluation** describes where the ICC Build Alternatives would directly impact public-owned park and recreation facilities in the study area. Corridors 1 and 2 would both impact Mill Creek Stream Valley Park, Rock Creek Regional Park, North Branch Stream Valley Park, and Northwest Branch Recreational Park. Corridor 1 would also impact Layhill Local Park, Northwest Branch Stream Valley Park – Unit 5, and Upper Paint Branch Stream Valley Park. Corridor 2 would also impact Red Door Special Park, the privately owned Trotters Glen Golf Course, Patuxent River Watershed Conservation Park, and the T. Howard Duckett Watershed Property which is a publicly owned multiple use conservation and recreation parkland. Depending on the alternative selected, between 56 and 139 acres of parklands are anticipated to be impacted.

Planned development projects anticipated to occur within the near future timeframe (present – 2010) were identified and overlaid with parkland/recreational facilities. Several planned transportation projects have the potential to impact public parklands/recreational facilities in the SCEA area. Protection under Section 4(f) will assure that parkland impacts would be minimized and that replacement parkland would be coordinated with officials having jurisdiction of the public parks. It is anticipated that parkland impacts from private undertakings may be reduced due to existing federal, state and local laws and regulations in place that help to create and protect these resources.

Most planned development in the near future timeframe will occur in northeastern Montgomery County. While industrial, institutional and commercial developments also exist in this vicinity, most development in this area is anticipated to be residential. While residential development in this vicinity has potential to indirectly impact parklands, by building in close proximity to parklands, most residential development would take place on forested or agricultural land zoned for residential use where county and local approval of development plans would require establishment of conservation and recreational areas. Smaller parks in the vicinity of planned development are intended to serve adjacent communities and neighborhoods. By definition, these types of Community Use Parks also require conservation and recreational components in accordance with local Master Plans that would create Urban, Neighborhood, and Local or Neighborhood Conservation Parks. Parklands in close proximity to planned residential development include but are

Figure 13
Parklands/Recreational Facilities – Montgomery and Prince George’s Counties (1964)
Source: *Wedges and Corridors Plan of 1964*



Park, Northwest Branch Stream Valley Park, Patuxent River Watershed Conservation Park, T. Howard Duckett Watershed Property, Upper Paint Branch Park, Upper Paint Branch Stream Valley Park, Olney Manor Recreational Park and the East Norbeck Local Park. Any impacts to these parks would be minimal due to regional and local planning requirements.

Parklands in the Gaithersburg, North Potomac, Rockville, Germantown, Poolesville and Montgomery Village areas may also be impacted by planned residential/mixed use projects in the near future however approval of development plans will assure that conservation parkland and recreation needs are identified as part of the planned development. In Gaithersburg, the development of a mixed-use facility near the I-270/Watkins Mill Road Interchange may also impact the Seneca Creek State Park. where a parcel of the forested region of the park may be acquired, according to the Gaithersburg Master Plan.

In North Potomac, a portion of forested land adjacent to the Turkey Foot property and the Muddy Branch Park, the Roberts property, is anticipated to be designated as part of the Muddy Branch Park (*Potomac Master Plan*). Development on the Turkey Foot property may not directly impact this portion of the park, but may increase use of the park.

Mixed-use development near the Shady Grove Adventist Hospital in the Rockville area may directly impact the small Green Park and Fields Road Local Park (*Gaithersburg Master Plan*). This development is anticipated to be associated with the Adventist Hospital and may increase use of the parks. Residential development to the southeast of the hospital, the Fallsgrove area, could increase use in the surrounding parks, including Woottons Mill, Glenora and Upper Watts Branch Parks.

Residential development near the I-270/West Old Baltimore Road interchange in Germantown will not directly impact the park but may increase use of the adjacent Black Hill Regional Park. This impact may be beneficial to the area, as this park has been designated as a location for “active recreational facilities” as part of the Germantown Community’s initiative to provide designated locations for recreational facilities and discourage these activities in surrounding natural conservation areas. These areas are currently forested or agricultural, but are not included in any parkland designation.

Development of the Rocky Hill Middle School in Cedar Grove (Poolesville) and the nearby Clarksburg Town Center may increase use of the adjacent Ovid Hazen Wells Recreational Park. This would be an indirect impact consistent with The Clarksburg Master Plan’s stated ongoing effort to increase access and use to this parkland. Land use at this location is currently forested or agricultural with surrounding residential properties.

A mixed-use facility along Snouffer School Road in the Montgomery Village region may increase use to the adjacent Green Farm Conservation Park. This area is currently forested and agricultural. Improvements to Norbeck Community College may directly

impact nearby North Branch Stream Valley Park with the use of a narrow strip of land along the eastern side of the Park.

In Howard County, improvements to the Johns Hopkins University Applied Physics Laboratory facility and the residential development of Pindell Chase lie adjacent to areas of County-owned open space; however, due to the high level of development already existing in this region, impacts are not expected to be substantial.

Several planned transportation projects in the near future time frame are anticipated to directly impact parklands/recreational facilities within the SCEA boundary. A majority of these impacts would occur to parklands/recreational facilities in Montgomery County. *Table 11* summarizes planned transportation projects anticipated to directly impact parklands/recreational facilities within the SCEA boundary. Any US DOT transportation projects will be required to comply with Section 4(f) of the 1966 Department of Transportation (DOT) Act; therefore, parkland impacts will be minimized as much as possible. State and Local parkland preservation policies and programs will also help to protect these resources.

Widening or reconstruction projects such as MD 28/198, are anticipated to have fewer impacts to surrounding parklands/recreational facilities than new construction of roadways, such as the Midcounty Highway (*Table 11*). Parkland impacts associated with new development projects include increased use due to increased access, increased air and noise pollution, increased run-off due to construction and increased impervious areas. Construction of new roadways may introduce or increase these impacts as well as acquire ROW from respective parklands. The bisection of parklands may impact cohesion and access among park amenities. US DOT transportation projects would be required to follow Section 4(f) of the DOT Act; therefore, potential impacts to parklands due to these projects would likely be avoided, minimized and mitigated.

Future

No-Action – Planned Development

County and State-planned projects in the future timeframe (2010 – 2030) were identified and overlaid with parklands and recreational facilities in the SCEA boundary to determine possible impacts in the future timeframe (*Figure 12*). These projects are anticipated to occur regardless of ICC construction.

Planned transportation projects in the future timeframe, identified below, are not anticipated to directly impact parklands/recreational areas within the SCEA boundary. Based on overlay analysis and available project documentation, these include the I-95/Contee Road Transportation Improvement Study, MD/28 Rockville Town Center, MD 355 Montrose Road/Randolph Road, New Market Collector, Christopher Crossing, Father Hurley Boulevard/Ridge Road, Observation Drive Extended, Baltimore Washington Parkway/Greenbelt Road and MD 118 Extended.

Table 11
Planned Transportation Projects (Present –2010) with Potential to Directly Impact Adjacent Parklands/Recreational Facilities in the SCEA Boundary

Planned Project	Description	Parks Potentially Impacted	County
Reichs Ford Road	Reconstruction	<ul style="list-style-type: none"> • Monocacy Pine Cliff Park 	Frederick
Midcounty Highway/ Middlebrook Road	Construction	<ul style="list-style-type: none"> • Great Seneca Park • North Germantown • Seneca Creek State Park 	Montgomery
Middlebrook Road	Extension	<ul style="list-style-type: none"> • Germantown East Local Park 	Montgomery
MD 115 Muncaster Mill Road	Widen	<ul style="list-style-type: none"> • Laytonia Recreational Park • Rock Creek Regional Park • Muncaster Recreational Park • Rock Creek Stream Valley Park • North Branch Stream Valley Park 	Montgomery
Goshen Facility	Widen	<ul style="list-style-type: none"> • Stewartown Local Park • Cabin Branch Stream Valley Park 	Montgomery
Longdraft Road	Widen	<ul style="list-style-type: none"> • Seneca Creek State Park 	Montgomery
Briggs Chaney Road	Widen	<ul style="list-style-type: none"> • Upper Paint Branch Stream Valley Park • Spencerville Park • Airy Hill Local Park • Cross Creek Park • Little Paint Branch Stream Valley Park • Old Gun Powder Road Community Park 	Montgomery
US 29	Upgrade	<ul style="list-style-type: none"> • Upper Paint Branch Stream Valley Park • Spencerville Park • Airy Hill Local Park • Cross Creek Park • Little Paint Branch Stream Valley Park • Old Gun Powder Road Community Park • Sligo Creek Stream Valley Park • Northwest Branch Park • Paint Branch Stream Valley Park • T. Howard Duckett Watershed Property 	Montgomery
Greencastle Road	Widen	<ul style="list-style-type: none"> • Fairland Recreational Park 	Montgomery
Cherry Hill Road	Widen	<ul style="list-style-type: none"> • Paint Branch Stream Valley Park • Cherry Hill Road Community Park 	Prince George's
US 1/ MD 201	Corridor Study	<ul style="list-style-type: none"> • Snowden Oaks Park 	Prince George's
Contee Road	Widen	<ul style="list-style-type: none"> • Montpelier Forest Neighborhood Park 	Prince George's
Snouffer School Road	Widen	<ul style="list-style-type: none"> • Cabin Branch Stream Valley Park • Hunters Woods Neighborhood Conservation Area 	Montgomery

Most parklands/recreational facilities impacted by planned development are located in Montgomery or Prince George’s Counties. Many future projects, such as the I-270/US 15 Multimodal Corridor Study, the I-495 Capital Beltway Study and the I-95 Transportation Improvement Study, are slated to occur on already existing roadway alignments. In most cases these roadways would be widened, potentially requiring right-of-way from parklands adjacent to the roadway. Parklands that may be impacted by the widening of surrounding roadways include Blue Ponds Conservation Park, Snowden Oaks Park, Muirkirk South Community Park, Lakeland Neighborhood Park, Calvert Neighborhood Park, Riverdale Neighborhood Playground, Acredale Park and Paint Branch Stream Valley Park. Acquisition of property from the parks would likely be in the form of “slivers” of land along the roadway alignment and be considered minimal in relation to the overall size of the park or recreational facility. All transportation projects under DOT regulations will be required to follow Section 4(f) guidelines, resulting in avoidance or minimization of impacts to parklands/recreational facilities.

Realignment of existing roadways or newly constructed roadway alignments would have greater impacts on parklands/recreational facilities in the SCEA area. The bisection of parklands may require a larger area of acquired ROW, as well as impact vegetation, water quality and access among park amenities. Use of the park may increase due to improved access. Parklands within the SCEA boundary that may be directly impacted by the construction of new roadways are included in *Table 12*.

In addition to transportation projects, residential, commercial, industrial, institutional and mixed-use developments are also planned (*Figure 12*). Parklands may be impacted by the planned developments in four locations listed below.

The construction of a research and development center for Human Genome Sciences, Inc. in Travilah lies just west of Big Pines Local Park. This development would take place on forested land in an area with institutional development already existing. The park is not anticipated to be significantly impacted by this development, but recreational use may be increased.

The development of a mixed-use facility (Fortune Park) is located across Seven Locks Road from Potomac Woods Park along I-270 south of Rockville. Due to the volume of development already present in this area, the facility is not expected to significantly impact the park, but may increase parkland use due to increased residence. A Bio-Tech Park Research Center is planned on WSSC-owned property along Paint Branch Park near the Montgomery/Prince George’s County boundary. Aerial photography depicts commercial and/or industrial development currently existing on the site. It appears that an area of forested land may be acquired from the Paint Branch Park for construction of the Research Center. This area would be on the east side of the park near Industrial Parkway, just north of the FDA headquarters site.

The FDA headquarters is expected to be reconfigured on its existing property, adjacent to the White Oak Golf Course, Paint Branch Stream Valley Park and the Hillandale Local Park. The development of this property would reconfigure the existing fragmented

buildings into a larger, more unified complex and may directly impact the White Oak Golf Course with the acquisition of some land.

Table 12

Planned Transportation Projects (2010–2030) with Potential to Directly Impact Adjacent Parklands/Recreational Facilities in the SCEA Boundary

Planned Project	Parks Potentially Impacted	County
MD 28/MD 198 ²	East Norbeck Local Park Northwest Branch Recreational Park Burtonsville Local Park	Montgomery/ Prince George's
MD 97/Brookville ¹	Reddy Branch Stream Valley Park	Montgomery
Midcounty Highway Extended ¹	Seneca Crossing Local Park North Germantown Greenway Stream Valley Park Great Seneca Park	Montgomery
Montrose Parkway West ¹	Tildenwoods Park	Montgomery
Purple Line (transit) ²	Sligo Creek Stream Valley Park Northwest Branch Park Northwest Branch Stream Valley Park Paint Branch Little Paint Branch Rock Creek Park	Montgomery/ Prince George's
Corridor Cities Transitway (transit portion of the I-270/US 15 Multimodal Corridor Study) ²	Seneca Creek State Park	Montgomery/ Frederick
I-270 Interchange @ Watkins Mill Road ²	Great Seneca Park	Montgomery
North-South Parallel Road ¹	Monocacy Pine Cliff Park Monocacy National Battlefield	Frederick
I-270/US 15 Multimodal Corridor Study ²	Urbana Community Park Baker Park Monocacy National Battlefield Park Black Hills Regional Park Middlebrook Hill Park Seneca Creek State Park Malcolm King Park	Montgomery/Frederick
I-495 Capital Beltway Study ¹	Cabin John Regional Park Rock Creek Regional Park Sligo Creek Park Northwest Branch Park Paint Branch Park	Montgomery/Prince George's

¹ Based on overlay analysis only

² Based on received documentation referenced in Table 10

No-Action-Potential Development

In addition to these planned developments, land available for additional potential development in the future was identified under the No-Action Alternative. Direct impacts to parks are anticipated to be minimal due to federal, state and local laws and regulations in place that protect parklands. Impacts to parklands or recreational facilities from potential future development would likely be in the form of increased use due to increased access or surrounding population, or to natural resources due to increased impervious areas in the vicinity. A decrease in air quality and an increase in noise levels are also possible due to increased traffic near parklands. Parklands and recreational facilities located in close proximity to potentially developed land under the No-Action Alternative are located primarily in eastern Montgomery County and northern Prince George's County. These parks may include Northwest Branch Park, Bel Pre Park, Little Paint Branch Park, Little Paint Branch Stream Valley Park, Fairland Regional Park and Snowden Oaks Park.

Corridors 1 and 2- Secondary Effects

Under the proposed ICC Corridor 1 and 2 scenarios, land identified as available to accommodate potential secondary development is located in nearly identical areas. As a result no significant displacement of parkland is anticipated due to potential secondary development. Parklands may be indirectly impacted in the same manner as under the No-Action Alternative. Increased use, impacted natural resources, reduced air and noise qualities are all potential indirect impacts from potential secondary development in the vicinity of parklands. *Chapter V of the DEIS, Section 4(f) Evaluation* identifies the direct impacts to public parkland that would result from Corridors 1 and 2 and identifies the potential for indirect secondary impacts to adjacent parklands including references to the appropriate sections of *Chapter IV Environmental Consequences*.

Most land for potential secondary development under the Corridor 1 and 2 scenarios is located throughout central Montgomery County and northeastern Prince George's County. Parklands and recreational facilities in close proximity to these areas include the Laytonsville Golf Course, North Branch Stream Valley Park, Upper Paint Branch Stream Valley Park, Norbeck Meadows Nature Preserve, Little Paint Branch Stream Valley Park, Snowden Oaks Park, Patuxent River Park, Montpelier Park, Airy Hill Local Park, Fairland Regional Park, and Chestnut Hills Neighborhood Park.

Several areas of land were identified as available for potential secondary residential development under only one corridor. Parklands and recreational facilities are located near such lands in only one area, along the existing MD 28/MD 198 Corridor near Browns Corner. Land in this area has been identified as available for potential secondary residential development under the Corridor 1 scenario only. This area is the only area of difference that may change impacts to parklands under the build scenarios. Parklands and recreational facilities in this vicinity include the Hampshire Greens Golf Course and the Browns Corner Neighborhood Conservation Area.

Rezoning due to insufficient appropriately zoned land availability is expected to be necessary in Gaithersburg, Olney, Laytonsville, Burtonsville, Rockville, Cloverly and Laurel forecast zones. Parklands and recreational facilities in the vicinity of these areas of rezoning include Seneca Creek State Park, Olney Manor Recreational Park, Red Door Store Historic/Cultural Park, Upper Paint Branch Stream Valley Park, Browns Corner Neighborhood Conservation Area, Hampshire Greens Golf Course, Woodlawn Cultural Special Park, T. Howard Duckett Watershed property, Patuxent River Watershed Conservation Park, Ednor Local Park, Patuxent River State Park, Hawlings River Stream Valley Park, Rachel Carson Park, Triadelphia Reservoir Park, Upper Paint Branch Park and Spencerville Local Park. Rezoning near these areas is anticipated to be nearly the same under each build scenario. No parklands are anticipated to be rezoned due to stringent federal, state and local laws and policies dedicated to the preservation of parklands. All impacts would be anticipated to be indirect and would be minimized and mitigated due to the laws and regulations as cited in the above discussions.

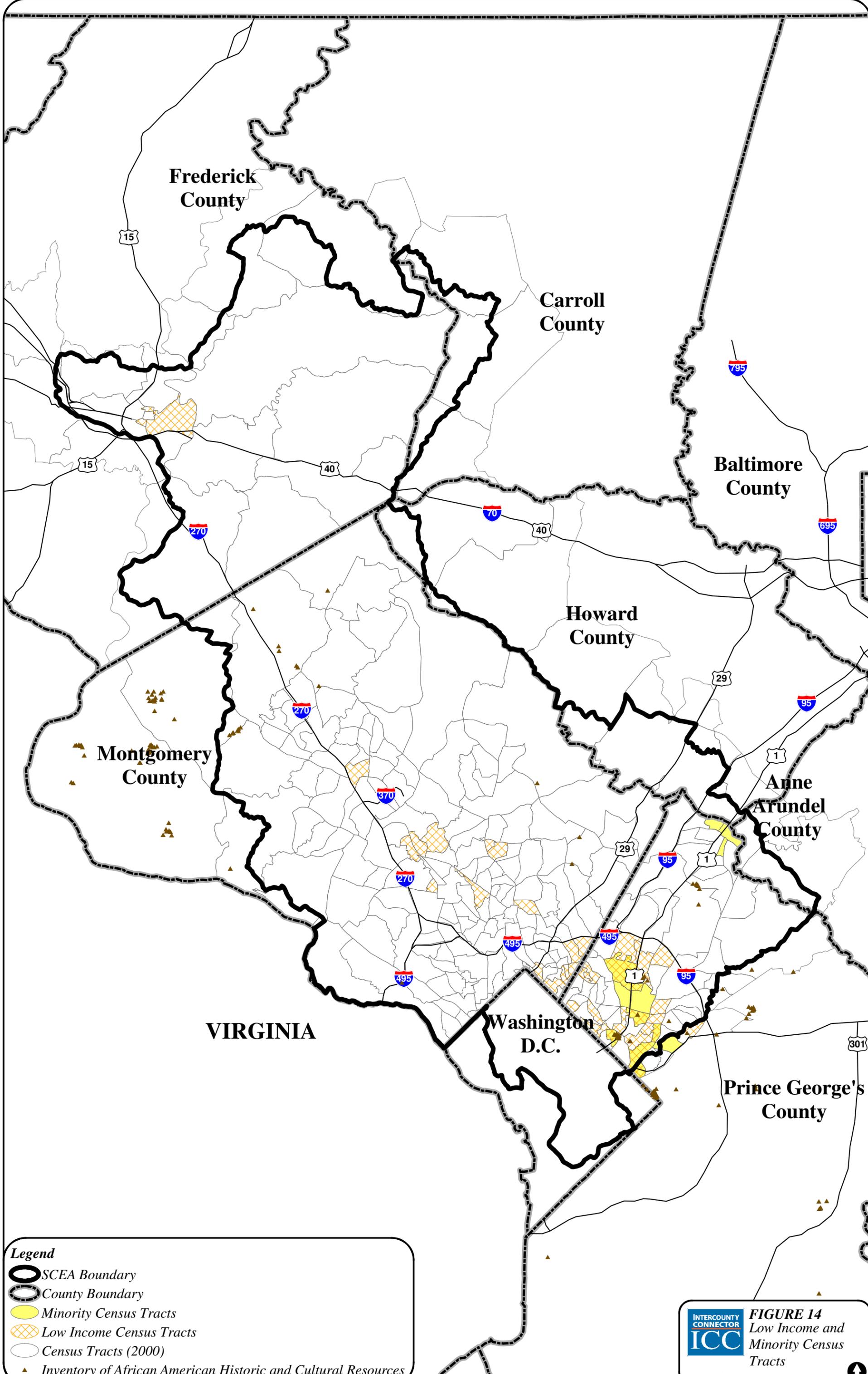
c. Minority/Low-Income Populations

U.S. Executive Order 12898 was established in 1994 in order to focus federal attention on human-health and environmental conditions in minority and low-income communities. It also provided for greater public participation and access to environmental information in affected communities. Prior to this Order's establishment, civil rights and environmental activists turned environmental equity concerns into the environmental justice movement in the early 1990's, thereby reducing the ability of development projects thereafter to disproportionately affect low-income or minority communities.

The Council of Environmental Quality (CEQ), US DOT and SHA policies and guidelines were consulted in this analysis to prevent disproportionately high and adverse impacts to low-income or minority communities. A summary of these procedures may be found in the *Section III.A.2 of the DEIS*. Please refer to *Figure 14* for low-income/minority census tracts within the SCEA boundary.

Census 2000 income data was gathered for each census tract within the SCEA geographical area. For the purpose of SCEA, census tracts rather than blocks were used due to the large area that the SCEA boundary encompasses. Please note that census tracts typically represent larger areas, therefore, the use of census tracts may potentially understate the spatial distribution of targeted EJ populations throughout the SCEA boundary.

Department of Health and Human Services (DHHS) guidelines for 2000 were used to determine the number of homes within each tract classified as below the poverty level during Census 2000. For the SCEA analysis, the percentage of homes below the poverty level within each tract was then calculated. The percentage of minority individuals within each census tract was calculated. If more than one minority group was present within the tract, the minority percentage calculated was based on the aggregate of all minority persons. However, because the SCEA analysis uses census tracts rather than



Legend

- SCEA Boundary
- County Boundary
- Minority Census Tracts
- Low Income Census Tracts
- Census Tracts (2000)
- Inventory of African American Historic and Cultural Resources

INTERCOUNTY CONNECTOR
ICC

FIGURE 14
 Low Income and
 Minority Census
 Tracts

Scale: 1" = 23,000'

census blocks, there may be smaller pockets of minority or low-income populations that are not targeted as part of the analysis.

The average percentage of homes below the poverty level within the entire SCEA area is 6 percent. Census tracts with 12 percent homes below the poverty level or greater were classified as low-income areas for the purposes of this study. Please refer to **Figure 14** for locations of low-income census tracts within the SCEA boundary.

The average percentage of minority individuals within the entire SCEA area was 31 percent. A “meaningfully greater” threshold of 50 percent minority was established. This threshold allows for populations designated as minority to have at least a 19 percent greater minority population than the statistical average for the study area. Census tracts with a 50 percent or greater minority population were classified as minority areas for the purposes of this study. Please refer to **Figure 14** for locations of minority census tracts within the SCEA boundary.

In general, Environmental Justice census tracts within the SCEA boundary will not experience disproportionately high or adverse impacts due to development from the present through 2030. Any impacts from projects in the near future or future timeframes, including the ICC, are anticipated to have equal potential to effect surrounding communities, and therefore would not be considered disproportionate.

Past

Minority and low-income areas identified for EJ purposes are based on all minority groups and incomes. However, historic information was not readily available for all groups or detailed income brackets.

According to historical records listed in the State of Maryland SAILOR public data inventory, land in the vicinity of Poolesville, Boyds, Colesville, Rockville, Gaithersburg, Silver Spring, Bethesda and Norbeck in Montgomery County, as well as Fairmount Heights, Beltsville, College Park, Oxon Hill, Laurel and Highland Park in Prince George’s County were at one time owned by African-American individuals. Some of these lands were used to develop primarily African-American residential communities; others were used to construct schools, cemeteries, churches or other small businesses within the early twentieth century. Records show that much of this property is no longer owned by the original owners or descendents thereof, although several historic homes, churches, schools and other sites remain, having been passed on through generations and now representing the African-American history within Maryland.

Remaining historic structures include the Genus House, in Poolesville, owned by prominent landowners of the early 1900s, and the Lawson House, built by one of the first African-American families to purchase farmland in Montgomery County. Remaining structures in Prince George’s County include the Carter House, in Beltsville, and the Lakeland Elementary School in College Park, still in operation today.

The majority of historically documented African-American communities within Anne Arundel County lie outside the SCEA geographical boundary; however, one area identified within the SCEA boundary in Anne Arundel County is the Grassland Plantation, structures constructed by slaves during the 19th century. The structure remains standing, owned by the grandson of the original owner, William Anderson. The Plantation, near the Howard County border, previously was used during daily plantation life in the vicinity. This area is not currently identified as a minority community based on 2000 census data.

As in Anne Arundel County, the majority of historically documented African-American communities within Howard County lie outside the SCEA geographical boundary; however, African-Americans in the Scaggsville and Savage vicinities founded several churches and schools. These structures are still standing today.

SAILOR records indicate that African-Americans owned land in and around Frederick, Bartonsville, New London, Flint Hill, Baker Valley, New Market and Centerville in Frederick County. This land was used to develop schools, business areas, cemeteries and other community facilities. Land in Frederick County was historically believed to be used in the Underground Railroad and was preserved and historically documented as such. Standing structures include the Steener House and the Taney House, complete with slave quarters, visible in the City of Frederick.

In Carroll County, numerous properties within the towns of Union Bridge, New Windsor and Uniontown were previously owned by minority individuals. The towns of Westminster and Taylorsville also have history of structures built and/or preserved by minorities. Many religious facilities in Carroll County were originally owned or constructed for and by African-Americans. Structures still evident today include Bowen's Chapel, the only church in Carroll County with a predominantly all-minority congregation, and Fairview United Methodist Church in Taylorsville, the first separate African-American organized religious facility in Carroll County.

Present

An overlay analysis of low-income/minority census tracts with near future planned development projects was conducted to assess near future impacts.

Effects on low-income/minority communities due to the construction of an ICC were assessed for the near future time frame since construction of an ICC is planned to begin within the 2010 time frame. The low-income/minority communities identified during the project planning phase of the ICC project were identified based on demographics throughout the ICC study area rather than the SCEA boundary; therefore, low-income/minority areas were identified by individual communities rather than census tract.

Impacts to low-income/minority communities due to an ICC may include residential displacements, community facility displacements, loss of access and mobility, loss of community cohesion, increased noise levels and reduced access to regional recreational

facilities. Under the No-Action Alternative, adverse effects such as increased congestion and travel time would be similar for all communities, regardless of race or income and would, therefore, not constitute any disproportionately adverse impacts.

Specific near future project impacts to low-income/minority populations within these census tracts were not possible to assess based on data availability; therefore, further environmental justice outreach for each project would be necessary to determine if these impacts would be considered disproportionate. These developments are anticipated to occur regardless of construction of an ICC and would, therefore, occur under any ICC alternative, including the No-Action Alternative.

The Near future planned development may potentially impact census tracts identified as low-income within the SCEA boundary. In Frederick County, near future transportation projects in and around the city of Frederick include an upgrade of East Street, construction of Monocacy Boulevard, and Schifferstadt Road and the I-70 improvements. These projects may impact a low-income census tract near the city of Frederick.

Several planned transportation projects (the I-270/US 15 Corridor Study, intersection reconstruction at I-270/MD 117, and the Goshen facility widening) along the I-270 corridor have potential to affect one low-income census tract in the Gaithersburg area, but effects are not anticipated to be disproportionately high or adverse. With these surrounding improvements, access to individuals in this census tract is anticipated to improve congestion on community roads in this region.

Widening of US 1/MD 201 and the Greenbelt Metro Access Study may impact three low-income census tracts in the vicinity of College Park and Greenbelt. Additional residential, industrial or transit developments in close proximity to the Washington, D.C., Prince George's County and Montgomery County intersect may impact three low-income and one minority census tract, particularly in the Silver Spring and Takoma Park areas.

One low-income census tract in the Wheaton-Glenmont area may be impacted by the near future development of several residential areas and three commercial developments. These impacts could potentially consist of displacements, cohesion and access type impacts. Specific impacts to minority communities within these census tracts will need to be assessed independently for each project to determine disproportionate impacts.

Near future planned development may potentially impact minority census tracts within the SCEA boundary.

No impacts on minority populations are anticipated from the following transportation projects: I-95/I-495 Greenbelt Metro Access Study, MD 28/MD 97 and I-495/I-95 at Arena Drive. Information regarding specific impacts to minority communities from US 15/MD 26 in Frederick County was not readily available (only specific impacts to natural resources were available); however, no residential or commercial displacements are anticipated with the current design. The overlay analysis did indicate that other planned development projects in the near future time frame have the potential to impact

communities identified as minority. Minor cumulative effects to minority census tracts are anticipated. The development of one fire station and the US 1/MD 201 Corridor Study has potential to impact a cluster of three minority tracts in the Laurel vicinity, however, disproportionate impacts are not anticipated.

It is anticipated that, as described in *Section IV.B.2 of the DEIS*, avoidance and minimization efforts will be taken throughout each of the near future development projects identified within the SCEA boundary. Due to CEQ, US DOT and SHA guidelines on Environmental Justice, cumulative impacts to low-income and/or minority communities are anticipated to be minimal. With the exception of the effect of the ICC build alternatives described, all cumulative effects are anticipated to occur regardless of the ICC alternative chosen.

Future

No-Action – Planned Development

Planned development/transportation projects anticipated in the future time frame were overlaid with existing low-income/minority census tracts to assess impacts. None of these projects are dependent on construction of one ICC alternative, and are expected to occur regardless of an ICC selected alternative. Planned future development can be seen in *Appendix 4 and 5, and Figure 7*.

In Frederick County, planned transportation projects in and around the city of Frederick in the future timeframe include an upgrade of East Street, construction of Monocacy Boulevard, and Schifferstadt Road, I-70 improvements and the North-South Parallel Road project. These projects, along with the proposed construction of a mixed-use facility, the East Street Community Park, a police station and an airpark will take place in the vicinity of a low-income census tract near the city of Frederick. These improvements are anticipated to improve access and mobility in and around this community, providing a bypass for the city of Frederick (North-South Parallel Road) and thereby reducing traffic volumes on local roadways. All of these developments will take place on forested or agricultural land and are not anticipated to directly impact residences in the community. Disproportionate impacts associated with these projects are not anticipated.

The Montrose Parkway East project may potentially affect the cohesion of a low-income census tract in the Wheaton-Glenmont area in Montgomery County. This project appears to bisect the census tract and may potentially impact the community by displacing residences or reducing cohesion; however, because development occurs along a previously existing alignment (Randolph Road) that already bisects various communities, impacts are not anticipated to be severe or disproportionate. Montrose Parkway West occurs in the vicinity of a low-income census tract just south of Rockville. This western portion of the Parkway is proposed as a new roadway that would be constructed on forested land and is not anticipated to directly impact the nearby low-income census tract.

Several future transportation projects in the southeast portion of the SCEA boundary area have potential to impact several low-income and/or minority census tracts in College Park, Greenbelt, Bladensburg and New Carrollton areas. Future planned projects in this area include:

- I-495 Capital Beltway Study
- Widening of Metzert Road from New Hampshire Avenue to MD 193
- Expansion of the Metro railway (Purple Line) from Bethesda to New Carrollton
- Improvements to US 1 (Baltimore Avenue) from Sunnyside Avenue to College Avenue
- Widening of Rhode Island Avenue from MD 193 to US 1 (Baltimore Avenue)
- Improvements to Good Luck Road from MD 201 to Cipriano Road

The development of a Purple Line of the Metro system is the only one of these projects that would require new construction and an acquisition of ROW. Others take place along previously existing ROW and are not anticipated to have impacts on the low-income and/or minority tracts in these areas. Access and mobility in these communities is anticipated to improve due to additional capacity on respective roadways and reduced congestion on local roadways.

All of these projects and associated impacts (including beneficial) will occur regardless of the ICC alternative selected, therefore, associated cumulative impacts would apply to all ICC alternatives under consideration.

No-Action – Potential Development

In addition to planned projects, and based on ELUP’s allocation projections, other locations with potential for development were identified under a No-Action Alternative (*Figures 7*). Impacts to low-income and/or minority census tracts from development at these locations were assessed based on overlay analysis.

Additional potential development under a No-Action Alternative is likely within Frederick, Montgomery, Prince George’s and Howard Counties. Near Rockville, potential residential development under the No-Action scenario may occur within one low-income census tract. Residential development in this area would not significantly alter land use in the region.

A cluster of land that may experience development pressure is located outside I-495 from the Prince George’s County line east to the intersection of Kenilworth Avenue. This additional development would have potential to indirectly impact low-income census tracts inside the I-495 beltway. These census tracts are located in close proximity to College Park, Greenbelt and Takoma Park. These communities may experience increased congestion on local roadways due to new development in the vicinity, however these impacts would not be considered disproportionate.

Additional potential development in the Prince George's County area, near the Anne Arundel/Howard County intersect, would occur in the vicinity of three minority communities. Land use in this area is already highly developed, therefore, the change in land use would not significantly effect these minority community

Specific impacts to low-income and/or minority communities would be evaluated during the planning phase for future DOT projects, which requires evaluation of these types of impacts. Ensuring that impacts are not disproportionate is a critical step and a major component of the Executive Order. Low-income and/or minority communities will be given opportunity to provide meaningful input through a comprehensive and continuous public outreach process during the development of transportation projects.

Corridors 1 and 2 – Secondary Effects

Impacts under the Corridor 1 and 2 scenarios would be similar to the No-Action Alternative with some additional secondary development likely.

Additional secondary development under both build Corridors may directly impact low-income or minority communities in the vicinity of the I-270 Corridor in Gaithersburg and Rockville. Two low-income census tracts could be directly impacted should development occur at these locations. Development taking place at these locations would take place on forested or agricultural lands and remain consistent with current land uses in the area. No displacements within these census tracts are anticipated.

Under both build scenarios, potential secondary development could indirectly impact low-income or minority census tracts in Gaithersburg, Rockville, and Laurel. Potential secondary development in these areas may cause impacts such as increased congestion on local roadways, increased noise levels, reduced access to community parks or recreational facilities or potential displacements. Development would likely be residential near Gaithersburg and Laurel, and/or commercial near Rockville. All areas identified for potential development would remain consistent with existing land uses in the region. Projects located within land identified for development would not be anticipated to displace residents in nearby low-income/minority census tracts. Increased development in these areas could increase daily traffic volumes on local roadways due to a larger number of individuals commuting to or from new homes or places of employment, as well as noise and air pollution. These impacts would have equal potential to occur to each community in the vicinity of development, therefore would not be disproportionate to low-income or minority communities.

Impacts to low-income/minority census tracts from potential secondary development under Corridors 1 and 2 would have potential to differ slightly in only one region, the Laurel vicinity. In the greater Laurel vicinity, potential secondary residential development may occur under Corridor 1 only near the intersection of Contee and Van Dusen Roads or near the intersection of Contee Road and Baltimore Pike, or under Corridor 2 only along Cherry Lane west of Van Dusen Road. Due to the large volume of development under both build scenarios in the Laurel vicinity, nearby low-income and/or

minority census tracts may experience increased daily traffic volumes on local roadways, as well as noise and air pollution. As previously stated, these impacts would be expected to have equal potential to occur in other communities in the vicinity and would not be considered disproportionate.

The Economic Impact Study of the ICC prepared by the Maryland Transportation Initiative at the University of Maryland indicates that both build alternatives would generate new economic development in the study area, of which a 37 percent would be service industry jobs (*MTI, 2004*). In addition, it notes that Corridors 1 and 2 would provide easier accessibility to these new jobs as well as more affordable housing within the region. It is possible that low-income and/or minority persons may fill some of these service jobs. It is also possible that if these jobs become available and if more affordable housing becomes available, then low-income and/or minority populations may increase in these census tracts due to easier accessibility to service jobs and more affordable housing in this area.

Land available for rezoning, should future development pressures require it, could potentially be developed and affect low-income and/or minority census tracts near Rockville, Greenbelt. Should these lands be rezoned they may directly impact already developed low-income tracts in Rockville. Specific impacts would be dependent on individual projects, but would be anticipated to have equal potential to occur in all surrounding communities, and remain similar to those previously stated for Corridors 1 and 2, increased local congestion, noise and air pollution.

d. Floodplains

Floodplains provide important natural functions and values including temporary storage of floodwaters, moderation of peak storm flows, maintenance of water quality, groundwater recharge, and prevention of erosion. Floodplains also provide important habitat for plants and wildlife as well as recreation opportunities and aesthetic benefits (MDE 2004).

Floodplains have been historically impacted by development projects within the SCEA boundary and would be further impacted by the ICC project. Direct impacts to floodplains associated with the ICC build alternatives will be minimized and drainage structures would be designed to maintain current flow regimes and associated flooding (COMAR 26.17.04). Impacts to floodplains from other future actions will add to the overall cumulative effect. However, floodplain impacts from other future actions within the SCEA boundary are expected to be minimal since major portions of floodplains are located within existing parklands, and afforded additional protection from development. Current laws and regulations on both the state and county level could reduce future impacts to floodplains.

Although the impacts to floodplains are expected to be minimal there is a potential for impacts of development to floodplains in both the near future and future time frame. In the near future time frame there is potential for impacts to floodplains in both

Montgomery and Prince George's County by transportation and planned development projects. In the future time frame the planned development projects are predominately outside floodplains. For the No-Action Alternative potential development could possibly impact floodplains in Montgomery, Howard, Frederick and Prince George's Counties. Potential secondary development associated with Corridor 1 could also impact floodplains in Montgomery, Prince George's and Frederick Counties. Corridor 2 could have similar impacts to floodplains as Corridor 1, except for secondary development associated with Corridor 2; therefore the impacts to floodplains could possibly be greater.

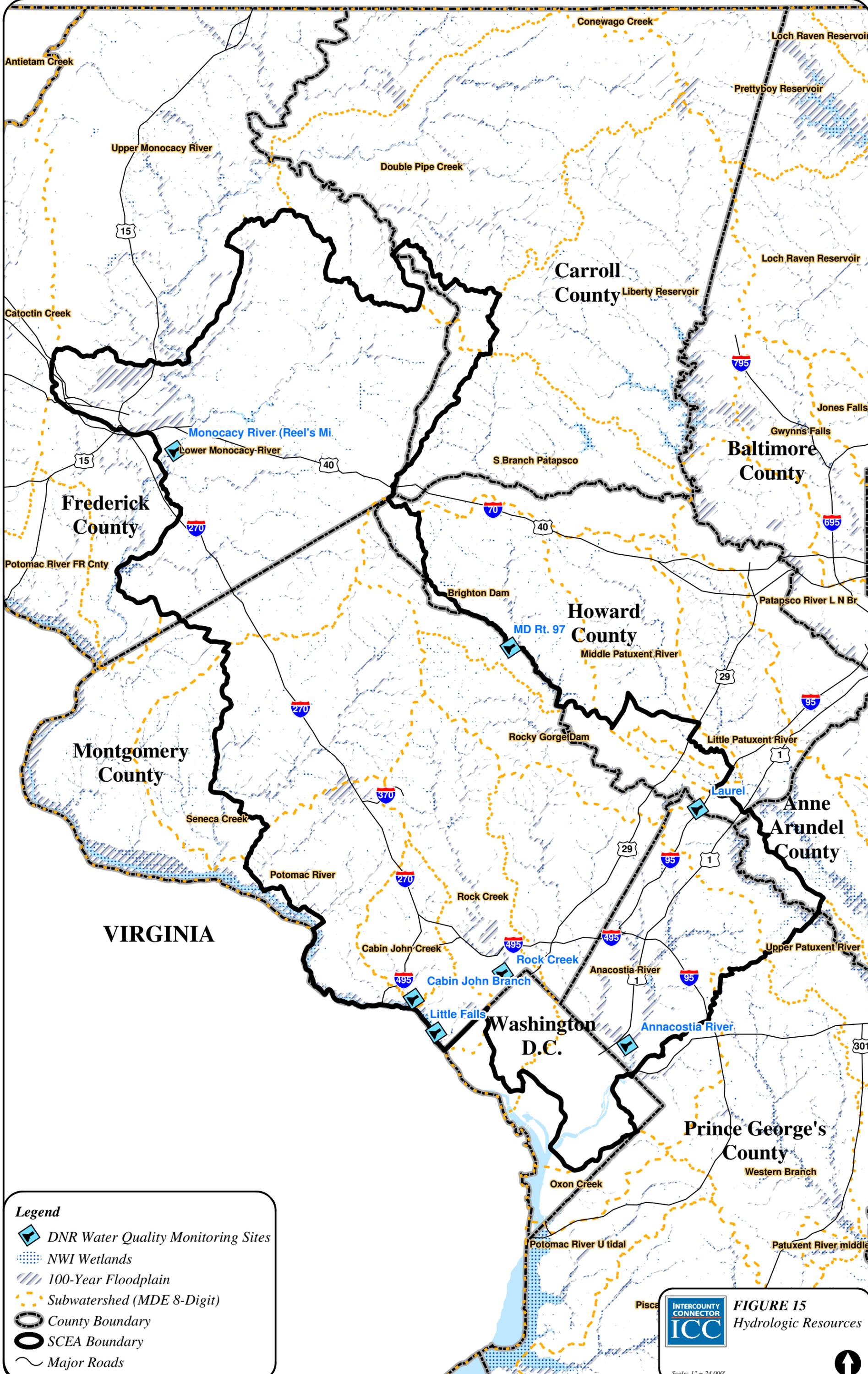
Aside from observable historic encroachments into floodplains, there was no existing readily available data regarding specific quantitative floodplain impacts within the SCEA boundary from the time frame 1964 to present. Future impacts were projected based on Federal Emergency Management Administration (FEMA) floodplain maps and regulatory programs now being implemented. Quantitative impacts were estimated based upon a GIS overlay of the transportation/development and FEMA 100 year Floodplains, for the Present/Near Future and Future time frame (*Appendix 8*). The estimate assumes that the transportation/development project that occurs in a 100 year floodplain will incur impacts throughout the entire footprint of the project and does not take into consideration specific site plans and development regulations that could limit these impacts.

FEMA designated 100-year floodplains within the SCEA boundary account for approximately 29,166 acres of the 487,846 acres of the total acreage of the SCEA area, or 6% of the total area (*Table 13*). *Figure 15* shows the 100-Year floodplains within the SCEA boundary. The subwatershed with the greatest percentage of land area designated as 100-Year floodplain is the Patuxent River upper which is 13.6 percent. The subwatershed with the lowest percentage of land area designated as 100-Year floodplain is Double Pipe Creek, which is 2.7 percent floodplain. The SCEA 100-Year floodplains are located along the Potomac River, Monocacy River, Upper Rock Creek, North Branch Rock Creek, Northwest Branch, Paint Branch, Little Paint Branch, Indian Creek, and the Patuxent River.

Past

In the past timeframe, floodplains were more impacted in areas in which substantial development has occurred. Past stresses in the SCEA boundary have included reducing the floodplain area with artificial drainage, altering the flood elevation as a result of construction within the floodplains, and the impacts of storm drainage structures and increasing impervious area with no quantity control.

Large transportation projects that have affected the floodplains in the past have been the construction of I-270, I-370, I-495, US 1 and US 29. Planned cities (e.g., Greenbelt) and continued development within these floodplains have increased the severity of the storm flow. The floodplain elevation fell when the streams cut deeper channels. In some areas, downcutting may have disassociated the historic floodplain from the channels. During the construction of the transportation projects and planned cities, streams became



Legend

- DNR Water Quality Monitoring Sites
- NWI Wetlands
- 100-Year Floodplain
- Subwatershed (MDE 8-Digit)
- County Boundary
- SCEA Boundary
- Major Roads

INTERCOUNTY CONNECTOR
ICC

FIGURE 15
Hydrologic Resources

Scale: 1" = 24,000'

channelized and relocated. Consequently, the floodplain was narrowed and straightened to allow for the shift of the streams.

Table 13
Floodplain Acreage per Subwatershed within the SCEA boundary

Watershed	Subwatershed	100 Yr Floodplain (Acres)	100 Yr Floodplain Percent
MIDDLE POTOMAC RIVER	Double Pipe Creek	210	2.7%
	Lower Monocacy River	6342	3.9%
PATUXENT RIVER	Brighton Dam	1178	6.4%
	Little Patuxent River	224	6.2%
	Middle Patuxent River	189	3.7%
	Patuxent River upper	2669	13.6%
	Rocky Gorge Dam	2142	6.3%
WASHINGTON METROPOLITAN	Anacostia River	5848	7.2%
	Cabin John Creek	589	3.59%
	Potomac River MO Cnty	4091	10.18%
	Rock Creek	2711	6.91%
	Seneca Creek	2973	5.04%
Total		29166	5.98%

Present

It is anticipated that the build alternatives will impact between 47.9 and 59.4 acres for Corridor 1 (depending on options) and Corridor 2 would impact between 54.6 and 68.7 acres (depending on options). The build alternatives will avoid longitudinal crossings, wherever possible, since these impacts would involve floodplain filling and affect conveyance. The Environmental Stewardship component of the ICC project includes opportunities for retrofitting existing stormwater management facilities, which could benefit the floodplains/floodflows associated with the build alternatives (*See DEIS Section IV.F.3 for more details*).

Cumulative effects of the near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with the 100-year floodplains. *Appendix 1 and 2 and Figure 11* highlights the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore not dependent on construction of an ICC. As previously mentioned quantitative impacts were estimated based on a GIS overlay of Near Future transportation/development and FEMA 100 year floodplains. As shown in *Appendix 8* Near Future transportation projects could impact approximately 80 acres of floodplains and Near Future development could impact approximately 1,100 acres of floodplains. The Anacostia River and Rocky Gorge Subwatersheds could have the greatest amounts of impacts to floodplains by near future planned development and transportation projects, with approximately 307 acres and 288 acres respectively. The subwatershed with that could have the lowest amount of impacts to floodplains is Brighton Dam, which could have less than an acre of impacts (*Appendix 8*). Quantitative impacts were also assessed from other proposed transportation projects when impact calculations were available through NEPA documentation (*Table 10*).

This overlay analysis indicated that the majority of near future development that will occur within the SCEA boundary will occur in areas outside the designated 100 year floodplain. However, some transportation projects planned within the near future time frame have the potential for slight impacts to floodplains, including: I-95/I-495 Greenbelt Metro Access Study (2.8-4.2 acres), I-495/I-95 at Arena Drive (0-1.1 acres) and MD 216 Relocated (4.0 acres). The proposed transit corridors in Prince George's and Montgomery Counties have the potential for impacting floodplains, which are primarily located within larger stream valley parks in the area. However, floodplain impacts associated with the transit corridors would be perpendicular impacts and would encroach onto the floodplain in limited locations. Other minimal floodplain impacts would be located in northern Montgomery County as well as western Prince George's County. Some of these floodplain impacts would be longitudinal floodplain impacts.

All development impacts are required by local, county and state laws to minimize impacts to floodplains and to investigate floodplain mitigation sites that would help enhance local floodplain function. Therefore, it is unlikely that any major floodplain encroachment would occur as a cumulative effect of the ICC project. The only difference in the cumulative effects for the near future time frame of the ICC alternatives is the direct impacts.

Future

Future effects to SCEA area floodplains are expected to be reduced due to the existing regulations and laws restricting development within floodplains. Regulations within the 100-year floodplain are relatively strict due to property and safety concerns, and are not expected to be reduced in the future. Required stormwater management practices will function to mitigate the effects of additional impervious areas and associated changes to floodplains within the drainage areas.

No-Action-Planned Development

Planned future transportation and development projects slated to occur regardless of an ICC for the future time frame have been identified throughout the SCEA boundary (*Appendix 4 and 5* and *Figure 12*).

An overlay analysis was conducted of planned future development within the SCEA boundary and 100 year-designated floodplains. As previously mentioned quantitative impacts were estimated based on a GIS overlay of Future transportation/development and FEMA 100 year floodplains. As shown in *Appendix 8* Future transportation projects could impact approximately 108 acres of floodplains and Future development could impact approximately 155 acres of floodplains. The Lower Monocacy River subwatershed could have the greatest amount of impact with approximately 115 acres. Brighton Dam, Patuxent River upper and Rocky Gorge Dam could all have less than one acre of impact (*Appendix 8*). This overlay analysis indicated that the majority of future development is estimated to occur in areas outside the designated 100-year floodplain. Where impacts may occur, they appear to be largely affected by future residential and industrial growth. It is estimated that Frederick County and Howard County may incur the most impacts to floodplains in the areas of Hammond Branch (Howard County) and along the Monocacy River (Frederick County). Potential development impacts are required to abide by local, county and state laws to assure that floodplains are not negatively affected whether through direct impact or through increases in flows; therefore, it is unlikely that any major floodplain encroachment would occur without supplemental regulatory controls.

No-Action-Potential Development

For the No-Action Alternative, the potential development that has been identified to accommodate the projected allocations within each forecast zone, could impact floodplains during the future time frame. Where impacts may occur, they appear to be largely affected by residential growth versus commercial. As shown in *Appendix 8* the approximate acreage of impacts to floodplains by No-Action potential development is 168 acres, which includes the approximate acreage of impacts from potential development of rezoned land. It is estimated that Montgomery County may incur the most impacts to floodplains in the areas of Watts Branch, Cabin John Creek, Anacostia River, and Rocky Gorge. In Howard County, potential development for residential and commercial may impact floodplains associated with Hammond Branch and Middle Patuxent River east of Scaggsville. Frederick County may have industrial impacts to the Monocacy River floodplain from a planned airpark and potential residential impacts to headwaters of the Little Bennett Creek floodplain. Floodplain impacts in Prince George's County may include headwater areas of Indian Creek and the Paint Branch near the I-95 corridor. The subwatershed that could have the greatest impact is the Anacostia River, which could have 69 acres of impact. The Brighton Dam and the Lower Monocacy River could have less than one acre of floodplain impacts (*Appendix 8*).

In addition to the identified potential development the forecast zones with the greatest potential for additional impacts due to increased development of rezoned land are Laytonsville (Patuxent drainage), and Cloverly (Anacostia Drainage) (*See Section A.5.c.*). In the Laytonsville zone 40 acres of rezoned land would need to be developed for residential use. The Cloverly zone could potentially require 130 acres of rezoned land to be developed to accommodate the ELUP projected household allocations. Within these forecast zones the potential impacts to floodplains would be increased if this potential development occurs in the vicinity of floodplains.

For the future time frame the cumulative impact to floodplains by the No-Action alternative is approximately 431 acres. This includes the impacts from planned future development/transportation projects and No-Action potential development. The subwatershed that could have the greatest cumulative impact to floodplains is the Anacostia River, which could have approximately 155 acres of impact. The Brighton Dam subwatershed is not expected to have any cumulative impacts to floodplains during the future time frame by the No-Action alternative (*Appendix 8*).

Potential development impacts are required to abide by local, county and state laws to assure that floodplains are not negatively affected whether through direct impact or through increases in flows; therefore, it is unlikely that any major floodplain encroachment would occur without supplemental regulatory controls. Therefore, impacts on floodplains during the future time frame for the No-Action Alternative will likely occur, however, their relative impacts should be reduced.

Corridor 1 – Secondary Effects

Future impacts to floodplains due to the identified potential secondary development within the SCEA boundary appear to be minimal based on the estimated allocations for secondary development. As shown in *Appendix 8* the approximate acreage of secondary impacts to floodplains by Corridor 1 potential development is 420 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The subwatershed that could have the greatest impact in terms of acreage is the Anacostia River with approximately 134 acres. As for the No-Action alternative the Brighton Dam subwatershed is not expected to have any impacts to floodplains by Corridor 1 secondary development. Under Corridor 1, Montgomery County would potentially incur impacts to floodplains in the headwaters of Seneca Creek, Muddy Branch, and North Branch Rock Creek (*Figure 12*). Potential floodplain impacts in Prince George’s County may occur along the northern tributaries of Indian Creek as well as Little Paint Branch just east of the county line. The headwater areas to Little Bennett Creek in Frederick County, north of the Montgomery County border may also experience floodplain encroachment.

In several forecast zones there was not enough developable land to accommodate the ELUP projected allocations for jobs and households, therefore land with the potential to be rezoned was identified (*See Section A.5.c.*). The zones with the greatest potential for additional impacts to floodplains due to increased development are Olney (Rocky Gorge and Anacostia Drainage), Laytonsville (Patuxent drainage), Burtonsville (Rocky Gorge

/Patuxent Drainage), Cloverly (Anacostia Drainage) and Beltsville (Little Paint Branch). Within the Olney zone 271 acres of rezoned could be developed residential and five acres developed commercial to meet the projected household and employment allocations. The Laytonsville zone could require 60 acres of residential development and one acre of commercial development of rezoned land. Burtonsville could potentially need 270 acres of residential development and two acres of commercial development of the rezoned land. As stated for the No-Action Alternative, within these zones the potential impacts to floodplains would be increased if this development occurs in the vicinity of floodplains.

For the future time frame the cumulative impact to floodplains by the Corridor 1 alternative is approximately 684 acres. This includes the impacts from planned future development/transportation projects and Corridor 1 potential secondary development. The subwatershed that could have the greatest cumulative impact to floodplains is the Anacostia River, which could have approximately 220 acres of impact. The Brighton Dam subwatershed is not expected to have any cumulative impacts to floodplains during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 2 – Secondary Effects

For Corridor 2, potential developable land of which approximately 5,546 acres were identified within the SCEA boundary, which accommodates the ELUP allocations, reveal possible secondary impacts to floodplains at the same relative locations as discussed in Corridor 1. As shown in *Appendix 8* the approximate acreage of secondary impacts to floodplains by Corridor 2 potential development is slightly greater than Corridor 1 at 419 acres, which includes the approximate acreage of impacts from potential development of rezoned land. As for both the No-Action and Corridor 1 alternatives, the subwatershed that could have the greatest floodplain impact is the Anacostia River with 131 acres. There are no impacts estimated to occur within the Brighton Dam subwatershed by Corridor 2 secondary development (*Appendix 8*). The zones with the greatest potential for additional impacts due to increased development of rezoned land are similar to Corridor 1 except for within the Burtonsville zone for which 670 acres of residential and 15 acres of commercial development of rezoned land could potentially be developed. The nearby floodplains that could be potentially impacted are Rocky Gorge and the headwaters of a tributary to the Patuxent River. With approximately 400 acres more of potential development, Corridor 2 could potentially impact more floodplains in the Burtonsville zone than under Corridor 1.

For the future time frame the cumulative impact to floodplains by the Corridor 2 alternative is very similar to the Corridor 1 alternative with approximately 682 acres compared to 684 for Corridor 1. This includes the impacts from planned future development/transportation projects and Corridor 2 secondary development. The subwatershed that could have the greatest cumulative impact to floodplains is the Anacostia River, which could have approximately 217 acres of impact. The Brighton Dam subwatershed is not expected to have any cumulative impacts to floodplains during the future time frame by the Corridor 2 alternative (*Appendix 8*).

Current laws and regulations on both the state and county level could reduce all future impacts to floodplains. As part of the National Flood Insurance Program (NFIP) counties and local municipalities have adopted ordinances to manage development within the 100-year floodplain to prevent increased flooding and reduce future flood damage. Floodplain zones must be determined by using the Floodway Maps and Flood Insurance Study (FIS) prepared by the FEMA, if available. If these sources are not available for an area, federal Flood Insurance Rate Maps (FIRM) or any other source more detailed than the FIRM may be used to determine floodplain zones. The NFIP requires permits for all development within the 100-year floodplain. Development includes any man-made change to land, including grading, filling, dredging, extraction, storage, subdivision of land, and the construction or improvement of structures.

Montgomery County regulates development within the floodplain with a Floodplain District Permit (FPDP), which is required for land disturbing activities totaling 5,000 square feet and for temporary or permanent construction involving placement of a structure regardless of size or area (Montgomery County Department of Permitting Services – Water Resources). Prince George’s County regulates development within the floodplain with a Floodplain Management Ordinance, which is modeled after ordinance suggested by MDE. The ordinance prohibits filling or construction in the floodplain, but allows for variance to meet important public needs (Prince George’s County is this proper citation method for this document?).

In Howard County floodplains are regulated under Bill No. 45-2003 Section 16.115, which requires that the County authorize all construction in the 100-year floodplain.

In addition to the local ordinances, all activities within the 100-year non-tidal floodplain require State Waterway Construction Permits from the MDE Water Management Administration.

e. Surface Water/Habitat

Surface Water is a vital resource to the natural and human environment. Surface water supports balanced and diverse populations of aquatic plants and wildlife. It provides a water supply for agricultural and industrial uses and provides opportunities for recreation fishing, and hunting which are vital to Maryland’s economy.

Past stresses to surface water/aquatic habitat within the SCEA boundary include: agricultural runoff, stormwater runoff, sediment/siltation and channelization of waterways. In recent years due to increased regulation, protection and restoration, conditions for some indicators of water quality have been improved, but future stresses will continue to be detrimental to improving the water quality.

Planned transportation and development projects for the present/near future time frame could have negative impacts to surface water/aquatic habitat. These impacts will occur primarily in northeastern Montgomery County and Prince George’s County.

In the future time frame planned development could possibly impact surface water/aquatic habitat within Montgomery, Frederick, Prince George's and Howard Counties. Future transportation projects would primarily impact surface water in Montgomery County. The potential development associated with the No-Action Alternative will occur in similar locations as the planned development, therefore the impacts to surface water will be similar. For Corridor 1 secondary development could potentially impact surface water in Montgomery, Prince George's and Frederick Counties. The impacts to surface water by the secondary development are slightly greater for Corridor 2 due to potential impacts in southeastern Frederick County and the need for more development of rezoned land within the Burtonsville zone.

Cumulative effects caused by the ICC project could be reduced through compliance with stormwater management and sediment and erosion control requirements in place during construction would limit the sediment reaching the waterways and long-term stormwater management would control the runoff from new development. Also, best management practices utilized in SWM facilities would assist in improving the water quality of the stormwater runoff.

Compliance with Federal, State and local regulations could also reduce the cumulative effect of the ICC project on surface water/aquatic habitat including COMAR 26.08.02 (Water Quality), revised February 7, 1995 (ACM, Environmental Article, Section 9-13 through 9-316, 9-319, 9-320, and 9-325).

Readily available data was researched for the past time frame of 1964 to present. These sources included: the DNR – Monitoring and Non-Tidal Assessment Division (MANTA), DNR's Surf Your Watershed, the DNR Chesapeake Bay Water and Habitat Quality Monitoring Program. Data was analyzed based on both the watershed (MDE 6-digit) and subwatershed level (MDE 8-digit). Please refer to *Figure 15* for locations of sampling sites within the SCEA boundary. The current status and long-term trends of each long-term water quality monitoring station within the SCEA watersheds are located in *Appendix 9*. Quantitative impacts were estimated based upon a GIS overlay of the transportation/development and a statewide Stream layer, for the Present/Near Future and Future time frame (*Appendix 8*). The estimate assumes that the transportation/development project that impacts streams will incur impacts (at a minimum) throughout the entire footprint of the project and does not take into consideration specific site plans nor development regulations that could limit these impacts.

Past

The Chesapeake Bay Water and Habitat Quality Monitoring Program at locations within these watersheds have monitored water quality data since 1985. Data was not available prior to 1985. Three watersheds (MDE 6-digit) are within the SCEA boundary, the Middle Potomac River, the Washington Metro and the Patuxent River. Status and trends for total nitrogen, total phosphorus, abundance of algae, summer bottom dissolved oxygen, secchi depth and total suspended solids have been determined for each location.

Since 1985 within the Middle Potomac nitrogen loads have been reduced 28% from 10.2 to 8.5 million pounds a year, and phosphorus loads have been reduced 29% from 1.02 to 0.69 million pounds (DNR 2003). During the 1985-2002-time period, total nitrogen levels have improved at most stations, Total phosphorus concentrations have improved at most stations, and shows now trend at others. Total suspended solids shows no trend at most stations but has improved at a few (DNR 2004).

Since 1985, the Washington Metro nitrogen loads have been reduced 29% from 10.38 to 7.38 million pounds a year, and phosphorus loads have been reduced 28% from 0.45 to 0.33 million pounds (DNR 2003). During the 1985-2002-time period, total nitrogen levels have improved at all stations, but most stations showed no improvement in total phosphorus, total suspended solids, or water quality (DNR 2004).

Since 1985 within the Patuxent River Basin, nitrogen loads have been reduced 19% from 5.02 to 4.07 million pounds a year, and phosphorus loads have been reduced 47% from 0.51 to 0.27 million pounds (DNR 2003). During the 1985-2002 time period total nitrogen levels and total phosphorus levels have improved. Algal abundance has not improved, at some stations it has increased. Total suspended solids have improved in some of the downstream stations in this subwatershed. Water clarity, which is poor at most stations, has shown no improvement at most stations, and has degraded at two stations within the SCEA boundary. Dissolved oxygen, which is fair at most stations, has shown no improvement at most stations.

The Upper Paint Branch watershed, upstream of Fairland Road has historically been a high quality stream, and has maintained population of brown trout since the late 1930s (Gougeon 1985). Paint Branch, including all of its tributaries, upstream of I-495 became classified as Use III Waters in 1974. In 1980 the Upper Paint Branch watershed upstream of Fairland Road was designated a Special Native Trout Management Area. In 1995, M-NCPPC designated this area as a Special Protection Area (SPA).

Monitoring of the Paint Branch brown trout population has occurred since the 1970's by various groups. The history of these previous studies was summarized in the Intercounty Connector Natural Environmental Technical Report (SHA, 1996, 2004). The brown trout population declined from the 1970's to the mid 1980's. The Good Hope tributary, which has the best habitat for brown trout and the most continuous monitoring records, fluctuated little from 1980 to 1985. For the time period from 1985 to 1995 the population of the Good Hope tributary slightly increased. SHA conducted surveys in 1995 and 1996, the results of these surveys showed that trout continued to thrive in the less impacted areas. The surveys showed that Good Hope tributary was crucial to the success of the population. From 1995 to 1997 DNR and MCDEP monitoring showed no specific trends in the population. But since 1998 there has been a definite decline in the population due to the severe droughts the region has experienced over the last four years.

Present

Present time frame water quality data was obtained from DNR’s Surf Your Watershed. The list of Non-Tidal Benthic Index of Biotic Integrity, Non-Tidal Fish Index of Biotic Integrity and the Non-Tidal Stream Habitat Index are located in ***Appendix 10***. The Index of Biotic Integrity indicators are developed from Maryland Biological Stream Survey (MBSS) data. Subwatersheds with failing indicators have scores less than six and the number of samples taken was at least four. The Non-Tidal Stream Habitat Index indicators are developed from seven measures of instream habitat quality for each site. The seven measures rate the quantity and quality of physical habitat available in the stream for fish and benthic macroinvertebrate and rate the degree to which the stream channel has been altered due to alterations in watershed landscape. The mean score is then calculated for the watershed on a 1 to 10 scale 10 being the best; subwatersheds in the lower 25 percentile received a failing indicator status (DNR 2004). Please refer to ***Figure 15*** for locations of water quality sampling sites within the SCEA boundary.

Of the subwatersheds occurring within the SCEA boundary, Cabin John Creek failed the indicator for only Non-Tidal Fish IBI. The Little Patuxent River failed the indicator for Non-Tidal Fish IBI and Non-Tidal Benthic IBI. Seneca Creek, Rock Creek, Anacostia River, Lower Monocacy River and Double Pipe Creek failed only the Non-Tidal Benthic IBI indicator. The Patuxent River Upper and Western Branch failed the indicators for both Non-Tidal Benthic IBI and Non-Tidal Stream Habitat Index.

The table located in ***Appendix 10*** also illustrates the modeled nitrogen and phosphorus-loading rate per acre for each subwatershed occurring within the SCEA boundary. The data is from the Chesapeake Bay Program’s Phase IV Watershed Model and the MD DNR’s Integrated Watershed Analysis and Management System (IWAMS). The value includes loadings for both point and nonpoint sources and is represented in pounds per watershed acre. Watersheds that have a loading rate in the upper 25th percentile received a failing indicator status (DNR 2004).

Rock Creek, Oxon Creek and Lower Monocacy River had failing indicators for the modeled nitrogen-loading rate per acre. Seneca Creek, Cabin John Creek and Double Pipe Creek had failing indicators for the modeled phosphorus-loading rate per acre. Little Patuxent River had failing indicators for both nitrogen and phosphorus.

Table 14 lists the watersheds within the SCEA boundary that are found in the 2002, 303(d) list, of Maryland’s impaired streams that have Total maximum Daily Loads (TMDL’s) implemented (MDE). These streams do not meet, or are not expected to meet, applicable water quality standards for designated uses. Development near these streams could potentially increase the amount of pollutant that is impairing them and/or potentially add additional impairments.

Water quality impacts are anticipated to occur as a direct and indirect result of the build alternatives. Direct impacts to perennial and intermittent streams for Corridor 1 range from 39,251– 46,204 linear feet (63 – 69 streams) depending on options and for Corridor

Table 14

Subwatersheds within the SCEA Boundary on Maryland's 303(d) List (MDE, 2002)

Subwatershed	Third-Order Subwatershed	Impairing Substance
Lower Monocacy	Bush Creek	Biological
Lower Monocacy	Cabbage Run	Biological
Lower Monocacy	Bennett Creek	Biological
Lower Monocacy	Talbot Branch	Biological
Lower Monocacy	Unnamed Tributary to Israel Creek	Biological
Lower Monocacy	Southfork Linganore Creek	Biological
Lower Monocacy	Addison Run	Sediments
Lower Monocacy	Woodville Branch	Biological
Lower Monocacy	Lake Linganore	Nutrients
Lower Monocacy	Monocacy River	Biological
Rocky Gorge Dam	Hawlings River	Biological
Brighton Dam	Unnamed Tributaries	Biological
Middle Patuxent	Middle Patuxent River	Biological, zinc, nutrients, sediments
Anacostia River	Anacostia River (Tidal)	Fecal coliform, sediments
Anacostia River	Anacostia River (Non-Tidal)	Fecal coliform, biological, sediments, toxics
Anacostia River	Northeast Branch	Biological
Anacostia River	Sligo Creek	Biological
Anacostia River	Beaverdam Creek	Biological
Anacostia River	Northwest Branch	Biological
Anacostia River	Little Paint Branch	Biological
Anacostia River	Cattail Branch	Biological
Anacostia River	Indian Creek	Biological
Anacostia River	Paint Branch	Biological
Patuxent River Upper	Patuxent River	Fecal coliform, biological, nutrients, sediments
Patuxent River Upper	Stockett's Run	Biological
Patuxent River Upper	Honey Branch	Biological
Patuxent River Upper	Horsepen Branch	Biological
Seneca Creek	Clopper Lake	Sediments
Seneca Creek	Middle Great Seneca Creek	Biological
Seneca Creek	Magruder Branch	Biological
Seneca Creek	Little Seneca	Biological
Seneca Creek	Little Great Seneca Creek	Biological
Seneca Creek	Gunners Branch	Biological
Potomac River Montgomery County	Chain Branch	Fecal coliform
Potomac River Montgomery County	Watts Branch	Biological
Potomac River Montgomery County	Broad Run	Biological
Potomac River Montgomery County	Muddy Branch	Biological
Cabin John Creek	Cabin John Creek	Biological
Rock Creek	Rock Creek	Biological, fecal coliform
Rock Creek	Lake Bernard Frank	Nutrients

2, 35,517 – 48,920 linear feet (52 – 62 streams) depending on options. There are also anticipated impacts associated with the construction of the highway including accidental spills and sediment releases. These impacts could possibly occur within the Rock Creek, Anacostia River, Rocky Gorge and Patuxent River Upper subwatersheds, which are the subwatersheds in which the build alternatives are located. SHA has committed to implementing SWM that will exceed the requirements of MDE and redundant ESC devices in sensitive areas will minimize these direct impacts. Accidental spills will be controlled through special measures put in place and SHA's commitment of exceeding MDE's minimum requirements for SWM. Additional direct impacts are associated with the removal of trees and other riparian buffer vegetation. Indirect impacts are those associated with the use of the highway and with the increased impervious areas. These impacts are attributed to roadway traffic, roadway maintenance, stormwater runoff carrying particulates, metals, oil and grease, organic, nutrients and other substances (*See DEIS Section IV.F.7 for more details*). The Environmental Stewardship component of the ICC project includes opportunities for retrofitting existing stormwater management facilities, and the creation/enhancement of wetland areas, which could benefit the surface water/aquatic habitat.

There is no secondary development anticipated for the near future time frame, therefore impacts to surface water/aquatic habitat due to secondary development are not anticipated within the near future time frame.

Near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with streams and floodplains to assess the affects to surface water/aquatic habitat. *Appendix 1 and 2* and *Figure 11* highlights the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore are not dependent on construction of an ICC.

As previously mentioned quantitative impacts were estimated based on a GIS overlay of Near Future transportation/development and a statewide stream layer. As shown in *Appendix 8* Near Future transportation projects could impact approximately 10,150 linear feet of streams and Near Future development could impact approximately 277,500 linear feet of streams. The subwatershed that could have the greatest amount of impact to streams is the Anacostia River, with more than 79,200 linear feet of impacts. The Middle Patuxent River could have the least amount of impact with approximately 3,500 linear feet of impact (*Appendix 8*). Quantitative impacts were also assessed from other proposed transportation projects when impact calculations were available through available NEPA documentation (*Table 10*).

Cumulative effects to surface water/aquatic habitat is anticipated within the near future time frame. The majority of near future development is located within northeastern Montgomery County, along the proposed transit line and the Prince George's County corridors. Of these near future development projects, those projects located within northeastern Montgomery and Prince George's counties would have the most substantial impact on water quality in the SCEA boundary. The conversion of land use such as

open-space or forested to impervious areas or manicured landscapes would increase surface runoff and peak storm flows as well as introduce sediment and other pollutants into the waterways. These effects would be somewhat mitigated by required compliance with water quality protection guidelines administered by the MDE. The proposed transportation projects in the near future time frame will have effects on surface water/aquatic habitat as shown in **Figure 11**. In Prince George's County, The I-95/I-495 Greenbelt Metro Access Study has two stream crossings planned and the project I-495/I-95 at Arena Drive has between two to seven stream crossings. In Montgomery County MD 28/MD 97 could impact 320 linear feet of streams, MD 115/Muncaster Mill Road could impact between six to eight stream crossings. In Howard County MD 216 Relocated could potentially impact 5 stream crossings.

Studies show the trout population degrading since the 1970s to the present throughout the majority of the watershed. Trout populations rose gradually in the Good Hope tributary during the late 1980s and early 1990s. Human induced impacts stemming from land development and an overall change in land use have been steadily limiting the water quality necessary to sustain trout reproduction. The Good Hope and Gum Springs tributaries have, in recent years, been the last strong hold of the trout population. The continued development adjacent to these tributaries and the construction of an ICC are threats to the continued survival of the trout population (*See DEIS Section IV.F.6 for more details*). Within the Paint Branch third-order subwatershed there is approximately 2,650 acres of near future planned development. In addition to the ICC project, there are several planned near future transportation projects portions of which are within the Paint Branch third-order subwatershed: US 29 Corridor Improvements, widen Briggs Chaney Road from the Montgomery County line to Old Gunpowder Road and the widening of Cherry Hill from the Montgomery County line to Baltimore Avenue. The continued urbanization of the Paint Branch could have significant impacts to the Brown Trout population. The impervious area was estimated within the Upper Paint Branch Special Protection Area (*see Section A.7.k. for details*). For the Near Future time frame the impervious area is estimated to be 26 percent, which is a 25 percent increase from 2000 (*Appendix 11*). This increase in impervious area, if left un-mitigated, may add additional stresses to the protected streams and associated Brown Trout Population (*See DEIS Section IV.F.6 for more details*).

Future

Past and current stresses to surface water quality in the SCEA area include: agricultural runoff, stormwater runoff, and sedimentation/siltation due to development. Anticipated future stresses on surface water quality are stormwater runoff from developed areas, agricultural runoff, and sedimentation from soil erosion/disturbance due to residential and commercial development. **Figure 12** shows the surface water/aquatic habitat areas within the SCEA boundary overlaid with the proposed future land development based on ELUP projections for growth.

No-Action –Planned Development

Planned future transportation and development projects slated to occur regardless of an ICC for the future time frame have been identified throughout the SCEA boundary (*Appendix 4 and 5 and Figure 12*).

If the No-Action Alternative were selected, future planned development projects within the SCEA boundary may have an overall impact to surface water within the SCEA boundary. Proposed transportation improvements in these areas have the potential to impact surface water/aquatic habitat in all of the major waterways in the SCEA boundary. As previously mentioned quantitative impacts were estimated based on a GIS overlay of Future transportation/development and a statewide stream layer. As shown in *Appendix 8* Future transportation projects could impact approximately 19,800 linear feet of streams and Future development could impact approximately 34,000 linear feet of stream. The subwatersheds that could have the greatest amount of impacts are the Anacostia River and Lower Monocacy River, which could have 18,100 and 15,800 linear feet of impacts respectively. The Rocky Gorge subwatershed could have the least amount of impact with only approximately 110 linear feet. Quantitative impacts were also assessed from other proposed transportation projects when impact calculations were available through available NEPA documentation (*Table 10*). In Montgomery County the MD 28/MD 198 Corridor Improvement Study could impact between 165-980 linear feet to headwaters of Northwest Branch and Paint Branch. Future development from transportation projects (*Figure 12*) (*Appendix 4*) show that the majority of impacts would be located in Montgomery County. Residential/commercial development could also have impacts to surface water/aquatic habitat. These developments could have possible impacts to the headwaters of Watts Branch, the Anacostia River, and the headwaters of Rocky Gorge in Montgomery County; the Monocacy River in Frederick County; The headwaters in Indian Creek, Paint Branch, and Northwest Branch in Prince George’s County; and the headwaters of the Middle Patuxent in Howard County.

There are two planned future development projects within the Paint Branch third-order watershed, the expansion of the FDA Headquarters (831 acres) and a Biotech research park (117 acres). In addition to these projects there are several planned future transportation projects within the Paint Branch including: the continued US 29 corridor improvements, the I-495 Capital Beltway Study, the construction of MD 28/MD 198 from I-95 to MD 97, and the widening of Metzert Road from New Hampshire Ave. to Adelphi Road and MD 193. Paint Branch is also listed on Maryland’s 303(d) list (MDE, 2002) for biological impairment. Planned development near the stream and tributaries could add to the biological levels further impairing the stream.

No-Action –Potential Development

Additional areas were identified to potentially accommodate residential or commercial development for the No-Action Alternative. This does not include areas for rezoning or redevelopment. Potential development under the No-Action Alternative would also include all planned development presented above. Impacts from potential development

appear to be primarily from residential growth versus commercial. As shown in *Appendix 8* the approximate impacts to streams by No-Action potential development is 38,700 linear feet, which includes the approximate impacts from potential development of rezoned land. The subwatershed that could have the greatest amount of impact is the Anacostia River with approximately 17,100 linear feet. The Brighton Dam, Little Patuxent River and Cabin John Creek are not expected to have any impacts to streams by No-Action potential development (*Appendix 8*). Potential impacts to surface water/aquatic habitat occur in the same areas as in the No-Action planned developments with the addition of potential residential impacts to headwaters of the Little Bennett Creek in Frederick County. Bennett Creek is listed on Maryland's 303(d) list (MDE, 2002) for Biological impairment. TMDL's are implemented for this waterway. Potential development could increase the biological levels to the waterway. Potential development impacts are required to abide by local, county and state laws to assure that surface waters are not negatively affected whether through direct impact or through increases in flows; therefore, it is unlikely that any major surface water/aquatic habitat encroachment would occur without supplemental regulatory controls.

In the forecast zones where developable land did not meet the amounts required for ELUP, additional allocations will be necessary for rezoning and redevelopment to occur. If rezoning in these areas occurs the potential for additional effects to surface water/aquatic habitat is possible. These effects would be caused by additional development pressures on surface water/aquatic habitat due to the development of the rezoned land. The zones in which the development of rezoned land could have the most effect on surface water/aquatic habitat are Cloverly (Anacostia Drainage) and Laytonsville (Patuxent drainage). Cloverly could require approximately 130 acres of residential development and Laytonsville could require 40 acres of residential development (*Appendix 7*). If this development occurs in the vicinity of surface water/aquatic habitat, additional impacts are possible.

For the No-Action Alternative, 150 acres of potential developable land have been identified within the Paint Branch third-order subwatershed. This additional development could have a negative effect on the water quality and associated Brown Trout population in this area. As discussed in the Impervious Area Section (*see Section A.7.k*) the impervious area was estimated within the Upper Paint Branch Special Protection Area. The impervious area is estimated to be 26 percent for the No-Action alternative; this is about a 3 percent decrease from the near future time frame. This decrease is due to the inclusion of the average impervious area of an ICC build alternative in the near future time frame (*Appendix 11*). Paint Branch is also listed on Maryland's 303(d) list (MDE, 2002) for biological impairment. TMDL's are proposed for this waterway. Increased potential development in this area could lead to higher levels of runoff to Paint Branch increasing the chance for an increase in biological affects.

The potential development identified on the Konterra properties could result in impacts to surface water/aquatic habitat as shown in *Table 15*. Konterra potential residential development associated with the No-Action Alternative could impact 1,900 linear feet of a tributary of the Bear Branch. These potential impacts were generated by a simple overlay of the potential development and the resource information gathered from the field delineation conducted for the ICC project. The potential development may extend beyond the ICC natural resource assessment study area. These potential impacts do not take into consideration development restrictions and regulations that could reduce impacts.

For the future time frame the cumulative impact to surface water/aquatic habitat by the No-Action alternative is approximately 92,500 linear feet. This includes the impacts from planned future development/transportation projects and No-Action potential development. The subwatershed that could have the greatest cumulative impact to streams is the Anacostia River, which could have approximately 35,200 linear feet of impact. The Brighton Dam subwatershed is expected to have only 578 linear feet of cumulative impacts to streams during the future time frame by the No-Action alternative (*Appendix 8*).

Corridor 1 – Secondary Effects

Along with the planned future development that is likely to occur regardless of an ICC, additional secondary impacts are anticipated due to the Corridor 1 Alternative. The additional secondary impacts are a result of the potential development of the identified land to accommodate the allocations for households and jobs that is projected within each zone as a result of the construction of the Corridor 1 Alternative. These secondary impacts would be primarily from residential and commercial growth. As shown in *Appendix 8* the approximate impacts to streams by Corridor 1 potential development is 117,500 linear feet of streams, which includes the approximate impacts from potential development of rezoned land. The subwatershed that could have the greatest impact is the Anacostia River with approximately 46,900 linear feet. Both the Brighton Dam and the Cabin John Creek subwatersheds are not expected to have any impacts to streams. In Montgomery County these potential impacts are located in the headwaters of Seneca Creek, Muddy Branch, and North Branch Rock Creek (*Figure 12*). Potential surface water impacts in Prince George’s County may occur along the northern tributaries of Indian Creek as well as Little Paint Branch just east of the county line. Additional future allocations for residential and commercial uses indicate the potential for surface water impacts in headwater areas to Little Bennett Creek in Frederick County, north of the Montgomery County line. These streams are all listed on Maryland’s 303(d) list of impaired streams (MDE, 2002) as previously stated. Added development to these areas could potentially increase the amount of impairing substance as well as increase the amount of other toxic substances to the streams.

Table 15

Konterra Potential Development Impacts

Potential Konterra Development	Wetland Class	Wetland Impact Acres ¹	Stream Impact Linear Feet	Forest Interior Dwelling Species Habitat (FIDS) Impact Acres	Rare, Threatened and Endangered Species (RTE)	RTE Impact Acres
No-Action Potential Development	N/A	0.0	1900	14.3	N/A	0.0
Corridor 1 and 2 Potential Secondary Development	PSS	1.7	24200	0.0	Aster Radula (rough-leaf aster)	0.3
	PFO	3.5				
	POW	0.1				
	PEM	7.1				
Totals		12.4	24200	0.0		0.3

Impacts are calculated using resource information gathered from field delineation conducted for the ICC project. The proposed Konterra Development Projects may extend beyond the ICC natural resource assessment study area.

¹Jurisdictional status has not yet been determined, therefore acreage of impacts may change based on the Jurisdictional Determination

As discussed for the No-Action Alternative, in the zones where developable land for ELUP allocations for households/jobs was not available; it will be necessary for rezoning and redevelopment to occur. For Corridor 1 the zones with greatest potential for additional affects to surface water/aquatic habitats are Olney (Rocky Gorge and Anacostia Drainage), Laytonsville (Patuxent drainage), Burtonsville (Rocky Gorge /Patuxent Drainage), Laurel (Patuxent Drainage) and Beltsville (Little Paint Branch). Laurel could require the greatest amount of development of rezoned land, needing 380 acres for both residential and commercial development. Additional land will still need to be identified for development in order for the allocations for households and jobs to be accommodated within the Laurel zone. Burtonsville, Olney, Beltsville and Laytonsville may require areas of development in the range of 60-270 acres for residential and 1-20 acres for commercial (*Appendix 7*). If this additional development is located in the vicinity of surface waters/aquatic habitat, it could result in additional impacts.

The potential secondary development identified on the Konterra properties could result in secondary impacts to surface water/aquatic habitat as shown in *Table 15*. Konterra potential secondary development could impact 24,200 linear feet of Indian Creek and its tributaries. These potential secondary impacts were generated by a simple overlay of the potential secondary development and the resource information gathered from the field delineation conducted for the ICC project. The potential development may extend beyond the ICC natural resource assessment study area. These potential secondary impacts do not take into consideration development restrictions and regulations that could reduce impacts.

For Corridor 1, 133 acres of potential developable land has been identified within the Paint Branch third-order subwatershed. The impervious area for the Upper Paint Branch SPA is estimated to increase 8 percent, to 29 percent from 2010 to 2030 for the Corridor 1 Alternative (*see Section A.7.k and Appendix 11*). As stated for the No-Action Alternative, this additional development and increase in impervious area could have a negative effect on the Brown Trout population.

For the future time frame the cumulative impact to surface water/aquatic habitat by the Corridor 1 alternative is approximately 171,300 linear feet. This includes the impacts from planned future development/transportation projects and Corridor 1 potential secondary development. The subwatershed that could have the greatest cumulative impact to streams is the Anacostia River, which could have approximately 65,000 linear feet of impact. The same as for the No-Action alternative, the Brighton Dam subwatershed is expected to have only 578 linear feet of cumulative impacts to streams during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 2 – Secondary Effects

For Corridor 2, potential land allocations, which match the ELUP projections, reveal possible secondary impacts at the same locations as discussed in Corridor 1. As shown in *Appendix 8* the approximate secondary impacts to streams by Corridor 2 potential development is slightly greater than Corridor 1 at approximately 119,500 linear feet, which includes the approximate acreage of impacts from potential development of

rezoned land. The only major difference between Corridor 1 and Corridor 2 is within the Rocky Gorge Dam subwatershed in which approximately 4,000 more linear feet of streams could be impacted (*Appendix 8*). Based on the ELUP projections and subsequent available land allocations, the potential impacts to surface waters are similar between Corridor 1 and Corridor 2.

As discussed in both the No-Action and Corridor 1 alternatives, in the zones where developable land for ELUP allocations for households/jobs was not available; it will be necessary for rezoning and redevelopment to occur. For Corridor 2 the zones with greatest potential for additional effects to surface water/aquatic habitats are similar to Corridor 1 except for within the Burtonsville zone (Rocky Gorge /Patuxent Drainage) in which the allocations for both households and jobs are much greater for Corridor 2 than Corridor 1 (*see Table 6*). These additional allocations could result in more rezoned land being developed for residential and commercial uses to accommodate the greater allocations. For Corridor 2, 670 acres of residential and 15 acres of commercial could be developed. This is approximately 400 acres greater than for Corridor 1. The additional potential land that could be developed could result in greater impacts to surface water/aquatic habitat within the Rocky Gorge subwatershed.

The secondary impacts associated with the potential secondary development identified on the Konterra properties would be the same for Corridor 2 as Corridor 1.

For Corridor 2, 48 acres of potential developable land has been identified within the Paint Branch third-order subwatershed. The impervious area for the Upper Paint Branch SPA is estimated to increase 3 percent, to 27 percent from 2010 to 2030 for the Corridor 2 Alternative (*see Section A.7.k and Appendix 11*). As stated for the No-Action Alternative and Corridor 1, this additional development and increase in impervious area could have a negative effect on the Brown Trout population within Paint Branch.

For the future time frame the cumulative impact to surface water/aquatic habitat by the Corridor 2 alternative is approximately 173,300 linear feet. This includes the impacts from planned future development/transportation projects and Corridor 2 potential secondary development. The cumulative impact is slightly greater than Corridor 1 with the main difference being the greater amount of impacts expected in the Rocky Gorge subwatershed (*Appendix 8*).

With an expected increase in population and development density in these areas, surface water impacts may also increase and mitigation of these impacts would be required if water quality is to remain equal to or greater than current levels. To reduce further degradation of surface water/aquatic habitat the following actions would help in protecting streams in the future. They include:

- Ensuring the inclusion of stream protection policies in all community plans,
- Encouraging the use of “Low Impact Development” techniques for development site design in order to minimize impervious surfaces, reduce stormwater runoff and time of concentration of the runoff, and increase the use of functional landscaping, and

- Continuing the design and construction of stream restoration projects, based on natural channel stability concepts.

Federal, State and local regulations could reduce the cumulative effect of the ICC project on surface water/aquatic habitat. Water quality of surface waters is regulated by the MDE pursuant to the COMAR 26.08.02 (Water Quality), revised February 7, 1995 (ACM, Environmental Article, Section 9-13 through 9-316, 9-319, 9-320, and 9-325). The purpose of these regulations is to protect surface water quality through the adoption and implementation of water quality standards. The surface water quality standards consist of designated uses of State waters, and criteria to protect the designated uses. One regional initiative to protect surface waters and control nonpoint source (NPS) pollution is the Stormwater Management Program (implemented in 1984), which requires that stormwater from urban land is treated using best management practices (BMPs). County governments have been delegated authority over this program. The Federal Program in place to regulate NPS pollution is the National Pollution Discharge Elimination System (NPDES) Permits for Municipal Separate Storm Sewer Systems (implemented in 1990). This federal program, resulting from 1987 amendments to the Clean Water Act, mandates that local jurisdictions with populations greater than 100,000 are required to inventory, monitor and assess their stormwater management programs.

f. Wetlands

Wetlands are important natural resources that provide numerous functions and values to society including fish and wildlife habitat, flood protection, erosion control and water quality maintenance. Wetlands are also recognized as important habitat for waterfowl, migratory birds and wildlife (Tiner and Burke 1995).

Wetlands within the SCEA boundary have declined over time. This decline has been the result of the development and agricultural activities that have occurred in the area. Current laws and regulations have slowed this decline and the goal of no net loss of wetlands has been set for the future. During the present/near future time frame wetlands could possibly be impacted by the planned development. The majority of these impacts from transportation, residential and commercial projects will occur in northeastern Montgomery County and Prince George's County. For the future time frame the planned development could possibly impact wetlands throughout the SCEA boundary but predominately in Montgomery County and southeastern Frederick County. For the No-Action Alternative the identified potential development could impact wetlands primarily in the vicinity of I-95 in Prince George's County and in southern Frederick County. The secondary development associated with Corridor 1 could possibly impact wetlands, mainly in Montgomery County and southern Frederick County. The potential impacts from Corridor 2 would be similar to Corridor 1 except for additional possible impacts in southern Frederick County and the potential for impacts associated with a greater amount of potential development of rezoned land in the Burtonsville zone for Corridor 2.

Federal and State wetland regulations are the most widely used means of controlling wetland impacts in Maryland. Based on the current implementation of the no overall net loss goal established by the State's National Wetlands Protection Act of 1989, it is

anticipated that future wetland loss within the SCEA boundary will be reduced. Specific quantitative wetlands trends data for the SCEA boundary were not readily available through existing documented sources for the time period 1964 to the present; however, statewide, countywide and watershed wetlands trends data were readily available. In addition to reviewing past wetlands trends, a wetlands trends analysis within the SCEA boundary was completed. Quantitative impacts were estimated based upon a GIS overlay of the transportation/development and National Wetland Inventory Mapping, for the Present/Near Future and Future time frame (*Appendix 8*). The estimate assumes that the transportation/development project that impacts wetlands will incur impacts throughout the entire footprint of the project and does not take into consideration specific site plans nor development regulations that could limit these impacts.

NWI wetlands within the SCEA boundary account for approximately 16,600 acres of the 487,900 acres of the total acreage of the SCEA area, or 3 percent of the total area (*Table 16*). *Figure 15* shows the NWI wetlands within the SCEA boundary. The subwatershed with the greatest percentage of land area designated as NWI wetland is the Patuxent River upper which is 13.8 percent. The subwatershed with the lowest percentage of land area designated as NWI wetlands is Cabin John Creek, which is 0.7 percent wetland.

Table 16
NWI Wetland Acreage per Subwatershed within the SCEA boundary

Watershed	Subwatershed	NWI Wetland Acres	NWI Wetland Percent
MIDDLE POTOMAC RIVER	Double Pipe Creek	80	1.0%
	Lower Monocacy River	3592	2.2%
PATUXENT RIVER	Brighton Dam	1088	5.9%
	Little Patuxent River	91	2.5%
	Middle Patuxent River	69	1.4%
	Patuxent River upper	2708	13.8%
	Rocky Gorge Dam	1822	5.3%
WASHINGTON METROPOLITAN	Anacostia River	2332	2.9%
	Cabin John Creek	113	0.7%
	Potomac River MO Cnty	1934	4.8%
	Rock Creek	819	2.1%
	Seneca Creek	1957	3.3%
Total		16605	3.4%

Past

Maryland has experienced substantial quantitative wetland loss in the past timeframe. In the past, wetlands in Maryland have been converted for agriculture primarily on the Eastern Shore. Estuarine wetlands have been filled for resorts, residential areas, ports or disposal of dredge material. Tidal marshlands have been destroyed for marinas and navigation canals. Mining has destroyed many wetlands areas in Western Maryland (Tiner and Burke 1995).

More recent studies by Tiner and Finn in 1986 (Tiner and Burke 1995) have shown a substantial decline in vegetated wetlands between 1955 and 1978. Their study reported that Maryland lost about eight percent of the estuarine vegetated wetlands and six percent of the palustrine vegetated wetlands were lost. Approximately 15,000 acres of palustrine vegetated wetlands were lost during this period (Tiner and Burke 1995). Agriculture accounted for most of the palustrine wetland losses, with urban development accounting for only eight percent of the losses. Pond acreage during this period increased by 14,000 acres. Vegetated forested and emergent wetlands were most affected by the construction of open water ponds (Tiner and Burke, 1995).

Table 17 compares the trends of two studies over different time periods (1955 to 1978 and 1982 to 1989) for certain wetland classification types. The forested statistic is misleading because the net change figure includes changes in wetland type, such as induced by timber harvest. Tiner and Burke (1995), discuss that closer examination of the results show that between 1955 and 1978, 9,125 acres of palustrine forests were destroyed for a annual loss rate of 397 acres (Tiner and Burke, 1995). From 1982 to 1989, 2,534 acres were destroyed, for an annual loss rate of 362 acres. This shows a slight reduction in the annual loss rate of PFO wetlands.

Data from DNR’s Surf Your Watershed website includes information on historic wetland loss and net/gain loss since 1991, by watershed (MDE 6-digit) and subwatershed (MDE 8-digit). **Table 18** shows the total historic loss, which has been determined from the hydric soils that are not identified as wetland, within each watershed and the net gain/loss since 1991.

The USFWS also conducted several studies on select geographical areas within Maryland including Selected areas of Maryland’s Piedmont Region, which includes parts of Montgomery and Howard Counties that occur within the SCEA boundary. **Table 19** shows trends in selected areas of Maryland’s Piedmont Region from 1980/1981 to 1988/1989.

The Anacostia River subwatershed had the greatest amount of historic wetland loss, while Cabin John Creek had the least amount of loss. The subwatershed with the greatest amount of net gain since 1991 is the Little Patuxent River, which increased by 21.0 acres. The Lower Monocacy River subwatershed had a net loss of 0.7 acres since 1991, which was the most of the subwatersheds within the SCEA boundary.

Table 17
*Comparison of estimated wetland trends for certain types in Maryland**

Wetland Type	1955-1978		1982-1989	
	Net Acreage Change Trends (Acres)	Average Annual Net Change (Acres)	Net Acreage Change Trends (Acres)	Average Annual Net Change (Acres)
Estuarine Emergent	-9,845	-428	-72	-10
Estuarine Scrub-Shrub	-183	-8	+279	+40
Estuarine Forested	No Data	NA	-766	-109
Estuarine Non-vegetated	+1,049	+46	+1,074	+153
Palustrine Emergent	-11,496	-500	-1,638	-234
Palustrine Scrub-Shrub	-5,557	-242	+5,178	+740
Palustrine Forested	-2,004	-87	-7,863	-1,123
Palustrine Non-vegetated (Ponds)	+14,435	+628	+3,236	+462

* 1955 to 1978 versus 1982 to 1989
Source: Tiner and Finn (1986) and Tiner et al. (1994).

Table 18
Wetland Trends by SCEA Watersheds

Watershed	Subwatershed	County	Historic Wetland Loss (acres)		Net Gain/Loss since 1991 (acres)	
Washington Metro	Potomac River Montgomery County	Montgomery, Frederick, District of Columbia	8,768	35,831	11.4	26.1
	Seneca Creek	Montgomery	7,547		2.0	
	Rock Creek	Montgomery, District of Columbia	1,804		0.6	
	Cabin John Creek	Montgomery	992		-0.1	
	Anacostia River	Montgomery, Prince George's, District of Columbia	16,720		12.2	
Patuxent River	Brighton Dam	Howard, Montgomery	3,371	36,007	-0.1	27.9
	Middle Patuxent River	Howard	692		4.6	
	Little Patuxent River	Howard, Anne Arundel	10,022		21.0	
	Rocky Gorge Dam	Howard, Montgomery	1,337		-0.1	
	Patuxent River Upper	Howard, Anne Arundel, Prince George's	10,106		1.8	
	Western Branch	Prince George's	10,479		0.7	
Middle Potomac	Lower Monocacy River	Frederick	11,799	21,476	-0.7	5.9
	Double Pipe Creek	Frederick, Carroll	9,677		6.6	

Source: Maryland DNR Surf Your Watersheds

Table 19

Changes of vegetated wetlands in selected areas in the Piedmont Region Of Maryland (1980/81 to 1988/89)

Wetland Type	Acres Converted to Upland	Acres Changed to Other Vegetated. Wetlands*	Acres Changed to Non-Vegetated Wetlands
PEM	56.56	33.47	7.54
PFO	28.27	0.82	1.65
PSS	3.62	0.00	0.53
Total	88.42	34.29	9.72

*Represents changes in wetland class (e.g., emergent to scrub-shrub) but not changes in water regime within a given wetland class.

Source: Tiner and Foulis (1993)

Present

Maryland currently has approximately 9.5% of its area classified as wetland. **Table 20** compares estimated wetland status for certain classification types in the counties that are within the SCEA boundary: Montgomery, Prince George’s, Howard, Anne Arundel, Frederick and Carroll.

Of the counties located within the SCEA boundary, Prince George’s County contains the greatest amount of the state’s wetlands (3.3 percent). Howard County has the lowest percentage of the states wetlands of the counties that occur within the SCEA boundary, with only 0.5 percent. **Table 20** shows the DNR wetlands that are located within the SCEA boundary. It should be noted that these wetland totals are countywide, and might not be indicative of wetland status within the SCEA boundary.

The ICC build alternatives would result in direct impacts to wetlands. Impacts to wetlands would occur from filling, shading, roadway runoff, sedimentation and other direct and indirect effects. Wetland impacts would occur in the following watersheds: Upper Rock Creek, North Branch Rock Creek, Northwest Branch, Paint Branch, Indian Creek, Rocky Gorge, and Upper Patuxent watersheds. These impacts would lead to a decrease in available wetland and waterway habitat within the study area and ultimately a decrease in plant and animal species that inhabit these areas. Corridor 1 (and associated options) could impact approximately 22.3 to 30.1 acres of wetlands, approximately 37.4 acres of washponds associated with mining in the area of the I-95 interchange, and 39,251 to 46,204 linear feet of Waters of the U.S. In addition, an estimated 7.5 to 8.0 acres of open water ponds would be affected. The range of impacts associated with Corridor 2 and all its options would vary from 25.6 acres to 38.2 acres of wetlands, approximately 37.1 acres of washponds associated with mining in the area of the I-95 interchange. The Environmental Stewardship component of the ICC project includes opportunities for the creation/enhancement of wetland areas, which could offset some of the direct impacts associated with the build alternatives (*See DEIS Section IV.F.7. for details*).

Table 20
Wetland Acreage Per County

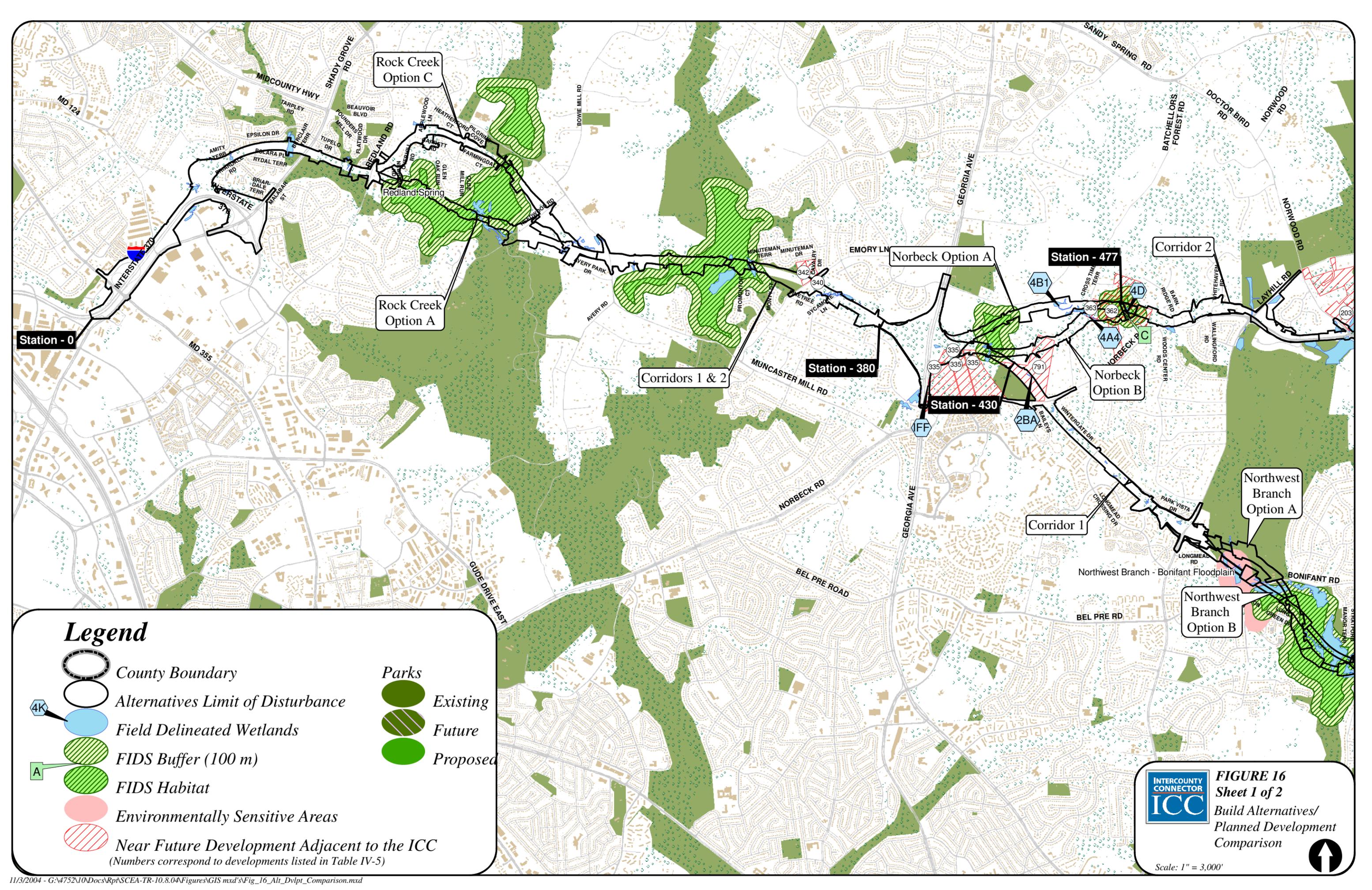
County	Estuarine Wetland Acreage	Palustrine Wetland Acreage	Riverine Wetland Acreage	Lacustrine Wetland Acreage	Total Acreage	Total Percentage of the State
Montgomery	0	9,566	31	102	9,699	1.6
Prince George's	2,019	17,309	174	14	19,516	3.3
Howard	0	2,977	26	114	3,117	0.5
Anne Arundel	2,774	13,202	157	23	16,156	2.7
Frederick	0	7,243	33	49	7,325	1.2
Carroll	0	4,229	4	558	4,791	0.8

Source: Tiner and Burke, *Wetlands of Maryland* (1995)

Near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with NWI wetlands to evaluate impacts. **Appendix 1 and 2 and Figure 11** highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore are not dependent on construction of an ICC. As previously mentioned quantitative impacts were estimated based on a GIS overlay of Near Future transportation/development and NWI Wetlands. As shown in **Appendix 8** Near Future transportation projects could impact approximately 29 acres of NWI wetlands and Near Future development could impact approximately 586 acres of NWI wetlands. The Potomac River Montgomery County subwatershed could have the greatest impact with approximately 270 acres. The Cabin John Creek subwatershed (**Appendix 8**). Quantitative impacts were also assessed from other proposed transportation projects when impact calculations were available through available NEPA documentation (**Table 10**).

Planned development along the proposed ICC Corridors 1 and 2 were overlaid with ICC study area delineated wetlands, as well as FIDS habitat and Environmentally Sensitive areas. The areas immediately adjacent to the corridors were evaluated to determine the likelihood for impact by a planned development regardless of the ICC alternatives. Specifically, there are many planned developments along Corridor 2 that may impact resources in the near future time frame. Therefore, the overall secondary and cumulative effects to resources in close proximity to Corridor 2 could potentially be substantial since planned development is prominent along this proposed Corridor.

Appendix 12 and Figure 16 show the location of planned development in relation to wetlands, FIDS habitat and ESA areas. **Appendix 12** only shows the resources that could



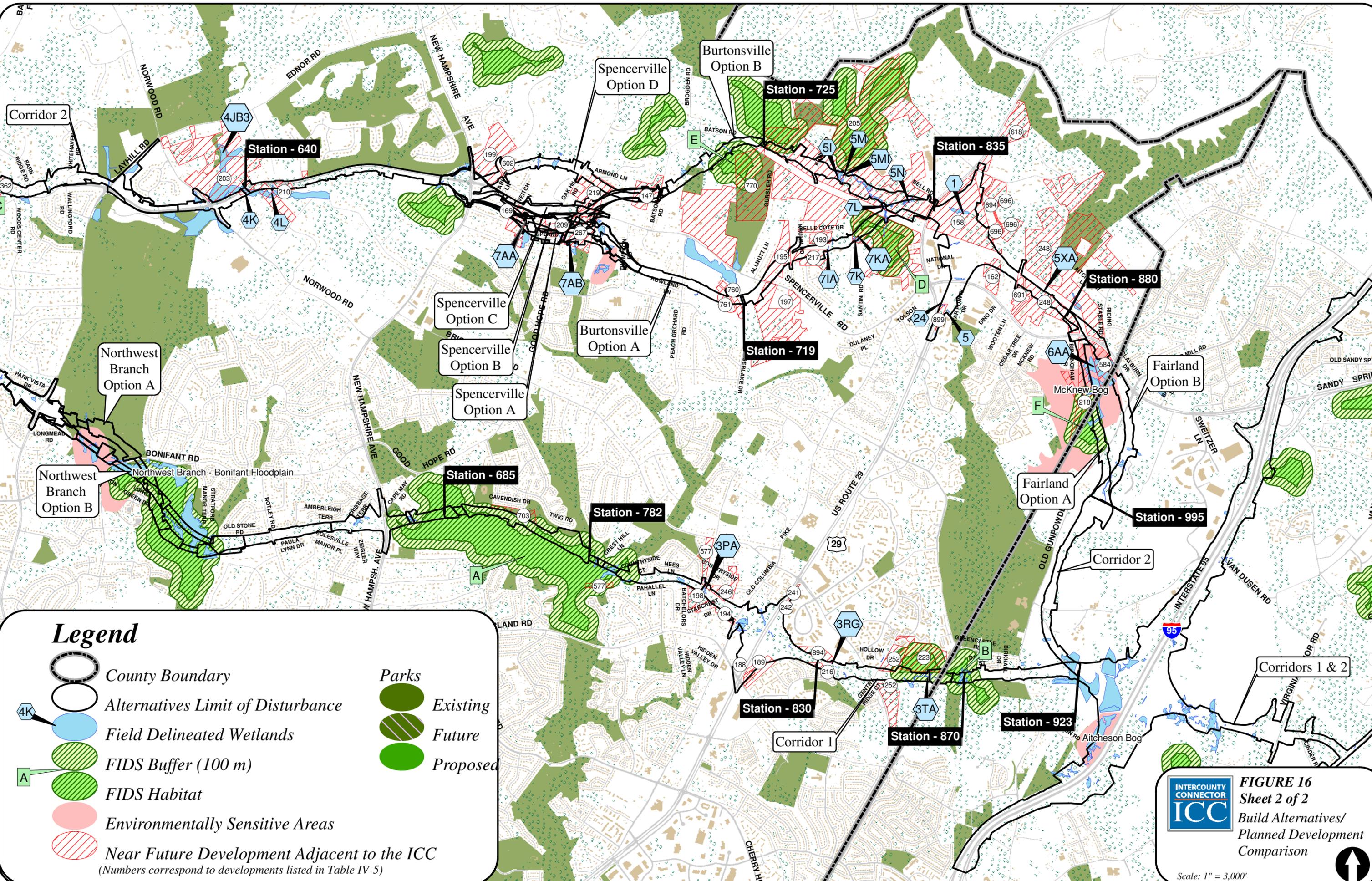
Legend

- | | | | |
|--|--|--|----------|
| | County Boundary | | Parks |
| | Alternatives Limit of Disturbance | | Existing |
| | Field Delineated Wetlands | | Future |
| | FIDS Buffer (100 m) | | Proposed |
| | FIDS Habitat | | |
| | Environmentally Sensitive Areas | | |
| | Near Future Development Adjacent to the ICC
(Numbers correspond to developments listed in Table IV-5) | | |


FIGURE 16
 Sheet 1 of 2
 Build Alternatives/
 Planned Development
 Comparison

Scale: 1" = 3,000'





Legend

	County Boundary		Parks
	Alternatives Limit of Disturbance		Existing
	Field Delineated Wetlands		Future
	FIDS Buffer (100 m)		Proposed
	FIDS Habitat		
	Environmentally Sensitive Areas		
	Near Future Development Adjacent to the ICC (Numbers correspond to developments listed in Table IV-5)		

INTERCOUNTRY CONNECTOR
ICC

FIGURE 16
Sheet 2 of 2
**Build Alternatives/
Planned Development
Comparison**

Scale: 1" = 3,000'

be impacted by the ICC alternatives and potentially impacted by planned development. For both build alternatives there are several wetland systems that could potentially be impacted by planned development regardless of the ICC alternatives. For example, as shown in **Appendix 12**, wetland system 4JB3 would be impacted 0.3 acre if the Corridor 2 Alternative is constructed, but due to the planned residential development (203) 14.7+ acres of wetland system 4JB3 could potentially be in danger of impact regardless of the ICC.

Planned developments immediately adjacent to Corridor 1 could potentially impact wetland systems 1FF, 2BA, 3PA, 3RG and 3TA. The amount of approximate planned development impact to wetlands is less than that estimated for the Corridor 1 Alternative. Planned development in the vicinity of Corridor 1 is much less than that proposed in the vicinity of Corridor 2 because much of the land adjacent to Corridor 1 is either already built-out, being reserved for the ICC corridor (consistent with Montgomery County master plans) or already designated as parkland. Therefore, the number of wetland systems that could potentially be impacted by planned development if the Corridor 1 Alternative is not selected, is much less than the impacts that could potentially occur in the vicinity of Corridor 2 if the Corridor 2 Alternative is not selected.

Planned development in the vicinity of Corridor 2 would potentially impact wetlands 1FF, 4A4, 4D, 4JB3, 4K, 4L, 7AA, 7AB, 5N, 7ia, 7K, 7KA, 7L, 5I, 5M, 5M1, 5N, 1, 24, 5, 5XA, and 6AA. As previously mentioned, planned development is greater along Corridor 2, and therefore, resources along this corridor could be impacted by other planned development regardless of the Corridor 2 Alternative. **Appendix 12** highlights these resources and **Figure 16** depicts planned development along Corridor 2 in relation to wetlands and other natural resources. The number of wetland systems and the approximate acreage potentially impacted by planned development in the vicinity of Corridor 2 is much greater than Corridor 1. The wetland systems impacted by planned development that could potentially be significantly greater than the impacts from Corridor 2 are 4JB3, 4K, 7L, 1 and 6AA.

Cumulative effects would occur from near future development projects planned within the SCEA boundary (e.g., residential, transportation, etc.). These projects are of a large enough scale that wetland impacts are likely, specifically in northern Montgomery and Prince George's counties. Some of the proposed transportation projects will slightly impact wetlands, including: I-95/I-495 Greenbelt Metro Access Study (2.0-2.1 acres), MD 28/MD 97 (0.20 acre), I-495/I-95 at Arena Drive (0-5.4 acres) and MD 216 Relocated (2.0 acres). Wetlands could potentially be most directly impacted by near future development in the following subwatersheds: Rocky Gorge, Anacostia, Rock Creek and the Middle Patuxent. Within these subwatersheds negative pressures will be placed on wetlands due to the increase in impervious area from the planned development (*see Section A.7.k for details*).

Management of near future development and the construction activities associated with an ICC, if a build alternative is selected will play an important part in stabilizing the quantity and quality of wetlands within the SCEA boundary. Any near future development will abide by Federal and State wetland protection programs. In addition,

wetland mitigation will help stabilize overall impact trends within the SCEA boundary. Therefore the cumulative effects to wetlands in the near future time frame, for which the only difference between the ICC alternatives is the direct impacts, could be reduced.

Future

It is anticipated that percentages of future net wetland loss/conversion within the SCEA boundary would continue to decline, however future wetland loss is based on the notion that government regulatory programs would minimize wetland destruction in the future (Tiner and Burke, 1995). Existing wetlands now receive better protection than in the past. Techniques and procedures for protecting Maryland's non-tidal wetlands include: State and Federal Non-tidal wetland regulations, land use regulations, direct acquisition, conservation easements, tax incentives, public education, and the efforts of private individuals and corporations. **Figure 12** shows the wetland areas within the SCEA boundary, which may be impacted by future planned development and potential development based on estimated growth from ELUP projections.

No-Action-Planned Development

Planned future transportation and development projects slated to occur regardless of an ICC for the future time frame have been identified throughout the SCEA boundary (**Appendix 4 and 5** and **Figure 12**).

An overlay analysis was conducted of planned future development and National Wetland Inventory (NWI) mapping. The No-Action Alternative would have impacts to wetlands regardless of the ICC alternatives. As previously mentioned quantitative impacts were estimated based on a GIS overlay of Future transportation/development and NWI mapping. As shown in **Appendix 8** Future transportation projects could impact approximately 28 acres of wetlands and Future development could impact approximately 51 acres of wetlands. That subwatershed that could have the greatest amount of wetland impacts is the Lower Monocacy River with 27 acres of impacts. The Brighton Dam, Middle Patuxent River, Patuxent River upper, Rocky Gorge Dam and Cabin John Creek subwatersheds all are not expected to have impacts to wetlands by planned future development/transportation projects (**Appendix 8**). Future growth from transportation projects (**Figure 12**) show that the majority of impacts would be located in Montgomery County. Residential and commercial developments, as well as transportation projects, may be located in areas that indicate presence of NWI wetlands. These include primarily wetland systems associated with Northwest Branch, Watts Branch, Dry Seneca Creek and Rocky Gorge in Montgomery County, Indian Creek in Prince Georges County and Little Bennett Creek and the Monocacy River in Frederick County, and Hammond Branch in Howard County.

No-Action –Potential Development

In addition to the planned future development, other areas were identified to potentially accommodate ELUP allocations. With some of these areas located near wetlands, possible encroachments could occur due to the allocations set forth by the ELUP for

households and jobs. As shown in *Appendix 8* the approximate acreage of impacts to NWI wetlands by No-Action potential development is 49 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The Anacostia River subwatershed could have the greatest amount of impacts with approximately 22 acres. The Brighton Dam, Patuxent River upper and Potomac River Montgomery County subwatersheds are not expected to have any impacts to NWI wetlands (*Appendix 8*). The majority of areas where impacts to wetlands by potential development could occur are in Prince George’s County on either side of I-95 in the vicinity of Muirkirk Road. These impacts would primarily be from residential development. In Montgomery County, near Rockville, the potential exists for impacts to wetlands associated with the headwaters of Cabin John Creek by commercial development. In southern Frederick County near the Montgomery County line, a large potential residential development could impact wetlands associated with Bennett Creek. In areas where there is not enough developable land to accommodate ELUP allocations, rezoning may be required. With the subsequent development of the rezoned land, there is potential for additional effects to wetlands. The zones with the greatest potential for additional impacts due to increased development are Laytonsville (Patuxent drainage) and Cloverly (Anacostia Drainage). Of these zones Cloverly could require the greatest amount of rezoned land to be developed, needing 130 acres for residential development. Laytonsville could require 40 acres of residential development *Appendix 7*. Within these zones the potential impacts to wetlands would be increased if the development of the rezoned land occurs in the vicinity of wetlands.

For the future time frame the cumulative impact to wetlands by the No-Action alternative is approximately 128 acres. This includes the impacts from planned future development/transportation projects and No-Action potential development. The subwatershed that could have the greatest cumulative impact to wetlands is the Anacostia River, which could have approximately 32 acres of impact. Both the Patuxent River upper and Cabin John Creek subwatersheds are expected to have less than one acre of cumulative impacts to wetlands during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 1 – Secondary Effects

Within the SCEA boundary, approximately 4,940 acres of land has been identified that could potentially support either residential or commercial secondary development based on allocations projected by the ELUP. This takes into account the number of acres that is needed for rezoning however does not take into account the amount needed for redevelopment.

These secondary developments associated with Corridor 1 will likely impact NWI wetlands throughout the SCEA boundary, the majority of which occur in Montgomery County. As shown in *Appendix 8* the approximate acreage of secondary impacts to NWI wetlands by Corridor 1 potential development is 209 acres, which includes the approximate acreage of impacts from potential development of rezoned land. These include the potential for impacts to wetlands by employment development near wetlands associated with Indian Creek along the I-95 corridor, residential development near

headwater wetlands of North Branch Rock Creek, and potential impacts from residential development to wetlands adjacent to Little Bennett Creek in Frederick County. The subwatershed that could have the greatest amount of impacts to wetlands by Corridor 1 secondary development is the Anacostia River with approximately 86 acres of impacts. No impacts to NWI wetlands are expected to occur within the Brighton Dam subwatershed by Corridor 1 secondary development. Based on the ELUP projections and subsequent available land allocations, there are minimal potential secondary impacts to wetland systems specific only to Corridor 1. Of the total wetland areas that could be impacted in the SCEA boundary by Corridor 1, it is anticipated that residential development would have the largest impact.

In the zones where developable land for ELUP allocations for households/jobs was not available; it will be necessary for rezoning and redevelopment to occur. If rezoning is necessary within a zone then there is the potential for additional effects to wetlands. The zones with the greatest potential for additional impacts due to increased development are Olney (Rocky Gorge and Anacostia Drainage) with 271 residential acres and 5 commercial acres available, Laytonsville (Patuxent drainage) with 60 residential acres and 1 commercial acre available, Burtonsville (Rocky Gorge /Patuxent Drainage) with 270 residential acres and 2 commercial acres available, Cloverly (Anacostia Drainage) with 290 residential and commercial acres available and Beltsville (Little Paint Branch with 130 residential acres available (*Appendix 7*). As stated for the No-Action Alternative, within these zones the potential impacts to wetlands would be increased if the development of the rezoned land occurs in the vicinity of wetlands.

The potential secondary development identified on the Konterra properties could result in secondary impacts to wetlands as shown previously in *Table 15*. Potential secondary development could impact approximately 12 acres of wetlands associated with Indian Creek and its tributaries. As previously mentioned these potential impacts are the result of a simple overlay of the potential development and the resource information gathered from the field delineation conducted for the ICC project. The potential development may extend beyond the ICC natural resource assessment study area. These potential secondary impacts do not take into consideration development restrictions and regulations that could reduce impacts.

For the future time frame the cumulative impact to wetlands by the Corridor 1 alternative is approximately 288 acres. This includes the impacts from planned future development/transportation projects and Corridor 1 potential secondary development. The subwatershed that could have the greatest cumulative impact to wetlands is the Anacostia River, which could have approximately 96 acres of impact. The Cabin John Creek subwatershed is expected to have less than one acre of cumulative impacts to wetlands during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 2 – Secondary Effects

For Corridor 2, 5,546 acres was identified for potential developable land within the SCEA boundary based on allocations projected by the ELUP. It was determined that possible secondary impacts to wetlands were located at the same relative locations as

discussed in Corridor 1. As shown in *Appendix 8* the approximate acreage of secondary impacts to NWI wetlands by Corridor 2 potential development is slightly greater than Corridor 1 at approximately 216 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The only major difference between Corridor 1 and Corridor 2 is within the Rocky Gorge subwatershed, which has approximately 9 acres more of secondary impacts associated with Corridor 2. The zones with the greatest potential for additional impacts due to increased development of rezoned land are similar to Corridor 1 except for within the Burtonsville zone in which the allocations for household and jobs was much greater for Corridor 2 than for Corridor 1. For Corridor 2 Burtonsville could require 670 acres of residential and 15 acres of commercial development of rezoned land which is approximately 400 acres greater than Corridor 1. This could potentially result in additional wetland impacts due to more development of rezoned land within the Burtonsville zone.

The secondary impact to wetlands associated with the potential secondary Konterra development is the same for Corridor 2 as for Corridor 1.

For the future time frame the cumulative impact to wetlands by the Corridor 1 alternative is approximately 294 acres. This includes the impacts from planned future development/transportation projects and Corridor 1 potential secondary development. This is slightly greater than the Corridor 1 alternative due to the greater amount of secondary impacts within the Rocky Gorge subwatershed (*Appendix 8*).

g. Farmlands

Farmland is an important resource that is vital to the State's economy. Farming and associated industries are an important and viable way of life for many people within the SCEA boundary. The agricultural sector is important to Maryland in terms of goods and services provided as well as the preservation of the rural nature of many areas within the SCEA boundary.

The number and total land area of farmlands in both the State and within the SCEA boundary has declined during the past time frame. This decrease in farmland is due to the increased residential and commercial growth that has resulted from the increase population and subsequent sprawl during this time frame. During the present/near future time frame there is the potential for farmland to be impacted by planned development and transportation projects. The majority of the impacts to farmland will be in northern Montgomery County and Prince George's County. Regulations and policies at the federal, state and local level are in place to reduce the impacts to farmland by development (see page IV-454 for details). For the future time frame planned development could possibly impact farmland, the greatest of which will be in Frederick and Montgomery Counties. Additional potential development could impact farmland for the No-Action Alternative. These impacts are primarily located in southeastern Frederick County, near Rockville in Montgomery County and near the intersection of US 29 and MD 216 in Howard County. Secondary development associated with Corridor 2 could impact farmland, located in southeastern Frederick County, along the ICC corridor in Montgomery County, and near I-95 in Prince George's County. The secondary impacts

of the potential development projected for the Corridor 2 Alternative will be slightly greater than Corridor 1 due to impacts in southeastern

Frederick County and greater potential development of rezoned land in the Burtonsville forecast zone.

Impacts to farmlands could be reduced by federal, state and local regulations along with agricultural land preservation by public and private organizations (*see discussion on page IV-454*).

Readily available data for active farmland within the SCEA boundary was obtained from *Issues in the Future of Maryland Agriculture*, which is a summary of the findings of a study by the Center for Agricultural and Natural Resource Policy in the University of Maryland's Agricultural and Resource Economics (AREC) Department. In addition, the 1973 and 2000 MDP land use data was compared to determine the amount of active farmland lost from 1973 to 2000. Projected future impacts were estimated on proposed land uses in relation to existing active farmland (2000 MDP Land Use). Quantitative impacts were estimated based upon a GIS overlay of the transportation/development and MDP Land Use, for the Present/Near Future and Future time frame (*Appendix 8*). The estimate assumes that the transportation/development project that impacts farmland will incur impacts throughout the entire footprint of the project and does not take into consideration specific site plans nor development regulations that could limit these impacts.

Past

Table 21 shows the decrease in the number of farms, the decrease in farmland and the change in the size of the farms in Maryland. The number of farms in Maryland has decreased from 36,107 in 1949 to only 12,400 in 2000 while the amount of total farmland has declined from 4.1 to 2.1 million acres during the same time frame.

Agricultural loss was calculated by county as well as by subwatershed. *Table 22* shows the amount of change in agricultural land use by county as well as within the SCEA boundary (1973-2000).

Montgomery and Prince George's Counties agricultural acreage decreased the greatest by percentage, with a net decrease of 392 and 392 percent, respectively. Frederick County decreased the most in terms of acreage, decreasing by 59,220 acres. Carroll County decreased the least by percentage, with a net decrease of 18.5 percent in agricultural land use and Anne Arundel County decreased the least by acreage, decreasing by 11,555 acres. Within the SCEA boundary, Prince George's and Montgomery County had the greatest decreases in percent of agricultural land, while Carroll had the lowest decrease in percent of agricultural land. The decrease in agricultural land, primarily within Montgomery and Prince Georges County can be attributed to the extensive development that occurred.

Table 21
Farm Acreage, Number of Farms, and Acres per Farm 1949-2000

Year	Maryland		
	Number of Farms	Land in Farms (1,000 Acres)	Average Farm Size (acres)
1949	36,107	4,056	112
1954	32,500	3,897	120
1959	25,122	3,457	138
1964	20,760	3,181	153
1969	17,181	2,803	163
1974	15,163	2,634	174
1978	15,540	2,614	168
1982	16,183	2,558	158
1987	14,776	2,397	162
1992	13,037	2,223	171
1997	12,500	2,200	176
2000	12,400	2,100	169

Source: *Issues in the Future of Maryland Agriculture*

Table 22
County Agricultural Land 1973-2000

County	1973 Acres	1973 Percent	2000 Acres	2000 Percent	Acreage Lost	Percent Decrease
County Wide						
Prince George's	68,054.	21.3	41,366	13.0	26,687	39.2
Montgomery	130,443	40.3	79,260	24.5	51,182	39.2
Howard	74,246.	45.8	49,875	30.8	24,371	32.8
Anne Arundel	59,188.	15.6	47,634	12.6	11,555	19.5
Frederick	269,223	63.0	210,002	49.2	59,220	22.0
Carroll	196,944	68.0	160,440	55.4	36,503	18.5
Within the SCEA Boundary						
Prince George's	5,472	9.7	568	1.0	4,903	89.6
Montgomery	87,933	35.0	44,610	17.7	43,323	49.30
Howard	9,450	41.0	6,911	30.1	2,538	26.90
Anne Arundel	157	3.0	54	1.1	103	65.4
Frederick	92,057	65.0	66,080	47.0	25,977	28.2
Carroll	7,382	67.8	5,673	52.6	1,708	23.1
Total	202,450	41.5	123,900	25.4	78,552	38.8

Source: *Maryland Department of Planning Land Use Data, 1973 and 2000*

The change in agricultural land was also calculated by subwatershed within the SCEA boundary. **Table 23** shows this change. The subwatershed with greatest percent change in agricultural land was Anacostia River, which had a decrease of 80 percent for the time period of 1973 to 2000. The subwatershed with the greatest decline in acreage was the Lower Monocacy River that decreased 35,608 acres. The subwatershed with lowest percent change in agricultural land was Double Pipe Creek, which decreased 11.9 percent and the subwatershed with the lowest decline in acreage was Cabin John Creek, which declined 273 acres.

Table 23
Agriculture Change 1973-2000 by Subwatershed

Watershed	Subwatershed		1973	2000	Change
Washington Metro	Potomac River Montgomery County	Acres	35,698	22,539	-13,159
		Percent	40.7	25.7	-36.9
	Seneca Creek	Acres	47,477	28,502	-18,975
		Percent	57.5	34.5	-40.0
	Rock Creek	Acres	7,462	2,857	-4,605
		Percent	19.0	7.3	-61.7
	Cabin John Creek	Acres	401	128	-273
		Percent	2.4	0.80	-68.0
	Anacostia River	Acres	10,975	2,183	-8,792
		Percent	11.8	2.4	-80.1
Percent		7.2	0.4	-95.1	
Patuxent River	Brighton Dam	Acres	31,905	25,104	-6,800
		Percent	62.6	49.5	-21.3
	Middle Patuxent River	Acres	20,272	13,454	-6,818
		Percent	55.0	36.3	-33.6
	Little Patuxent River	Acres	17,189	8,391	-8,798
		Percent	26.0	12.7	-51.2
	Rocky Gorge Dam	Acres	16,512	9,570	-6,943
		Percent	48.3	27.9	-42.1
	Upper Patuxent River	Acres	14,689	10,187	-4,501
		Percent	26.0	18.1	-30.6
Percent		33.2	14.7	-55.6	
Middle Potomac	Lower Monocacy River	Acres	126,541	90,934	-35,608
		Percent	64.9	46.7	-28.1
	Double Pipe Creek	Acres	96,459	84,995	-11,464
		Percent	78.4	70.0	-11.9

Source: MDP Land Use Data: 1973, 2000

Present

The current status of farmland (2000) within the SCEA boundary is shown in **Table 23**. As previously stated, this data was obtained from MDP 2000 land use data. Double Pipe Creek is the subwatershed that has the highest percentage of farmland based on the 2000 data, with 68.9 percent of the land within Double Pipe Creek being farmland. The subwatershed with the lowest percentage of farmland is Cabin John Creek, which only has 0.8 percent of its land area classified as farmland.

Direct impacts to existing farmland properties are anticipated to occur as a result of the build alternatives. The largest amount of impacts to farmlands properties would occur in the Rocky Gorge watershed. Corridor 1 would impact between 64 and 69 acres of farmland properties. Corridor 2 would impact double the amount of farmland impacts by Corridor 1 with between 108 and 125 acres (*see DEIS Section IV.F.4 for more details*).

Near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with existing agricultural land uses to evaluate impacts. **Appendix 1 and 2** and **Figure 11** highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore are not dependent on construction of an ICC. As previously discussed, quantitative impacts were estimated based on a GIS overlay of Near Future transportation/development and MDP Land use. As shown in **Appendix 8** Near Future transportation projects could impact approximately 216 acres of farmland and Near Future development could impact approximately 7,547 acres of farmland. The subwatershed that could have the greatest amount of impacted farmland is the Lower Monocacy River with approximately 2,456 acres of impacts. There are no impacts expected within the Cabin John Creek subwatershed. Quantitative impacts were also assessed from other proposed transportation projects when impact calculations were available through available NEPA documentation (**Table 10**). Impacts from near future planned projects would be greatest to farmland in areas where near future development would be the greatest, particularly in Northern Montgomery and Prince George's counties. Pressure will continue to increase in these areas to develop open land for non-farm uses. However, some areas located within the SCEA boundary are protected, active farmland such as the Beltsville Agricultural Research Center (BARC). The I-95/I-495 Greenbelt Metro Access Study would impact this active farmland (0.30 – 0.80 acre). In accordance with FPPA, impacts to the BARC will require an AD-1006 evaluation and further coordination with the Soil Conservation District. Active agricultural land is located within the area of the SCEA boundary.

Cumulative effects during the near future time frame could be reduced if appropriate planning practices are considered in the planning stage and sound development techniques are utilized during the development of the planned projects. The only difference in the cumulative effects between the ICC alternatives for the near future time frame is the direct impacts of the chosen ICC alternative.

Future

No-Action-Planned Development

Planned future development within the SCEA boundary will consist of residential, commercial, institutional and transportation developments/projects (**Figure 12**). An overlay analysis of farmland areas and planned future development determined that farmlands could potentially be impacted by future development even under a No-Action Alternative mainly due to planned future transportation projects. These planned transportation and development projects are anticipated to occur regardless of a selected ICC alternative; and would therefore not be considered secondary development. Impacts were estimated based on a GIS overlay of Future transportation/development and MDP Land Use. As shown in **Appendix 8** Future transportation projects could impact approximately 293 acres of farmland and Future development could impact approximately 1,358 acres of farmland. The subwatershed with the greatest amount of impacts is the Lower Monocacy River with approximately 1,071 acres of impact. As in the Near Future time frame the Cabin John Creek subwatershed is not expected to have any impacts to farmland. Impacts to farmlands are not predicted to have a detrimental affect on the farming industry in the SCEA boundary. The majority of farmland impacts would occur within Frederick County due to the large amount of undeveloped farmland that exists. Planned future development, which would include, mixed-use, institutional, and industrial development within Frederick County could also contribute to farmland impacts. Larger planned development projects could potentially affect the overall farm operations in some areas due to displacements. The transportation projects that are proposed would likely have linear impacts to most farmlands, however major impacts are not anticipated.

Montgomery County could have possible impacts to Kingstead Farm and Burdette Farm. These impacts would be due to residential development. These impacts have the potential for displacement due to the large developments that are planned. **Figure 12** shows the type and location of potential future developments that could impact farmland.

No-Action – Potential Development

Based on ELUP allocation projections for households and employment, additional potential development has been identified under the No-Action Alternative. Farmland impacts associated with potential development areas were assessed based on an overlay analysis. In addition to the planned future development, potential development will have effects on farmland for the No-Action Alternative. As shown in **Appendix 8** the approximate acreage of impacts to farmland by No-Action potential development is 783 acres, which includes the approximate acreage of impacts from potential development of rezoned land. Again, the subwatershed with the greatest amount of impacts is the Lower Monocacy River with approximately 357 acres of impact. There are no impacts expected within Middle Patuxent River and Seneca Creek subwatersheds. The area with the greatest potential impact to farmlands is in the southeastern portion of Frederick County. The areas identified are for potential residential development to accommodate the expected demand for additional households within the New Market zone, in which there

is potential for development of approximately 380 acres of farmland. In Montgomery County, northwest of Rockville near the intersection of I-270 and Shady Grove Road, there are farmlands that could be impacted by residential development. In Howard County, land has been identified for potential residential development that could potentially impact farmland, near the intersection of US 29 and MD 216. This potential development could displace the farming operations at these locations. In addition to these large potential impacts, smaller areas of potential development are scattered throughout the SCEA boundary, which could potentially impact farmland.

In the zones were developable land for ELUP allocations for households/jobs was not available; it will be necessary for rezoning and redevelopment to occur. If rezoning is necessary within a zone then there is the potential for additional effects to farmland. The zones with the greatest chance of development pressures on farmland by rezoning would be Laytonsville (40 residential acres) and Cloverly (130 residential acres) (*Appendix 7*). Development pressures for farmlands within these zones would increase unless redevelopment/revitalization opportunities are considered when attempting to meet the needs of the projected allocations.

For the future time frame the cumulative impact to farmland by the No-Action alternative is approximately 2,434 acres. This includes the impacts from planned future development/transportation projects and No-Action potential development. The subwatershed that could have the greatest cumulative impact to farmland is the Lower Monocacy River, which could have approximately 1,428 acres of impact. The Rock Creek subwatershed is expected to have only 3 acres of cumulative impacts to farmland during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 1 – Secondary Effects

Farmland impacts under the Corridor 1 Alternative are similar to the No-Action Alternative, however, some additional secondary development is likely based on allocation results from the ELUP. As shown in *Appendix 8* the approximate acreage of secondary impacts to farmlands by Corridor 1 potential development is 2,102 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The subwatershed with the greatest amount of impacts is again the Lower Monocacy River with approximately 640 acres of impacts. The Middle Patuxent river subwatershed could have the least amount of impacts with only 4 acres. These impacts would mostly occur from residential and commercial development within Frederick County, due to the large amount of farmland that exists. These impacts are anticipated to occur in the southern portion of the county close to the Montgomery County/Frederick County line. These impacts would likely be from residential development. There could also be residential impacts to farmlands along the northern and southern part of the ICC corridor in Montgomery County. Farmlands that could be impacted in Prince George’s County are anticipated to be located near the intersection of Corridor 1 and I-95 in Prince George’s County and may include both residential and commercial development impacts. *Figure 12* shows the type and location of future planned developments in addition to potential development areas that could impact farmlands if the Corridor 1 Alternative is chosen.

In addition to the identified potential development, in the zones where there was insufficient developable land to meet the allocations, land was identified for rezoning. For Corridor 1 the zones with the greatest potential for impact to farmland due to possible development of land that has been rezoned are Olney (270 residential acres, 5 commercial acres), Laytonsville (60 residential acres, 1 commercial acre), Burtonsville (270 residential acres, 2 commercial acres), Cloverly (290 residential and commercial acres) and Beltsville (130 residential acres) (*Appendix 7*). Similar to the No-Action Alternative, unless redevelopment/revitalization opportunities are utilized additional impacts to farmland could result if rezoned land is developed for either residential or employment needs.

For the future time frame the cumulative impact to farmland by the Corridor 1 alternative is approximately 3,753 acres. This includes the impacts from planned future development/transportation projects and Corridor 1 potential secondary development. The subwatershed that could have the greatest cumulative impact to farmland is the Lower Monocacy River, which could have approximately 1,711 acres of impact. The Middle Patuxent River and Patuxent River subwatersheds are both expected to have less than 15 acres of cumulative impacts to farmland during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 2 – Secondary Effects

Under the Corridor 2 Alternative, secondary and cumulative impacts are anticipated to be similar to those described in Corridor 1, however, the secondary impacts associated with Corridor 2 differ slightly in that there could be slightly greater impacts. As shown in *Appendix 8* the approximate acreage of secondary impacts to farmlands by Corridor 2 potential development is slightly greater than Corridor 1 at approximately 2,348 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The only major difference between the Corridor 1 alternative and Corridor 2 alternative is within the Rocky Gorge subwatershed in which approximately 350 more acres of farmland could be impacted by Corridor 2 than by Corridor 1.

The zones with the greatest potential impact to farmland due to possible development of rezoned land are the same as Corridor 1. There is a difference in the Burtonsville zone in which the allocations for households and jobs are much greater for Corridor 2 than Corridor 1. For Corridor 2, there could be 670 residential acres and 15 commercial acres of development, which is significantly greater than Corridor 1 (*Appendix 7*). This could result in more farmland being impacted by Corridor 2 versus Corridor 1.

For the future time frame the cumulative impact to farmland by the Corridor 2 alternative is approximately 3,999 acres. This includes the impacts from planned future development/transportation projects and Corridor 2 potential secondary development. As previously stated for the secondary impacts the only major difference between the build alternatives is within the Rocky Gorge Dam subwatershed, which has approximately 350 more acres of impacts to farmland associated with Corridor 2 (*Appendix 8*).

One of the Smart Growth and Neighborhood Conservation Initiatives, The Rural Legacy Initiative establishes a grant program to protect targeted rural greenbelts from sprawl through the purchase of easements and development rights in Rural Legacy Areas.

Agricultural lands are afforded some protection in Prince George’s County through five different programs including the Prince George’s County Agricultural Easement Program (AEP), Maryland Agricultural Land Preservation Foundation (MALPF), Maryland Environmental Trust (MET), and other private trust organizations, the Prince George’s County Transfer of Development Rights (TDR) Program and the Prince George’s County Rural Legacy Program (RLP).

In 1980, Montgomery County launched an expanded agricultural preservation program, specifically designating certain land areas as “Agricultural Reserves”. With a few exceptions, properties in the Agricultural Reserve cannot be developed at more than one dwelling per 25 acres.

In addition to the federal and state regulations an Installment Purchase Program and the Critical Farms Program protect farmland in Frederick County. The Installment Purchase Program, approved in 2002, is a land preservation program that purchases easements through installment purchase agreements. It enables the purchase of more easements than would be possible through traditional lump sum purchases. The Critical Farms Program, which provides upfront capital to full time farmers for assistance in purchasing farmland, has transferred 1,500 acres of farmland to full time farmers for continued agricultural use.

Howard County has been protecting farmland through the Agricultural Land Preservation Program since 1978. The county has preserved almost 19,000 acres of farmland using three methods, the purchase of agricultural preservation easements by the county, the dedication of agricultural preservation parcels as provided in the county’s zoning regulations, and the purchase of development rights by the Maryland Agricultural Land Preservation Program.

Agricultural land in Anne Arundel County is protected by the Agricultural Land and Woodland Preservation Program as adopted by County Council Bill No. 56-9. This program encourages the preservation of agricultural land through the purchase of easements.

These agricultural preservation initiatives are primarily voluntary in nature and the extent of their use is often influenced by the open market of real estate prices. Unless landowners are actively pursuing protective status for their properties it is unlikely that farmland will be included in these programs in the foreseeable future. But with the continued growth that is expected within the SCEA boundary efforts could be made to encourage and facilitate the preservation of the rural nature that still exists in portions of the SCEA boundary.

h. Forests/Terrestrial Habitat

Forests are an integral part of Maryland’s environment and economy. Forestland provides habitat for many species of plants and wildlife including Forest Interior

Dwelling Species whose habitat is limited to forest interiors. Forests are important resources for protecting water quality and clean air. Forestland is also vital to the states economy by providing forest products and recreational opportunities.

Within the SCEA time frame forestland has declined during the past time frame due to development pressures from the population growth that has occurred. Forestland not only decreased in amount of total area but just as significantly, fragmentation of the remaining farmland has occurred over time. This fragmentation decreases the value of the forestland to wildlife. This trend will likely continue during the present/near future time frame in which planned development could potentially impact forests/terrestrial habitat. The impacts from the planned development is greatest in Montgomery near the T. Howard Duckett Reservoir and within Prince George’s County in the eastern portion of the SCEA boundary. Planned development for the future time frame could also impact forestland in Montgomery and Prince George’s counties along with the greatest potential impact occurring in southeastern Frederick County. Additional impacts could occur as result of identified potential development for the No-Action Alternative. The most significant of these impacts are in the vicinity of Laurel in Prince George’s County and near Rockville in Montgomery County. Potential impacts could also result from the secondary development associated with Corridor 1, especially near I-95 in Prince George’s County, near I-270 in Germantown and in southeastern Frederick County. The potential secondary impacts for Corridor 2 are similar to Corridor 1, except for additional impacts near I-70 and MD 27 in Frederick County and the additional potential impacts resulting from the need for greater development of rezoned land within the Burtonsville zone.

The cumulative effects to forests/terrestrial habitat due to the ICC project could be reduced by federal, state and local regulations (*see page IV-468 for details*).

Readily available data regarding forest habitat was available for portions of the SCEA boundary as well as overall county and statewide trends. *The Forest and Green Infrastructure Loss in Maryland 1997-2000* (DNR 2000) provided information for present day forest loss/gain for counties within the SCEA boundary. Maryland’s *Strategic Forest Lands Assessment* (DNR 2003) provided information on the statewide trends of forested land. Information on the past and future of Maryland’s forests was obtained from the *Importance of Maryland’s Forest: Yesterday, Today and Tomorrow* (DNR 2003). In addition, MDP land use data (1973 and 2000) was compared to determine the change in forest acreage within the SCEA boundary overall and by subwatershed during that time period. Quantitative impacts were estimated based upon a GIS overlay of the transportation/development and MDP Land Use layers, for the Present/Near Future and Future time frame (**Appendix 8**). The estimate assumes that the transportation/development project that impacts forestland will incur impacts throughout the entire footprint of the project and does not take into consideration specific site plans and development regulations that could limit these impacts. Quantitative impacts were also estimated for Green Infrastructure for the Present/Near Future and Future time frames (**Appendix 13 and Figures 17 and 18**).

Past

Maryland was once over 90 percent forested; today only 41 percent of Maryland’s land remains forested (DNR 2003). The decline of forest over time was originally a result of use of land for agriculture and the raw materials that supplied the growth of the cities. However, in the time frame of 1964 to present the most influential reason for decline in forest loss is the growth of Maryland’s population and resulting development that is necessary to support that population. The data shows that forestland has decreased about seven percent since 1964. The decrease of forested land in Maryland is a result of the rapid development. The problem of the decrease in forestland is compounded by the fragmentation of the remaining forestland. Forest blocks are broken up into much smaller areas of land that are less effective as wildlife habitat. The fragmentation also makes it difficult to protect soil, air and water quality (DNR 2003).

MDP land use data (1973 and 2000) was compared to determine the change in forested land by subwatershed within the SCEA boundary. **Table 24** shows the change in forested area by subwatershed. All but 5 of the subwatersheds showed a decrease in forested land for the period from 1973 to 2000. The Anacostia River subwatershed showed the greatest decline in forested area, decreasing 14,721 acres, which is a 49 percent decrease from 1973 to 2000. The Double Pipe Creek and Lower Monocacy River subwatersheds increased in forested area, increasing 2,890 (14 percent) and 3,735 (7 percent) respectively during the time period from 1973 to 2000.

Within the SCEA boundary, forested area decreased from 32 percent (156,580 acres) to 28 percent (135,436 acres) a change of 16 percent for the time period of 1973 to 2000 (MDP Land Use Data).

Present

The subwatershed with the highest percentage of forested area is the Upper Patuxent River, which has 25,002 acres of forested land, accounting for 44percent of the total land area within the SCEA boundary. The lowest percentage of forested area occurs within the Cabin John Creek subwatershed, only 2,076 acres (13 percent) of the total land area is forested.

Table 25 shows the watershed indicators that relate to forested land from the DNR’s Surf Your Watershed: Watershed Profiles. The percent-unforested stream buffer indicator is based on Maryland Office of Planning land cover (1994) and stream coverage. It is calculated from the percentage of vegetated area within a 100-foot buffer of streams. A failing indicator is a result of the subwatershed being in the top 25th percentile of percent unforested stream buffer.

Double Pipe Creek has the highest percent-unforested stream buffer, with 77 percent of its streams unforested. The Upper Patuxent River has the least amount of unforested stream buffer, with 29 percent of its streams unforested. The average for the subwatersheds within the SCEA boundary is 52 percent.

Table 24
Forest Change 1973-2000 by Subwatershed

Watershed	Subwatershed		1973	2000	Change
Washington Metro	Potomac River Montgomery County	Acres	28,235	25,459	-2,776
		Percent	32%	29%	-10%
	Seneca Creek	Acres	26,599	26,988	389
		Percent	32%	33%	1%
	Rock Creek	Acres	8,689	6,999	-1,690
		Percent	22%	18%	-19%
	Cabin John Creek	Acres	3,758	2,075	-1,683
		Percent	23%	13%	-45%
	Anacostia River	Acres	30,085	15,364	-14,721
		Percent	32%	17%	-49%
Patuxent River	Brighton Dam	Acres	16,676	16,994	318
		Percent	33%	33%	2%
	Middle Patuxent River	Acres	13,900	10,536	-3,364
		Percent	38%	28%	-24%
	Little Patuxent River	Acres	29,816	24,552	-5,263
		Percent	45%	37%	-18%
	Rocky Gorge Dam	Acres	12,540	13,023	483
		Percent	37%	38%	4%
	Upper Patuxent River	Acres	29,609	25,002	-4,606
		Percent	52%	44%	-16%
Middle Potomac	Lower Monocacy River	Acres	55,246	58,980	3,735
		Percent	28%	30%	7%
	Double Pipe Creek	Acres	20,964	23,854	2,890
		Percent	17%	19%	14%

Source: MDP Land Use Data: 1973, 2000

Table 25
SCEA Subwatersheds –Unforested Stream Buffer

Watershed	Subwatershed	Percent Unforested Stream Buffer	Failed Indicator
Washington Metro	Potomac River Montgomery County	52 %	Yes
	Seneca Creek	54 %	Yes
	Rock Creek	53 %	Yes
	Cabin John Creek	48 %	No
	Anacostia River	47 %	No
	Oxon Creek	62 %	Yes
Patuxent River	Brighton Dam	45 %	No
	Middle Patuxent River	39 %	No
	Little Patuxent River	50 %	Yes
	Rocky Gorge Dam	46 %	No
	Patuxent River Upper	29 %	No
	Western Branch	33 %	No
Middle Potomac	Lower Monocacy River	65 %	Yes
	Double Pipe Creek	77 %	Yes

Source: Maryland DNR Surf Your Watersheds.

An additional study was completed by MD DNR, which calculated the amount of land that was converted from forested land to development from 1997 to 2000 (DNR, Forest and Green Infrastructure Loss in Maryland 1997-2000). **Table 26** shows this data by county that occurs within the SCEA boundary. Anne Arundel County had the greatest amount of forested land (3.6 percent) converted to development. Howard County had the least amount (0.9 percent) of land converted.

Table 26
Loss of all forest between 1997 and 2000, by County (MDP Data)

County	Acres of land converted from forest to development (1997-2000)	Acres of forest land in 1997	Percent of forest converted to development (1997-2000)
Anne Arundel	3,947	109,048	3.6
Prince George's	3,415	128,072	2.7
Montgomery	3,209	92,096	3.5
Howard	447	47,964	0.9
Frederick	2,799	124,578	2.2
Carroll	1,926	64,934	3.0

Source: Forest and Green Infrastructure Loss in Maryland 1997-2000, and Implications for the future (Maryland DNR, 2002)

The study also identified the loss of green infrastructure that had been converted from forested to development. Maryland’s Green Infrastructure is a network of undeveloped land that serves as the primary natural support system for the states numerous ecological resources. The many functions of these numerous ecological resources are vital to the states ecosystems, and they all exist within the expanses of forests, wetlands and other natural lands that make up the states Green Infrastructure. DNR developed a tool called the Green Infrastructure Assessment (GIA) to identify and prioritize the States Green Infrastructure. This tool, which is based on the principles of landscape ecology and conservation biology, attempts to recognize a variety of natural resource values to determine how a specific habitat fits into the bigger picture. The GIA identified two important types of resource lands the first of which are the “hubs”. These “hubs” are unfragmented areas hundreds to thousands of acres in size and are vital to maintaining the state’s ecological health. The second type of Green Infrastructure are the ‘corridors’ which are linear remnants of natural land that ensure the long term survival and continued diversity of plants and wildlife (DNR, Maryland’s Green Infrastructure Assessment). **Table 27** also shows this data by counties within the SCEA boundary. Montgomery County had the greatest amount of green infrastructure converted to development, while Howard County again had the least amount of change.

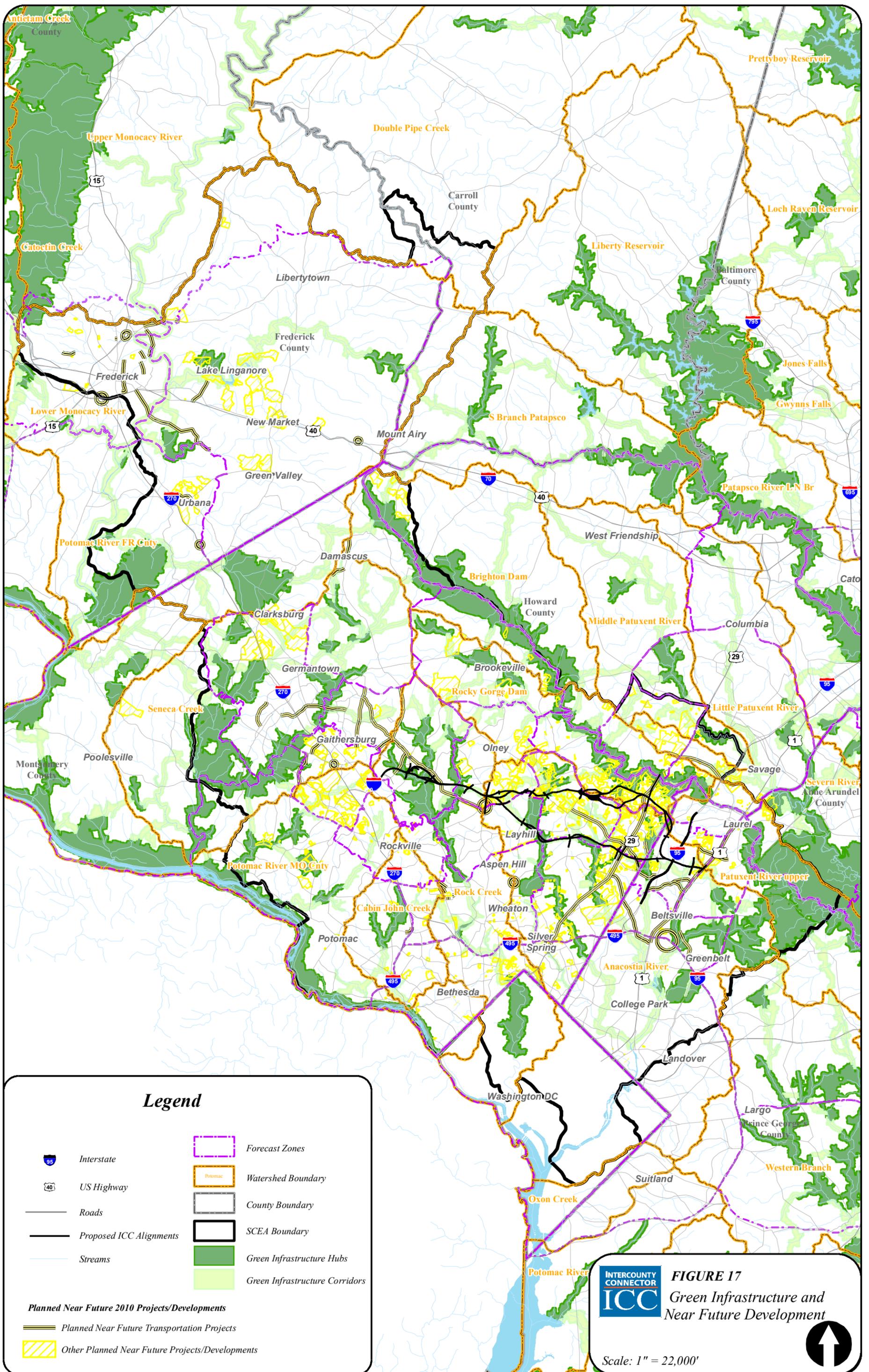
Table 27

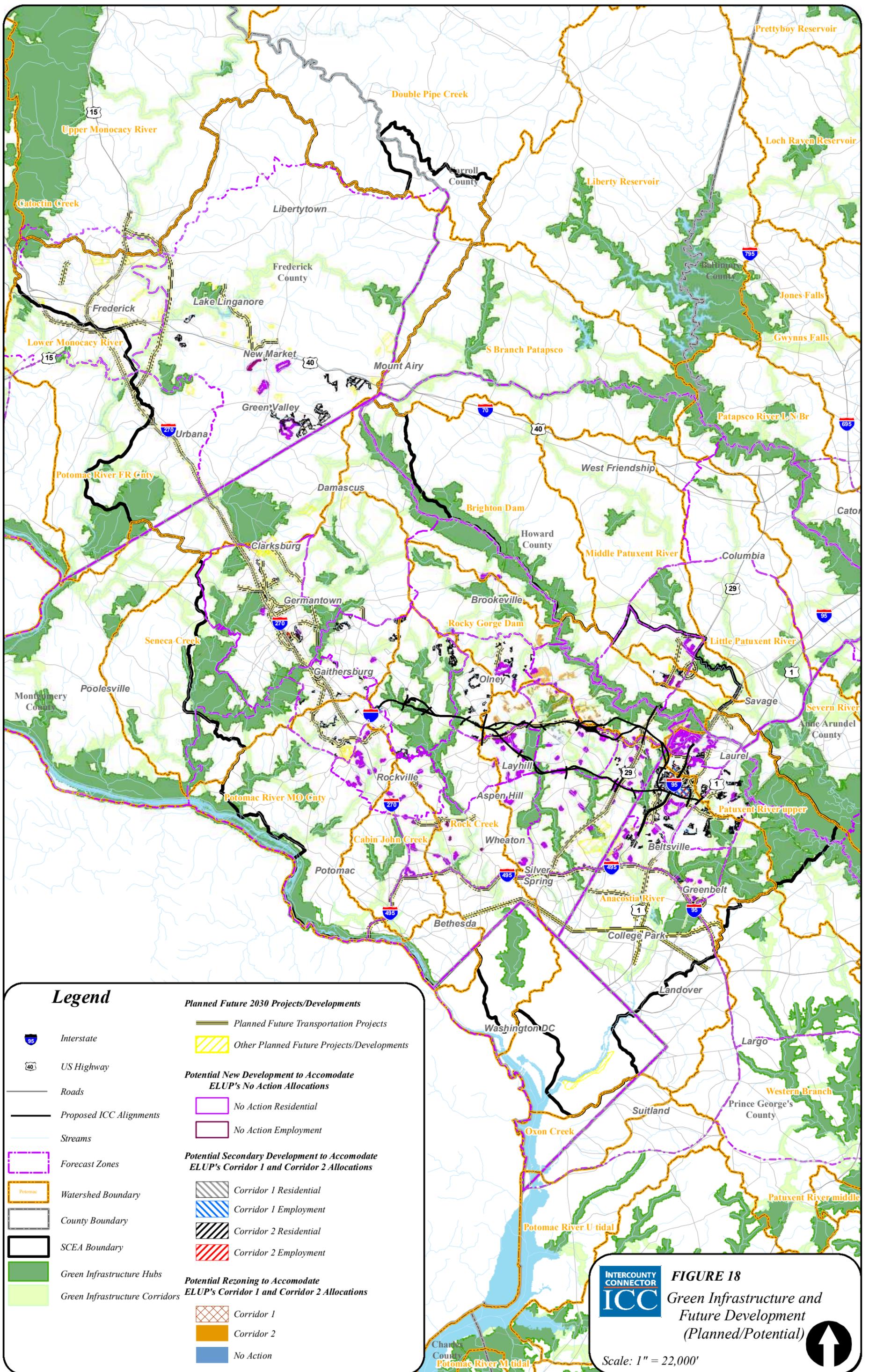
Loss of green infrastructure forest between 1997 and 2000, by County (MDP Data)

County	Acres of green infrastructure converted from forest to development	Acres of green infrastructure forest land (1997)	Percent of green infrastructure forest converted to development 1997-2000
Anne Arundel	564	54,148	1.0
Prince George’s	641	74,765	0.9
Montgomery	796	52,785	1.5
Howard	182	22,932	0.8
Frederick	849	75,033	1.1
Carroll	122	16,319	0.7

Source: Forest and Green Infrastructure Loss in Maryland 1997-2000, and Implications for the future (Maryland DNR, 2002)

The amount of Green Infrastructure within the SCEA boundary was calculated by subwatershed as shown in **Figure 17, Figure 18 and Appendix 13**. The subwatershed with the greatest amount of Green Infrastructure hubs is the Seneca Creek subwatershed which has 13,293 acres accounting for 23 percent of the subwatershed within the SCEA boundary. The subwatershed with the greatest percentage of Green Infrastructure hubs is the Patuxent River upper at 45 percent. The subwatershed with the greatest amount of Green Infrastructure corridors is the Lower Monocacy River subwatershed which has 9,092 acres which accounts for six percent of the subwatershed within the SCEA





Legend

- Interstate
- US Highway
- Roads
- Proposed ICC Alignments
- Streams
- Forecast Zones
- Watershed Boundary
- County Boundary
- SCEA Boundary
- Green Infrastructure Hubs
- Green Infrastructure Corridors
- Planned Future Transportation Projects
- Other Planned Future Projects/Developments
- Potential New Development to Accomodate ELUP's No Action Allocations**
 - No Action Residential
 - No Action Employment
- Potential Secondary Development to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
 - Corridor 1 Residential
 - Corridor 1 Employment
 - Corridor 2 Residential
 - Corridor 2 Employment
- Potential Rezoning to Accomodate ELUP's Corridor 1 and Corridor 2 Allocations**
 - Corridor 1
 - Corridor 2
 - No Action



FIGURE 18
Green Infrastructure and Future Development (Planned/Potential)

Scale: 1" = 22,000'



boundary. The Middle Patuxent River has the highest percentage of Green Infrastructure at 23 percent. The subwatershed with the lowest amount and lowest percentage of Green Infrastructure hubs is the Little Patuxent River which only has 40 acre or one percent of the subwatershed within the SCEA boundary. The Patuxent River upper has the lowest amount and percentage of Green Infrastructure corridors with only 229 acres or one percent of the subwatershed within the SCEA boundary.

Quantitative impacts were estimated for Green Infrastructure for the Present/Near Future time frame. These impacts are rough estimates based on a GIS overlay of Near Future Development and Transportation Projects and Green Infrastructure and do not take into consideration specific site plans nor development regulations that could limit impacts. As shown in *Appendix 13* the estimated impact of the planned Near Future Development and transportation projects on Green Infrastructure hubs and corridors were assessed by subwatershed. The subwatershed with the greatest potential impact to Green Infrastructure hubs is the Rocky Gorge Dam, which could potentially have up to 1,231 acres impacted, almost entirely by Near Future development. The Anacostia River subwatershed could potentially have the greatest impact to Green Infrastructure corridors with 1,040 acres possibly being impacted. The Little Patuxent River, Middle Patuxent River and Cabin John Creek subwatersheds could all have less than 10 acres of potential impacts to Green Infrastructure hubs. The Cabin John Creek subwatershed could have the lowest amount of impact to Green Infrastructure corridors within the SCEA boundary with approximately 11 acres of impacts.

The impact of near future development on Green Infrastructure could affect the connectivity and value of the habitat within the SCEA boundary. In several locations near future development has the potential to disrupt existing Green Infrastructure hubs and corridors. In Frederick County development in the vicinity of Lake Linganore has the potential to impact both corridors and hubs associated with Linganore Creek. In the Seneca Creek subwatershed the Clarksburg Town Center could potentially impact a Corridor that connects several hubs in northwestern Montgomery County. In northeastern Montgomery County the large amount of planned near future development, which is primarily residential, could have potential impacts to both hubs and corridors associated with Northwest Branch, Paint Branch, Little Paint Branch and the Patuxent River. These impacts have the potential for disrupting the corridors and continued fragmentation of the hubs. In Prince George's County, in the vicinity of the proposed ICC intersection with US 1, planned near future development could potentially impact a corridor which connects several large hubs associated with the Patuxent Wildlife Refuge to hubs associated with Little Paint Branch and Paint Branch in Montgomery County.

For the build alternatives, impacts to forest resources would be unavoidable (*see DEIS Section IV.F.8. for details*). It is anticipated that Corridor 1 would have greater forest impacts than Corridor 2. The majority of Corridor 1 impacts are associated with parklands. Impacts range from 737.0 to 794.1 acres for Corridor 1 (depending on option) and 588.9 to 685.7 acres for Corridor 2 (depending on option).

Near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with existing forestland to evaluate

impacts. *Appendix 1 and 2* and *Figure 11* highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative and are, therefore, not dependent on construction of an ICC. Quantitative impacts were estimated based on a GIS overlay of Near Future transportation/development and MDP land use. As shown in *Appendix 8* Near Future transportation projects could impact approximately 256 acres of forestland and Near Future development could impact approximately 8,744 acres of forestland. The subwatersheds that could have the greatest amount of impact to forestland are the Rocky Gorge Dam and Anacostia River with approximately 2,308 and 2,105 respectively. The subwatershed that could have the least amount of impact to forestland is the Cabin John Creek with approximately 38 acre of impacts. Quantitative impacts were also assessed from other proposed transportation projects when impact calculations were available through available NEPA documentation (*Table 10*).

Most of the proposed transportation projects will only slightly impact forest/terrestrial habitat, including the I-95/I-495 Greenbelt Metro Access Study (4.7 to 5.8 acres) and MD 28/MD 97 (8.9 acres). One transportation project, MD 216 Relocated, has the potential to moderately impact forests/terrestrial habitat (35 acres). MD 115/Muncaster Mill Road could potentially impact forested areas ranging from 1.8 to 29.3 acres. Impacts to forests/terrestrial habitat include both forest edges as well as forest fragmentation, specifically within the area of North Branch. In addition, forested areas adjacent to streams could be impacted in the areas of the North Branch of Rock Creek and the Brooke Manor tributary. In addition, the Prince George's County corridors could potentially impact forested areas. Other near future projects will impact contiguous forests occurring along the southern edge of the T. Howard Duckett Reservoir and the eastern portion of Prince George's County (within the SCEA boundary). Near future development in this area has the potential for impacting large, contiguous forest tracts, thereby, increasing forest fragmentation. However, these larger contiguous forests are primarily located within existing stream valley parks and are therefore afforded some protection from development.

As previously discussed in the Wetlands section, planned development along the proposed ICC Corridors 1 and 2 were overlaid with ICC study area forest interior dwelling species habitat. The areas immediately adjacent to the corridors were evaluated to determine the likelihood for impact by a planned development regardless of the ICC alternatives. Impacts are an estimation based on the occurrence of planned development in the location of FIDS habitat. The impact area was estimated to include the entire footprint of the planned development and does not take into consideration specific site plans nor development regulations that could limit the potential impacts.

There are six forest interior dwelling species habitat areas that could potentially be impacted by planned development in the vicinity of the ICC alternatives as shown on *Figure 16* and in *Appendix 13*. Planned development in the vicinity of Corridor 1 could potentially impact FIDS habitat areas A and B. The impact of the planned development (577) on FIDS habitat A would likely be minimal. The impact of the planned development (223,252) on FIDS habitat B could potentially be greater than 16 acres, which is much greater than the impact from the Corridor 1 alignment.

Planned development in the vicinity of Corridor 2 could have a greater effect on FIDS habitat. The potential impacts to FIDS habitats, C, D, E, and F by planned development are significantly greater than the impact from the Corridor 2 alignment. For the Fairland Options, Option B avoids FIDS habitat F but the planned development could potentially impact greater than seven acres of FIDS habitat.

The potential impacts to FIDS habitat by planned development in the vicinity of the ICC alternatives are significantly greater along the Corridor 2 Alternative. As previously stated this is due to the greater amount of planned development along the Corridor 2 alignment.

The Cumulative impacts for the No-Action Alternative would include the near future planned development that will occur regardless of an ICC and the direct impacts associated with an ICC build alternative. There are no direct impacts associated with the No-Action Alternative. The cumulative effects of the ICC project on forests/terrestrial habitat would occur due to development in the present/near future time frame, especially to those isolated forested tracts within areas planned for residential development.

Cumulative impacts for Corridor 1 would likely have the greatest impact on forests/terrestrial habitat due to greater direct impacts associated with Corridor 1. Significant cumulative effects on forests/terrestrial habitat in the present/near future time frame will occur in addition to the direct impacts the near future planned development that will occur regardless of an ICC.

Cumulative impacts for Corridor 2 would likely have a greater impact on forests/terrestrial habitat than the No-Action Alternative due to the direct impacts associated with Corridor 2. In addition to the direct impacts, the near future planned development which will also occur regardless of an ICC will have significant cumulative effects on forests/terrestrial habitat in the present/near future time frame.

To reduce further degradation of terrestrial habitat by the cumulative effects, a number of laws and regulations are applicable to preserving this land from development (*see page IV-468 for details*).

Data regarding Forest Interior Dwelling Species (FIDS) and their habitats within the SCEA boundary were assessed to determine cumulative effects. Please refer to **Section III.E.9 in the DEIS** for descriptions/definitions of FIDS habitat. Breeding Bird Survey (BBS) data were obtained from the USFWS-BBS Program. The following species, which are members of the Woodland Breeding group, showed significant declining trends in Maryland from the time period of 1966-2002:

- Kentucky Warbler
- Whip-poor-will
- Yellow-billed Cuckoo
- Wood Thrush
- Scarlet Tanager
- Eastern Wood-Pewee
- Red-eyed Vireo

FIDS habitat would be impacted by the build alternatives. Corridor 1 would result in approximately 78 to 97 acres of FIDS impact (depending on option) and Corridor 2 would result in 34 to 52 acres of impact (depending on option). FIDS habitat would not be impacted by either alternative in the Upper Patuxent River or Potomac River watersheds (*see DEIS Section IV.F.8 for more details*). Cumulative effects to FIDS habitat are anticipated to be minimal, since the majority of near future projects impact smaller, isolated forested tracts and most of the proposed transportation projects would have minimal habitat impacts. Transportation projects that could have the potential for impacting FIDS include MD 216 Relocated, given the habitat is present in the 35.0 acres of impacted forests. Effects to FIDS by MD 115/Muncaster Mill Road are expected to be minimal, since the transportation project impacts approximately 1.8-29.3 acres of forests.

Future

Some forest loss will occur in the future timeframe, especially those isolated forest areas within areas zoned for residential and commercial development. Forested lands are protected under those laws and regulations listed in the Conclusion section of this SCEA. Future development must comply with applicable federal, state, and county regulations governing forest conservation, which include: the State Forest Conservation Act, and the Maryland Reforestation Law. Future effects to forests in the SCEA boundary would be regulated by state and county forest conservation regulations. In addition, planning efforts and regulations from agencies such as the DNR and M-NCPPC will help to preserve forests and minimize the effects of forest fragmentation. *Figure 12* shows the forested areas within the SCEA boundary and proposed future land development based on the ELUP's estimates.

No-Action-Planned Development

Planned future transportation and development projects slated to occur regardless of an ICC for the future time frame have been identified throughout the SCEA boundary (*Appendix 4 and 5 and Figure 12*). Quantitative impacts were estimated based on a GIS overlay of Future transportation/development and MDP land use data. As shown in *Appendix 8* Future transportation projects could impact approximately 504 acres of forestland and Future development could impact approximately 593 acres of forestland. The subwatershed with the greatest amount of impacts to forestland is the Lower Monocacy River with approximately 431 acres. The Rocky Gorge Dam subwatershed has the lowest amount of impact with less than 10 acres of impact. Trends analysis show that development pressures may result in encroachment to forested areas (*Figure 12*) within the SCEA boundary whether or not an ICC is constructed. Needs of future populations could impact additional forested areas due to increased development in the SCEA boundary. Future transportation projects could impact forestland in all of the counties in the SCEA boundary. One of the larger development projects is in both Prince George's County and Montgomery County and could have forestland impacts due to a proposed FDA Headquarters facility located near the intersection of I-95 and I-495. This could have a large impact to forestland due to the size of the development. Clarksburg Town Center, located off of I-270 in northern Montgomery County, will be zoned for mixed-use and could have minor impacts to forestland. The Warfield Property is located

off of MD 27 and is also located at the north end of the county. It will be a residential development that could have minor impacts to forestland. Frederick County could potentially have the most forestland impacts due to the large number of planned developments. Parcel B is an area in southeastern Frederick County that will have residential development and will also accommodate Mt. Airy High School. Parcel G, also in Frederick County, just south of Parcel B, could impact a small area of forestland. The Ball Road School Site, located at the western portion of Frederick County could impact a small isolated 12-acre forest stand.

Planned future transportation projects that will occur in the SCEA boundary are not anticipated to have a significant impact to forestland with the exception of the North-South Parallel Road project in Frederick County that would link I-15 to I-270. There is a potential for significant linear impacts along a few large forest corridors.

Quantitative impacts to Green Infrastructure were also estimated for the future time frame. As shown in *Appendix 13 and Figures 18* there is estimated to be relatively limited impacts to hubs by Future planned development with 58 acres of potential impact within the entire SCEA boundary. These impacts would be mainly located within the Anacostia River and Seneca Creek subwatersheds. There is potential for more impacts to corridors by Future planned development with approximately 713 acres within the entire SCEA boundary. The majority of these impacts may potentially occur within the Anacostia River and Lower Monocacy River subwatersheds.

Future planned development and transportation projects may continue to impact the Green Infrastructure throughout the SCEA boundary. In Frederick County the proposed North-South Parallel Road could disrupt the Corridor associated with the Monocacy River, which connects the large hubs in the Catoctin Mountains to the hubs in Southern Frederick, and western Montgomery Counties associated with the Potomac River. Also in Montgomery County the continued development of the Clarksburg Town Center could further disrupt the corridor in the vicinity of that development project. In northeastern Montgomery County the construction of MD 28/MD 198 could affect hubs and corridors associated with Northwest Branch, Paint Branch and Little Paint Branch.

No-Action-Potential Development

In addition to the planned future development, potential development will have effects on forests/terrestrial habitat for the No-Action Alternative. As shown in *Appendix 8* the approximate acreage of impacts forestland by No-Action potential development is 1,268 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The subwatershed that could have the greatest amount of impacts is the Anacostia River with approximately 593 acres. The Little Patuxent River subwatershed is expected to have the lowest amount of impact to forestland with approximately six acres. In the vicinity of Laurel there are several areas that have been identified for additional residential development that could potentially impact large amounts of forested land. Within the Muirkirk forecast zone in the vicinity of I-95 there are several areas that have been identified as potential residential development that could impact around 530 acres of forested land. In the city of Rockville approximately 130 acres of

forested land has been identified to accommodate employment growth for the No-Action Alternative. In addition to these large areas of effects by potential development, additional effects are scattered throughout the SCEA boundary (*Figure 12*).

In the areas where developable land for ELUP allocations was not available, rezoning and redevelopment would be necessary. If rezoning is necessary within these areas, potential impacts to forestlands in these areas may occur. The zones with the greatest chance of development pressures on forested land by rezoning would be Laytonsville and Cloverly. Cloverly could require 130 residential acres and Laytonsville could require 40 residential acres (*Appendix 7*). Impacts to forested land by rezoning pressures can be reduced by sound planning techniques at the county level, which would take advantage of redevelopment and revitalization opportunities if they are available. The cumulative effects of the No-Action alternative on forests/terrestrial habitat for the future time frame will be minimal compared to the amount of existing forestland in the SCEA boundary, however forestland impacts could be significant in the Muirkirk forecast zone due to the potential areas identified for residential development.

The potential development identified on the Konterra properties could result in impacts to FIDS habitat as shown in *Table 15*. Konterra potential development associated with the No-Action Alternative could impact 14.3 acres of FIDS habitat. These potential impacts are the result of a simple overlay of the potential development and the resource information gathered from the FIDS field delineation conducted for the ICC project. The potential development may extend beyond the ICC natural resource assessment study area. These potential impacts do not take into consideration development restrictions and regulations that could reduce impacts.

As shown in *Appendix 13 and Figure 18*, estimated impacts to Green Infrastructure by No-Action potential development throughout the entire SCEA boundary would be approximately 30 acres of impact to hubs and 410 acres of impacts to corridors. The majority of these potential impacts could occur within the Anacostia River subwatershed, which is the only subwatershed with significant amounts of estimated impacts for both hubs and corridors.

No-Action Potential development may impact corridors that connect hubs associated with Northwest Branch to hubs associated with North Branch of Rock Creek and Rock Creek. In Prince George's County east of I-95 a large area identified as No-Action potential residential development may impact a corridor that connects hubs associated with Little Paint Branch and hubs associated with Beaverdam Creek and the Patuxent River.

For the future time frame the cumulative impact to forestland by the No-Action alternative is approximately 2,365 acres. This includes the impacts from planned future development/transportation projects and No-Action potential development. The subwatershed that could have the greatest cumulative impact to forestland is the Anacostia River, which could have approximately 769 acres of impact. The Brighton Dam subwatershed is expected to have only 28 acres of cumulative impacts to forestland during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 1 – Secondary Effects

In addition to the planned future development, potential development will have effects on forests/terrestrial habitat for Corridor 1. The effects of this additional potential development are considered secondary impacts to forests/terrestrial habitat. Approximately 4,940 acres of land has been identified that potentially support residential or commercial development under the No-Action Alternative within the SCEA boundary based on allocations projected by the ELUP. This takes into account the number of acres that is needed for rezoning however does not take into account the amount needed for redevelopment.

Overlay analysis show that there could be encroachments to forests in all of the counties in the SCEA boundary under Corridor 1. As shown in *Appendix 8* the approximate acreage of secondary impacts to forestland by Corridor 1 potential development is 3,481 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The subwatershed with the greatest amount of impacts in the Anacostia River with approximately 1,439 acres. The subwatershed with the least amount of impact is the Little Patuxent River with approximately 17 acres. The counties that could incur the most potential impacts are Prince George’s County and Frederick County. Most of the impacts in Prince George’s County could occur near the intersection of I-95 and Powder Mill Road. These impacts would be from both residential and commercial and could have significant impacts due to the large amount of developments. In addition areas of potential development were identified within the Laurel Pines zone in the vicinity of Muirkirk Road. These potential impacts are areas identified as potential development for residential and employment opportunities. There is a large area of forested land identified as potential residential development in Montgomery County adjacent to the intersection of I-270 and Germantown Road. The potential development located in this area could have a large impact on this 173-acre forest stand. The southeastern part of Frederick County could have the largest impacts to forestland compared to the rest of the counties in the SCEA boundary primarily from residential development (*Figure 12*).

It will be necessary for rezoning and redevelopment to occur in the zones where developable land for ELUP allocations was not available. Additional impacts to forestland may occur within these zones if rezoning is necessary. The zones with the greatest potential effects to forested land by rezoning pressures for Corridor 1 are Olney (271 residential acres, 5 commercial acres), Laytonsville (60 residential acres, 1 commercial acre), Burtonsville (270 residential acres, 2 commercial acres) and Cloverly (287 residential and commercial acres) (*Appendix 7*). As stated in the No-Action Alternative if sound land use planning is used and redevelopment/revitalization opportunities are utilized then the secondary and cumulative effects of Corridor 1 on forests/terrestrial habitat could be reduced.

As shown in *Appendix 13 and Figure 18*, estimated impacts to Green Infrastructure by Corridor 1 potential development throughout the entire SCEA boundary would be approximately 272 acres of impact to hubs and 787 acres of impacts to corridors. The majority of these potential impacts could occur within the Anacostia River and Rocky Gorge Dam subwatersheds.

Secondary development associated with the Corridor 1 Alternative, both east and west of I-95 in Prince George’s County may impact corridors that connect hubs associated with Little Paint Branch and hubs associated with Beaverdam Creek and the Patuxent River. Development of rezoned land identified in northeastern Montgomery County may impact hubs associated with Northwest Branch. This potential development may impact corridors which connect hubs associated with Northwest Branch to hubs associated with the Patuxent River.

For the future time frame the cumulative impact to forestland by the Corridor 1 alternative is approximately 4,578 acres. This includes the impacts from planned future development/transportation projects and Corridor 1 potential secondary development. The subwatershed that could have the greatest cumulative impact to forestland is the Anacostia River, which could have approximately 1,615 acres of impact. The Brighton Dam subwatershed is expected to have only 28 acres of cumulative impacts to forestland during the future time frame by the Corridor 1 alternative (*Appendix 8*).

Corridor 2 – Secondary Effects

Secondary and cumulative impacts are anticipated to be similar for Corridors 1 and 2. Similar impacts from potential development by Corridor 1 would occur from the construction of Corridor 2, but could possibly have slightly more impacts to forests and terrestrial habitat. As shown in *Appendix 8* the approximate acreage of secondary impacts to forestland by Corridor 2 potential development is slightly greater than Corridor 1 at approximately 3,504 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The main difference between Corridor 1 and Corridor 2 is approximately 100 additional acres associated with Corridor 2 secondary development in the Rocky Gorge Subwatershed. The additional area that could be impacted is located near the intersection of MD 27 and I-70 in the southeastern portion of Frederick County (*Figure 12*) from rezoning are similar between both Corridor 1 and Corridor 2. There is a difference in the Burtonsville zone in which the allocations for households and jobs are much greater for Corridor 2 than Corridor 1, 670 residential acres and 15 commercial acres could be developed under Corridor 2, which is significantly greater than Corridor 1 (*Appendix 7*). Corridor 2 could result in more forested land impacts. Secondary and cumulative impacts to forests/terrestrial habitat could be reduced if appropriate planning techniques are used and redevelopment/revitalization opportunities are utilized.

As shown in *Appendix 13 and Figure 18*, estimated impacts to Green Infrastructure by Corridor 2 potential development throughout the entire SCEA boundary would be approximately 243 acres of impact to hubs and 758 acres of impacts to corridors, which is slightly less than impacts associated with Corridor 1. The majority of these potential impacts may occur within the Anacostia River subwatershed.

For the future time frame the cumulative impact to forestland by the Corridor 2 alternative is approximately 4,601 acres. This includes the impacts from planned future development/transportation projects and Corridor 2 potential secondary development. This is only around 20 acres greater than the cumulative impacts associated with Corridor

1. As previously mentioned the main difference is within the Rocky Gorge Dam subwatershed (*Appendix 8*).

The cumulative effects to forests/terrestrial habitat due to an ICC could be reduced by federal, state and local regulations. Forested land is regulated by the State Forest Conservation Act of 1991 (ACM, Natural Resources Article, Sections 5-1601 through 5-1613) which applies to all development both public and private and the Maryland Reforestation Law adopted in 1989 and amended in 1990 and 1991 (Natural Resource Article, 5-103) which applies to the construction of all highway and construction projects utilizing one dollar or more of State funding. The State Forest Conservation Act was enacted to protect the forests of Maryland by making forest conditions and characters an integral part of the planning process. The Act seeks to maximize the benefits of forests and to slow the loss of forestland in Maryland while allowing development to take place. A Forest Stand Delineation (FSD) is required as part of the submittal package for all development plans and grading permits where the land parcel is greater than 3,716 square meters (40,000 square feet) and the wooded areas on the property total more than 929 square meters (10,000 square feet). An approved Forest Conservation Plan must also be obtained prior to the issuance of grading permits. The Act is regulated by DNR, but it is implemented and administered by local governments. The Maryland Reforestation Law states that the construction of a highway by a unit of the state:

1. May cut or clear only the minimum number of trees and other woody plants that are necessary and consistent with sound design practices.
2. Shall make every reasonable effort to minimize the cutting and clearing of trees and other woody plants.

The Maryland Reforestation Act requires the minimizing of forest clearing, replacement of removed wooded areas, or contributions to a reforestation fund if forested areas are taken. Every effort will be made to minimize the impacts within the project area. All highway and construction projects utilizing \$1 or more of State funding must do mitigation for forest impacts. Forest mitigation is required for any State project that requires one or more acres of impact. Replacement is required on an acre for acre (1:1) basis and must be accomplished on public land. The Administration will adhere to the following prioritized reforestation site requirements:

1. Reforestation within the project right-of-way, or on Administration property adjacent to the construction site,
2. Reforestation on any public land within the county and subwatershed where impacts are anticipated,
3. Reforestation to occur in the county or subwatershed in the state in which the construction activity is located.

The following criterion will apply to all planting sites per the options listed above:

- Open forested plantings sites should be at least one-half acre in size and 50 feet wide,

- Sites adjoining other forestland should be at least one-quarter acre in size and one planting row wide.
- Free standing strip plantings should be at least 50 feet wide and one-half acre in total size,
- Site must not be in forested condition before planting,
- Site must remain in forested condition for the foreseeable future.

Mitigation for forest impacts will replace the amount of forest being impacted but will not immediately replace the habitat that was provided by the impacted forest areas. It takes time to establish the mitigation sites and the mitigation may never completely replace the originally impacted forest in terms of its important function and values.

The Maryland Environmental Trust was established in 1967 to conserve, improve, stimulate and perpetuate the aesthetic, natural, scenic and cultural aspects of the environment. The Trust obtains easements to preserve land from Development.

Program Open Space established in 1969 is administered by DNR acquires land for State parks and natural resource preservation. The program also assists local governments to protect land.

The Buffer Incentive Program administered by DNR enables the reforestation of streams by providing landowners with monetary incentive to plant trees along waterways.

DNR's Forest Legacy Program identifies and protects environmentally important forestlands that are threatened by development. Land is protected by acquiring perpetual conservation easements. Many of these forestland preservation initiatives are primarily voluntary in nature and the extent of their use is often influenced by the open market of real estate prices. Unless landowners are actively pursuing protective status for their properties it is unlikely that forestland will be included in these programs in the foreseeable future. But with the continued growth that is expected within the SCEA boundary efforts could be made to encourage and facilitate the preservation of the existing forestland that still exists in portions of the SCEA boundary.

i. Groundwater

Groundwater is one of the most important natural resources; it replenishes our streams and wetlands, provides fresh water for irrigation and drinking water for many citizens.

Effects to groundwater within the SCEA boundary during the present/near future time frame will be minimal because groundwater is not the source for most of the drinking water, public water and sewer is available throughout much of the SCEA boundary. There is some planned development in areas where groundwater is the source for drinking water, which is predominately the case in Frederick County. During the future time frame, water service will continue throughout the SCEA boundary and will expand into new areas as the infrastructure is developed. Planned development is greatest in Montgomery County and Fredrick County, which could have a negative effect on groundwater. In addition to the planned development, potential development associated

with the No-Action Alternative could effect groundwater in Prince George’s County along the I-95 Corridor, and in Montgomery and Frederick Counties due to residential development. Potential impacts to groundwater could result from secondary development associated with Corridor 1 of which is the densest concentration is within the Laurel and Muirkirk zones. Impacts that could result from secondary development associated with Corridor 2 would be similar to Corridor 1, except for additional secondary development in southeastern Frederick County and the greater potential development of rezoned land in Burtonsville. Cumulative effects to groundwater may be reduced by state and local regulations.

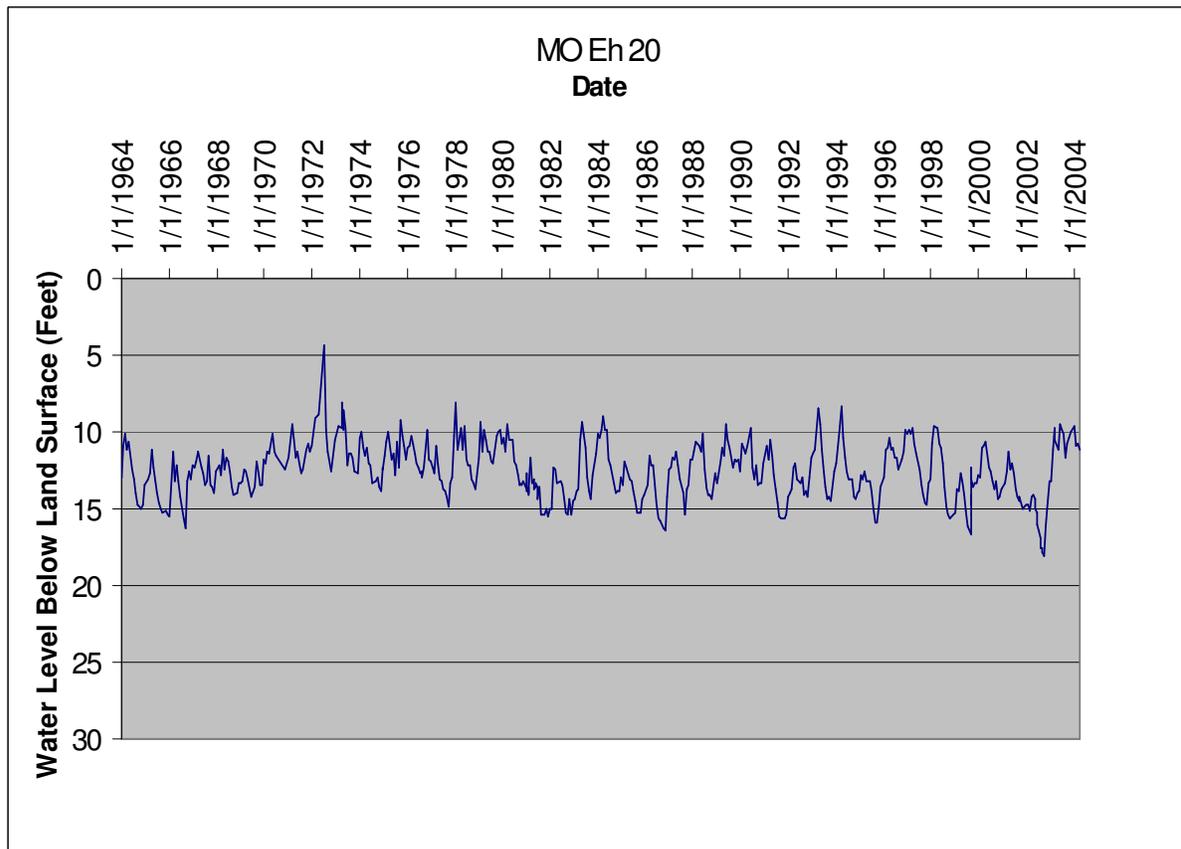
Groundwater analysis within the SCEA boundary was based on existing readily available data. Specific quantitative groundwater data was obtained from the MGS. It was not possible to determine a trend for the time period 1964 to present due to the nature of the data and numerous sites not reporting. General groundwater information was obtained from the USGS, Groundwater Atlas. Specific groundwater level data was obtained from the USGS website for several wells within the SCEA boundary.

The SCEA area exists in both the Coastal Plain and Piedmont Plateau physiographic provinces of Maryland. Please refer to *Section III.E.2 in the DEIS* for more information on physiographic provinces. The principal aquifer system is the Northern Atlantic Coastal Plain Aquifer system within the Coastal Plain. Unconsolidated sands compose the surficial aquifer, the uppermost water yielding part of the system. The majority of the system is composed of semi-consolidated sand aquifers separated by clay confining units. A productive limestone aquifer (USGS Groundwater Atlas) is also included in this system. The Piedmont region has more topographic relief with uplands having as much as 500 feet of local relief. The water table aquifer exists in the regolith and extends into the underlying bedrock. Below the water table aquifers are related to complex joints, fractures, fault zones and cleavage planes (MGS 1981). The aquifers in this province are predominately in metamorphic and igneous rocks. In low areas of the Piedmont, aquifers occur in carbonate rocks, the most productive aquifers of the piedmont region, and in sandstone.

Past

Groundwater level records have been collected for several wells within the SCEA boundary for the time period 1964 to present or parts of the time period. Within Montgomery County, one water table well with data on groundwater level occurs within the SCEA boundary. This well is located at the MD 196 and Fairland Road. Monthly measurements have been taken since March 1955 to present. The highest water level measured, 4.39 feet below land surface, in 1972. The lowest water level measured, 16.67 feet below land surface in the 1999. *Figure 19* is a graph of the data from the time period 1964 to present

Figure 19
Groundwater Level of well MO Eh 20

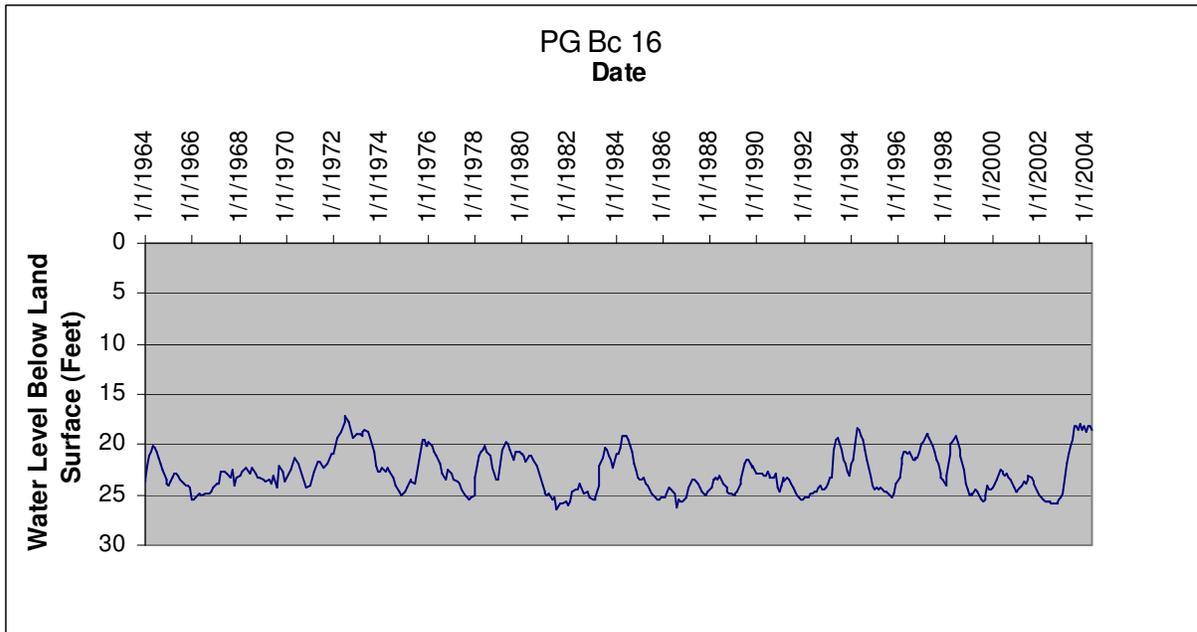


One water table well with groundwater levels occurs within the SCEA boundary in Prince George’s County. This well is located at the National Agricultural Research Center in Beltsville. Monthly measurements have been taken since September 1962 to present. The highest water level measured, 17.26 feet below land surface, was recorded July 6, 1972. The lowest water level measured, 26.42 feet below land surface, was recorded July 8, 1981. **Figure 20** is a graph of the data from the time period 1964 to present.

Present

The total 1995 ground water withdrawals were 246 million gallons per day, with 31 percent of the total population using ground water (USGS 2004) in Maryland. Groundwater quality is affected by surface water quality and quantity controls. Stormwater management using best management practices creates infiltration, which allows for recharge of groundwater. The addition of impervious surface will lead to a decrease in infiltration, which will reduce the rate of groundwater recharge. A sustainable aquifer cannot have a recharge rate that is less than its withdrawal rate. The same regulatory measures that protect surface water can protect groundwater.

Figure 20
Groundwater Level of well PG Bc 16



Groundwater impacts from the build alternatives would occur as quantity and/or quality alterations. The build alternatives have the potential for reducing infiltration into shallow portions of aquifers, reducing or redirecting available hydrology for wetlands and streams. There is no appreciable difference in potential quantity impacts between Corridor 1 and Corridor 2. Furthermore, water quality impacts to groundwater would be minimal with both alternatives since roadway pollutants would be of low concentrations and would likely be retained in vegetation found in SWM facilities.

Near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with existing land uses to evaluate impacts. *Appendix 1 and 2* and *Figure 11* highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative and are, therefore, not dependent on construction of an ICC. The only difference in cumulative impacts between the ICC alternatives is the direct impacts of the ICC project for the near future time frame. Cumulative effects from near future impacts to groundwater are anticipated to remain consistent with current trends since groundwater withdrawal is not considered extensive and the area is primarily served by public sewer and water or will be in the next 5 years. This includes expected water use in locations where near future development is planned within Montgomery and Prince George’s counties except in the Burtonsville and Laytonsville Forecast Zones in which there is no service. In addition, public water and sewer also service the portions of Howard County and Anne Arundel counties within the SCEA boundary, except in the Fulton Forecast Zone and western Howard County. Within Frederick and Carroll County there are several near future developments in areas that rely on groundwater for their

drinking water supply, but service is expected to expand to many of these areas; some within 5 years. Residential land use throughout the SCEA boundary suggests that pressure from groundwater withdrawals is not a concern relevant to quantity. Water service continues to be available throughout much of the boundary minimizing the need for individual wells. From a groundwater quality standpoint, environmental regulations will help ensure that quality impacts from cumulative effects are reduced.

Future

Future impacts to groundwater within the SCEA boundary are expected to be minimal. Water service will continue to be available throughout much of the boundary and will be expanded as the infrastructure is developed, thus minimizing the need for future individual wells. In addition, stormwater controls using best management practices will be in place as part of any transportation improvement, which will, among other things, reduce the potential effects of water loss from infiltration and subsequent impacts to groundwater. Regulatory steps required by the WSSC, MDE, and Montgomery and Prince George’s counties further ensure the protection of groundwater within the SCEA boundary.

No-Action-Planned Development

Planned future transportation and development projects slated to occur regardless of an ICC for the future time frame have been identified throughout the SCEA boundary (*Appendix 4 and 5* and *Figure 12*). There is a potential for impacts to occur to groundwater resources within the SCEA boundary as a result of this future development. The subwatersheds that could experience the greatest effects to groundwater from future planned development are the Lower Monocacy River (Frederick County) and the Anacostia River (Montgomery County/Prince George’s County) as shown in *Figure 12*. This change in land use by future development will likely result in the construction of underground structures and utility systems creating secondary porosity and permeability fields. Utility networks may serve as drains for the groundwater system; above the water table, they become sources of concentrated recharge. This concentrated recharge could be from leaking utility systems such as sewage systems. These developments may also increase stormwater runoff due to the additional impervious surfaces. This increase in runoff and decrease in groundwater infiltration has the potential to adversely affect the level of the water table within these areas. The quality of the water that does reach the groundwater may be also be at least temporarily degraded due to construction. Montgomery County has the most planned development proposed in the SCEA boundary followed by Frederick County.

No-Action-Potential Development

In addition to the planned future development, areas identified as potentially developable land to accommodate the ELUP allocations for households and jobs could have effects on groundwater during the future timeframe. There is 2,670 acres of land that could potentially support residential or commercial development based on ELUP allocations under the No-Action Alternative to accommodate growth. Based on the allocations

reviewed, there could potentially be a substantial amount of residential development in Prince George’s County, in the Laurel and Muirkirk forecast zone along the I-95 corridor. Wheaton, Rockville, Olney and Aspen Hill have the potential for residential development that could have impacts to groundwater along Watts Branch and Anacostia River subwatershed in Montgomery County. Frederick County is also likely to experience potential future development in the Little Bennett Creek and Bush Creek third-order subwatersheds. Other areas of potential development are more scattered throughout the SCEA boundary (*Figure 12*). It will be necessary for rezoning and redevelopment to occur in areas that allocations for households and jobs are not met. If rezoning is necessary within a zone then there is the potential for additional effects to groundwater due to increased development to meet the residential and employment needs. The zones that could have the most development from rezoned land are Cloverly (130 residential acres), Rockville (10 residential acres), and Laytonsville (40 residential acres) (*Appendix 7*). The impacts to groundwater by increased pressure from rezoning land could be reduced by redevelopment and revitalization. The effects to the drinking water quality and water supply of the surrounding community are expected to be minimal because the majority of the SCEA boundary is served with public water and sewer. However, potential development in the Laurel and Muirkirk zones are much more dense than any other areas in the SCEA boundary, creating the potential for groundwater impacts to occur in these areas.

Cumulative effects to the quality and quantity of groundwater resources will likely be minimal because of existing laws and regulations in place to protect against degradation. Any effects to groundwater resources would be closely monitored by MDE under the regulations of the Safe Drinking Water Act.

Corridor 1 – Secondary Effects

In addition to the planned future development, potential development will have effects on groundwater for Corridor 1. The effects of this additional potential development are considered secondary impacts to groundwater. The potential development will occur throughout the SCEA boundary as summarized in *Section A.4.c*. In the zones where developable land for ELUP allocations for households/jobs was not available; it would be necessary for rezoning or redevelopment to occur as summarized in *Section A.4.c*. There is the potential for additional effects to groundwater due to increased development to meet the residential and employment needs, if rezoning is necessary within a zone. The zones that could have the most development from rezoned land for the Corridor 1 Alternative are Cloverly (287 residential and commercial acres), Laurel (81 residential and commercial acres), Burtonsville (270 residential acres, 2 commercial acres), Beltsville (110 residential acres, 15 commercial acres), Laytonsville (60 acres residential, 1 acre commercial) and Gaithersburg (37 acres residential and commercial). The impacts to groundwater by increased pressure from rezoning land could be reduced by redevelopment and revitalization.

There is a potential for secondary impacts to occur to groundwater resources within the SCEA boundary as a result of Corridor 1. The amount of impervious surfaces would be greater especially along the road corridor. Residential and commercial development, as a

result of Corridor 1, could also increase the chance of impacts to groundwater. Montgomery County would have the most development from Corridor 1, which could have the most impacts. These impacts could primarily be located along Corridor 1 and central Montgomery County. There are no significant affects anticipated to groundwater, however potential development in the Laurel and Muirkirk zones are much more dense than any other areas in the SCEA boundary. With these potential areas being close together, there is a greater possibility for groundwater impacts. The secondary effects to groundwater will be minimal as long as the planned and potential development is built in accordance of all applicable regulations and laws that will protect groundwater resources within the SCEA boundary.

Corridor 2 – Secondary Effects

Under the Corridor 2 Alternative, secondary and cumulative impacts to groundwater are anticipated to be similar to those described in the Corridor 1 Alternative. Similar potential secondary development is expected to occur for Corridor 2 as with Corridor 1 except for minor differences as discussed in *Section A.4.c*. Similar to Corridor 1, in the zones where rezoning could possibly occur, the potential for additional impacts to groundwater is increased. The difference between Corridor 1 and Corridor 2 is within the Burtonsville zone. Secondary impacts from Corridor 2 would be slightly higher than Corridor 1 due to significantly greater allocations for both households and jobs estimated for Corridor 2. This could potentially require more development to meet the greater allocations within the Burtonsville zone. For Corridor 2 within the Burtonsville zone, 670 residential acres and 15 commercial acres could be developed. This is approximately 400 acres greater than Corridor 1. Even with the difference in the Burtonsville zone, the secondary effects of Corridor 2 are similar to Corridor 1 and could be reduced as long as the planned and potential development is built in accordance of all applicable regulations and laws that will protect groundwater resources within the SCEA boundary.

Cumulative effects to groundwater could be reduced by state and local regulations. Groundwater withdrawals and discharges are regulated through WSSC, Montgomery County, Prince George’s County and MDE. COMAR regulations, in particular Title 26 Department of the Environment, Subtitle 08 Water Pollution, Section 02 Water Quality, contains “Groundwater Quality Standards” that identify and define types of aquifers, regulated activities, and requirements for activities including discharge of effluent, underground injection, discharge to groundwater and discharge quality criteria.

Prince George’s County exercises protection of groundwater resources as well. All construction of new wells within the county must receive a County Well Location permit, in which the purpose is to protect the public health and groundwater by assuring that wells are properly sited with respect to improvements and the sewage disposal system on a property.

j. Rare, Threatened and Endangered Species

Past effects to RTE species include loss of habitat from land conversion activities (forest clearing as part of development), mortality from development pressures or human activity

(vehicular collisions). Additional effects as a result of the growth in the area during the past time frame can include human disturbance, especially during sensitive life cycle periods such as breeding, changes in drainage or hydrology in general, forest or habitat fragmentation, and noise pollution. During the past time frame the Endangered Species Act was passed (1973) which decreased the rate of decline of RTEs throughout the nation; likely paralleling similar declines within the SCEA boundary. Planned development during the near future time frame could potentially encroach into Sensitive Species Project Review Areas (SSPRA). These impacts would be primarily in Montgomery and Prince George's counties due to residential development and transportation improvements. During the future time frame Clarksburg Town Center, a planned mixed-use development near Germantown could encroach upon an SSPRA in Montgomery County. In addition to the planned development, additional potential development associated with the No-Action Alternative could impact the McKnew Bog in Prince George's County and infringe on an SSPRA near Rockville. Secondary development associated with Corridor 1 may occur near SSPRA's in Prince George's County near US 1, near I-95 and Powder Mill Road and along US 29 in Howard County. The secondary impacts to RTEs are similar between Corridor 1 and Corridor 2. Cumulative effects to RTEs will be reduced through the implementation of federal and state regulations.

Readily available information obtained regarding RTE Species was obtained through coordination with DNR and USFWS. These agencies provided data on state/federal endangered and threatened species within the project study area. Data on past impacts to these species was not readily available. Projected qualitative future impacts will be based on future and near future land use and development in relation to sensitive species special protection areas. Quantitative impacts were estimated based upon a GIS overlay of the transportation/development and SSPRA's, for the Present/Near Future and Future time frame (*Appendix 8*). The estimate assumes that the transportation/development project that occurs in the location of an SSPRA, which represent the general locations of documented RTE species that could potentially be impacted, will incur impacts throughout the entire footprint of the project and does not take into consideration specific site plans nor development regulations that could limit these impacts.

Past

Urban development in the past timeframe has affected the RTEs by disturbing habitat within the SCEA boundary. The following are examples of how development in the past timeframe could impact RTEs, specifically their habitat:

- Since the areas in the SCEA boundary have become more developed, the RTE habitat value has decreased.
- Development has increased human presence and increased the potential for soil, wildlife, and vegetation disturbance.
- Transportation development (i.e., the construction of I-495, I-95, etc.) in the SCEA boundary had the potential to form barriers for wildlife and increased habitat fragmentation.

However, during the past time frame, an important piece of Federal legislation was enacted to preserve and protect these species, the Endangered Species Act (ESA). The enactment of the ESA assisted in decreasing the rapid rate of species decline across the nation. The purpose of the ESA is to provide a means whereby endangered species and their ecosystems may be conserved.

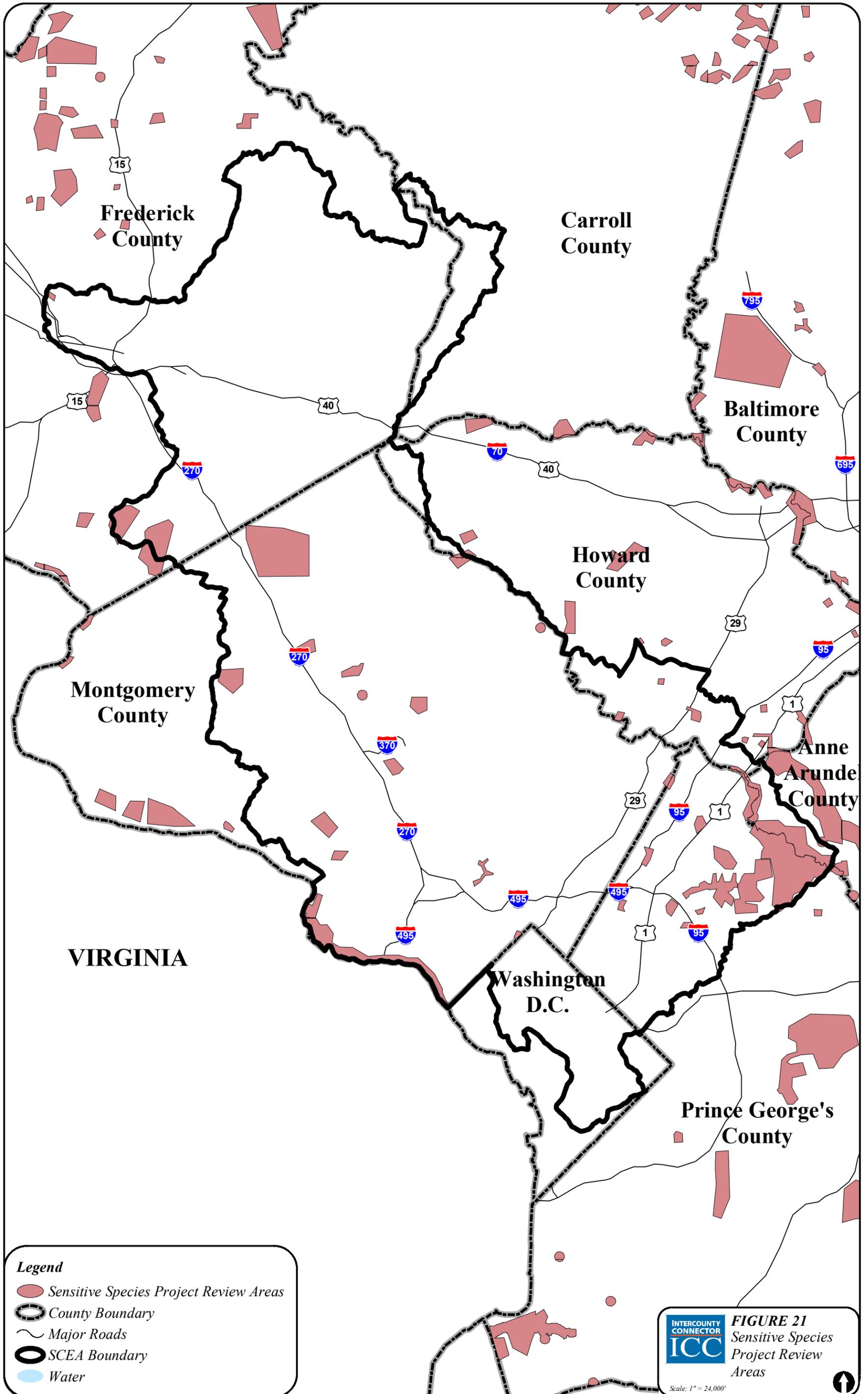
Present

Data from the DNR’s Technology Toolbox shows Sensitive Species Project Review Areas (SSPRA) that represents the general locations of documented RTE species in the SCEA boundary. **Figure 21** shows these designated areas that include various types of regulated areas under the Critical Area Criteria and other areas of concern, including: Natural Heritage Areas, Listed Species Sites, Other or Locally Significant Habitat Areas, Colonial Waterbird Sites, Waterfowl Staging and Concentration Areas, Nontidal Wetlands of Special State Concern and Geographic Areas of Particular Concern. These areas represent state-regulated and designated areas involving sensitive and listed species.

There are 34 SSPRAs located within the SCEA boundary. SSPRA represents the general locations of documented RTE species in the SCEA boundary. The majority of the SSPRAs are located along the outer-limits of the SCEA boundary (southwest and east) in Montgomery and Prince George’s counties. The largest encroachments of the SCEA area into SSPRAs in Montgomery County occur along the Potomac River; while the largest SSPRAs within the SCEA boundary occur along the Patuxent River.

The ICC build alternatives would directly encroach upon three of these areas. The first area is the McKnew Bog SSPRA. It is located in both Montgomery and Prince George’s counties, south of MD 198 and west of I-95. This 660-acre SSPRA contains known habitat of halbert-leaved greenbrier (*Smilax pseudochina*, critically imperiled, threatened). McKnew Bog SSPRA is located in Fairland Regional Park. The second area that would be affected is the I-95 Bogs SSPRA which is located in Prince George’s County, adjacent to I-95, south of MD 212. This 350-acre SSPRA contains known habitat of Long’s rush (*Juncus longii*, critically imperiled, endangered), featherbells, and halberd-leaved greenbrier. The third area potentially affected by the alignment is located at the intersection of the ICC and US 1. In summary, it is anticipated that Corridor 1 would encroach upon 187 and 192 acres of SSPRA (depending on the option) and Corridor 2 would encroach upon 198 and 226 acres, depending on option (*see DEIS Section IV.F.10 for details*).

Near future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with the SSPRA to evaluate impacts. **Appendix 1 and 2 and Figure 11** highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore are not dependent on construction of an ICC. Quantitative impacts were assessed from other proposed transportation projects when impact calculations were available through available NEPA documentation (**Table 10**).



Cumulative impacts to RTE result from near future planned impacts to SSPRA within the SCEA boundary. Of the 34 SSPRAs located within the SCEA boundary, near future development has the potential for encroaching on SSPRAs in limited locations. As previously mentioned quantitative impacts were estimated based on a GIS overlay of Near Future transportation/development and SSPRA's. As shown in *Appendix 8* Near Future transportation projects could impact approximately 30 acres of SSPRA's and Near Future development could impact approximately 490 acres of SSPRA's. The subwatershed with the greatest amount of impact is the Potomac River Montgomery County with approximately 270 acres. Within the Cabin John Creek subwatershed there are no impacts expected by Near Future planned development/transportation projects. These estimated impacts are just an estimation based on the occurrence of near future development and SSPRA which are merely representative of the general location of documented RTE species and do not represent actual RTE habitat. The Prince George's Corridors has the potential for affecting two SSPRAs and the proposed transit lines have the potential for crossing one SSPRA within the western portion of Montgomery County located within the SCEA boundary. Lastly, the extensive residential development proposed in northern Montgomery and Prince George's counties has the potential for encroaching into two SSPRAs. The MD 115/Muncaster Mill Road Project could have minor encroachments to a 379 acre SSPRA located near the intersection of Airpark Road and MD 115.

As previously discussed in the Wetlands and Forestland sections, planned development along the proposed ICC Corridors 1 and 2 were overlaid with ICC study area Environmentally Sensitive areas. The areas immediately adjacent to the corridors were evaluated to determine the likelihood for impact by a planned development regardless of the ICC alternatives.

There are four Environmentally Sensitive Areas (ESA) in the ICC study Area as shown in *Figure 16*, but only one could potentially be impacted by planned development in the vicinity of the ICC alternatives. The McKnew Bog ESA is located near the Montgomery/Prince George's County line, south of MD 198 and west of I-95. This bog provides habitat for the halberd-leaved greenbriar, a state-threatened species. Both Fairland Options of Corridor 2 would encroach on this ESA. Option A could affect 20.0 acres and Option B approximately 10.3 acres of this ESA. Planned residential developments in this area could potentially encroach on over 50 acres of this ESA.

Though inherently difficult to predict and quantify, the cumulative effects during the near future time frame would likely not exceed current loss rates for all the ICC alternatives. The only difference in cumulative impacts for the near future time frame would be the direct impacts of the chosen ICC alternative. Further studies/surveys would be necessary to determine the extent of RTE impacts by the near future planned development.

Future

Endangered and threatened species are protected and regulated by the 1973 Federal ESA, the Maryland Endangered Species Act of 1973, and the 1975 Maryland Nongame and Endangered Species Conservation Act. In addition, Federal and State permitting

programs (e.g., wetlands) require the review of public development applications before the development is permitted. Given the existing regulatory framework to protect rare, threatened, and endangered species, and assuming planned development within the SCEA boundary has been reviewed to address these requirements, cumulative impacts to State-listed species within the SCEA boundary are not anticipated to change significantly over any current trend. *Figure 12* shows the SSPRA areas within the SCEA boundary and proposed future land development.

No-Action –Planned Development

An overlay analysis with SSPRAs and future development determined that one SPPRA could be encroached upon by future development regardless of an ICC. The potential encroachment would be from the Clarksburg Town Center development in northwestern Montgomery County. This area has been zoned for mixed-use and is located north of Snowden Farm Parkway and East of Burnt Hill Road. *Figure 12* shows that a small area in the southern portion of the 4,500-acre SSPRA could be affected. As shown in *Appendix 8* Future transportation projects could impact approximately 28 acres of SSPRA's and Future development could impact approximately 27 acres of SSPRA's. The majority of these impacts could occur within the Lower Monocacy River subwatershed which could have approximately 27 acres of impacts. The Brighton Dam, Middle Patuxent River, Patuxent River upper, Rocky Gorge Dam and Cabin John Creek are all not expected to have any impacts to SSPRA's. These estimated impacts are just an estimation based on the occurrence of planned future development and SSPRA's which are merely representative of the general location of documented RTE species and do not represent actual RTE habitat.

No-Action –Potential Development

According to the ELUP households and employment allocation results, all three ICC alternatives under consideration would experience additional development beyond what has been planned and identified by the counties. In addition to the planned projects, and based on ELUP allocation projections for households and employment, other potential developments were identified under the No-Action Alternative. Within the SCEA boundary, 2,512 acres of land has been identified based on ELUP allocations that potentially support residential or commercial development under the No-Action Alternative. This takes into account the number of acres that is needed for rezoning however does not take into account the amount needed for redevelopment. Within these areas, one SSPRA is located in Rockville just south of the western most portion of the proposed ICC, which may be affected by residential development. These potential encroachments will likely be minor due to the relatively small size of the proposed improvement. Another location of potential affect is the McKnew Bog in Prince George's County located near Sandy Spring Road and the Montgomery/Prince George's County line. Residential development may encroach upon a small area in the northeastern portion of this SSPRA. As shown in *Appendix 8* the approximate acreage of impacts to SSPRA's by No-Action potential development is seven acres, which includes the approximate acreage of impacts from potential development of rezoned land. These impacts could occur in the Patuxent River upper, Anacostia River, Potomac River

Montgomery County and Rock Creek. The rest of the SCEA subwatersheds are not expected to have any impacts to SSPRA's.

For the No-Action Alternative, development of rezoned land that might have potential affects to SSPRA would be within the Laytonsville zone, in which 40 acres of residential land could be needed to accommodate the allocations. There is a SSPRA within Laytonsville near the intersection of Denit Estates Drive and MD 650 close to the Triadelphia Reservoir that could potentially be encroached upon if rezoned land is developed. With appropriate planning and the current laws and regulations protecting RTE, cumulative effects of the No-Action Alternative affects may be reduced.

For the future time frame the cumulative impact to SSPRA's by the No-Action alternative is approximately 62 acres. This includes the impacts from planned future development/transportation projects and No-Action potential development. The subwatershed that could have the greatest cumulative impact to SSPRA's is the Lower Monocacy River, which could have approximately 27 acres of impact. The Brighton Dam, Middle Patuxent River, Rocky Gorge Dam and Cabin John Creek subwatersheds are all expected not to have any cumulative impacts to SSPRA's during the future time frame by the No-Action alternative (*Appendix 8*).

Corridor 1 – Secondary Effects

Potential effects to RTEs under the Corridor 1 Alternative are similar to the No-Action Alternative, however, some additional secondary development is likely based on allocation results from the ELUP. Within the SCEA boundary, approximately 4,940 acres of land has been identified, based on ELUP allocations, that could potentially support either residential or commercial development. This takes into account the number of acres that is needed for rezoning however does not take into account the amount needed for redevelopment. Cumulative effects to RTEs under the Corridor 1 Alternative would include all those previously discussed from planned future development projects, as these projects are not dependent on the ICC or chosen alternative.

An overlay analysis with SSPRAs and potential future development determined that three SSPRAs could be affected by Corridor 1; the SPPRA located near the intersection of Muirkirk Road and US 1 in Prince George's County; the area in Prince George's County near the intersection of I-295 and Powder Mill Road; the SSPRAs located near the intersection of MD 29 and Gorman Road in Howard County. As shown in *Appendix 8* the approximate acreage of impacts to SSPRA's by Corridor 1 secondary potential development is 40 acres, which includes the approximate acreage of impacts from potential development of rezoned land. The majority of these impacts could occur within the Anacostia River subwatershed which could have approximately 25 acres of impacts.

Land was identified that could potentially be rezoned in order to accommodate the projected allocations within each forecast zone. RTEs could be affected if this rezoned land is opened up for residential or commercial development. The most prominent SSPRA, which may be affected, is a 1,158-acre SSPRA south of MD 212 within the Beltsville Agricultural Research Center.

The potential secondary development identified on the Konterra properties could result in secondary impacts to RTE species as shown previously in **Table 15**. Potential secondary development could possibly impact the RTE species *Aster radula* (rough-leaf aster). As previously mentioned these potential impacts are the result of a simple overlay of the potential development and the resource information gathered from the field delineation conducted for the ICC project. The potential development may extend beyond the ICC natural resource assessment study area. These potential secondary impacts do not take into consideration development restrictions and regulations that could reduce impacts.

For the future time frame the cumulative impact to SSPRA's by the Corridor 1 alternative is approximately 95 acres. This includes the impacts from planned future development/transportation projects and Corridor 1 potential secondary development. The majority of these impacts could occur within the Anacostia River and Lower Monocacy River subwatersheds with approximately 35 acres and 27 acres respectively (**Appendix 8**).

Corridor 2 – Secondary Effects

An overlay analysis with SSPRAs and future development determined that all secondary and cumulative effects are anticipated to be similar to those described in the Corridor 1 Alternative. As shown in **Appendix 8** the approximate acreage of impacts to SSPRA's by Corridor 2 secondary potential development is the same as Corridor 1 with approximately 40 acres, which includes the approximate acreage of impacts from potential development of rezoned land. All development effects that could occur regardless of an ICC or selected alternative are anticipated to occur under the Corridor 2 Alternative as well; therefore, Corridor 1 and Corridor 2 are similar in comparison to encroachments of SSPRAs. Secondary and cumulative effects by Corridor 2 during the future time frame will be minimal.

The potential secondary impacts to RTEs associated with the potential secondary development identified on the Konterra properties would be essentially the same for Corridor 2 as for Corridor 1.

Cumulative effects to RTEs will be likely not change significantly from current trends through the protection efforts afforded by federal and state regulations. At the federal and state level, RTEs are regulated pursuant to the Endangered Species Act, and the State of Maryland pursuant to the Maryland Endangered Species Act of 1973 (Annotated Code of Maryland, Natural Resource Article, Section 10-210).

Other state protection laws, such as the Maryland Nongame and Endangered Species Conservation Act of 1975 (Annotated Code of Maryland, Natural Resources Article, Section 10-2A01 et. Seq.), require that the state identify, manage and protect both nongame wildlife as well as RTEs.

k. Impervious Area

An assessment of impervious area is included as a component in the SCEA analysis as it relates to both direct and indirect effects on the natural resources within the study area.

Aside from actual displacement / loss of a resource by a new impervious footprint, potential effects include: reduced infiltration to groundwater table, increased runoff and subsequent erosion, flooding, and increases in surface water temperatures of receiving streams. These effects may result in negative impacts to the surrounding environment.

As the population increased within the SCEA boundary, the development and sprawl associated with the growth increased the impervious area due to the land use change that occurred throughout the area. Additional increases as result of the planned development will occur in the present/near future time frame. The subwatersheds with the greatest amount of planned development are Anacostia River, Lower Monocacy and Rocky Gorge Dam. During the future time frame planned development will continue to add to the impervious surface. For the future time frame the subwatersheds with the greatest amount of development are the Lower Monocacy and Anacostia River. In addition to the planned future development, 2,512 acres of potential development associated with the No-Action Alternative will add additional impervious surface throughout the SCEA boundary. Based on ELUP's allocations, there is approximately 5,660 acres of secondary development associated with Corridor 1, including rezoned land which will have an effect on the impervious surface. Secondary development associated with Corridor 2 is slightly greater than Corridor 1 due to additional development in southeastern Frederick County and the greater amount of development of rezoned land within the Burtonsville zone (approximately 5,546 acres total).

The cumulative effects on impervious surface could be reduced by federal, state and local regulations and policies (see page IV-486 for details).

There was no existing readily available data for impervious area for the entire SCEA boundary. MDP Land use data was used to estimate the trend in impervious area for the entire SCEA area. The method used to estimate the impervious area was based upon DNR's *Surf Your Watershed Percent Impervious Surface Indicator* (DNR 2004). The impervious surface was calculated for MDP land use categories, residential (low, medium and high), commercial, industrial, institutional, barren land and transportation. The amount of acres of each land use type per watershed was multiplied by the percent of impervious surface of each land use type. The percent impervious surface for each land use type was based on the U.S. Soil Conservation Services TR-55 Manual.

Past

Impervious area increased as the development associated with the increase in population during the past time frame required it. Based upon the 1973 MDP land use data the amount of impervious area for the entire SCEA boundary was 10.1percent. **Appendix 11** shows the percent impervious surface by subwatershed within the SCEA boundary. Cabin John Creek, Anacostia River and Rock Creek were the subwatersheds with the highest percent of impervious surface within the SCEA boundary, all-greater than 20 percent. The additional subwatersheds within the SCEA boundary were all below 15 percent impervious, with Double Pipe Creek subwatershed is the lowest at 0.5percent. The percent impervious surface was also calculated for Montgomery County Special Protection Areas that occur within the SCEA boundary. As shown in **Appendix 11** the

Montgomery County SPA with the greatest percent impervious area for 1973 is the Upper Paint Branch SPA.

Present

Based on the 2000 MDP land use data the amount of impervious area for the entire SCEA boundary increased almost 90 percent to 18.9 percent. As shown in **Appendix 11**, the percent impervious area increased for the entire SCEA boundary increased 87.7 percent to 18.9 percent. The Double Pipe Creek subwatershed increased the most (388 percent), to 2.5 percent and Cabin John Creek increased the least with an increase of only 19.8 percent to 32.4 percent. The Montgomery County SPA that increased the most was the Upper Rock Creek SPA, which increased 338 percent to 12.2 percent impervious. The Piney Branch SPA increased 185. percent to 28. 5 percent impervious which is the highest of all the SPA's (**Appendix 11**).

Direct Impacts from the construction of an ICC build alternative will result in the addition of impervious surface. The amount of impervious surface is similar for both build alternatives. Corridor 1 would result in approximately 263 to 268 acres of new impervious surface. Corridor 2 would result in approximately 258 to 268 acres of new impervious surface. This addition of impervious area as a result of a build alternative would be minimized by SHA's commitment to implement SWM that exceeds MDE's requirements (*See DEIS section IV.F.5 for details*).

Near future planned development and transportation projects, including the average impervious area added by the ICC build alternatives, were assessed within the SCEA boundary by overlaying planned projects with existing land use to assess the addition of impervious area. **Appendix 1** and **Figure 11** highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore are not dependent on construction of an ICC. The conversion of open space, agriculture and forested land to more impervious land uses such as residential and commercial uses will result in increased runoff volumes, peak storm flows, and bankfull discharges, as well as decrease baseflows and introduce sediment and other pollutants into the waterways (ICC NETR, 2004). The subwatersheds with the greatest amount of near future planned development are the Anacostia River with 5,841 acres, the Lower Monocacy with 4,593 acres and Rocky Gorge Dam with 4,551 acres as shown previously in **Appendix 9**. The additional impervious surface that will be added by the planned near future transportation projects will have impacts to the watersheds within the SCEA boundary during the near future time frame. For the Near Future time frame (2010) the impervious area was calculated by modifying the 2000 MDP land use data to reflect the land use change that could occur as a result of the planned near future development. Within the SCEA boundary the impervious area increased eight percent to 20.5 percent from 2000 to 2010 (**Appendix 11**). The subwatershed with the greatest increase in percent impervious area within the SCEA boundary was the Little Patuxent River, which increased 113 percent to 27.1 percent. Double Pipe Creek had no increase in impervious area, and Cabin John Creek decreased 0.4 percent from 2000 to 2010. The Montgomery County SPA with the greatest percent change from 2000 to 2010 is the *Clarksburg Master Plan* SPA which increased 199

percent to 22.3 percent impervious. The Piney Branch SPA only increased 3 percent but still has the highest percent impervious area with approximately 29.3 percent impervious (*Appendix 11*). The impacts of the additional impervious area can be reduced by using appropriate BMP's, sediment and erosion control measures and making sure appropriate SWM controls are in place. As long as these appropriate measures are utilized in construction of the planned development projects the cumulative effects, for which the only difference between an ICC alternatives is the direct impacts, will be reduced for impervious area during the near future time frame.

Future

No-Action-Planned Development

Future planned development and transportation projects were assessed within the SCEA boundary by overlaying planned projects with existing land use to assess the addition of impervious area. *Appendix 4 and 5 and Figure 12* highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore are not dependent on construction of an ICC. This change in land use by future development will result in an increase in impervious area and as stated in the near future discussion, the development of open space (agricultural, forested land etc.) by residential and commercial uses increases the amount of impervious surface which can cause a negative affect on the watersheds within the SCEA boundary.

As new development occurs, county agencies will require new stormwater controls and reserve stream buffer areas to help mitigate the impacts of the altered land surface on increased surface runoff, runoff quality, and groundwater replenishment. The goal of the stormwater controls and related site planning, stream buffer, and forest conservation and reforestation requirements is to minimize the extent of necessary impervious surfaces associated with approved land uses, capture and slow down runoff peak flows to mimic predevelopment flows to the extent feasible, and reduce pollutants in runoff.

No-Action-Potential Development

In addition to the future planned development, potential development will have an effect on the impervious area within the SCEA boundary. The future potential development and its effects on land use are discussed in *Section A.4.c*. The potential development is necessary to accommodate the allocations for households and jobs that are projected within the SCEA boundary. The potential impacts of additional impervious area could be reduced if redevelopment/revitalization opportunities are utilized in currently developed/impervious areas. Additional land was identified for rezoning if allocations were not met for households and jobs. This land was identified for the zone in which there was not enough land to accommodate the ELUP allocations. In the zones that have the potential for rezoned land to be developed to accommodate the allocations of households and jobs, there could be an increase in impervious area. The zones that could have the most development of rezoned land are Cloverly (130 residential acres), Rockville (10 residential acres), and Laytonsville (40 residential acres) (*Appendix 7*). These areas all

consist of open space, agricultural land, or they are forested. If the rezoned land is developed, there would be an increase in impervious area due to the conversion of undeveloped land to land with a higher percentage of impervious area such as residential and commercial land uses. For the future time frame the impervious area was calculated using future land use data that was created by modifying 2000 MDP land use data to reflect the land use changes that could occur as a result of the planned near future/future development and the identified potential future development for each alternative. Under the No-Action Alternative the percent impervious area within the SCEA boundary increased 2 percent to 20.9 percent from 2010 to 2030 (*Appendix 11*). The subwatershed with the greatest increase in impervious area is the Middle Patuxent River, which increased 6 percent. Double Pipe Creek had no increase in impervious area for the No-Action Alternative. The Montgomery County SPA that had the greatest increase in impervious area is the *Clarksburg Master Plan* SPA, which increased 24 percent to 27.6 percent. The Piney Branch SPA showed no increase for the No Action Alternative from 2010 to 2030. Both the Upper Paint Branch and Upper Rock Creek SPA's decreased in impervious area for the No-Action alternative. This decrease is due to the inclusion of the average impervious area added by the ICC build alternatives in the Near Future time frame (*Appendix 11*). The increase in impervious area by the No-Action development could be reduced by redevelopment and revitalization opportunities.

Corridor 1 – Secondary Effects

In addition to the planned future development, potential development for Corridor 1 will have secondary effects on the impervious area. This future potential development and its effects on land use are discussed in *Section A.4.c*. The areas along Corridor 1 could result in increased impervious surfaces. The proximity of the additional highway segments and other future construction projects associated with Corridor 1 could have long-term impacts on the water quality of the receiving waters due to the increased pollutant loadings as a result of an increase in highway impervious areas, maintenance activities, and traffic volumes. The effects of the potential secondary development on land use is related to impervious impacts due to the conversion of land use types such as open space, agricultural and forested areas. Montgomery County is targeted to have the most development due to the construction of an ICC; therefore more potential impacts to resources may result. Prince George's County secondary development is less diffuse or spread out than Montgomery County, which may result in more acute yet more isolated problem areas. In addition to these potential developments, land was identified for rezoning for the zones as discussed in the No-Action Potential development section. There was not enough land to accommodate the allocations set forth by the ELUP. For Corridor 1 the zones that could have the most development of rezoned land are Cloverly (287 residential and commercial acres), Laurel (81 residential and commercial acres), Burtonsville (270 residential acres, 2 commercial acres), Beltsville (130 residential acres), Laytonsville (60 acres residential, 1 acre commercial) and Gaithersburg (37 acres residential and commercial). These areas are currently open space, agricultural land, or forested. Potential effects in these areas would be an additional increase in impervious area within an area already high in impervious areas. For the Corridor 1 Alternative the amount of impervious area is estimated to increase 4.8 percent to 21.4 percent from 2010 to 2030 for the entire SCEA boundary (*Appendix 11*). The greatest increase may occur

within the Rocky Gorge Dam subwatershed in which the increase is estimated at 10 percent. Similar to the No-Action Alternative, there was no increase in impervious area for the Double Pipe Creek subwatershed.

The Montgomery County SPA with the greatest increase in impervious area may occur in the *Clarksburg Master Plan* SPA, with an estimated 32.3 percent increase. This increase in residential and commercial growth may lead to secondary impacts such as increased sediment and pollutant loads to nearby waterways that may include the headwaters of Seneca Creek, Muddy Branch, and North Branch Rock Creek (**Figure 12**). For the No-Action Alternative, there was no change for the Piney Branch SPA (**Appendix 11**).

Potential impacts from impervious surfaces in Prince George’s County may occur along the northern tributaries of Indian Creek as well as Little Paint Branch just east of the county line. Additional future allocations for residential and commercial uses indicate potential impacts in headwater areas to Little Bennett Creek in Frederick County, north of the Montgomery County line. Similar to the No-Action Alternative, the potential exists for increased impervious area due to development of the rezoned land.

Corridor 2 – Secondary Effects

In addition to the planned future development, potential development for Corridor 2 may have secondary effects from impervious area. The future potential development and its effects on land use are discussed in **Section A.4.c**. The secondary impacts of Corridor 2 are similar to that of Corridor 1 except for additional areas of potential residential development in the southeastern portion of Frederick County. Similar to Corridor 1, in addition to the potential development, the possibility exists that rezoned land will also be developed. Within the Burtonsville zone, Corridor 2 is estimated to have significantly greater allocations for both households and jobs than Corridor 1. . The greater allocations within the Burtonsville zone may require more development and associated increased impervious area for Corridor 2 within the Burtonsville zone, 670 residential acres and 15 commercial acres may be developed. This is approximately 400 acres greater than Corridor 1. The estimated amount of increase in impervious area for the Corridor 2 Alternative from 2010 to 2030 is 5.2 percent (**Appendix 11**), which is slightly greater than Corridor 1 (4.8 percent). The Montgomery County SPA with the greatest increase (31 percent) may occur in the *Clarksburg Master Plan* SPA. . Similar to the No-Action and Corridor 1 Alternatives, the Piney Branch SPA showed no change in impervious percentages (**Appendix 11**). Under the Corridor 2 Alternative, secondary impacts from impervious surfaces are anticipated to be similar to those described in the Corridor 1 Alternative.

The cumulative effects on impervious surface may be reduced by state and local regulations and policies. The Maryland Economic Growth, Resource Protection and Planning Act of 1992 require that local governments establish priorities for growth and resource conservation. The Smart Growth Priority Funding Areas Act of 1997 is one of several programs that make up the States Smart Growth and Neighborhood Conservation Initiatives. This Act directs state spending on infrastructure within targeted growth areas known as Priority Funding Areas. The Rural Legacy Initiative establishes a grant

program to protect targeted rural greenbelts from sprawl through the purchase of easements and development rights in Rural Legacy Areas. In addition to these Smart Growth Initiatives the laws and regulations that protect other natural resources will ultimately have an effect on impervious surface.

Stormwater Management is required for any new development greater than 5,000 square feet (COMAR 26.17.02.05). The implementation of required stormwater management and Best Management Practices as required by county and local municipality ordinances could reduce the cumulative effect of increased impervious area throughout the SCEA boundary.

At the local level, impervious area could be controlled by county land use strategies that are used to regulate growth. County zoning ordinances will limit the development to areas that have been designated for growth. In Montgomery County specific Environmental overlay zones have been created to limit impervious area within Montgomery County SPA's. In the Upper Paint Branch SPA, new development is limited to 10 percent of the total area under application for development. Within the Upper Rock Creek SPA impervious area is limited to eight percent of the total area under application for development.

I. Reservoirs

There are two WSSC reservoirs within the SCEA boundary, the Triadelphia Reservoir and the Rocky Gorge Reservoir also known as the T. Howard Duckett Reservoir. These reservoirs are vital to the drinking water supply throughout much of the SCEA boundary, especially within Montgomery, Prince George's and the District of Columbia. In addition to drinking water supply these reservoirs provide aesthetic value and recreational opportunities. Both are located within the Patuxent River Watershed, the Triadelphia Reservoir is located in the Brighton Dam subwatershed and the Rocky Gorge Reservoir is located in the Rocky Gorge subwatershed. Both reservoirs were created prior to 1964. Up to that time development within the subwatersheds in which these reservoirs are located was minimal. In the near future time frame 4,551 acres of development are planned within the Rocky Gorge subwatershed and 678 acres are planned within the drainage of Brighton Dam. During the future time frame, planned development within the reservoirs watersheds is expected to be minimal, and limited to 27 acres in the Brighton Dam subwatershed. Additional potential development associated with the No-Action Alternative could negatively affect the reservoirs due to increased impervious surfaces. Secondary development associated with the Corridor 1 Alternative has been identified in the Rocky Gorge subwatershed, also development of rezoned land will occur in both subwatersheds. The secondary development within the reservoir watersheds is the same for Corridor 2, as Corridor 1 except for the additional development of rezoned land in the Burtonsville area.

The cumulative effects on the reservoirs by an ICC project may be reduced by the regulations in place to protect the reservoirs and the surrounding watersheds (See page IV-490 for details).

The same method used in the Impervious Area section (*see Section A.7.k*) was used for the reservoirs; MDP Land use data was used to estimate the trend in impervious area for the reservoir watersheds. The method used to estimate the impervious area was based upon DNR's *Surf Your Watershed Percent Impervious Surface Indicator* (DNR 2004). The impervious surface was calculated for MDP land use categories, residential (low, medium and high), commercial, industrial, institutional, barren land and transportation. The amount of acres of each land use type per watershed was multiplied by the percent of impervious surface of each land use type. The percent impervious surface for each land use type was based on the U.S. Soil Conservation Services TR-55 Manual.

Past

Based upon the MDP land use data from 1973, the Rocky Gorge and Brighton Dam subwatersheds were 3.6 and 0.7 percent impervious respectively. The predominant land uses in both watersheds in 1973 were agricultural and forests. The Rocky Gorge Reservoir, created by the construction of the T. Howard Duckett Dam, is 9.5 miles long, encompasses more than 800 acres of water and is 120 feet deep. The 840-foot long concrete dam was constructed between 1952-1954. Triadelphia Reservoir, created by the construction of Brighton Dam, is 5.5 miles long, encompasses approximately 800 acres of water and is 65 feet deep. The 995-foot long concrete dam was constructed between 1941-1943.

Present

As shown in *Appendix 11*, which shows the change in impervious area from 1973 to 2000 both reservoir watersheds, increased greatly in impervious area. Brighton Dam increased from 0.7percent to 2.2 percent from 1973 to 2000. Rocky Gorge Dam increased from 3.6 percent to 9.7 percent from 1973 to 2000.

Future direct impacts of an ICC alternative on the reservoirs would be from Corridor 2 that would cross several tributaries to the Rocky Gorge Reservoir and could potentially have a range of impacts to water quality. The direct impacts to the streams range from 8,441 to 13,468 linear feet of impacts within the reservoir watershed. In addition to the stream impacts between 36.4 acres and 53.6 acres of new impervious surface could be added by Corridor 2. These direct impacts could be reduced by SHA's commitment to implementing SWM that exceeds MDE's requirements and redundant ESC measures within the Rocky Gorge subwatershed. In addition to exceeding MDE's SWM requirements, within the Rocky Gorge subwatershed SHA is committed to providing an additional 10,000 gallons of stormwater storage and isolation valves in each stormwater treatment pond (*DEIS Chapter IV-E.5.c*).

Near future planned development and transportation projects were assessed in relation to the reservoirs by overlaying the planned projects within the reservoir watersheds. *Appendix 1 and 2* and *Figure 11* highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and therefore are not dependent on construction of an ICC. The additional development will add additional pressures to the reservoirs due to

increased impervious area throughout the watersheds, which could have negative effects on the reservoirs, but may the effects may be reduced due to laws and regulations (see page IV-490 for details). In addition there are several near future transportation projects within the reservoir watersheds including; the construction of Bordley Drive, MD 124 Extended from MD 108 to MD 27, MD 216 widening and the US 29 Corridor Improvements. The estimated percentage of impervious area for the near future time frame (2010) for the Rocky Gorge Dam is 11.6 percent and Brighton Dam is 3.2 percent; these are increases of 19.4 and 48.5 percents respectively from 2000 to 2010 (*Appendix 11*).

Future

No-Action-Planned Development

Future planned development and transportation projects were assessed in relation to the reservoirs by overlaying the planned projects within the reservoir watersheds. *Appendix 4 and 5 and Figure 12* highlight the near future development and transportation projects within the SCEA boundary. All of these projects would occur regardless of an ICC alternative, and are therefore not dependent on construction of an ICC. Within the Brighton Dam subwatershed there is approximately 27 acres of planned future development and within the Rocky Gorge subwatershed there is no future planned development. The future planned development in the Brighton Dam subwatershed is relatively minimal in relation to the development that is planned during the near future time frame. In addition there are several future transportation projects within the Rocky Gorge subwatershed including: the construction of MD 28/MD 198 from I-95 to MD 97, the MD 97 Brookville transportation study and the continuation of the US 29 Corridor Improvements. The planned development and transportation projects will increase the impervious surface in this subwatershed potentially impacting surface water and groundwater as well as additional loading of sediment to the reservoir.

No-Action-Potential Development

In addition to the planned future development, areas identified as potentially developable land to accommodate the ELUP allocations for households and jobs could have effects on the reservoirs during the future timeframe. This does not include areas that would potentially require rezoning or redevelopment in order to fully accommodate ELUP's projections for growth. There are areas of potential residential development identified in both the Rocky Gorge and Brighton Dam subwatersheds. This additional potential development may negatively affect the reservoirs. In the zones where developable land for ELUP allocations for households/jobs was not available; rezoning for redevelopment would be necessary. The zones with the need for rezoned land that occur in the reservoir subwatersheds are Laytonsville (Brighton Dam and Rocky Gorge) and Olney (Rocky Gorge Dam). The Laytonsville area could require land for 40 acres of residential development and Olney could require 3 acres for commercial development. The estimated increase in impervious area for the No-Action Alternative from 2010 to 2030 is 2.9 percent for Brighton Dam and 2.2 percent for Rocky Gorge Dam (*Appendix 11*).

Unless redevelopment/revitalization opportunities are utilized there will be impacts to the reservoirs due to the additional development on currently un-developed lands.

Corridor 1 – Secondary Effects

In addition to the planned development, secondary effects to the reservoirs may occur from the developable land identified to accommodate the allocations for Corridor 1. For Corridor 1 there is an area of potential residential development within the Rocky Gorge Dam subwatershed, whereas there is no potential developable land identified within the Brighton Dam subwatershed. If rezoning is necessary within a zone that occurs within a reservoir watershed then the potential for additional development within the reservoir watersheds exists. The zones with the need for rezoned land that occur in the reservoir subwatersheds are Laytonsville (Brighton Dam and Rocky Gorge), Olney (Rocky Gorge Dam) and Burtonsville (Rocky Gorge Dam). Laytonsville, Olney and Burtonsville could require acreage for residential ranging from 60 to 270 and commercial acreage from 1 to 5. The impervious area for Corridor 1 has been estimated to increase 2.9 percent for Brighton Dam, which is the same as the No-Action alternative. For Rocky Gorge Dam the increase is estimated to be 10.1 percent from 2010 to 2030 (*Appendix 11*). As stated for the No-Action Alternative unless redevelopment/revitalization opportunities are utilized there will be impacts to the reservoirs due to the additional development on currently un-developed lands.

Corridor 2 – Secondary Effects

The secondary effects will be the same for the future time frame between Corridor 1 and Corridor 2 except for the difference in the possible development of rezoned land within the Burtonsville zone. The allocations for households and jobs for the Burtonsville zone are much greater for Corridor 2 than for Corridor 1. Corridor 2 could require approximately 400 acres more development than Corridor 1 that could result in greater potential impacts to the Rocky Gorge watershed and its reservoir. The increase in impervious area for Brighton Dam is estimated to be the same as the No-Action and Corridor 1 Alternatives. The increase in impervious area for Rocky Gorge Dam is estimated to be 18.8 percent from 2010 to 2030 (*Appendix 11*).

There will be future development regardless of the construction of Corridor 1 or Corridor 2. Continuous growth will likely put a strain on the quality of the reservoirs and may include:

- Eroded streambanks
- Sediment clogs waterways
- Reservoir capacity reduction
- Aesthetic impacts
- Impacts to reservoir
- Impacts to Fish and aquatic life
- Impaired recreational uses
- Increased cost of water treatment

The cumulative effects on the Reservoirs by an ICC project will be reduced by the regulations in place to protect the reservoirs and the surrounding watersheds. Regulations set in place include the Clean Water Act and regulations set forth by the WSSC. Other regulations, including stormwater management and erosion and sediment control measures, set forth by the 1994 Maryland Standards for Soil Erosion and Sediment Control would also protect the reservoirs and surrounding watersheds. The WSSC mission is to provide safe and reliable drinking water to the region. WSSC has been protecting the reservoir watersheds through land preservation, public outreach and education and interagency partnerships. Additional oversight will be afforded by the Patuxent Reservoirs Watershed Technical Advisory Committee which was created to coordinate between local governments, WSSC, planning agencies and soil conservation districts in the vicinity of the reservoir watersheds.

MDE implemented a Source Water Assessment Program in 1999. The goal of the program is to assess the safety of all public drinking water sources in Maryland. The program consists of three main tools to assess the water sources; source water delineation, contaminant surveys, and susceptibility analysis.

m. Cultural Resources

Although some cultural resources were disturbed due to development in the past time frame within the SCEA boundary, several pieces of legislation efforts and initiatives were established during this time (i.e., the 1960s) to protect cultural resources. In the 1960s, Maryland enacted legislation enabling local governments to establish historic district zoning and to appoint a Historic District Commission made up of qualified members of the community. The commission is authorized to utilize standards to make sure that the historic and architectural qualities of buildings within an historic district are preserved, and has the power to apply these standards in reviewing building permits and proposed alterations or demolition of buildings within the district.

The National Historic Preservation Act of 1966 was also established during the past time frame, which is a nationwide program of financial and technical assistance to preserve historic properties buildings, structures, sites, neighborhoods and other places of importance in the historical and cultural life of the nation. A local government can participate in this program when the State Historic Preservation Officer certifies that the local government has established its own historic preservation commission and a program meeting Federal and State standards.

The U.S. Congress designated the Georgetown Historic District in the Old Georgetown Act in 1950. Since home rule in 1973 and the D.C. Historic Preservation Act of 1978, the District of Columbia government has identified and protected private properties of local significance throughout the District (NCPC, Comprehensive Plan).

The M-NCPPC established a Historic Preservation Commission and the Department of Parks and Planning Archaeology Program to aid in the identification, maintenance and preservation of historic and archaeological resources in Montgomery and Prince George's

counties. In addition, Frederick County’s Historic Preservation Commission was created in 1998. The Commission reviews all petitions for sites to be included in the Frederick County Register of Historic Places and reviews and recommends actions by the Board of County Commissioners to acquire historic preservation easements on designated landmarks, structures and sites.

Due to these protective measures, cultural resources within the SCEA boundary are not anticipated to be significantly impacted in the present to 2030 timeframe. Impacts under the Corridor 1 and 2 scenarios are anticipated to be nearly identical within the SCEA boundary. Impacts would be indirect, but may include increased access to structures, consistent with city and county master plans inclination to uphold and share the historic aspects of communities throughout the area.

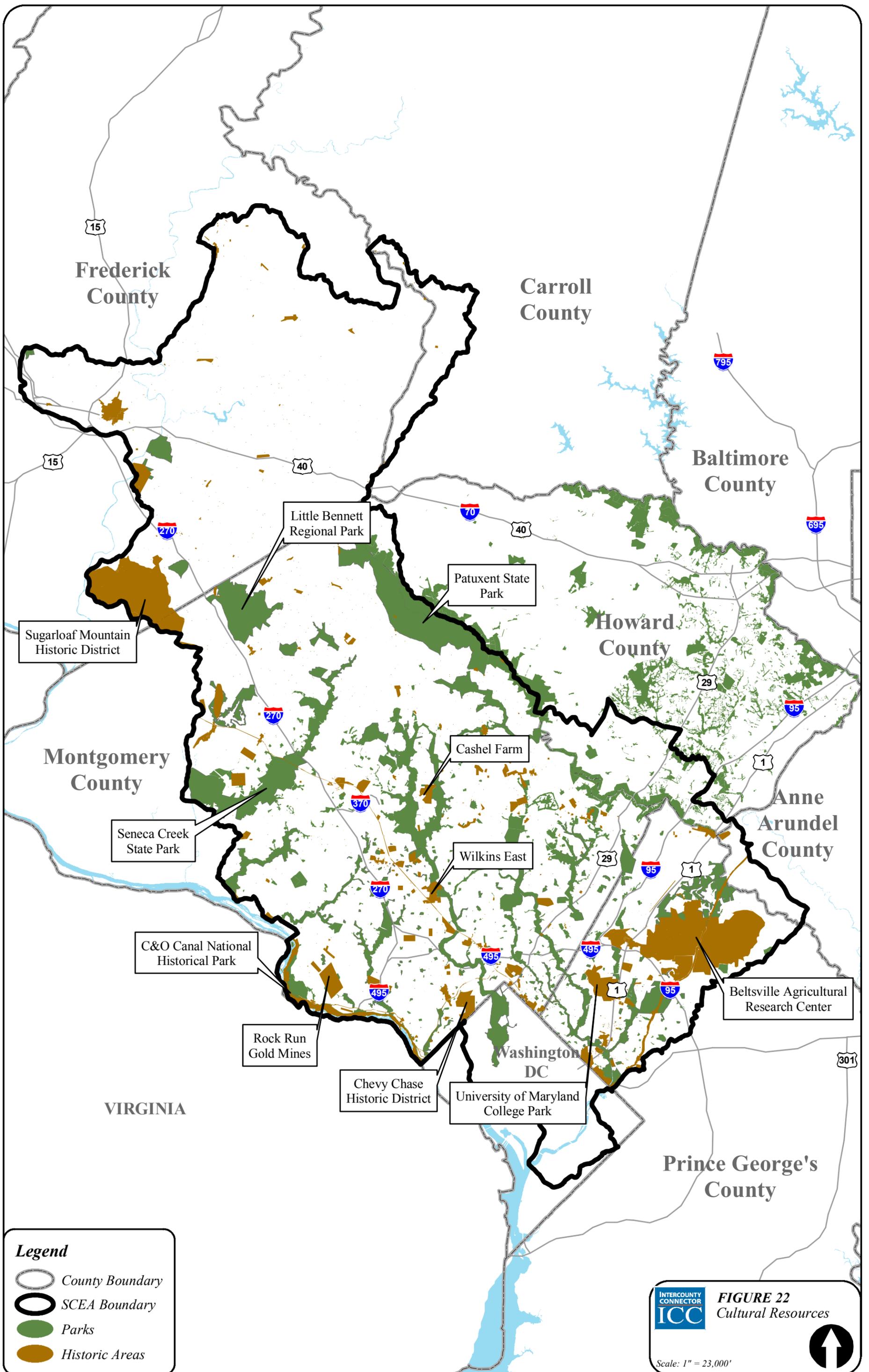
Past

Data was not readily available on specific resources lost within the past time frame. Information was readily available on historic and archeological surveys conducted for the *1997 ICC DEIS* as well as the current ICC study. Areas considered to have “high potential” for archeological sites include those areas that are: 1) within 250 meters of a stream 2) with a slope of less than 8 percent and 3) having well-drained soils. Given the extent of development (e.g., residential, commercial, transportation, etc.) that has occurred within the SCEA boundary during the past timeframe, there is the likely potential that archeological resources have been disturbed in the past. Archeological surveys conducted for the *1997 ICC DEIS* indicated that some archeological resources were lost due to disruption by development (e.g. 18M0177 and 18M0249), which included the construction of I-95, development of power line corridors and substantial mining operations.

Present

The SCEA evaluation of historic resources included properties included on the National Register of Historic Places and those listed in the Maryland Inventory of Historic Properties. A total of 3,468 resources were identified within the SCEA geographical boundary (*Appendix 14*). All significant sites are shown within the SCEA boundary on *Figure 22*. Both build alternatives would impact significant historic resources. The following significant historic sites would be impacted by the build alternatives (and associated options):

- Cashell Farm [M: 22-25]
- Willow Grove [M: 23-115]
- Amersley [M: 23-118]
- Holland Store (Red Door Store) and James M. Holland House [M: 23-119]
- Llewellyn Fields [M: 28-17]
- Alloway Site and Cemetery [M: 15-49]
- Drayton [M: 15-51]
- Edgewood II [M: 15-52]
- Free Methodist Church Camp Meeting Ground [M: 15-74]
- Columbia Primitive Baptist Church [M: 15-62]
- Isaac Burton, Jr. House [M: 34-17]
- Morris and Julia Quill Property [PG: 60-14]



Both build alternatives (and options) would also affect archeological resources. Corridor 1 (and options) may have an adverse effect on 3 potentially NRHP-eligible archeological sites - 18M0595, 18M0448 and 18M0279. Corridor 2 (and options) may have an adverse effect on five NRHP-eligible archeological sites, 18M0595, 18M0451, 18M0444, 18PR511, and 18M0441. However archeological potential exists in other areas, and further surveys are pending. Additional archeological investigations would be necessary in some locations as part of further studies and ultimately a Memorandum of Agreement (MOA) will be required if an alternative is selected that adversely affects historic properties. For further information regarding cultural resource impacts, please refer to ***Section IV.D of the DEIS.***

Cumulative impacts from planned near future developments have the potential for impacting cultural resources within the SCEA boundary. Historic/Archeological preservation laws and regulations will help minimize the loss of these sites from secondary and cumulative effects by ensuring that proposed development plans are in compliance with local Preservation Ordinances.

A substantial amount of development is anticipated in the near future timeframe in the SCEA boundary. These planned projects are expected to occur regardless of ICC construction; therefore, their associated impacts would be considered cumulative effects. Most planned development is anticipated in southeast Montgomery County, near the Howard and Prince George's County boundaries in the vicinity of the ICC alignments. Most development in this area will be residential development of forested land. This region is currently highly developed with residential, commercial and institutional land uses. Significant cultural resources in this region include:

- Cashell Farm (M: 22-25)
- Norbeck Historic District
- Woodlawn Manor (M: 28-14)
- Holland Store and James Holland Store and James Holland House (M: 23-119)
- Pleasant View Farm (M: 28-19)
- Woodburn (M: 23-116)
- Willow Grove (M: 23-115)
- Houses at Layhill and Atwood Roads
- Springbrook Estates
- Conley House/Green Ridge (M: 34-10)
- Duvall/Kruhm House (M: 15-60)
- Spencer/Carr House (M: 15-55)
- Oak Hill (M: 15-53)
- Alloway Site and Cemetery (M: 15-49)
- Spencerville Historic District
- Sandy Spring Historic District
- Marden Lane Houses
- Free Negro Settlement
- Ashton Historic District
- Montgomery County General Hospital
- Brooke Grove
- Llewellyn Fields (M: 28-17)
- Drayton (M: 15-51)
- Edgewood II (M: 15-52)
- William Phair Property (M: 15-75)
- Free Methodist Church Camp Meeting Ground (M: 15-74)
- Union Cemetery

Other portions of the study area are anticipated to experience development in the near future timeframe. In Frederick County, land surrounding New Market, Linganore and Urbana are expected to experience substantial amounts of residential development in the near future. Cultural resources potentially impacted in these vicinities include the New Market Historic District, Urbana Survey District and Dixon-Dudderer Houses. As previously stated, MHT guidelines, in conjunction with the Frederick County Historic Preservation Plan, would likely avoid or minimize impacts to these resources.

Cultural resources in Clarksburg, Veirs Mill, Potomac, Bethesda and Silver Spring also lie in areas planned for development. M-NCPPC Historic Preservation Commission is anticipated to aid in the minimization of impacts to these properties.

In Clarksburg, expansions to the Clarksburg Town Center lie next to the Clarksburg Historic District; however, this development previously exists and improvements to the property are not anticipated to impact the historic district.

In Veirs Mill, improvements to the Montrose Crossing Shopping Center lie next to the Wilkins Estate (Parklawn Cemetery). The shopping center previously exists; therefore, improvements are not anticipated to significantly impact the cemetery.

The expansion of the residential development of Potomac Village in Potomac may impact the Potomac Historic District, however the subdivision previously exists in the neighborhood and additional development is not anticipated to impact the district significantly.

In the Bethesda/Silver Spring region, five cultural resources have potential for being impacted: Stoney Quarriew, Granger Estate (Holton-Arms School), Stone Ridge (Country Day School), Old Silver Spring Commercial Area and Jesup Blair House-Local Park. These impacts would all be from the development of planned commercial or residential properties, with the exception of the renovation of the Jesup Blair House-Local Park. The Bethesda region is a highly developed residential area currently surrounding many cultural resources. Through local and state regulations, impacts to the properties are expected to be minimal or avoided.

In addition to these planned developments, proposed transportation projects have the potential for impacting two cultural resources within the SCEA boundary, including: I-95/I-495 Greenbelt Metro Access Study (1 Historical – BARC) and MD 28/MD 97 (1 Historical – White’s Hardware Store Complex). The majority of impacts from other near future transportation projects would occur along the Prince George’s corridor and the proposed transit lines in Montgomery and Prince George’s counties. Transportation projects under USDOT would be required to follow guidelines for Section 4(f) of the 1966 Department of Transportation Act and Section 106 of the Historic Preservation Act to avoid or minimize impacts to cultural resources from transportation developments. Smaller, isolated areas of cultural resources are located in northern Montgomery and Prince George’s counties. Limited impacts are anticipated from near future development in these locations.

Future

No-Action – Planned Development

In addition to the previously discussed impacts, additional development planned for the future timeframe (2010-2030) was identified and analyzed for potential effects to cultural resources within the SCEA boundary.

Protecting cultural resources on a large scale throughout the SCEA boundary are various degrees of zoning and planning restrictions placed by the county and state including the necessary permits required by Montgomery and Prince George’s counties. As previously stated, MNCPPC’s Historic Preservation Commission and Department of Park and Planning Archeology Program, Frederick County’s Historical Preservation, in conjunction of state and federal regulations, are anticipated to minimize or avoid impacts to cultural resources in the area in the future.

In Frederick County, the I-270/US 15 Multimodal Corridor Study, I-70 Improvements, the East Street Project and East Street Community Park may impact the Frederick Historic District. The transportation projects are on the outskirts of the city of Frederick, where the historic district is located and therefore may improve access to the area. The East Street projects are included in the city of Frederick and are likely to have little impact on the Historic District. The Monocacy Battlefield may also be impacted by the I-270/US 15 Multimodal Corridor Study as well as the North-South Parallel Road, both of which may improve access to the Battlefield. The New Market Historic District may be impacted by the proposed New Market Collector. Access through the city of New Market would be improved and therefore improve access to the Historic District, one of many historic attractions to tourists throughout the county.

In Montgomery County, the planned Clarksburg Town Center, Kingstead Farm, Warfield Property (residential development), Corridor Cities Transitway and Burdette Farm (residential development) may impact the Clarksburg Historic District, Purdum Historic District or Damascus Historic District, respectively. These impacts are anticipated to be indirect and potentially avoided due to protective regulations.

The MD 28/MD 198 construction, depending on the selected alternative, may impact various cultural resources including Drayton, Edgewood II, George Bennett House, William Phair property, Archeological Site #18MO441, Free Methodist Church Camp Meeting Ground, Spencer/Carr House and Union Cemetery, all in the Norbeck to Burtonsville Corridor in southeastern Montgomery County, in close proximity to the proposed ICC build alignments.

The I-495 Capital Beltway Study, US 1 and Rhode Island Avenue widening may impact various cultural resources along the Capital Beltway, including the BARC, Daniels Park Historic Community, College Lawn Station, and Old Hyattsville Commercial Survey District; however, due to the previous existence of these facilities, minimal impacts are anticipated. Access to these sites may be improved by improvements to the transportation facilities.

No-Action – Potential Development

Cultural resources in close proximity to potential development under the No-Action Alternative are located in Potomac, Brookeville, Rockville, Twinbrook, Sandy Spring, Silver Spring, Ashton and Laurel. These resources may include the Glenview Farm Area, Layhill and Atwood Road Houses, Ashton Historic District, Sandy Spring Historic District, Mount Zion United Methodist Church, Union Cemetery, Ivy Hill Cemetery and the BARC. Impacts at all of these locations are anticipated to be indirect and minimal.

Corridors 1 and 2 – Secondary Effects

Under Corridors 1 and 2, land available for potential secondary development was identified primarily in central Montgomery and northeastern Prince George’s Counties. Cultural resources located in close proximity to these identified lands are evident in twelve locations throughout the SCEA boundary, most of which are located in these areas. Resources were identified immediately adjacent to land potentially accommodating secondary development in Kemptown, Gaithersburg, Rockville, Mount Zion, Laurel, Fairland, Beltsville, Montpelier, Greenbelt and Contee. These areas would be impacted by development under either build scenario.

Lands available for potential secondary development are very similar under the two build scenarios, with only two differences located near cultural resources: Clarksburg and Browns Corner. Land in these areas was identified as developable under Corridor 1 only. As previously state, all cultural resources under the build scenarios are anticipated to experience minimal impacts due to Federal, State and Local planning ordinances.

8. SCEA Mitigation

In compliance with relevant laws and regulations, SHA will recommend mitigation for direct project impacts (*see DEIS for Details*). In addition to mitigation requirements, SHA is also proposing other environmental stewardship initiatives as part of the purpose and need for this project (*see Section VI of the DEIS*). As such, environmental restoration and enhancements to improve the natural, cultural and community environmental conditions, include, but not limited to those that exist today because of unrelated past actions.

Avoidance and minimization design strategies that have been incorporated into the existing roadway design will result in the minimization of direct impacts. Environmental enhancement, above and beyond mitigation required by laws or regulations, is being proposed as part of this project to improve the environment holistically. It is anticipated that the combination of mitigation and enhancement measures being proposed will address area-wide concerns, not just the immediate influence of the project.

Measures that would be appropriate to offset most future developmental impacts in the ICC study area will be beyond the control and funding authority of SHA or FHWA. The pace and location of future development growth along an ICC will be influenced and controlled by state and county land development policies and plans. Each individual County will be responsible for monitoring and applying growth management techniques

so that development activities grow at a consistent pace with roadways and other necessary infrastructure to accommodate the growth. Therefore, SHA will work with local agencies that can influence future growth and promote the benefits of controls that incorporate environmental protection into all planned development.

a. Chesapeake Bay Agreement

In June 2000 the partners of the Chesapeake Bay Program including Maryland, District of Columbia, Pennsylvania, Virginia, United States of America (EPA) and the Chesapeake Bay Commission signed the Chesapeake 2000 agreement. As agreed upon in the 1983 and 1987 agreements and reaffirmed in the 2000 agreement “there is a clear correlation between population growth and associated development and environmental degradation in the Chesapeake Bay system.” The agreement states that due to increased development to accommodate the projected population growth in the Chesapeake Bay watershed it will be difficult to maintain the nutrient reduction and habitat protection that has occurred since the agreement was signed, therefore sound land use approaches must be used to ensure progress in protecting the Chesapeake Bay and its numerous resources. In order for the secondary and cumulative effects of an ICC to be consistent with the goals set forth in the agreement there must be coordination between local, state and federal governments to regulate and control future development. Sound land use planning must be encouraged to reduce the harmful rate of sprawl that has occurred throughout the Baltimore/Washington Region over the past several decades. Redevelopment and revitalization opportunities must be encouraged within the Priority Funding Areas as much as possible. The commitment of Environmental Stewardship for the ICC project is consistent with the goals set forth in the agreement.

Any future development that occurs in the 2030 time frame will be required to comply with the numerous federal, state and local ordinances in place to protect resources. Laws, regulations and local programs such as Maryland’s Smart Growth Initiatives, Section 404 of the Clean Water Act, NPDES, the Forest Conservation Act, the Chesapeake Bay Critical Area Law, USDA’s Conservation Reserve Program, DNR’s Rural Legacy Program, the Maryland Environmental Trust and numerous others will assist in achieving the overall goals of this agreement. SHA is committed to working with local and county governments and resource agencies to develop/implement resource preservation plans, and to implement controls that will minimize resource impacts.

APPENDICES

Appendix 1

Near Future Transportation Projects

Map Number	Site Name	Description	Completion Date	Map Sheet Location
1	MD 212	Relocation (Construction Underway)	2005	Sheet 7 & Sheet 9
2	Greencastle Road	Widen From Robey Rd to Greencastle Terrace	2006	Sheet 7 & Sheet 9
3	Bordley Drive	Construction	2004	Sheet 5
4	Goshen Facility	Widen Odendhal Ave to Warfield Rd	2010	Sheet 4 & Sheet 6
5	Middlebrook Rd	Widening - Great Seneca to I-270	2000	Sheet 4 & Sheet 6
6	Longdraft Rd	Widen MD124 to MD 117	2010	Sheet 6
7	MD 124, Woodfield Rd	MidCounty Hwy to Warfield Rd (Widen)	2010	Sheet 4 & Sheet 6
8	US 1/MD 201	Corridor Study	2005	Sheet 7 & Sheet 9
9	US 1/MD 201	Corridor Study	2005	Sheet 7 & Sheet 9
10	Chapman Ave	Randolph Rd to Old Georgetown (Construct)	2010	Sheet 6 & Sheet 8
11	Citadel Ave - Extended	Marinelli Rd to Nicholson Lane	2006	Sheet 6 & Sheet 8
12	Middlebrook Rd Ext	Widening MD-355 to Midcounty Hwy	2010	Sheet 4 & Sheet 6
13	Father Hurley Blvd	Construct - Wisteria to MD118 Reloc	2010	Sheet 4 & Sheet 6
14	MD 124 Extend (Woodfield Rd Extend)	MD108 to MD 27 (Construct) (Design is currently underway, 2003)	2006	Sheet 4
15	Montrose Parkway West*	Montrose Road to Old Georgetown (Construct) (Purpose and Need Statement Prepared 2001)	2010	Sheet 6 & Sheet 8
16	Nebel St Extended	Construct Randolph Rd to Bou Ave	2007	Sheet 6 & Sheet 8
17	Shady Grove Rd	Widen from Briardale Rd to MD 155	2004	Sheet 6
18	Snouffer School Rd	Widen from Goshen to MD 124	2010	Sheet 4 & Sheet 6
19	Watkins Mill Rd Ext	Construct between MD 117 & MD 355	2010	Sheet 6
20	Woodglen Ave	Construct between Marinelli Rd & Nicholson Lane	2009	Sheet 6 & Sheet 8
21	Ammendale Rd/Virginia Manor	I-95 to US1 - Widen	2006	Sheet 7 & Sheet 9
22	Briggs Chaney Rd	Mont. Co. Line to Old Gunpowder Rd (Widen)	2010	Sheet 7 & Sheet 9
23	Cherry Hill Rd	Mont. Co. Line to Baltimore Ave (Widen)	2006	Sheet 7 & Sheet 9
24	Contee Rd	US1 to Van Dusen (Widen/Construct)	2004	Sheet 7 & Sheet 9
25	Contee Rd	Briarwood Dr to US1	2000	Sheet 7 & Sheet 9
26	US 15/MD 26	US15/MD 26 Interchange (Location Design Approval Received October 2003)	2010	Sheet 2
27	MD 115, Muncaster Mill Rd	Muncaster Mill Rd (Final Engineering and Right-of-Way Underway)	2010	Sheet 6 & Sheet 7
28	MD 28/MD 97	Intersection Improvements	2010	Sheet 6 & Sheet 7
29	I-95/I-495	Greenbelt Metro Access Study (Project Planning Underway, Obtain Location and Design Approvals Fall 2004)	2010	Sheet 7 & Sheet 9
30	MD 216	Relocation (Construction Underway)	2005	Sheet 5 & Sheet 7
31	Father Hurley Blvd	Wisteria to MD118, extension (Construction Underway)	2010	Sheet 4 & Sheet 6
32	Midcounty Highway/Middlebrook Rd*	6 mile construction	2010	Sheet 4 & Sheet 6
33	MD 97/Randolph Rd	Interchange Improvements (Project Planning Underway)	2010	Sheet 7 & Sheet 8
34	I-70, I-270	Widen I-70, Reconstruct interchange at I-270	2005-2010	Sheet 2
35	I-270 Interchange	Reconstruct at MD117	2004	Sheet 6
36	I-270 Spur	I-270 spur @ Democracy Blvd	2004	Sheet 8
37	MD 216	Widen, US 29 to Sanner	2010	Sheet 5 & Sheet 7
38	Phase 1 Urbana Bypass	Phase 1 MD355 Relocation, Urbana	2005	Sheet 2
39	Phase 2 & 3 Urbana Bypass	Phase 2 & 3 MD355 Relocation, Urbana	2005	Sheet 2
40	MD 75 Interchange	MD 75 & I-270 Interchange	2006	Sheet 2 & Sheet 4
41	MD 26 Widen	From Woodsboro Pike (MD 194) to Trading Lane	2006	Sheet 2
42	MD 26, Bridge	Replacement of Bridge	2006	Sheet 2
43	East Street	Extend to I-70 from E. Patrick w partial interchange	2007	Sheet 2
44	Quinn Rd	Upgrade to reduce sharp curves	2006	Sheet 2 & Sheet 3
45	Reichs Ford Road	Reconstruction for 1.5 miles of 2 lane section	2006	Sheet 2 & Sheet 3
46	Old National Pike	Reconstruct Intersection @ Sidney	2006	Sheet 2 & Sheet 3
47	East Street	From South to Wasler Dr, Extension	2010	Sheet 2
50	Monocacy Blvd	New Road, Hughes Ford to Gas House Pike	2010	Sheet 2
51	Monocacy Blvd	Gas House Pike to River Bridge	2010	Sheet 2
52	Gas House Pike Upgrade	City Line to Monocay Blvd	2010	Sheet 2
53	East Street Upgrade	Patrick to 5th	2010	Sheet 2
54	East Street Upgrade	5th to 9th	2010	Sheet 2
55	Shookstown Rd, Upgrade	Willowdale to Old Camp	2010	Sheet 2
56	Thomas Johnson Rd	New from TJ Drive to Opossumtown Pike	2010	Sheet 2
57	Schifferstadt Rd, New	Extend to Gas House Pike	2010	Sheet 2
58	Butterfly Lane	Upgrade	2010	Sheet 2
59	US 29*	Upgrade from Sligo Creek Pkwy to Howard Co	2010	Sheet 2
60	Midcounty Highway (A-305)**	MD 27 to MD 355	2010	Sheet 4
61	New Cut Road Relocated (A-302)**	MD 121 to A-305 (Midcounty Highway)/A-305 to MD 27	2010	Sheet 4
62	Observation Drive (A-19)**	Construction	2010	Sheet 4
63	Valley Park Drive**	Roadway Extension	2010	Sheet 4

* Indicates Projects in which construction is expected to be initiated in the Near Future Time Frame and expected to continue into the Future Time Frame. Therefore, these projects are depicted on both near future and future maps.

** Completion date to be confirmed through coordination with M-NCPPC

Appendix 2
Near Future Development Projects

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
1	Green Valley Active Adult	Residential	Sheet 3
2	75&80 Development	Residential	Sheet 3
3	Shopping Center	Commercial	Sheet 3
4	Urbana Highlands	Residential	Sheet 2 & Sheet 3
5	Villages of Urbana	Residential	Sheet 2 & Sheet 3
6	Villages of Urbana	Residential	Sheet 2
7	Urbana Town Center	Mixed Use	Sheet 2
8	Villages of Urbana	Residential	Sheet 2
9	Urbana Corporate Center	Mixed Use	Sheet 2 & Sheet 4
10	Knowledge Farms	Commercial	Sheet 2 & Sheet 3
11	Cearsville Development	Residential	Sheet 2
12	Woodsboro Shopping Center	Commercial	Sheet 1
13	Woodsboro Elementary// Middle	Institutional	Sheet 1
14	Royal Oaks	Residential	Sheet 3
15	Brinkley Manor	Residential	Sheet 3
16	Orchard at New Market	Residential	Sheet 3
17	Cline Farm	Residential	Sheet 3
18	Smith Farm	Residential	Sheet 3
19	Casey Tract	Residential	Sheet 3
20	Blentinger Property	Residential	Sheet 3
21	Eaglehead Alpine	Residential	Sheet 2 & Sheet 3
22	Hargett Farm	Residential	Sheet 2
23	Fort Detrick Base Housing	Residential	Sheet 2
24	Fort Detrick Bio-Research	Industrial	Sheet 2
25	Industrial	Industrial	Sheet 3
26	Baldwin Rd. Greenhouse	Industrial	Sheet 3
27	Market Station	Commercial	Sheet 3
28	Davis Branch	Commercial	Sheet 3
29	Adventure Park	Commercial	Sheet 3
30	Mansfield Commercial	Commercial	Sheet 3
31	CIFCO	Commercial	Sheet 3
32	Sandy Spring Bank	Commercial	Sheet 3
33	Eaglehead Active Adult	Residential	Sheet 3
34	Eaglehead Town Center	Mixed Use	Sheet 3
35	Eaglehead Woodridge	Residential	Sheet 2 & Sheet 3
36	Eaglehead Nightingale	Residential	Sheet 3
37	Eaglehead	Residential	Sheet 1 & Sheet 3
38	New Market District Park	Parkland Open Space	Sheet 3
39	Springridge Fire Station	Institutional	Sheet 2
40	Urbana Middle School	Institutional	Sheet 2 & Sheet 3
41	Urbana Elementary II	Institutional	Sheet 2 & Sheet 3
42	Commons of Avalon	Residential	Sheet 2
43	Miller's Delight	Residential	Sheet 2
44	Overlook	Residential	Sheet 2
45	Dutch's Daughter	Commercial	Sheet 2
46	River Crest	Residential	Sheet 2
47	Walnut Ridge	Residential	Sheet 2
48	Whittier	Residential	Sheet 2
49	Windsor Forest Knolls	Residential	Sheet 3
50	Windsor Overlook	Residential	Sheet 3
51	DiPaula Prop	Residential	Sheet 3
52	Jeff Harrison Prop	Residential	Sheet 3
53	Shapiro Prop	Residential	Sheet 3
54	Paragon Prop	Residential	Sheet 3
55	Clements Prop	Residential	Sheet 3

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
56	Tipton Overlook	Residential	Sheet 4 & Sheet 7
57	Jamestown Landing	Residential	Sheet 7
58	Hall Shop Manor	Residential	Sheet 4
59	Pindell Chase	Residential	Sheet 4
60	Maple Lawn Farms (Ph1-12)	Mixed	Sheet 4 & Sheet 7
61	Dortch Prop	Residential	Sheet 7
62	Hilltop Estates	Residential	Sheet 7
63	Hillside @ Rocky Gorge	Residential	Sheet 7
64	Iglehart Prop	Residential	Sheet 4
65	Revitz Prop	Commercial	Sheet 7
66	Emerson	Commercial	Sheet 7
67	Blair Sub-Division (Allen)	Residential	Sheet 7
68	Kings Woods	Residential	Sheet 7
69	Emerson	Mixed	Sheet 7
70	Kim Prop	Residential	Sheet 7
71	Kindler Overlook	Residential	Sheet 4
72	North Laurel Park	Residential	Sheet 7
73	Owings Prop	Residential	Sheet 4
74	Clark's Ridge	Residential	Sheet 7
75	Hickory Hills	Residential	Sheet 7
76	Maple Lawn Farms (Pindell Property)	Residential	Sheet 4
77	Hammonds View	Residential	Sheet 7
78	Cecil Cole Prop	Residential	Sheet 4
79	Heath Prop	Residential	Sheet 7
80	Riverside Estates	Residential	Sheet 4
81	Iager Prop	Residential	Sheet 4 & Sheet 7
82	Paternal Gift Farm	Residential	Sheet 4
83	Johnson Prop	Residential	Sheet 4
84	Souder Prop	Residential	Sheet 4 & Sheet 7
85	Cherry Tree Park	Residential	Sheet 4 & Sheet 7
86	Holiday Hills 2nd Addition	Residential	Sheet 4
87	North Laurel Park	Residential	Sheet 7
88	Emerson	Mixed	Sheet 7
90	Riverside Estates	Residential	Sheet 4
91	Old Scaggsville Rd	Residential	Sheet 7
92	Brunk's Addition	Residential	Sheet 7
93	Scaggs Prop	Residential	Sheet 4 & Sheet 7
94	Hickory Park	Residential	Sheet 7
95	Pindell Woods	Residential	Sheet 4
96	North Laurel Park	Residential	Sheet 7
97	Harwood W. Owings	Residential	Sheet 4
98	Guendel/Aleshin Prop	Residential	Sheet 4 & Sheet 7
100	Scott Farm	Residential	Sheet 4
102	Anglemyer Prop	Residential	Sheet 4
103	McKenzie Prop	Residential	Sheet 4
104	Montpelier Research Park	Industrial	Sheet 4
105	Grace Community Church	Institutional	Sheet 4 & Sheet 7
106	Emerson	Residential	Sheet 4 & Sheet 7
107	Macbeth Farm	Residential	Sheet 4
108	Johns Hopkins University - APL	Other	Sheet 4
109	Kindler Estates	Residential	Sheet 4 & Sheet 7
110	Sleep Inn	Commercial	Sheet 7
111	Mt Zion united Methodist	Institutional	Sheet 4
112	Wessel Prop	Residential	Sheet 7
113	Holiday Hills	Residential	Sheet 4

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Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
114	SEA Lect Site	Residential	Sheet 7
115	Days Inn	Commercial	Sheet 7
116	Good Hope Reform Pres Ch	Institutional	Sheet 4
117	Cherry Tree Crossing	Commercial	Sheet 4 & Sheet 7
118	Belinda Property	Residential	Sheet 7
119	Molsen Haghighat Prop	Commercial	Sheet 7
120	Cedar Lane Prog @ Fulton	Institutional	Sheet 4 & Sheet 7
121	Cherry Tree Farm	Other	Sheet 4 & Sheet 7
122	Dreyer's Ice Cream	Other	Sheet 7
123	Emerson	Residential	Sheet 7
124	Emerson	Residential	Sheet 7
125	Mixed Use	Mixed Use	Sheet 4 & Sheet 6
126	Residential	Residential	Sheet 6
127	Residential	Residential	Sheet 6
128	Residential	Residential	Sheet 6
129	Residential	Residential	Sheet 6
130	Parkland Open Space	Parkland Open Space	Sheet 4
131	Former Oaks Landfill	Parkland Open Space	Sheet 4 & Sheet 5
132	Commercial	Commercial	Sheet 4 & Sheet 5 & Sheet 6
133	Residential	Residential	Sheet 6
134	Residential	Residential	Sheet 6
135	Parkland Open Space	Parkland Open Space	Sheet 4
136	Residential	Residential	Sheet 7
137	Residential	Residential	Sheet 6
138	Barnhart Prop	Residential	Sheet 6
139	Cabin John Center	Mixed Use	Sheet 6
140	PMH, Fling & Casey	Mixed Use	Sheet 6
141	Mixed Use	Mixed Use	Sheet 8
142	Residential	Residential	Sheet 6 & Sheet 8
143	Condos/Hotel/Office/Metro	Mixed Use	Sheet 6 & Sheet 8
144	Commercial	Commercial	Sheet 6
145	Fortune Parc*	Mixed Use	Sheet 6 & Sheet 8
146	Montrose Crossing	Mixed Use	Sheet 6 & Sheet 8
147	Residential	Residential	Sheet 7
148	Residential	Residential	Sheet 7
149	Residential	Residential	Sheet 7
150	Commercial	Commercial	Sheet 7
151	Residential	Residential	Sheet 7
152	Residential	Residential	Sheet 7
153	Residential	Residential	Sheet 7
154	Residential	Residential	Sheet 7
155	Parkland Open Space	Parkland Open Space	Sheet 7
156	Residential	Residential	Sheet 7
157	Residential	Residential	Sheet 7
158	Residential	Residential	Sheet 7
159	Commercial	Commercial	Sheet 7 & Sheet 9
160	Residential	Residential	Sheet 7
161	Residential	Residential	Sheet 7
162	Residential	Residential	Sheet 7
163	Residential	Residential	Sheet 7
164	Residential	Residential	Sheet 7
165	Residential	Residential	Sheet 7 & Sheet 9
166	Residential	Residential	Sheet 7 & Sheet 9
167	Residential	Residential	Sheet 7
168	Industrial	Industrial	Sheet 7 & Sheet 9
169	Residential	Residential	Sheet 7
170	Residential	Residential	Sheet 7 & Sheet 9

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
171	Residential	Residential	Sheet 7 & Sheet 9
172	Residential	Residential	Sheet 7 & Sheet 9
173	Residential	Residential	Sheet 7
174	Residential	Residential	Sheet 7
175	Residential	Residential	Sheet 7
176	Residential	Residential	Sheet 7
177	Residential	Residential	Sheet 7 & Sheet 9
178	Residential	Residential	Sheet 7 & Sheet 9
179	Residential	Residential	Sheet 7 & Sheet 9
180	Residential	Residential	Sheet 7 & Sheet 9
181	Parkland Open Space	Parkland Open Space	Sheet 7
182	Residential	Residential	Sheet 7
183	Residential	Residential	Sheet 7
184	Open Urban	Open Urban	Sheet 7 & Sheet 9
185	Residential	Residential	Sheet 7 & Sheet 9
186	Residential	Residential	Sheet 7 & Sheet 9
187	Institutional	Institutional	Sheet 7 & Sheet 9
188	Commercial	Commercial	Sheet 7 & Sheet 9
190	Parkland Open Space	Parkland Open Space	Sheet 7
191	Residential	Residential	Sheet 7
192	Industrial	Industrial	Sheet 7
193	Residential	Residential	Sheet 7
194	Residential	Residential	Sheet 7 & Sheet 9
195	Residential	Residential	Sheet 7
196	Parkland Open Space	Parkland Open Space	Sheet 7
197	Residential	Residential	Sheet 7
198	Residential	Residential	Sheet 7 & Sheet 9
199	Residential	Residential	Sheet 7
200	Open Urban	Open Urban	Sheet 7 & Sheet 9
201	Residential	Residential	Sheet 7 & Sheet 9
202	Parkland Open Space	Parkland Open Space	Sheet 7
203	Residential	Residential	Sheet 7
204	Residential	Residential	Sheet 7
205	Residential	Residential	Sheet 7
206	Open Urban	Open Urban	Sheet 7 & Sheet 9
207	Residential	Residential	Sheet 7
208	Residential	Residential	Sheet 7 & Sheet 9
209	Residential	Residential	Sheet 7
210	Residential	Residential	Sheet 7
211	Residential	Residential	Sheet 7
212	Residential	Residential	Sheet 7
213	Residential	Residential	Sheet 7
214	Residential	Residential	Sheet 7 & Sheet 9
215	Parkland Open Space	Parkland Open Space	Sheet 7
217	Residential	Residential	Sheet 7
218	Residential	Residential	Sheet 7
219	Residential	Residential	Sheet 7
220	Parkland Open Space	Parkland Open Space	Sheet 7
221	Residential	Residential	Sheet 7 & Sheet 9
222	Residential	Residential	Sheet 4 & Sheet 7
223	Residential	Residential	Sheet 7 & Sheet 9
224	Residential	Residential	Sheet 7 & Sheet 9
225	Open Urban	Open Urban	Sheet 7 & Sheet 9
226	Open Urban	Open Urban	Sheet 7 & Sheet 9
227	Residential	Residential	Sheet 7 & Sheet 9
228	Residential	Residential	Sheet 7 & Sheet 9
229	Residential	Residential	Sheet 7 & Sheet 9

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Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
230	Residential	Residential	Sheet 7
231	Residential	Residential	Sheet 7 & Sheet 9
232	Residential	Residential	Sheet 7
233	Residential	Residential	Sheet 7
234	Residential	Residential	Sheet 7
235	Open Urban	Open Urban	Sheet 7 & Sheet 9
236	Residential	Residential	Sheet 7
237	Residential	Residential	Sheet 7
238	Residential	Residential	Sheet 7
239	Residential	Residential	Sheet 7
240	Residential	Residential	Sheet 7
241	Commercial	Commercial	Sheet 7 & Sheet 9
242	Commercial	Commercial	Sheet 7 & Sheet 9
243	Residential	Residential	Sheet 7
244	Residential	Residential	Sheet 7
245	Residential	Residential	Sheet 7
246	Residential	Residential	Sheet 7 & Sheet 9
247	Residential	Residential	Sheet 7
248	Residential	Residential	Sheet 7
249	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
250	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
251	Residential	Residential	Sheet 7
253	Residential	Residential	Sheet 7
254	Residential	Residential	Sheet 7
255	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
256	Residential	Residential	Sheet 7
257	Residential	Residential	Sheet 7
258	Residential	Residential	Sheet 7 & Sheet 9
259	Residential	Residential	Sheet 7 & Sheet 9
260	Residential	Residential	Sheet 7 & Sheet 9
261	Residential	Residential	Sheet 7 & Sheet 9
262	Residential	Residential	Sheet 7 & Sheet 9
263	Residential	Residential	Sheet 7 & Sheet 9
264	Residential	Residential	Sheet 7 & Sheet 9
265	Residential	Residential	Sheet 7 & Sheet 9
266	Institutional	Institutional	Sheet 7
267	Residential	Residential	Sheet 7
268	Forest	Forest	Sheet 4 & Sheet 7
269	Forest	Forest	Sheet 4 & Sheet 7
270	Forest	Forest	Sheet 7
271	Forest	Forest	Sheet 7
272	Forest	Forest	Sheet 7
273	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
274	Forest	Forest	Sheet 7
275	Residential	Residential	Sheet 7 & Sheet 9
276	Residential	Residential	Sheet 7 & Sheet 9
277	Residential	Residential	Sheet 7 & Sheet 9
278	Institutional	Institutional	Sheet 7
279	Residential	Residential	Sheet 7
280	Residential	Residential	Sheet 7 & Sheet 9
281	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
282	Open Urban	Open Urban	Sheet 7 & Sheet 9
283	Open Urban	Open Urban	Sheet 7 & Sheet 9
284	Open Urban	Open Urban	Sheet 7 & Sheet 9
285	Open Urban	Open Urban	Sheet 7 & Sheet 9
286	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
287	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
288	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
289	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
290	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
291	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
292	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
293	Forest	Forest	Sheet 7 & Sheet 9
294	Residential	Residential	Sheet 7
295	Residential	Residential	Sheet 7 & Sheet 9
296	Residential	Residential	Sheet 7 & Sheet 9
297	Institutional	Institutional	Sheet 7 & Sheet 9
298	Residential	Residential	Sheet 7 & Sheet 9
299	Residential	Residential	Sheet 7
300	Open Urban	Open Urban	Sheet 7 & Sheet 9
301	Open Urban	Open Urban	Sheet 7 & Sheet 9
302	Forest	Forest	Sheet 7 & Sheet 9
303	Residential	Residential	Sheet 7 & Sheet 9
304	Residential	Residential	Sheet 7 & Sheet 9
305	Residential	Residential	Sheet 7 & Sheet 9
306	Piney Grove, Tipton, Weih	Mixed Use	Sheet 6 & Sheet 8
307	Johnson Prop	Residential	Sheet 6
308	Urban Open Space	Urban Open Space	Sheet 6
309	North Potomac Community Centre	Institutional	Sheet 6
310	Travilah	Institutional	Sheet 6
311	Roberts Property	Parkland Open Space	Sheet 6
312	Residential	Residential	Sheet 8
313	Parkland Open Space	Parkland Open Space	Sheet 8
314	Parkland Open Space	Parkland Open Space	Sheet 8
315	Residential	Residential	Sheet 8
316	Residential	Residential	Sheet 8
317	Residential	Residential	Sheet 8
318	Commercial	Commercial	Sheet 8 & Sheet 10
319	Residential	Residential	Sheet 8
320	Residential	Residential	Sheet 8
321	Parkland Open Space	Parkland Open Space	Sheet 8
322	Parkland Open Space	Parkland Open Space	Sheet 8
323	Residential	Residential	Sheet 8
324	Residential	Residential	Sheet 8 & Sheet 10
325	Residential	Residential	Sheet 8
326	Commercial	Commercial	Sheet 8 & Sheet 10
327	Residential	Residential	Sheet 8
328	Residential	Residential	Sheet 8
329	Residential	Residential	Sheet 8 & Sheet 10
330	Commercial	Commercial	Sheet 8 & Sheet 10
331	Residential	Residential	Sheet 8
332	Parkland Open Space	Parkland Open Space	Sheet 8 & Sheet 10
333	Parkland Open Space	Parkland Open Space	Sheet 8
334	Residential	Residential	Sheet 8
335	Golden Bear Area	Residential	Sheet 7
336	Residential	Residential	Sheet 4
337	Barnes Prop	Residential	Sheet 7
338	Graffe	Parkland Open Space	Sheet 7
339	Olney Element School	UK	Sheet 4 & Sheet 7
340	Residential	Residential	Sheet 6
341	County Owned	Residential	Sheet 4 & Sheet 6 & Sheet 7
342	Residential	Residential	Sheet 6
343	Hanks	Residential	Sheet 7
344	Brook Grove Foundation	Parkland Open Space	Sheet 4 & Sheet 7

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Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
345	Residential	Residential	Sheet 4 & Sheet 7
346	Bruzee et al	Residential	Sheet 4
347	Residential	Residential	Sheet 4 & Sheet 7
348	Doherty	Residential	Sheet 7
349	Parkland Open Space	Parkland Open Space	Sheet 4
350	Finneyfrock Prop	Residential	Sheet 4 & Sheet 7
351	Bowns Property	Residential	Sheet 4 & Sheet 7
352	Commercial	Commercial	Sheet 4 & Sheet 7
353	Residential	Residential	Sheet 4
354	Residential	Residential	Sheet 4 & Sheet 7
355	Commercial	Commercial	Sheet 4 & Sheet 7
356	Kimble	Parkland Open Space	Sheet 7
357	Parkland Open Space	Parkland Open Space	Sheet 4
358	Commercial	Commercial	Sheet 4 & Sheet 7
359	Mess Property	Parkland Open Space	Sheet 4 & Sheet 7
360	Residential	Residential	Sheet 4
361	Residential	Residential	Sheet 4 & Sheet 7
362	Guzick/Lockwood	Residential	Sheet 7
363	Brownley Prop	Residential	Sheet 7
364	Residential	Residential	Sheet 4
365	Institutional	Institutional	Sheet 4 & Sheet 7
366	Norbeck CC	UK	Sheet 4 & Sheet 6 & Sheet 7
367	Polinger Prop	Parkland Open Space	Sheet 7
368	Parkland Open Space	Parkland Open Space	Sheet 4
369	McKeever	Residential	Sheet 4 & Sheet 7
370	Parkland Open Space	Parkland Open Space	Sheet 4
371	Simms Property	Parkland Open Space	Sheet 4
372	Weidner	Residential	Sheet 4 & Sheet 7
373	ROW	Hiker/Bike Trail	Sheet 6 & Sheet 7
374	Danshes	Residential	Sheet 7
375	Mixed Use	Mixed Use	Sheet 6
377	Casey Metro Grove Rd	Mixed Use	Sheet 6
378	Mixed Use	Mixed Use	Sheet 6
379	W of Life Sciences Center	Mixed Use	Sheet 6
380	W of Life Sciences Center	Mixed Use	Sheet 6
381	Mixed Use	Mixed Use	Sheet 6
382	Potomac Village	Commercial	Sheet 8
383	Potomac Village	Residential	Sheet 8
384	Cabin John Park Volunteer Fire	Institutional	Sheet 8
385	Giancola Quarry	Residential	Sheet 8
386	Stoneyhurst Quarry	Mixed Use	Sheet 8
387	Potomac Village	Residential	Sheet 8
388	Residential	Residential	Sheet 7 & Sheet 8
389	Industrial	Industrial	Sheet 8
390	Institutional	Institutional	Sheet 8 & Sheet 9
391	Eastern Bel Pre	Residential	Sheet 7
392	Aspen Hill - Bel Pre Area	Residential	Sheet 7
393	Residential	Residential	Sheet 8
394	Residential	Residential	Sheet 8
395	Parkland Open Space	Parkland Open Space	Sheet 8 & Sheet 9
396	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
397	Residential	Residential	Sheet 8
398	Residential	Residential	Sheet 7
399	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
400	Western Bel Pre Rd	Residential	Sheet 7
401	Residential	Residential	Sheet 7 & Sheet 8
402	Residential	Residential	Sheet 8

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
403	Residential	Residential	Sheet 7 & Sheet 8
404	Residential	Residential	Sheet 7 & Sheet 8
405	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
406	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
407	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
408	Residential	Residential	Sheet 8
409	Residential	Residential	Sheet 8
410	Residential	Residential	Sheet 8
411	Commercial	Commercial	Sheet 8
412	Institutional	Institutional	Sheet 7 & Sheet 8
413	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
414	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
415	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
416	Residential	Residential	Sheet 7 & Sheet 8
417	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
418	Parkland Open Space	Parkland Open Space	Sheet 8 & Sheet 9
419	Residential	Residential	Sheet 7 & Sheet 8
420	Residential	Residential	Sheet 7 & Sheet 8
421	Residential	Residential	Sheet 7 & Sheet 8
422	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
423	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
424	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
425	Industrial	Industrial	Sheet 8
426	Residential	Residential	Sheet 7 & Sheet 8
427	ROW Rockville Facility	Public Park/Greenway	Sheet 7
428	Cameron Hills Townhouses	Residential	Sheet 8
429	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
430	Jessup Blair Renovation	Parkland Open Space	Sheet 8 & Sheet 9
431	Parkland Open Space	Parkland Open Space	Sheet 8
432	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
433	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
434	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
435	Parkland Open Space	Parkland Open Space	Sheet 8 & Sheet 9
436	Parkland Open Space	Parkland Open Space	Sheet 8
437	Institutional	Institutional	Sheet 7 & Sheet 8
438	Industrial	Industrial	Sheet 8
439	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
440	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
441	Institutional	Institutional	Sheet 7 & Sheet 8
442	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
443	Commercial	Commercial	Sheet 8
444	Industrial	Industrial	Sheet 8
445	Residential	Residential	Sheet 7 & Sheet 8
446	Institutional	Institutional	Sheet 8 & Sheet 9
447	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
448	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
449	Silver Spring Gateway	Commercial	Sheet 8
450	Residential	Residential	Sheet 8
451	Institutional	Institutional	Sheet 7 & Sheet 8
452	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8
453	Aspen Hill - Bel Pre Area	Residential	Sheet 7
454	Newell Condos	Residential	Sheet 8
455	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
456	Residential	Residential	Sheet 8
457	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
458	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
459	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9

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Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
460	Mixed Use	Mixed Use	Sheet 7
461	Residential	Residential	Sheet 7 & Sheet 8
462	Industrial	Industrial	Sheet 8
463	Institutional	Institutional	Sheet 8 & Sheet 9
464	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
465	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
466	Residential	Residential	Sheet 8 & Sheet 9
467	Residential	Residential	Sheet 8 & Sheet 9
468	Parkland Open Space	Parkland Open Space	Sheet 8 & Sheet 9
469	Fenton Gateway Park	Residential	Sheet 7 & Sheet 8 & Sheet 9
470	Fenton Gateway Park	Residential	Sheet 8 & Sheet 9
471	Fenton Gateway Park	Residential	Sheet 8 & Sheet 9
472	Residential	Residential	Sheet 7 & Sheet 8
473	Residential	Residential	Sheet 7 & Sheet 8
474	Residential	Residential	Sheet 7 & Sheet 8
475	Residential	Residential	Sheet 7 & Sheet 8
476	Residential	Residential	Sheet 7 & Sheet 8
477	Residential	Residential	Sheet 7 & Sheet 8
478	Residential	Residential	Sheet 7 & Sheet 8
479	Residential	Residential	Sheet 7 & Sheet 8
480	Residential	Residential	Sheet 7 & Sheet 8
481	Residential	Residential	Sheet 7 & Sheet 8
482	Residential	Residential	Sheet 7 & Sheet 8
483	Residential	Residential	Sheet 7 & Sheet 8
484	Residential	Residential	Sheet 7 & Sheet 8
485	Residential	Residential	Sheet 7 & Sheet 8
486	Residential	Residential	Sheet 7 & Sheet 8
487	Residential	Residential	Sheet 7 & Sheet 8
488	Residential	Residential	Sheet 8
489	Institutional	Institutional	Sheet 7 & Sheet 8
490	Residential	Residential	Sheet 8 & Sheet 9
491	Residential	Residential	Sheet 8 & Sheet 9
492	Residential	Residential	Sheet 8 & Sheet 9
493	Residential	Residential	Sheet 8 & Sheet 9
494	Institutional	Institutional	Sheet 8 & Sheet 9
495	Institutional	Institutional	Sheet 8 & Sheet 9
496	Institutional	Institutional	Sheet 8 & Sheet 9
497	Institutional	Institutional	Sheet 7 & Sheet 8
498	Residential	Residential	Sheet 7 & Sheet 8
499	Residential	Residential	Sheet 7 & Sheet 8
500	Residential	Residential	Sheet 7 & Sheet 8
501	Residential	Residential	Sheet 7 & Sheet 8
502	Residential	Residential	Sheet 7 & Sheet 8
503	Residential	Residential	Sheet 7 & Sheet 8
504	Residential	Residential	Sheet 7 & Sheet 8
505	Commercial	Commercial	Sheet 7 & Sheet 8
506	Commercial	Commercial	Sheet 7 & Sheet 8
507	Commercial	Commercial	Sheet 7 & Sheet 8
508	Residential	Residential	Sheet 7 & Sheet 8
509	Institutional	Institutional	Sheet 8 & Sheet 9
510	Residential	Residential	Sheet 8 & Sheet 9
511	Residential	Residential	Sheet 8 & Sheet 9
512	Residential	Residential	Sheet 8 & Sheet 9
513	Residential	Residential	Sheet 8 & Sheet 9
514	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
515	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
516	Institutional	Institutional	Sheet 8

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
517	930 Wayne Ave	Commercial	Sheet 8 & Sheet 9
518	Institutional	Institutional	Sheet 8
519	GRAMAX	Residential	Sheet 8 & Sheet 9
520	Commercial	Commercial	Sheet 8 & Sheet 9
521	Eastern Village Co	Residential	Sheet 8
522	Lofts 24	Residential	Sheet 8 & Sheet 9
523	Institutional	Institutional	Sheet 8 & Sheet 9
524	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
525	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
526	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
527	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
528	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
529	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
530	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
531	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
532	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
533	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
534	Easter Seals	Commercial	Sheet 8
535	Residential	Residential	Sheet 7 & Sheet 8
536	Residential	Residential	Sheet 7 & Sheet 8
537	Residential	Residential	Sheet 7 & Sheet 8
538	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8
539	Residential	Residential	Sheet 8
540	Residential	Residential	Sheet 8
541	Residential	Residential	Sheet 8
542	Residential	Residential	Sheet 8
543	Residential	Residential	Sheet 8
544	Residential	Residential	Sheet 8
545	Residential	Residential	Sheet 8
546	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
547	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
548	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
549	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
550	Commercial	Commercial	Sheet 7 & Sheet 8
551	Commercial	Commercial	Sheet 7 & Sheet 8
552	Institutional	Institutional	Sheet 7 & Sheet 8
553	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8
554	Residential	Residential	Sheet 7 & Sheet 8
555	Residential	Residential	Sheet 7 & Sheet 8
556	Residential	Residential	Sheet 7 & Sheet 8
557	Commercial	Commercial	Sheet 7 & Sheet 8
558	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
559	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
560	Residential	Residential	Sheet 7 & Sheet 8
561	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8
562	Residential	Residential	Sheet 8
563	Residential	Residential	Sheet 8
564	Residential	Residential	Sheet 7 & Sheet 8
565	Residential	Residential	Sheet 7 & Sheet 8
566	Residential	Residential	Sheet 8
567	Residential	Residential	Sheet 8
568	Residential	Residential	Sheet 8
569	Residential	Residential	Sheet 8
570	Residential	Residential	Sheet 8
571	Residential	Residential	Sheet 8
572	Industrial	Industrial	Sheet 8
573	Industrial	Industrial	Sheet 8

* Indicates Projects in which construction is expected to be initiated in the Near Future Time Frame and expected to continue into the Future Time Frame. Therefore, these projects are depicted on both near future and future maps.

Note: Near Future Projects equal to or less than one (1) acre are depicted on accompanying map sheets by shape only. These projects are listed in this table.

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
574	Residential	Residential	Sheet 8
575	Industrial	Industrial	Sheet 7
576	Parkland Open Space	Parkland Open Space	Sheet 6 & Sheet 8
578	Residential	Residential	Sheet 7
579	Residential	Residential	Sheet 7
580	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
581	Parkland Open Space	Parkland Open Space	Sheet 7
582	Olney PO	Special Exception	Sheet 4 & Sheet 7
583	Residential	Residential	Sheet 7 & Sheet 8
584	Residential	Residential	Sheet 7
585	Parkland Open Space	Parkland Open Space	Sheet 4
586	Parkland Open Space	Parkland Open Space	Sheet 8
587	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
588	Parkland Open Space	Parkland Open Space	Sheet 6 & Sheet 8
589	Life Sciences Center*	Mixed Use	Sheet 6
590	Residential	Residential	Sheet 6 & Sheet 8
591	Commercial	Commercial	Sheet 6 & Sheet 8
592	Residential	Residential	Sheet 7
593	Hyde Prop	Residential	Sheet 4 & Sheet 7
594	Residential	Residential	Sheet 4 & Sheet 7
595	Residential	Residential	Sheet 7 & Sheet 9
596	Strathmore Hall Arts Cent	Institutional	Sheet 8
597	Industrial	Industrial	Sheet 7 & Sheet 9
598	Residential	Residential	Sheet 7 & Sheet 9
599	Residential	Residential	Sheet 7 & Sheet 9
600	Residential	Residential	Sheet 7
601	Residential	Residential	Sheet 7
602	Residential	Residential	Sheet 7
603	Residential	Residential	Sheet 7 & Sheet 9
604	Residential	Residential	Sheet 7 & Sheet 9
605	Residential	Residential	Sheet 7
606	Residential	Residential	Sheet 7 & Sheet 9
607	Institutional	Institutional	Sheet 8
608	Residential	Residential	Sheet 7 & Sheet 9
609	Pachulskjz et al	Residential	Sheet 7
610	Open Urban	Open Urban	Sheet 7 & Sheet 9
611	Residential	Residential	Sheet 7
612	Olney Library	Special Exception	Sheet 4 & Sheet 7
613	Residential	Residential	Sheet 7
614	Residential	Residential	Sheet 7
615	Residential	Residential	Sheet 7 & Sheet 9
616	Residential	Residential	Sheet 7 & Sheet 9
617	Residential	Residential	Sheet 7
618	Institutional	Institutional	Sheet 7
619	Residential	Residential	Sheet 7 & Sheet 9
620	Clifton Park Crossroads	Potential Transit Stop	Sheet 8 & Sheet 9
621	Residential	Residential	Sheet 7
617	WSSC	Commercial	Sheet 7 & Sheet 9
623	Forest	Forest	Sheet 7 & Sheet 8 & Sheet 9
624	Residential	Residential	Sheet 7 & Sheet 8
625	Residential	Residential	Sheet 7 & Sheet 9
626	Residential	Residential	Sheet 7
627	Residential	Residential	Sheet 7 & Sheet 9
628	Residential	Residential	Sheet 7 & Sheet 9
629	Residential	Residential	Sheet 7
630	Commercial	Commercial	Sheet 7 & Sheet 8
631	Residential	Residential	Sheet 4 & Sheet 7

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
632	Residential	Residential	Sheet 7
633	Institutional	Institutional	Sheet 4 & Sheet 7
634	Northwest Prop	Residential	Sheet 4 & Sheet 7
635	Residential	Residential	Sheet 7 & Sheet 9
636	Open Urban	Open Urban	Sheet 7 & Sheet 9
638	Residential	Residential	Sheet 7 & Sheet 9
639	Residential	Residential	Sheet 7 & Sheet 9
640	Industrial	Industrial	Sheet 7 & Sheet 9
641	Industrial	Industrial	Sheet 7 & Sheet 9
642	Industrial	Industrial	Sheet 7 & Sheet 9
643	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
644	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
645	Residential	Residential	Sheet 7
646	Commercial	Commercial	Sheet 7 & Sheet 8 & Sheet 9
647	Residential	Residential	Sheet 4 & Sheet 7
649	Institutional	Institutional	Sheet 8 & Sheet 9
650	Commercial	Commercial	Sheet 7 & Sheet 9
651	Residential	Residential	Sheet 7
652	Residential	Residential	Sheet 7
653	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
655	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8
656	Open Urban	Open Urban	Sheet 7 & Sheet 9
657	Open Urban	Open Urban	Sheet 7 & Sheet 9
658	Residential	Residential	Sheet 7
659	Residential	Residential	Sheet 7
660	Potomac Village	Residential	Sheet 8
661	Open Urban	Open Urban	Sheet 7 & Sheet 9
662	Open Urban	Open Urban	Sheet 7 & Sheet 9
663	Open Urban	Open Urban	Sheet 7 & Sheet 9
664	Residential	Residential	Sheet 7 & Sheet 8
665	Residential	Residential	Sheet 4
666	Open Urban	Open Urban	Sheet 7 & Sheet 9
667	Residential	Residential	Sheet 7 & Sheet 9
668	Residential	Residential	Sheet 7 & Sheet 9
669	Residential	Residential	Sheet 7 & Sheet 9
670	Open Urban	Open Urban	Sheet 7 & Sheet 9
671	Residential	Residential	Sheet 7
672	Residential	Residential	Sheet 7
673	Residential	Residential	Sheet 7
674	Residential	Residential	Sheet 7 & Sheet 9
675	Residential	Residential	Sheet 8
676	Residential	Residential	Sheet 7 & Sheet 9
677	Residential	Residential	Sheet 7 & Sheet 9
678	Residential	Residential	Sheet 7 & Sheet 9
679	Residential	Residential	Sheet 7
680	Residential	Residential	Sheet 7 & Sheet 8
681	Open Urban	Open Urban	Sheet 7
682	Open Urban	Open Urban	Sheet 7
683	Residential	Residential	Sheet 7
684	Residential	Residential	Sheet 7
685	Residential	Residential	Sheet 7
686	Residential	Residential	Sheet 7 & Sheet 9
687	Residential	Residential	Sheet 7 & Sheet 9
688	Residential	Residential	Sheet 7 & Sheet 9
690	Turkey Foot Property	Residential	Sheet 6
691	Residential	Residential	Sheet 7
692	Residential	Residential	Sheet 7 & Sheet 9

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Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
693	Residential	Residential	Sheet 8
694	Residential	Residential	Sheet 7
695	Institutional	Institutional	Sheet 7
696	Residential	Residential	Sheet 7
697	Institutional	Institutional	Sheet 8 & Sheet 9
698	Residential	Residential	Sheet 7 & Sheet 9
699	Residential	Residential	Sheet 7 & Sheet 9
700	Residential	Residential	Sheet 7
701	Residential	Residential	Sheet 7 & Sheet 8
702	Residential	Residential	Sheet 8
703	Residential	Residential	Sheet 7 & Sheet 9
704	Parkland Open Space	Parkland Open Space	Sheet 8
705	Residential	Residential	Sheet 7 & Sheet 9
707	Residential	Residential	Sheet 7 & Sheet 9
708	Residential	Residential	Sheet 7
709	Residential	Residential	Sheet 7 & Sheet 8
710	Institutional	Institutional	Sheet 6
711	Industrial	Industrial	Sheet 7
712	Parkland Open Space	Parkland Open Space	Sheet 4
713	Residential	Residential	Sheet 7
714	Residential	Residential	Sheet 7
715	Residential	Residential	Sheet 7
716	Residential	Residential	Sheet 7
717	Residential	Residential	Sheet 7
718	Residential	Residential	Sheet 7
719	Washington Ethical School	Institutional	Sheet 8 & Sheet 9
720	Residential	Residential	Sheet 7
721	Residential	Residential	Sheet 7
722	Institutional	Institutional	Sheet 8
723	W of Life Sciences Center	Mixed Use	Sheet 6
724	W of Life Sciences Center	Mixed Use	Sheet 6
725	Silo Inn	Residential	Sheet 7
726	Residential	Residential	Sheet 7
727	Parkland Open Space	Parkland Open Space	Sheet 7
728	Residential	Residential	Sheet 7 & Sheet 9
729	Residential	Residential	Sheet 7 & Sheet 9
730	Greenrose - Bel Pre	Residential	Sheet 7
731	Trail	Trail	Sheet 8 & Sheet 9
732	Parkland Open Space	Parkland Open Space	Sheet 8
733	Residential	Residential	Sheet 7
734	Residential	Residential	Sheet 7 & Sheet 8 & Sheet 9
735	Potomac Village	Residential	Sheet 8
736	Residential	Residential	Sheet 7
737	Residential	Residential	Sheet 7
738	Residential	Residential	Sheet 7
739	Residential	Residential	Sheet 7
740	Parkland Open Space	Parkland Open Space	Sheet 7
741	Residential	Residential	Sheet 7 & Sheet 9
742	Residential	Residential	Sheet 7 & Sheet 9
743	Residential	Residential	Sheet 7 & Sheet 9
744	Residential	Residential	Sheet 7
745	Residential	Residential	Sheet 7 & Sheet 9
749	Residential	Residential	Sheet 7
750	SS Central Business District	Commercial	Sheet 8
751	Parkland Open Space	Parkland Open Space	Sheet 4
752	Residential	Residential	Sheet 7
753	Parkland Open Space	Parkland Open Space	Sheet 7

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
754	Parkland Open Space	Parkland Open Space	Sheet 7
755	Residential	Residential	Sheet 7
756	Parkland Open Space	Parkland Open Space	Sheet 7
757	Residential	Residential	Sheet 7 & Sheet 9
758	Takoma Langley Crossroads	Potential Transit Stop	Sheet 9
759	Parkland Open Space	Parkland Open Space	Sheet 8 & Sheet 9 & Sheet 10
760	Residential	Residential	Sheet 7
761	Residential	Residential	Sheet 7
762	Residential	Residential	Sheet 7
763	Residential	Residential	Sheet 7 & Sheet 9
764	Residential	Residential	Sheet 7
765	Residential	Residential	Sheet 7
766	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
767	Residential	Residential	Sheet 7 & Sheet 9
768	Industrial	Industrial	Sheet 7 & Sheet 9
769	Residential	Residential	Sheet 7
770	Residential	Residential	Sheet 7
771	Residential	Residential	Sheet 8
772	Residential	Residential	Sheet 7
773	Residential	Residential	Sheet 7
774	Residential	Residential	Sheet 8
775	Parkland Open Space	Parkland Open Space	Sheet 7
776	Parkland Open Space	Parkland Open Space	Sheet 4
777	Residential	Residential	Sheet 8
778	Residential	Residential	Sheet 7
779	Industrial	Industrial	Sheet 7 & Sheet 9
780	Relocated Tastee Diner	Commercial	Sheet 8
781	Residential	Residential	Sheet 7 & Sheet 9
782	Commercial	Commercial	Sheet 8 & Sheet 9
783	Residential	Residential	Sheet 7 & Sheet 8
784	Industrial	Industrial	Sheet 7 & Sheet 9
785	Commercial	Commercial	Sheet 6
786	Residential	Residential	Sheet 7
787	Residential	Residential	Sheet 7
788	Residential	Residential	Sheet 7
789	Residential	Residential	Sheet 4 & Sheet 7
790	Commercial	Commercial	Sheet 8 & Sheet 9
791	Kuperschmidt	Residential	Sheet 7
792	Residential	Residential	Sheet 7 & Sheet 9
793	Open Urban	Open Urban	Sheet 7 & Sheet 9
794	Residential	Residential	Sheet 4 & Sheet 7
795	Residential	Residential	Sheet 7 & Sheet 9
796	Residential	Residential	Sheet 7 & Sheet 9
797	Residential	Residential	Sheet 7 & Sheet 9
798	Residential	Residential	Sheet 7
799	Residential	Residential	Sheet 4 & Sheet 7
800	Residential	Residential	Sheet 4 & Sheet 7
801	Residential	Residential	Sheet 4 & Sheet 7
802	Residential	Residential	Sheet 7 & Sheet 9
803	Grosvenor Village	Residential	Sheet 8
804	Residential	Residential	Sheet 8
805	Residential	Residential	Sheet 6
806	Residential	Residential	Sheet 7
807	Residential	Residential	Sheet 7
808	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
809	Residential	Residential	Sheet 8
810	Mixed Use	Mixed Use	Sheet 6 & Sheet 8

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Note: Near Future Projects equal to or less than one (1) acre are depicted on accompanying map sheets by shape only. These projects are listed in this table.

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
811	Residential	Residential	Sheet 8
812	The Chelsey School	Institutional	Sheet 8 & Sheet 9
813	Residential	Residential	Sheet 7 & Sheet 8
814	Residential	Residential	Sheet 4 & Sheet 7
815	Mandell Prop	Residential	Sheet 7
816	WSSC Site	Residential	Sheet 6 & Sheet 7
817	Conference Center/Hotel	Institutional	Sheet 6 & Sheet 8
818	Institutional	Institutional	Sheet 8 & Sheet 9
819	Commercial	Commercial	Sheet 7 & Sheet 8
820	Residential	Residential	Sheet 7 & Sheet 9
821	Residential	Residential	Sheet 7 & Sheet 9
822	Residential	Residential	Sheet 6 & Sheet 8
823	Residential	Residential	Sheet 7 & Sheet 9
824	Residential	Residential	Sheet 7 & Sheet 9
825	Residential	Residential	Sheet 7 & Sheet 9
826	Residential	Residential	Sheet 7 & Sheet 8
827	Commercial	Commercial	Sheet 7 & Sheet 8
828	Commercial	Commercial	Sheet 7 & Sheet 8
829	Miller & Smith Prop	Parkland Open Space	Sheet 6
831	Mixed Use	Mixed Use	Sheet 6
832	Canada Dry	Residential	Sheet 8
833	Institutional	Institutional	Sheet 8 & Sheet 9
834	Commercial	Commercial	Sheet 8 & Sheet 9
835	Commercial	Commercial	Sheet 8
836	Residential	Residential	Sheet 7 & Sheet 8
837	Residential	Residential	Sheet 7 & Sheet 9
839	Residential	Residential	Sheet 8 & Sheet 9
840	Residential	Residential	Sheet 8
841	Residential	Residential	Sheet 6
842	Forest	Forest	Sheet 7
843	Tower Co	Parkland Open Space	Sheet 6 & Sheet 7
844	Industrial	Industrial	Sheet 7
845	Residential	Residential	Sheet 7
846	Open Urban	Open Urban	Sheet 7
847	Forest	Forest	Sheet 7 & Sheet 9
848	Residential	Residential	Sheet 7 & Sheet 9
849	Forest	Forest	Sheet 7 & Sheet 9
850	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
851	Residential	Residential	Sheet 7 & Sheet 8
852	Residential	Residential	Sheet 7 & Sheet 8
853	Residential	Residential	Sheet 7 & Sheet 8
854	Residential	Residential	Sheet 8 & Sheet 9
855	Residential	Residential	Sheet 8 & Sheet 9
856	Residential	Residential	Sheet 8 & Sheet 9
857	Residential	Residential	Sheet 8
858	Casey Prop II	Residential	Sheet 7
859	Casey Prop I	Parkland Open Space	Sheet 7
860	Parkland Open Space	Parkland Open Space	Sheet 4
861	Bruzee et al	Parkland Open Space	Sheet 7
862	ROW Rockville Facility	Public Park\Greenway	Sheet 8 & Sheet 9
863	Institutional	Institutional	Sheet 8 & Sheet 9
864	Silver Spring Green Trail	Trail	Sheet 8
865	Residential	Residential	Sheet 8
866	Trail	Trail	Sheet 8 & Sheet 9 & Sheet 10
867	Trail	Trail	Sheet 7
868	Dematatis Prop	Residential	Sheet 7 & Sheet 8 & Sheet 9
869	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
870	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8 & Sheet 9
871	Institutional	Institutional	Sheet 7 & Sheet 9
872	Parkland Open Space	Parkland Open Space	Sheet 7 & Sheet 8
873	Residential	Residential	Sheet 4
874	Cabin Branch	Mixed Use	Sheet 4
875	COMSAT	Mixed Use	Sheet 4
876	Cabin Branch	Residential	Sheet 4
877	Clarksburg Town Center*	Mixed Use	Sheet 4
878	Germantown Cemeteries	Mixed Use	Sheet 4
879	Catholic Cemeteries	Other	Sheet 4
880	Rocky Hill Middle School	Institutional	Sheet 4
881	Rocky Hill Middle School	Institutional	Sheet 4
882	Gateway 270 Corp Park	Commercial	Sheet 4
884	FDA HQ*	Federal Lands	Sheet 7 & Sheet 9
885	Mixed Use	Mixed Use	Sheet 6
886	Mixed Use	Mixed Use	Sheet 6
887	Residential	Residential	Sheet 7
888	Residential	Residential	Sheet 7
889	Residential	Residential	Sheet 7
890	Industrial	Industrial	Sheet 8
891	Institutional	Institutional	Sheet 7 & Sheet 8 & Sheet 9
892	Residential	Residential	Sheet 7 & Sheet 9
893	Commercial	Commercial	Sheet 7 & Sheet 9
894	Commercial	Commercial	Sheet 7 & Sheet 9
895	Residential	Residential	Sheet 7
896	Residential	Residential	Sheet 7
897	Residential	Residential	Sheet 7
898	Residential	Residential	Sheet 7
899	Residential	Residential	Sheet 7
900	Residential	Residential	Sheet 7
901	Residential	Residential	Sheet 7
902	Residential	Residential	Sheet 8
903	Residential	Residential	Sheet 8
904	Takoma Langley Crossroads	Potential Transit Stop	Sheet 9
905	Parkland Open Space	Parkland Open Space	Sheet 8 & Sheet 9 & Sheet 10
906	Forest	Forest	Sheet 7
907	Institutional	Institutional	Sheet 10
908	Institutional	Institutional	Sheet 10
909	Institutional	Institutional	Sheet 10
910	Institutional	Institutional	Sheet 10
911	Institutional	Institutional	Sheet 9
912	Institutional	Institutional	Sheet 9
913	Institutional	Institutional	Sheet 9
914	Institutional	Institutional	Sheet 9
915	Institutional	Institutional	Sheet 9
916	Institutional	Institutional	Sheet 9
917	Institutional	Institutional	Sheet 9
918	Greenbelt	Industrial	Sheet 7 & Sheet 9
919	Brentwood	Institutional	Sheet 7 & Sheet 9
920	Greenbelt	Open Urban	Sheet 7 & Sheet 9
921	Institutional	Institutional	Sheet 7 & Sheet 9
922	Fire Station	Institutional	Sheet 7
923	Mount Rainier Fire Station	Institutional	Sheet 7 & Sheet 9
924	Hyattsville	Institutional	Sheet 7
925	FDA HQ	Federal Lands	Sheet 7 & Sheet 9
926	Russett Center LTD Partnership	Residential	Sheet 7
927	STURGESS, KATRINA A	Residential	Sheet 7

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Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
928	Hall, Josh	Residential	Sheet 7
929	Maguire, Francis M	Residential	Sheet 7
930	Curran, Timothy M	Residential	Sheet 7
931	SCHILD, STEVEN R	Residential	Sheet 7
932	Williamson, James H	Residential	Sheet 7
933	Howland, Dorrance P	Residential	Sheet 7
934	Harzer Properties	Residential	Sheet 7
935	Whitehead, Albert	Residential	Sheet 7
936	MARYLAND CITY ACQUISTION	Industrial	Sheet 7
937	Panizari, James	Industrial	Sheet 7
938	Fisher, Elwood L	Residential	Sheet 7
939	ANNE ARUNDEL COUNTY	Forest	Sheet 7
940	LAUREL RACING ASSOC LTD P	Industrial	Sheet 7
941	SEIGEL, ROBERT	Residential	Sheet 7
577	Institutional	Institutional	Sheet 7 & Sheet 9
577	Institutional	Institutional	Sheet 7 & Sheet 9
252	Residential	Residential	Sheet 7 & Sheet 9
252	Residential	Residential	Sheet 7 & Sheet 9
216	Residential	Residential	Sheet 7 & Sheet 9
189	Residential	Residential	Sheet 7 & Sheet 9
942	Pines of Laurel	Residential	Sheet 7 & Sheet 9
943	Oaklands	Residential	Sheet 7 & Sheet 9
944	Cherokee Property	Industrial	Sheet 7 & Sheet 9
945	Villages at Wellington	Residential	Sheet 7 & Sheet 9
947	Villages at Wellington	Residential	Sheet 7 & Sheet 9
948	Cross Creek	Residential	Sheet 7 & Sheet 9
949	Briarwood Business Park	Industrial	Sheet 7 & Sheet 9
950	Centerpark	Commercial	Sheet 7 & Sheet 9
951	Deerfield Run	Residential	Sheet 7 & Sheet 9
952	Foxfire Apartments	Residential	Sheet 7 & Sheet 9
953	Greater Laurel Prof. Park	Mixed Use	Sheet 7 & Sheet 9
954	Hartmeyer Prop. (Church)	Residential	Sheet 7 & Sheet 9
955	Konterra Business Campus	Commercial	Sheet 7 & Sheet 9
956	Oakcrest	Residential	Sheet 7 & Sheet 9
957	Sandy Spring Estates	Residential	Sheet 7
958	Sumner Grove	Residential	Sheet 7 & Sheet 9
959	Willshire	Residential	Sheet 7 & Sheet 9
960	Ammendale South	Industrial	Sheet 7 & Sheet 9
954	Rockville Industrial Park, Par E	Commercial	Sheet 6
955	Commercial	Commercial	Sheet 6
956	Commercial	Commercial	Sheet 6
960	Britt & City Prop	Open Space	Sheet 6
961	Game Preserve Rd	Open Space	Sheet 6
962	Off Watkins Mill Rd	Residential	Sheet 6
963	Montgomery Meadows	Open Space	Sheet 6
966	Britts Addition	Open Space	Sheet 6
967	Goshen Tract	Mixed Use	Sheet 6
968	Ashbury campus	Mixed Use	Sheet 6
969	Constitution Parks	Mixed Use	Sheet 6
970	East Deer Park Drive	Residential	Sheet 6
971	Off Central Ave	Residential	Sheet 6
972	Off Central Ave	Mixed Use	Sheet 6
973	Rosemont	Residential	Sheet 6
974	Walnut Hill	Residential	Sheet 6
975	Oakmont Manor	Mixed Use	Sheet 6
976	Walnut Hill	Mixed Use	Sheet 6
977	Abdollah Malekzadeh Prop	Mixed Use	Sheet 6
978	EB Casey Prop	Mixed Use	Sheet 6

Map ID Number	Site Name	Near Future Land Use	Map Sheet Location
979	Montgomery County Agric Center	Open Space	Sheet 6
980	Off W Diamond Ave	Mixed Use	Sheet 6
981	Lilac Gardens	Mixed Use	Sheet 6
982	St Martinis Church Prop	Mixed Use	Sheet 6
983	MCPS Property	Mixed Use	Sheet 6
984	Bowlings Addition	Mixed Use	Sheet 6
985	Brighton West	Mixed Use	Sheet 6
986	City Prop	Open Space	Sheet 6
987	Former NIKE Missile Site	Open Space	Sheet 6
988	Open Space	Open Space	Sheet 6
989	Eagles Head	Open Space	Sheet 6
990	Woodlands	Open Space	Sheet 6
991	CPSafety Commission	Mixed Use	Sheet 6
992	Washingtonian Woods etc	Open Space	Sheet 6
993	Kentlands/Lakelands	Open Space	Sheet 6
994	Kentlands Parks Lakes wetland	Open Space	Sheet 6
995	Kentland	Institutional	Sheet 6
996	Kentlands Elementary School	Institutional	Sheet 6
997	Quince Orchard Shop Center	Mixed Use	Sheet 6
998	Kentlands Recreation Center	Open Space	Sheet 6
999	Meadow at Quince Orchard	Mixed Use	Sheet 6
1000	Meadow at Quince Orchard	Industrial	Sheet 6
1001	National Institute of Standards & Technology	Institutional	Sheet 6
1002	Diamond Farm	Open Space	Sheet 6
1003	Diamond Farm	Mixed Use	Sheet 6
1004	Schultze Prop	Open Space	Sheet 6
1005	Schultze Property	Mixed	Sheet 6
1006	Washingtonian Center	Mixed Use	Sheet 6
1007	Uptons/Boston Market Site	Mixed	Sheet 6
1008	City Prop & Washingtonian	Open Space	Sheet 6
1009	Washingtonian	Open Space	Sheet 6
1010	Residential	Residential	Sheet 6
1011	Residential	Residential	Sheet 6
1012	Commercial	Commercial	Sheet 6
1013	Commercial	Commercial	Sheet 6
1014	Lakewood Elementary	Institutional	Sheet 6
1015	Commercial	Commercial	Sheet 6
1016	Church Addition	Institutional	Sheet 6
1017	Sanctuary	Institutional	Sheet 6
1018	Residential	Residential	Sheet 6
1019	Car Service Facility	Industrial	Sheet 6
1020	Church Addition	Institutional	Sheet 6
1021	Residential	Residential	Sheet 6
1022	Gas Station	Industrial	Sheet 6
1023	Industrial	Industrial	Sheet 6
1024	Industrial	Industrial	Sheet 6
1025	Industrial	Industrial	Sheet 6
1026	Residential	Residential	Sheet 6
1027	Mixed Use	Mixed Use	Sheet 6
1028	Commercial	Commercial	Sheet 6
1029	Mixed Use	Mixed Use	Sheet 6
1030	Mixed Use	Mixed Use	Sheet 6
1031	Commercial	Commercial	Sheet 6
1032	Commercial	Commercial	Sheet 6
1033	Commercial	Commercial	Sheet 6
1034	Commercial	Commercial	Sheet 6
1035	Commercial	Commercial	Sheet 6
1036	Residential	Residential	Sheet 6

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<i>Map ID Number</i>	<i>Site Name</i>	<i>Near Future Land Use</i>	<i>Map Sheet Location</i>
1037	Richard Montgomery HS	Institutional	Sheet 6
1038	Commercial	Commercial	Sheet 6
1039	Commercial	Commercial	Sheet 6
1040	Commercial	Commercial	Sheet 6
1041	Commercial	Commercial	Sheet 6
1042	Institutional	Institutional	Sheet 6

<i>Map ID Number</i>	<i>Site Name</i>	<i>Near Future Land Use</i>	<i>Map Sheet Location</i>
1043	Industrial	Industrial	Sheet 6
1044	Mixed Use	Mixed Use	Sheet 6
1045	Commercial	Commercial	Sheet 6
1046	Mixed Use	Mixed Use	Sheet 6
1047	Institutional	Institutional	Sheet 6
1048	Institutional	Institutional	Sheet 6

** Indicates Projects in which construction is expected to be initiated in the Near Future Time Frame and expected to continue into the Future Time Frame. Therefore, these projects are depicted on both near future and future maps.*

Appendix 3

ELUP Estimated Acreage of Near Future Development/Projects (Present to 2010)

Forecast Zone	Classification	Planned Development* (acres)	Total Planned Near Future Development	ICC Project					
				No-Action		Corridor 1 (ROW acres)		Corridor 2 (ROW acres)	
				No Action	Total	Corridor 1 (acres)	Total Acreage (Corr.1 + Planned)	Corridor 2 (acres)	Total Acreage (Corr.2 + Planned)
Frederick County									
Frederick	Residential	106	411		411	0	411	0	411
	Comm./Ind.	14				0		0	
	Other	291				0		0	
Monocacy	Residential	301	713		713	0	713	0	713
	Comm./Ind.	316				0		0	
	Other	96				0		0	
New Market**	Residential	2,749	3,233		3,233	0	3,233	0	3,233
	Comm./Ind.	321				0		0	
	Other	163				0		0	
Frederick County Total		4,357	4,357	0	4,357	0	4,357	0	4,357
Montgomery County									
Poolesville	Residential	0	434		434	0	434	0	434
	Comm./Ind.	412				0		0	
	Other	22				0		0	
Germantown	Residential	114	2,048		2,048	0	2,048	0	2,048
	Comm./Ind.	1,056				0		0	
	Other	877				0		0	
Potomac	Residential	130	407		407	0	407	0	407
	Comm./Ind.	235				0		0	
	Other	43				0		0	
Gaithersburg	Residential	232	2,171		2,171	0	2,228	0	2,228
	Comm./Ind.	1,334				0		0	
	Other	605				57		57	
Montgomery Village	Residential	7	512		512	0	798	0	798
	Comm./Ind.	136				0		0	
	Other	369				286		286	
Olney	Residential	937	1,259		1,259	0	1,451	0	1,518
	Comm./Ind.	0				0		0	
	Other	322				192		259	
Laytonsville	Residential	6	211		211	0	211	0	211
	Comm./Ind.	193				0		0	
	Other	11				0		0	
Burtonsville	Residential	1,746	2,452		2,452	0	2,452	0	2,729
	Comm./Ind.	3				0		0	
	Other	703				0		277	
Rockville	Residential	97	359		359	0	378	0	378
	Comm./Ind.	155				0		0	
	Other	107				19		19	
Aspen Hill	Residential	84	123		123	0	257	0	123
	Comm./Ind.	0				0		0	
	Other	39				134		0	
Cloverly	Residential	1,231	1,291		1,291	0	1,361	0	1,436
	Comm./Ind.	2				0		0	
	Other	58				70		145	
Deer Park	Residential	483	942		942	0	1,015	0	971
	Comm./Ind.	38				0		0	
	Other	421				73		29	
Bethesda	Residential	342	501		501	0	501	0	501
	Comm./Ind.	143				0		0	
	Other	16				0		0	
Wheaton	Residential	160	428		428	0	430	0	428
	Comm./Ind.	133				0		0	
	Other	135				2.3		0	
White Oak	Residential	383	1,772		1,772	0	1,948	0	1,772
	Comm./Ind.	355				0		0	
	Other	1,033				176		0	
Montgomery County Total		14,909	14,909	0	14,909	1,009	15,918	1,072	15,981
Howard County									
West Friendship	Residential	548	548		548	0	548	0	548
	Comm./Ind.	0				0		0	
	Other	0				0		0	
Fulton	Residential	298	1,326		1,326	0	1,326	0	1,326
	Comm./Ind.	521				0		0	
	Other	507				0		0	
Columbia	Residential	553	778		778	0	778	0	778
	Comm./Ind.	105				0		0	
	Other	120				0		0	
Ellicott City	Residential	0	0		0	0	0	0	0
	Comm./Ind.	0				0		0	
	Other	0				0		0	
Catonsville	Residential	0	0		0	0	0	0	0
	Comm./Ind.	0				0		0	
	Other	0				0		0	
Howard County Total		2,652	2,652	0	2,652	0	2,652	0	2,652

Forecast Zone	Classification	Planned Development* (acres)	Total Planned Near Future Development	ICC Project					
				No-Action		Corridor 1 (ROW acres)		Corridor 2 (ROW acres)	
				No Action	Total	Corridor 1 (acres)	Total Acreage (Corr.1 + Planned)	Corridor 2 (acres)	Total Acreage (Corr.2 + Planned)
Prince George's County									
Muirkirk	Residential	349	631		631	0	1,232	0	1,303
	Comm./Ind.	112				0		0	
	Other	169				601		672	
Laurel	Residential	13	23		23	0	99	0	99
	Comm./Ind.	0				0		0	
	Other	11				76		76	
Laurel Pines	Residential	88	285		285	0	285	0	285
	Comm./Ind.	106				0		0	
	Other	91				0		0	
Beltsville	Residential	0	367		367	0	367	0	367
	Comm./Ind.	6				0		0	
	Other	361				0		0	
New Carrollton	Residential	0	0		0	0	0	0	0
	Comm./Ind.	0				0		0	
	Other	0				0		0	
Inner Prince George's	Residential	0	78		78	0	78	0	78
	Comm./Ind.	0				0		0	
	Other	78				0		0	
Clinton	Residential	0	0		0	0	0	0	0
	Comm./Ind.	0				0		0	
	Other	0				0		0	
Prince George's County Total		1,384	1,384	0	1,384	677	2,061	748	2,132
Anne Arundel County									
Severn	Residential	92	315		315	0	315	0	315
	Comm./Ind.	82				0		0	
	Other	141				0		0	
Hanover	Residential	0	0		0	0	0	0	0
	Comm./Ind.	0				0		0	
	Other	0				0		0	
Odenton	Residential	0	0		0	0	0	0	0
	Comm./Ind.	0				0		0	
	Other	0				0		0	
Anne Arundel County Total		315	315	0	315	0	315	0	315
Washington D.C.									
Washington	Residential	0	0		0	0	0	0	0
	Comm./Ind.	0				0		0	
	Other	0				0		0	
WashingtonDC Total		0	0	0	0	0	0	0	0
Grand Total		23,617	23,617	0	23,617	1,686	25,304	1,820	25,437

*Please note that land use categories such as open space and parkland were omitted from the planned development but estimates as these areas will not really contribute to land development but have been identified as planned preservation areas.

** Please note that the forecast zone formerly referred to as "Urbana" by the ELUP has been renamed to "New Market."

Appendix 4

Future Transportation Projects (2030)

Map Number	Site Name	Description	Completion Date	Map Sheet Location
1	Goshen Facility	Construct Warfield Rd to Brink Road (Environmental Site Assessment - 2002)	2012	Sheet 4
2	MD 28/MD 198	Norbeck & Spencerville, I-95 to MD 97 (Construct) (Release Draft Environmental Document 2004)	2025	Sheet 7
3	I-495	Corridor Transportation Study (Draft Environmental Document - late 2004)	Future	Sheet 7 & Sheet 8 & Sheet 9 & Sheet 10
4	I-95/Contee Road	Transportation Improvement Study (Location Design Public Hearing - 2004, Alternatives Selection - 2005)	Future	Sheet 7 & Sheet 9
5	MD-97/Brookville	Transportation Study (FEIS Signed by FHWA May 11, 2004)	Future	Sheet 5
6	Father Hurley Blvd/ Ridge Rd	Widen from I-270 to MD 355	2020	Sheet 4
7	Mid County Hwy Extended	Construct (Phase I Facility Planning Underway - 2004-05)	2020	Sheet 4 & Sheet 6
8	MD 118 Ext	Widen MD 355 to Watkins Mill Rd	2020	Sheet 4
9	Montrose Pkwy East (Randolph Rd)	Parklawn Dr to Veirs Mill (Construct) (Facility Planning Underway - 2003)	2015	Sheet 7 & Sheet 8
10	Montrose Parkway, West*	Tildenwood Dr to Old Georgetown Rd	2010	Sheet 6 & Sheet 8
11	Observation Drive Extended	Extension of Road	2012	Sheet 4 & Sheet 6
12	Good Luck Road	MD201 to Cipriano Rd	2020	Sheet 9 & Sheet 10
13	Metzerott Rd	New Hamp to Adelphia to MD 193 (Widen)	2020	Sheet 9
14	Muirkirk Rd	US 1 to Odell Rd (Widen)	2020	Sheet 7 & Sheet 9
15	Old Gunpowder Rd	Powder Mill to Greencastle (Rehab)	2015	Sheet 7 & Sheet 9
16	Van Dusen Rd	Contee Rd to Sandy Springs (Widen)	2020	Sheet 7 & Sheet 9
17	Old Baltimore Pike Extended	Muirkirk Rd to Contee (Construct)	2020	Sheet 7 & Sheet 9
18	Rhode Island Ave	MD 193 to US1 (Widen)	2015	Sheet 9 & Sheet 10
19	Virginia Manor Rd	Muirkirk to Contee (Widen)	2015	Sheet 7 & Sheet 9
20	Rockville Town Center	Future (Received Approval on Segmentation Paper - 2003)	Future	Sheet 6
21	I-70	From Mt Philip Rd to MD 144	2015	Sheet 2
22	I-270/US-15	Multimodal Corridor Study	2025	Sheet 2 & Sheet 4 & Sheet 6
23	US 1	Baltimore Ave from Sunnyside to College (Agency Concurrence on ARDS - 2002)	2025	Sheet 7 & Sheet 9
24	Purple Line	Bethesda to New Carrollton (Definition of Alternatives Report - Fall 2004)	Beyond 2010	Sheet 8 & Sheet 9 & Sheet 10
25	Corridor Cities Transitway	Transit construction	Future	Sheet 4 & Sheet 6
26	I-270 Interchange	Interchange @ Watkins Mills Rd (FEIS signed by FHWA December 10, 2001)	2025	Sheet 6
27	I-95 HOV	Howard County Line to PG County Line, HOV	2020	Sheet 7
28	MD-355 @ Montrose/Randolph	Reconstruct 6 lanes and Interchange	2015	Sheet 8
29	US 29*	Upgrade from Sligo Creek Pkwy to Howard Co Line	2005-2025	Sheet 7 & Sheet 8 & Sheet 9
30	I-95, Contee Rd Interchange	Interchange and CD lanes	2015	Sheet 7
31	Baltimore Washington Pkwy	Southbound Ramp from Greenbelt Rd	2025	Sheet 9
32	Sanner Rd	New & Widen Pindell School to Johns Hopkins to 216	2015	Sheet 5 & Sheet 7
33	North Urbana Interchange	Centered on Parks Mill Rd overpass	Beyond 2025	Sheet 2
34	US 29 Interchange	@ Gorman/Hopkins Rd	2020	Sheet 5 & Sheet 7
35	MD 32 Expansion	From Cedar La to US 29	2020	Sheet 5
36	Loop Rd	New 4 Lane Rd, w of I-95 to W of All Saints Rd	2020	Sheet 7
37	Boyers Mill Rd	Reconstruction from Gas House to MD144	2020	Sheet 3
38	New Market Collector	From 144 to MD 75	2020	Sheet 3
39	North-South Parallel Road	I-15 to I 270	2020	Sheet 2
40	Christopher Crossing	Rocky Springs to Shookstown	2020	Sheet 2
41	Midcounty Highway (From Shady Grove Road to ICC Alignment)	Further Study Required	Future	

Note: This table reflects those projects currently planned for construction within the 2010 to 2030 time frame. The information contained within this table was obtained through readily available data sources.

* Indicates projects in which consideration is expected to be initiated in the Near Future Time Frame and expected to continue into the Future Time Frame. Therefore, these projects are depicted on both the near future and future maps.

Appendix 5

Future Development Projects (2030)

Map Number	Site Name	Future Land Use Type	Map Sheet Location
1	Fortune Parc (20 Acres -Commercial Office Space, Residential and Retail)*	Mixed Use	Sheet 6 & Sheet 8
2	Travilah (38 Acres - Residential and Retail)	Institutional	Sheet 6
3	WSSC (133 Acres - Bio-Tech Park)	Commercial	Sheet 7 & Sheet 9
4	Life Sciences Center (Increase Density)*	Mixed Use	Sheet 6
5	WSSC Site	Residential	Sheet 6 & Sheet 7
6	Clarksburg Town Center (640 Acres)*	Mixed Use	Sheet 4
7	Gateway 270 Corp Park	Commercial	Sheet 4
8	Parkland Open Space	Mixed Use	Sheet 10
9	Anacostia Park	Mixed Use	Sheet 10
10	Warfield Property	Residential	Sheet 4
11	Kingstead Farm	Residential	Sheet 4
12	Burdette Farm	Residential	Sheet 4
13	Fred. Conference Center	Institutional	Sheet 2
14	Homeland Sec. Facility	Institutional	Sheet 2
15	Rt 26/US 15 Wedge	Mixed Use	Sheet 2
16	Airpark Industrial	Industrial	Sheet 2
17	East St. Project	Mixed Use	Sheet 2
18	Rigler Property	Residential	Sheet 3
19	Parcel B	Residential	Sheet 3
20	Parcel G	Mixed Use	Sheet 3
21	Meadow Elementary	Institutional	Sheet 3
22	Casey Elementary	Institutional	Sheet 3
23	Eaglehead High	Institutional	sc
24	Park	Parkland Open Space	Sheet 3
25	Park	Parkland Open Space	Sheet 2 & Sheet 3
26	Elementary School	Institutional	Sheet 3
27	Park	Parkland Open Space	Sheet 3
28	Summerfield Middle	Institutional	Sheet 3
29	Elementary School	Institutional	Sheet 1 & Sheet 2
30	Elementary School	Institutional	Sheet 2 & Sheet 3
31	Park	Parkland Open Space	Sheet 3
32	Fire Station	Institutional	Sheet 3
33	Elementary School	Institutional	Sheet 3
34	Park	Parkland Open Space	Sheet 3
35	Ball Road School Site	Institutional	Sheet 2 & Sheet 3
36	75/80 Elementary Site	Institutional	Sheet 3
37	Monrovia High Site	Institutional	Sheet 3
38	Elementary School	Institutional	Sheet 2
39	Elementary School	Institutional	Sheet 2
40	Police Station	Institutional	Sheet 2
41	East St. Comm Park	Parkland Open Space	Sheet 2
42	Hillcrest Park	Parkland Open Space	Sheet 2
43	Park	Parkland Open Space	Sheet 2
44	Park	Parkland Open Space	Sheet 2
45	Park	Parkland Open Space	Sheet 2
46	Park	Parkland Open Space	Sheet 2
47	Emerson (Phase III)	Residential	Sheet 7
48	Emerson, Key Prop PIV	Residential	Sheet 5 & Sheet 7
49	Maple Lawn Farms Phase 2	Residential	Sheet 5 & Sheet 7
50	Maple Lawn Farms, Ph3	Residential	Sheet 5 & Sheet 7
51	FDA HQ (Federal Lands)*	Commercial	Sheet 7 & Sheet 9
52	FDA HQ (Federal Lands)*	Commercial	Sheet 7 & Sheet 9

Note: This table reflects those projects currently planned for construction within the 2010 to 2030 time frame. The information contained within this table was obtained through readily available data sources.

** Indicates projects in which consideration is expected to be initiated in the Near Future Time Frame and expected to continue into the Future Time Frame. Therefore, these projects are depicted on both the near future and future maps.*

Appendix 6

Accommodating ELUP Estimates within Developable Land

Step 1: GIS was applied to initially identify areas that could accommodate potential development (beyond what is currently planned) using existing land use and zoning categories. Undeveloped lands currently zoned to accommodate future development (example: C-1) were identified first as areas most likely to support additional future development.

Step 2: Areas identified in **Step 1** above were overlaid onto aerial photographs to confirm the areas as undeveloped. Based on the area/parcel size the maximum number of households or jobs that could be accommodated within a particular area was determined based on the zoning category.

Land Uses Considered:

- Forest
- Agriculture
- Open Urban
- Barren Land

Montgomery County Zoning Categories Considered:

- | | | |
|------------|-----------|------------|
| • C-1 | • MXPDP | • R-18 |
| • C-2 | • O-M | • R-20 |
| • C-3 | • PD-2 | • R-200 |
| • C-B | • PD-25 | • R-00/TDR |
| • C-INN | • PD-3 | • R-30 |
| • I-1 | • PD-9 | • R-60 |
| • I-2 | • PD3 | • R-90 |
| • I-3 | • PNZ | • R-90/TDR |
| • I-4 | • PRC | • R-A |
| • XD | • R&D | • R-E |
| • M | • R-150 | • R-H |
| • RB | • RMH | • RT-8 |
| • RE-1 | • RP-T | • T-S |
| • RE-2/TDR | • RT-12.5 | |

Prince George’s County Zoning Categories Considered

- | | | |
|--------|---------|--------|
| • C-O | • C-R-C | • I-1 |
| • I-2 | • I-3 | • R-18 |
| • R-30 | • R-30C | • R-35 |
| • R-55 | • R-80 | • R-R |
| • R-S | • R-T | • R-U |

Calculation:

Residential Development:

- Residential – based on dwelling units per acre.

Note: In some cases dwelling units were not available for all zoning categories. In such cases the mode for the county was used. (Montgomery and Prince George’s Co. - 2.2, All other Counties – Not Necessary)

Commercial Development: (calculation was dependent on whether the parcel was zoned commercial or industrial)

- Commercial – Square ft of area * Floor Area Ration (FAR) / 250ft
- Industrial - Square ft of area * FAR / 1000ft

Note: In some cases, FARs were not available for all zoning categories. In such cases the mode for the county was used. (Montgomery and Prince George’s Co. - .5, All other Counties – Not Necessary)

Step 3: It was then determined whether sufficient land area is available in order to support the ELUP allocations for each of the ICC Alternatives (No-Action, Corridor 1 and Corridor 2) per TAD.

Step 4: If insufficient land areas were identified in **Step 3**, then it was assumed that rezoning on undeveloped parcels would next absorb ELUP’s allocations. First, the amount of land potentially available for rezoning per TAD was determined. Currently protected areas (parks, historic areas) were not considered as having rezoning potential.

Step 5: The number of households or employees that could potentially be accommodated within rezoned areas was estimated based on the county mode for dwelling units (residential) and FARs (commercial).

Examples of Zoning Categories for Rezoning

Montgomery Co.

- | | | |
|---------|--------|---------|
| • R-S | • RE-2 | • RE-2C |
| • RC | • RDT | • RNC |
| • Rural | | |

Prince George’s Co.

- | | | |
|-------|-------|-------|
| • O-S | • ROS | • R-A |
|-------|-------|-------|

Step 6: If rezoning of undeveloped lands would not fully accommodate the remaining number of households or jobs it, was then determined that some type redevelopment would be necessary in certain TADs. No specific sites were identified as having redevelopment potential.

Appendix 7

ELUP Estimated Acreage of Future 2030 New Development/Projects

Forecast Zone	No-Action							Corridor 1					Corridor 2				
	Classification	Planned Development ¹	Additional Potential Development on Lands Currently Zoned to Accommodate Res. or Comm. Development	Total	Potential for Rezoning ²	Potential for Redevelopment ³	Combined Total	Additional Secondary Development on Lands Currently Zoned to Accommodate Res. or Comm. Development	Potential for Rezoning ²	Potential for Redevelopment ³	Total Secondary	Total Cumulative	Additional Secondary Development on Lands Currently Zoned to Accommodate Res. or Comm. Development	Potential for Rezoning ²	Potential for Redevelopment ³	Total Secondary	Total Cumulative
Frederick County																	
Frederick	Residential	0		0													
	Comm./Ind.	240		240						0	740					0	740
	Other ⁴	500		500			740										
Monocacy	Residential	0		0													
	Comm./Ind.	0		0						0	290					0	290
	Other ⁴	290		290			290										
New Market	Residential	320	380	700				570					853				
	Comm./Ind.	100	30	130	Not Needed		1,300	10	Not Needed	580	1,880	10	Not Needed		863	2,163	
	Other ⁴	470		470													
Frederick County Total		1,920	410	2,330	0	2,330	580	0	580	2,910	863	0	863	3,193			
Montgomery County																	
Poolesville	Residential	240		240													
	Comm./Ind.	70		70			400			0	400					0	400
	Other ⁴	90		90													
Germantown	Residential	0	40	40				200					170				
	Comm./Ind.	440	Not Needed	440	Not Needed		930	70	Not Needed	270	1,200	80	Not Needed		250	1,180	
	Other ⁴	450		450													
Potomac	Residential	0		0													
	Comm./Ind.	0		0			50			0	50					0	50
	Other ⁴	50		50													
Gaithersburg	Residential	0	Not Needed	0				134	37	✓ (958 HH)			134	37	✓ (656 HH)		
	Comm./Ind.	230	Not Needed	230	Not Needed		480	9	✓ (3,589 Jobs)	180	660	9	✓ (3,375 Jobs)		180	660	
	Other ⁴	250		250													
Montgomery Village	Residential	0	10	10				380					380				
	Comm./Ind.	0	Not Needed	0	Not Needed		10	150	Not Needed	530	540	140	Not Needed		520	530	
	Other ⁴	0		0													
Olney	Residential	0	70	70				260	271				260	240			
	Comm./Ind.	0	1	1	3	Not Needed	144	Not Available	5	Not Needed	536	680	Not Available	6	Not Needed	506	650
	Other ⁴	70		70													
Laytonsville	Residential	0	30	30	40	Not Needed		Not Available	60				Not Available	111			
	Comm./Ind.	0	Not Needed	0	Not Needed		70	Not Available	1	Not Needed	61	131	Not Available	1	Not Needed	112	182
	Other ⁴	0		0													
Burtonsville	Residential	0	60	60				10	270				Not Available	670			
	Comm./Ind.	0	Not Needed	0	Not Needed		170	10	2	Not Needed	292	462	Not Available	15	Not Needed	685	855
	Other ⁴	110		110													
Rockville	Residential	0	155	155	10	✓ (1,253 HH)		Not Needed					Not Needed				
	Comm./Ind.	50	Not Available	50	0	✓ (1,851 Jobs)	265	Not Needed		Not Needed	0	265	Not Needed		Not Needed	0	265
	Other ⁴	50		50													
Aspen Hill	Residential	20	150	170	0	✓ (236 HH)		Not Available	0	✓ (1,347 HH)			Not Available	0	✓ (1,175 HH)		
	Comm./Ind.	0	Not Available	0	0	✓ (60 Jobs)	190	Not Available		✓ (1,240 Jobs)	0	190	Not Available		✓ (1,230 Jobs)	0	190
	Other ⁴	20		20													
Cloverly	Residential	0	80	80	130	Not Needed		Not Available	287	✓ (551 HH)			Not Available	287	✓ (603 HH)		
	Comm./Ind.	0	Not Needed	0	Not Needed		290	1	✓ (960 Jobs)	288	578	Not Available		✓ (1,050 Jobs)	287	577	
	Other ⁴	80		80													
Deer Park	Residential	0	60	60				40	0	✓ (1,440 HH)			30	0	✓ (870 HH)		
	Comm./Ind.	0	Not Needed	0	Not Needed		150	Not Available		✓ (850 Jobs)	40	190	Not Available		✓ (840 Jobs)	30	180
	Other ⁴	90		90													
Bethesda	Residential	0		0													
	Comm./Ind.	0		0			0			0	0					0	0
	Other ⁴	0		0													
Wheaton	Residential	0	160	160	0	✓ (3,342 HH)		Not Needed					Not Needed				
	Comm./Ind.	0	10	10	Not Needed		350	Not Needed		Not Needed	0	350	Not Needed		Not Needed	0	350
	Other ⁴	180		180													
White Oak	Residential	0	120	120	11	✓ (840 HH)		Not Available	0	✓ (1,560 HH)			Not Available	0	✓ (1,470 HH)		
	Comm./Ind.	120	Not Available	120	0	✓ (1,009 Jobs)	930	Not Available		✓ (3,990 Jobs)	0	930	Not Available		✓ (2,511 Jobs)	0	930
	Other ⁴	690		690													
Montgomery County Total		3,300	946	4,246	194	4,429	1,264	933	2,197	6,626	1,203	1,367	2,570	6,999			

Forecast Zone	No-Action						Corridor 1					Corridor 2					
	Classification	Planned Development ¹	Additional Potential Development on Lands Currently Zoned to Accommodate Res. or Comm. Development	Total	Potential for Rezoning ²	Potential for Redevelopment ³	Combined Total	Additional Secondary Development on Lands Currently Zoned to Accommodate Res. or Comm. Development	Potential for Rezoning ²	Potential for Redevelopment ³	Total Secondary	Total Cumulative	Additional Secondary Development on Lands Currently Zoned to Accommodate Res. or Comm. Development	Potential for Rezoning ²	Potential for Redevelopment ³	Total Secondary	Total Cumulative
Howard County																	
West Friendship	Residential	0		0													
	Comm./Ind.	0		0			0			0	0					0	0
	Other ⁴	0															
Fulton	Residential	90	160	250				110					160				
	Comm./Ind.	0	10	10		Not Needed	440	30		140	580	105		Not Needed	265	705	
	Other ⁴	180		180													
Columbia	Residential	70		70													
	Comm./Ind.	0		0			210			0	210				0	210	
	Other ⁴	140		140													
Ellicott City	Residential	0		0													
	Comm./Ind.	0		0			0			0	0				0	0	
	Other ⁴	0		0													
Catonsville	Residential	0		0													
	Comm./Ind.	0		0			0			0	0				0	0	
	Other ⁴	0		0													
Howard County Total		480	170	650	0		650	140	0	140	790	265	0		265	915	
Prince George's County																	
Muirkirk	Residential	0	242	242		Not Needed		822					760				
	Comm./Ind.	0	Not Needed	0			482	460		1,282	1,764	370		Not Needed	1,130	1,612	
	Other ⁴	240		240													
Laurel	Residential	0	375	375		Not Needed		45	81	✓ (913 HH)		45	81	✓ (1147 HH)			
	Comm./Ind.	0	Not Needed	0			435	Not Available		126	561	Not Available		✓ (1310 Jobs)	126	561	
	Other ⁴	60		60													
Laurel Pines	Residential	0	25	25		Not Needed		300				285					
	Comm./Ind.	0	Not Needed	0			85	65		365	450	63		Not Needed	348	433	
	Other ⁴	60		60													
Beltsville	Residential	0	150	150		Not Needed		110	130	✓ (217 HH)		100	130	✓ (217 HH)			
	Comm./Ind.	0	Not Needed	0			710	15	Not Needed	255	965	15	Not Needed	Not Needed	245	955	
	Other ⁴	560		560													
New Carrollton	Residential	0		0													
	Comm./Ind.	0		0			70			0	70				0	70	
	Other ³	70		70													
Inner Prince George's	Residential	0		0													
	Comm./Ind.	0		0			610			0	610				0	610	
	Other ³	610		610													
Clinton	Residential	0		0													
	Comm./Ind.	0		0			0			0	0				0	0	
	Other ³	0		0													
Prince George's County Total		1,600	792	2,392	0		2,392	1,817	211	2,028	4,420	1,638	211		1,849	4,241	
Anne Arundel County																	
Severn	Residential	0		0													
	Comm./Ind.	0		0			0			0	0				0	0	
	Other ³	0		0													
Hanover	Residential	0		0													
	Comm./Ind.	0		0			0			0	0				0	0	
	Other ³	0		0													
Odenton	Residential	0		0													
	Comm./Ind.	0		0			0			0	0				0	0	
	Other ³	0		0													
Anne Arundel County Total		0	0	0	0		0	0	0	0	0	0	0		0	0	
Washington D.C.																	
Washington	Residential	0		0													
	Comm./Ind.	0		0			360			0	360				0	360	
	Other ³	360		360													
Washington DC Total		360		360			360			0	360				0	360	
Grand Total		7,660	2,318	9,978	194		10,161	3,801	1,144	4,945	15,106	3,969	1,578		5,546	15,707	

¹ Future 2030 planned development does not account for future unforeseen private development projects. Unlike major government funded capital improvements (including transportation projects) that are typically programmed/planned far in advance to initiate the appropriation of needed public funds, private development projects (especially residential development projects) are normally undertaken within shorter planning periods. The lack of planned development projects for the future time frame is not necessarily an indication that this type of development will not occur in the future time frame under a No-Action alternative. The total planned development acreage included in this table does not account for these smaller unforeseen private developments that have not yet been planned, and have therefore, not been included in the total computation of planned development for a No-Action Alternative.

² It was assumed that rezoning may occur in areas that have undeveloped parcels, yet rezoning would be required. Protected lands such as parklands and historic properties were not considered available to provide rezoning opportunities. This acreage was estimated based on the mode Dwelling Units or FAR per county.

³ For forecast zones that did not appear to have sufficient lands available to fully accommodate the ELUP's allocations as new development on undeveloped lands, it was assumed that some type of redevelopment may occur in the future time frame. The number indicated in parenthesis is the number of households or employees that would not appear to be accommodated within new development areas

⁴ Includes transportation, federal lands and Institutional

Not Needed = It was determined that the ELUP's allocation did not require additional lands for additional potential development (Under the No-Action), secondary development land areas or rezoned or redevelopment lands.

Not Available = It was determined that no land was available to accommodate the ELUP allocations.

Forecast zones that showed a greater than 5% allocation difference between the No-Action and either the Corridor 1 or Corridor 2 (or both) projections. It is anticipated that these forecast zones will experience some level of secondary development associated with construction of an ICC build alternative.

Appendix 8

Potential Secondary and Cumulative Impacts of Select Natural Resources by Subwatershed

Watershed	Subwatershed	Near Future (2010) Planned Transportation Projects/Developments			No-Action Future 2030 Planned Transportation			Corridor 1			Corridor 2		
		Approx. Impact of Development	Approx. Impact of Transportation Projects	Approx. Cumulative Impact of Near Future (2010)	Approx. Impact of Development	Approx. Impact of Transportation Projects	Total Approx. Impact of Future (2030)	Approx. Impact of No-Action Potential Development	Approx. Cumulative Impact of No-Action Future (2030) Development (Planned and Potential)	Approx. Impact of Corridor 1 Potential Secondary Development	Approx. Cumulative Impact of Corridor 1 Future (2030) Development (Planned and Potential)	Approx. Impact of Corridor 2 Potential Secondary Development	Approx. Cumulative Impact of Corridor 2 Future (2030) Development (Planned and Potential)
Farmland Impacts¹													
MIDDLE POTOMAC RIVER	Lower Monocacy River	2,370.6	85.4	2,456.0	935.6	135.5	1,071.1	357.2	1,428.3	282.3	1,710.6	282.3	1,710.6
PATUXENT RIVER	Brighton Dam	399.7	4.4	404.2	13.5		13.5	7.5	21.0	0.0	21.0	0.0	21.0
	Little Patuxent River	690.2	12.1	702.3	110.9		129.6	94.4	224.0	65.5	289.5	65.5	289.5
	Middle Patuxent River	154.0		154.0	4.3		6.5	0.0	10.8	3.9	14.8	3.9	14.8
	Patuxent River upper	49.0	3.1	52.1			0.9	0.9	10.3	3.2	13.5	3.2	13.5
	Rocky Gorge Dam	1,183.1	10.7	1,193.8			13.2	30.1	43.3	212.6	255.9	563.9	607.2
WASHINGTON METROPOLITAN	Anacostia River	812.3	13.5	825.8			36.0	36.0	163.5	199.5	322.7	234.1	433.6
	Cabin John Creek			0.0			0.0	52.9	52.9	0.0	52.9	0.0	52.9
	Potomac River MO Cnty	365.6		365.6			16.8	16.8	81.6	1.9	83.5	1.9	83.5
	Rock Creek	50.3	14.0	64.4			0.0	3.3	3.3	293.9	297.2	277.9	281.3
	Seneca Creek	1,472.5	72.9	1,545.3	293.6	65.2	358.8	0.0	358.8	132.5	491.3	132.5	491.3
Farmland Totals		7,547.4	216.2	7,763.5	1,357.9	292.8	1,650.7	783.2	2,433.9	1,318.6	3,752.5	1,565.3	3,999.2

Forest Impacts²													
MIDDLE POTOMAC RIVER	Lower Monocacy River	1,650.3	55.7	1,705.9	337.3	93.9	431.3	53.3	484.6	263.8	748.4	263.8	748.4
PATUXENT RIVER	Brighton Dam	269.1	0.3	269.4	11.4		11.4	16.9	28.3	0.0	28.3	0.0	28.3
	Little Patuxent River	193.3	16.3	209.6	47.0		1.1	48.1	5.6	53.7	24.7	78.4	24.7
	Middle Patuxent River	220.0		220.0			19.9	19.9	58.7	0.0	78.5	0.0	78.5
	Patuxent River upper	433.9	9.3	443.2			36.1	36.1	209.3	245.4	185.9	431.3	185.9
	Rocky Gorge Dam	2,299.0	8.5	2,307.5			9.7	9.7	156.9	166.6	317.3	483.9	415.0
WASHINGTON METROPOLITAN	Anacostia River	2,036.9	68.2	2,105.1	43.5		132.9	176.4	592.9	769.3	845.6	1,614.9	806.1
	Cabin John Creek	34.4	3.5	37.8	4.4		30.3	34.6	64.3	98.9	0.0	98.9	0.0
	Potomac River MO Cnty	654.1		654.1			29.1	29.1	18.1	47.2	85.2	132.4	85.2
	Rock Creek	184.3	29.2	213.5	3.2		40.9	44.1	45.0	89.1	164.4	253.5	164.4
	Seneca Creek	768.4	65.1	833.5	146.0		110.6	256.6	46.6	303.2	326.4	629.7	290.8
Forest Totals		8,743.5	256.1	8,999.6	592.8	504.3	1,097.1	1,267.7	2,364.8	2,213.2	4,578.0	2,235.8	4,600.7

Floodplain Impacts³													
MIDDLE POTOMAC RIVER	Lower Monocacy River	155.8	32.5	188.2	90.2	24.4	114.6	0.8	115.4	8.5	123.9	8.5	123.9
PATUXENT RIVER	Brighton Dam	0.1		0.1			0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Little Patuxent River	51.0	1.8	52.8	9.8		1.3	11.1	2.0	13.2	7.3	20.4	7.3
	Middle Patuxent River	18.7		18.7			1.5	1.5	32.7	34.2	0.0	34.2	0.0
	Patuxent River upper	27.3	0.8	28.1			0.8	0.8	27.3	28.1	9.8	37.9	9.8
	Rocky Gorge Dam	287.1	0.6	287.6			0.6	0.6	16.8	17.4	35.1	52.4	36.5
WASHINGTON METROPOLITAN	Anacostia River	279.4	28.0	307.4	55.1		31.3	86.4	69.0	155.4	64.9	220.2	61.7
	Cabin John Creek	26.3		26.3	0.3		9.8	10.2	6.2	16.3	0.0	16.3	0.0
	Potomac River MO Cnty	62.7		62.7			5.8	5.8	4.9	10.7	16.9	27.6	16.9
	Rock Creek	134.0	2.6	136.6			19.6	19.6	5.0	24.6	65.6	90.2	65.6
	Seneca Creek	45.9	14.8	60.7			12.7	12.7	3.0	15.8	44.6	60.4	44.6
Floodplain Totals		1,088.1	81.0	1,169.1	155.4	107.7	263.1	167.8	430.9	252.6	683.6	250.8	681.8

Wetland Impacts⁴													
MIDDLE POTOMAC RIVER	Lower Monocacy River	46.8	4.0	50.9	19.3	8.0	27.3	0.9	28.3	38.7	66.9	38.7	66.9
PATUXENT RIVER	Brighton Dam	4.2		4.2	2.6		2.6	0.0	2.6	0.0	2.6	0.0	2.6
	Little Patuxent River	33.9		33.9	14.1		14.1	0.7	14.8	0.0	14.8	0.0	14.8
	Middle Patuxent River	24.4		24.4			0.4	0.4	3.9	4.3	0.0	4.3	0.0
	Patuxent River upper	13.2		13.2			0.3	0.3	0.0	0.4	12.6	12.9	12.6
	Rocky Gorge Dam	290.0	1.1	291.1			1.1	1.1	17.8	18.9	9.4	28.3	18.3
WASHINGTON METROPOLITAN	Anacostia River	71.4	20.6	92.0	3.6		6.7	10.3	21.7	31.9	64.4	96.4	62.0
	Cabin John Creek	2.6		2.6			0.3	0.3	0.3	0.6	0.0	0.6	0.0
	Potomac River MO Cnty	20.9		20.9	1.3		2.3	3.7	0.0	3.7	8.9	12.6	8.9
	Rock Creek	14.4	0.0	14.4			1.7	1.7	1.9	3.7	4.2	7.9	4.2
	Seneca Creek	64.0	3.4	67.4	9.5		7.0	16.5	2.0	18.5	21.9	40.4	21.9
Wetland Totals		585.9	29.2	615.0	50.5	27.9	78.3	49.2	127.5	160.0	287.6	166.4	293.9

RTE Impacts⁵													
MIDDLE POTOMAC RIVER	Lower Monocacy River	26.8		26.8	26.8		26.8	0.0	26.8	0.0	26.8	0.0	26.8
PATUXENT RIVER	Brighton Dam	10.1		10.1			0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Little Patuxent River	1.7		1.7		2.0	2.0	0.0	2.0	5.9	7.9	5.9	7.9
	Middle Patuxent River	2.6		2.6			0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Patuxent River upper	17.2	1.8	19.0			0.0	1.4	1.4	5.0	6.5	5.0	6.5
	Rocky Gorge Dam	7.9		7.9			0.0	0.0	0.0	0.0	0.0	0.0	0.0
WASHINGTON METROPOLITAN	Anacostia River	119.9	15.3	135.2		9.6	9.6	3.4	13.0	21.9	34.9	21.9	34.9
	Cabin John Creek			0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Potomac River MO Cnty	270.1		270.1		9.8	9.8	1.4	11.2	0.0	11.2	0.0	11.2
	Rock Creek	34.1	0.9	35.0		0.4	0.4	0.6	1.0	0.0	1.0	0.0	1.0
	Seneca Creek		11.4	11.4		6.4	6.4	0.0	6.4	0.0	6.4	0.0	6.4
RTE Totals		490.4	29.5	519.9	26.8	28.2	54.9	6.9	61.8	32.8	94.6	32.8	94.6

Stream Impacts⁶													
MIDDLE POTOMAC RIVER	Lower Monocacy River	59,528	4,405	63,933	10,781	5,032	15,813	3,500	19,313	11,132	30,446	11,132	30,446
PATUXENT RIVER	Brighton Dam	7,773	85	7,858	578		578	0	578	0	578	0	578
	Little Patuxent River	10,427		10,427	1,325	234	1,559	0	1,559	657	2,216	657	2,216
	Middle Patuxent River	3,478		3,478		499	499	2,416	2,915	0	2,915	0	2,915
	Patuxent River upper	4,252	238	4,490		521	521	9,112	9,633	6,911	16,544	6,911	16,544
	Rocky Gorge Dam	45,430	110	45,540		110	110	5,052	5,162	4,407	9,569	8,271	13,433
WASHINGTON METROPOLITAN	Anacostia River	77,266	1,964	79,229	12,718	5,358	18,077	17,079	35,155	29,859	65,014	28,189	63,345
	Cabin John Creek	4,650		4,650		1,632	1,632	0	1,632	0	1,632	0	1,632
	Potomac River MO Cnty	16,269		16,269		905	905	526	1,431	5,289	6,720	5,289	6,720
	Rock Creek	10,422	359	10,780		1,120	1,120	426	1,546	7,443	8,989	7,443	8,989
	Seneca Creek	38,018	2,984	41,002	8,568	4,429	12,997	599	13,595	13,105	26,700	12,901	26,496
Stream Totals		277,512	10,145	287,656	33,971	19,839	53,810	38,710	92,520	78,803.0	171,323	80,794	173,314

Notes:

¹Based on GIS overlay with MDP Land Use Data (Acres)

²Based on GIS overlay with FEMA 100 Year Floodplain (Acres)

³Based on GIS overlay with NWI Wetlands (Acres)

⁴Based on GIS overlay with Sensitive Species Project Review Areas (Acres), SSPRA's are not a definitive boundary of RTE habitat, they merely are a general location of documented RTE species.

⁵Based on GIS overlay with Statewide Stream Layer (Linear Feet)

Impacts are estimations based upon overlaying development with natural resources layers and do not take into consideration specific site plans nor development regulations that could limit impacts.

Appendix 9

Status and Trends of Water Quality Within the SCEA Boundary (1985-2002)

Station	Total Nitrogen		Total Phosphorus		Abundance of Algae		Total Suspended Solids		Secchi Depth (water clarity)		Summer Bottom Dissolved Oxygen	
	Status (2000-2002)	Trend (1985-2002)	Status (2000-2002)	Trend (1985-2002)	Status (2000-2002)	Trend (1985-2002)	Status (2000-2002)	Trend (1985-2002)	Status (2000-2002)	Trend (1985-2002)	Status (2000-2002)	Trend (1985-2002)
<i>Washington Metro</i>												
Cabin John Branch	Good	Improving	Good	Improving	N/A	N/A	Good	No Trend	N/A	N/A	N/A	N/A
Rock Creek	Good	Improving	Fair	Improving	N/A	N/A	Good	No Trend	N/A	N/A	N/A	N/A
Little Falls	Good	Improving	Fair	No Trend	N/A	N/A	Fair	No Trend	N/A	N/A	N/A	N/A
Anacostia River	Good	Improving	Fair	No Trend	N/A	N/A	Good	Improving	N/A	N/A	N/A	N/A
<i>Patuxent River</i>												
MD Rt. 97	Poor	No Trend	Good	Improving	N/A	N/A	Good	No Trend	N/A	N/A	N/A	N/A
Laurel	Good	Improving	Good	No Trend	N/A	N/A	Good	No Trend	N/A	N/A	N/A	N/A
<i>Middle Potomac</i>												
Monocacy River (Reel's Mill)	Poor	No Trend	Poor	Degrading	N/A	N/A	Fair	No Trend	N/A	N/A	N/A	N/A

Appendix 10

SCEA Subwatersheds –Aquatic Living/Water Quality Resources Indicators

Watershed	Subwatershed	Non-Tidal Fish Indicator of Biotic Integrity	Failed Indicator	Non-Tidal Benthic Index of Biotic Integrity	Failed Indicator	Non-Tidal Stream Habitat Index	Failed Indicator	Modeled Nitrogen Loading Rate per acre	Failed Indicator	Modeled Phosphorus Loading Rate per acre	Failed Indicator
Washington Metro	Potomac River (Montgomery County)	7.81	No	5.72	Yes	5.39	No	7.19		0.54	
	Seneca Creek	9.27	No	5.73	Yes	6.41	No	8.15		0.77	✓
	Rock Creek	7.5	No	5.16	Yes	6.1	No	9.79	✓	0.54	
	Cabin John Branch	5.63	Yes	2.95	No	5.73	No	8.85		0.63	✓
	Anacostia River	6.25	No	4.6	Yes	5.51	No	9.34		0.53	
	Oxon Creek	N/A	No	N/A	No	N/A	No	704.9		6.41	
Patuxent River	Brighton Dam	7.38	No	6.96	No	6.25	No	1.82	✓	0.26	
	Middle Patuxent River	7.6	No	7.31	No	6.36	No	6.68		0.33	
	Little Patuxent River	5.59	Yes	4.62	Yes	4.87	No	14.14	✓	0.69	✓
	Rocky Gorge Dam	7.67	No	7.07	No	6.19	No	1.94		0.22	
	Patuxent River Upper	6.83	No	5.05	Yes	4.21	Yes	9.13		0.52	
	Western Branch	7.88	No	4.23	Yes	4.25	Yes	9.45		0.6	
Middle Potomac	Lower Monocacy River	8.24	No	5.57	Yes	6.1	No	10.31	Yes	1.31	No
	Double Pipe Creek	7.61	No	4.4	Yes	5.77	No	9.16	No	0.98	Yes

Indicates High Value or Failed Indicator

Data Source: Maryland DNR Surf Your Watersheds (2004).

Appendix 11

Subwatershed Impervious Area within the SCEA Study Area

Watershed	Subwatershed	Subwatershed Total Acres	Total Acres within SCEA Boundary	1973 Percent Impervious ¹	2000 Percent Impervious ¹	Percent Change 1973-2000	Near Future (2010) Percent Impervious ²	Percent Change 2000-2010	No Action (2030) Percent Impervious ³	Percent Change 2010-2030 (No-Action)	Corridor 1 (2030) Percent Impervious ³	Percent Change 2010-2030 (Corridor 1)	Corridor 2 (2030) Percent Impervious ³	Percent Change 2010-2030 (Corridor 2)
MIDDLE POTOMAC RIVER	Double Pipe Creek	123,398	7,845	0.52%	2.52%	387.99%	2.52%	0.00%	2.52%	0.00%	2.52%	0.00%	2.52%	0.00%
MIDDLE POTOMAC RIVER	Lower Monocacy River	194,686	162,808	2.69%	7.70%	186.35%	8.88%	15.26%	9.47%	6.64%	9.59%	7.98%	9.63%	8.48%
PATUXENT RIVER	Brighton Dam	50,595	18,368	0.74%	2.18%	196.50%	3.24%	48.47%	3.33%	2.87%	3.33%	2.87%	3.33%	2.87%
PATUXENT RIVER	Little Patuxent River	66,214	3,608	5.69%	12.72%	123.56%	27.06%	112.78%	27.88%	3.03%	28.96%	7.00%	29.43%	8.74%
PATUXENT RIVER	Middle Patuxent River	37,074	5,114	4.31%	12.38%	187.51%	16.22%	30.94%	17.25%	6.38%	17.28%	6.56%	17.28%	6.56%
PATUXENT RIVER	Patuxent River upper	56,446	19,632	13.29%	23.24%	74.89%	24.74%	6.42%	25.48%	2.99%	26.15%	5.70%	26.15%	5.70%
PATUXENT RIVER	Rocky Gorge Dam	34,208	34,208	3.58%	9.74%	172.23%	11.63%	19.39%	11.89%	2.23%	12.80%	10.08%	13.82%	18.80%
WASHINGTON METROPOLITAN	Anacostia River ⁴	116,519	81,458	21.86%	38.22%	74.82%	39.71%	3.88%	40.37%	1.68%	41.85%	5.41%	41.73%	5.10%
WASHINGTON METROPOLITAN	Cabin John Creek	16,424	16,424	27.06%	32.42%	19.80%	32.31%	-0.35%	32.90%	1.82%	32.90%	1.82%	32.90%	1.82%
WASHINGTON METROPOLITAN	Potomac River MO Cnty ⁴	89,621	40,193	14.24%	26.27%	84.46%	27.22%	3.60%	27.49%	1.01%	27.60%	1.41%	27.60%	1.41%
WASHINGTON METROPOLITAN	Rock Creek ⁴	52,761	39,252	23.46%	31.59%	34.69%	32.26%	2.11%	32.38%	0.38%	33.19%	2.89%	33.16%	2.78%
WASHINGTON METROPOLITAN	Seneca Creek	82,738	58,934	5.35%	18.15%	238.99%	20.92%	15.28%	21.30%	1.81%	21.73%	3.87%	21.72%	3.84%
Total SCEA Study Area		920,685	487,846	10.08%	18.91%	87.66%	20.39%	7.83%	20.86%	2.33%	21.38%	4.84%	21.44%	5.16%

Notes:

1 - 1973 and 2000 Impervious Data is based upon MDP Land Use Data

2 - Near Future Impervious data was calculated from 2000 MDP Landuse data that was modified to include planned transportation/development, including the average impervious area added by the proposed ICC build alternatives, within the Near future time frame (2010)

3 - No Action, Corridor 1, and Corridor 2 Impervious data was calculated from the Near Future land use data that was modified to include planned future transportation/development (2030), including the ICC project for the build alternatives, and the potential development associated with each alternative.

4 - Does not include District of Columbia, Land Use Data was not readily available

Montgomery County SPA Impervious Area

Montgomery County SPA	1973 Percent Impervious ¹	2000 Percent Impervious ¹	Percent Change 1973-2000	Near Future (2010) Percent Impervious ²	Percent Change 2000-2010	No Action (2030) Percent Impervious ³	Percent Change 2010-2030 (No Action)	Corridor 1 (2030) Percent Impervious ³	Percent Change 2010-2030 (Corridor 1)	Corridor 2 (2030) Percent Impervious ³	Percent Change 2010-2030 (Corridor 2)
Clarksburg Master Plan	2.41%	7.48%	210.71%	22.34%	198.90%	27.64%	23.72%	29.55%	32.26%	29.24%	30.88%
Piney Branch	9.97%	28.45%	185.31%	29.33%	3.10%	29.33%	0.00%	29.33%	0.00%	29.33%	0.00%
Upper Paint Branch	11.42%	21.09%	84.68%	26.45%	25.41%	25.70%	-2.84%	28.60%	8.11%	27.22%	2.91%
Upper Rock Creek	2.78%	12.19%	338.35%	13.08%	7.31%	12.51%	-4.36%	13.89%	6.18%	13.89%	6.18%

Notes:

1 - 1973 and 2000 Impervious Data is based upon MDP Land Use Data

2 - Near Future Impervious data was calculated from 2000 MDP Landuse data that was modified to include planned transportation/development, including the average impervious area added by the proposed ICC build alternatives, within the Near future time frame (2010)

3 - No Action, Corridor 1, and Corridor 2 Impervious data was calculated from the Near Future land use data that was modified to include planned future transportation/development (2030), including the ICC project for the build alternatives, and the potential development associated with each alternative.

Appendix 12

Potential Impact of Planned Development on Resources in the Vicinity of the ICC Build Alternatives

Station/Option Along Proposed ICC Corridor	Resource ¹		ICC Corridor Impact (Acres) ²		Approximate Planned Development Impact ³	Planned Development ID	Name/Type of Planned Development
	Wetland System	Wetland Class	Corridor 1	Corridor 2			
Station 380 to 430	1FF	PFO	0.2		0.2	335	Golden Bear Area
	2BA	PEM	0.1		0.1	791	Kuperschmidt
Station 685 to Station 782	3PA	PFO	0.1		0.001	246	Residential
					0.1	577	Institutional
Station 782 to Station 830	3PA	PFO	0.2		0.001	246	Residential
					0.1	577	Institutional
Station 830 to Station 870	3RG	PFO	0.1		0.1	894	Commercial
	3TA	PSS	0.3		0.002	223	Residential
Station 870 to Station 923	3TA	PSS	0.1		0.002	223	Residential
Norbeck Option A Station 380 (west of MD 97) to Station 477	1FF	PFO		0.2	0.2	335	Golden Bear Area
	4A4	PFO		1.0	0.3	343	Hanks
					0.0	362	Guzick\Lockwood
					0.4	363	Brownley Prop
4D	PFO		0.2	0.3	362	Guzick\Lockwood	
Norbeck Option B Station 380 (west of MD 97) to Station 474	1FF	PFO		0.2	0.2	335	Golden Bear Area
	4A4	PFO		0.4	0.3	343	Hanks
					0.007	362	Guzick\Lockwood
					0.4	363	Brownley Prop
4D	PFO		0.2	0.3	362	Guzick\Lockwood	
Station 474 to Station 640 (west of MD 650)	4JB3	PFO		0.3	14.7	203	Residential
	4K	Unclassified		0.5	0.1	210	Residential
					2.2	203	Residential
4L	Unclassified		0.1	0.043	203	Residential	
Station 640 to Station 719 - Spencerville A to Burtonsville A	7AA	PFO		0.2	0.1	169	Residential
	7AB	PFO		0.4	0.8	267	Residential
Station 640 to Station 720 - Spencerville B to Burtonsville A	7AB	PFO		0.001	0.8	267	Residential
Station 640 to Station 725 - Spencerville A to Burtonsville B	7AA	PFO		0.1	0.1	169	Residential
	7AB	PFO		0.2	0.8	267	Residential
Burtonsville A Station 719 to Station 835	5N	PFO		0.8	1.1	205	Residential
	7ia	PFO		0.1	0.1	217	Residential
	7K	PFO		0.022	0.021	770	Residential
	7KA	PFO		0.3	0.4	770	Residential
	7L	PEM		0.8	2.5	205	Residential
					0.4	770	Residential
Burtonsville B Station 725 to Station 820	5I	PEM		0.9	1.0	205	Residential
	5M	PFO		0.007	0.1	205	Residential
	5M1	PFO		0.1	0.1	205	Residential
	5N	PFO		1.1	1.1	205	Residential
	7L	PEM		2.2	2.5	205	Residential
			0.4		770	Residential	
Station 820 to Station 880	1	PEM		1.7	1.7	158	Residential
	24	PEM		0.047	0.047	899	Residential
	5	PEM		0.047	0.047	711	Industrial
	5XA	PFO		0.2	0.2	248	Residential

<i>Station/Option Along Proposed ICC Corridor</i>	<i>Resource</i> ¹		<i>ICC Corridor Impact (Acres)</i> ²		<i>Approximate Planned Development Impact</i> ³	<i>Planned Development ID</i>	<i>Name/Type of Planned Development</i>
	<i>Wetland System</i>	<i>Wetland Class</i>	<i>Corridor 1</i>	<i>Corridor 2</i>			
Fairland Option A Station 880 to Station 955	6AA	PEM		2.0	2.0	218	Residential
			8.5		584		Residential
Fairland Option B Station 880 to Station 948	6AA	PFO		1.9	2.0	218	Residential
			8.5		584		Residential
<i>Station/Option Along Proposed ICC Corridor</i>	<i>ESA Name</i>		<i>Corridor 1</i>	<i>Corridor 2</i>	<i>Approximate Planned Development Impact</i> ³	<i>Planned Development ID</i>	<i>Name/Type of Planned Development</i>
Fairland Option A Station 880 to Station 955	McKnew Bog			20.0	16.4	584	Residential
			36.8		218		Residential
Fairland Option B Station 880 to Station 948	McKnew Bog			10.3	16.4	584	Residential
			36.8		218		Residential
<i>Station/Option Along Proposed ICC Corridor</i>	<i>FID ID</i>		<i>Corridor 1</i>	<i>Corridor 2</i>	<i>Approximate Planned Development Impact</i> ³	<i>Planned Development ID</i>	<i>Name/Type of Planned Development</i>
Station 645 to Station 685	A		5.6		1.0	577	Institutional
Station 685 to Station 782			18.4		1.0		577
Station 830 to Station 870	B		1.2		16.4	223	Residential
				0.0	252		Residential
Corridor 1 Station 870 to Station 923	B		4.0		16.4	223	Residential
				0.002	252		Residential
Norbeck Option A Station 380 to Station 477	C			7.3	11.4	362	Guzick\Lockwood
			0.001		363		Brownley Prop
Norbeck Option B Station 380 to Station 474	C			6.5	11.4	362	Guzick\Lockwood
			0.001		363		Brownley Prop
Station 474 to Station 640	C			0.1	11.4	362	Guzick\Lockwood
			0.001		363		Brownley Prop
Burtonsville A Station 719 to Station 835	D			2.1	17.7	770	Residential
Burtonsville B Station 725 to Station 820	E			0.3	8.7	770	Residential
Fairland Option A Station 880 to Station 955	F			1.0	7.1	218	Residential

¹See DEIS section IV-F for detailed information on all the resources impacted by the ICC alternates.

²Resource impacts were calculated using the LODs of the proposed Corridors. Only resources where the potential exists for impacts by planned development are shown.

³Approximate acreage of potential resource impact by the planned development. This estimated acreage is based on estimated locations of development (identified in coordination with counties or from county Master Plans) and a simple overlay with the limits of the ICC field delineations per resource, with no provisions for development restrictions that could minimize the impacts of the planned development on each resource.

 Shaded Impact numbers indicate the resource may possibly extend beyond the ICC study limits, which could result in greater potential impacts by the planned development

Appendix 13

Potential Impact of Development on Green Infrastructure Hubs within the SCEA Boundary by Subwatershed

Watershed	Subwatershed	Average Ecological Percentile	Average Ecological Rank	Total Acres of Subwatershed within the SCEA Boundary	Total Acres of Green Infrastructure within Subwatershed	Percent of Subwatershed Identified as Green Infrastructure	Near Future (2010) Planned Transportation Projects/Development			No-Action Future (2030) Planned Transportation Projects/Development			Approx. Impacts of No-Action Potential Development	Approx. Cumulative Impacts of No-Action Future (2030) Development (Planned and Potential)	Approx. Secondary Impacts of Corridor 1 Potential Development	Approx. Cumulative Impacts of Corridor 1 Future (2030) Development (Planned and Potential)	Approx. Secondary Impacts of Corridor 2 Potential Development	Approx. Cumulative Impacts of Corridor 2 Future (2030) Development (Planned and Potential)
							Approx. Impact of Near Future Development	Approx. Impact of Near Future Transportation	Approx. Cumulative Impact of Near Future (2010)	Approx. Impact of Development	Approx. Impact of Transportation Projects	Total Approx. Impact of Future (2030)						
MIDDLE POTOMAC RIVER	Lower Monocacy River	25.9	39.1	162,808	9,587.3	5.89%	117.8		117.8	6.5		6.5	0.0	6.5	0.0	6.5	0.0	6.5
PATUXENT RIVER	Brighton Dam	20.0	31.0	18,368	6,603.9	35.95%	67.3		67.3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PATUXENT RIVER	Little Patuxent River	18.2	33.7	3,608	39.9	1.11%	3.4		3.4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PATUXENT RIVER	Middle Patuxent River	38.1	59.0	5,114	368.6	7.21%	8.5		8.5		3.3	3.3	0.0	3.3	0.0	3.3	0.0	3.3
PATUXENT RIVER	Patuxent River upper	35.3	63.4	19,632	8,825.6	44.96%	11.0		11.0		0.0	0.5	0.5	23.4	24.0	23.4	24.0	
PATUXENT RIVER	Rocky Gorge Dam	41.6	64.4	34,208	7,037.0	20.57%	1,230.9	0.3	1,231.3	0.3	0.3	0.3	0.0	0.3	47.0	47.4	47.1	47.4
WASHINGTON METROPOLITAN	Anacostia River	63.1	108.9	81,458	11,211.0	13.76%	590.0	32.3	622.4	15.6	12.5	28.1	29.8	57.9	138.2	196.1	138.2	196.1
WASHINGTON METROPOLITAN	Cabin John Creek	43.2	67.0	16,424	1,144.4	6.97%	4.1		4.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WASHINGTON METROPOLITAN	Potomac River MO Cnty	15.3	23.8	40,193	6,193.3	15.41%	342.0		342.0		0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1
WASHINGTON METROPOLITAN	Rock Creek	57.7	89.4	39,252	7,548.9	19.23%	82.7	10.9	93.6		0.6	0.6	0.0	0.6	6.5	7.0	6.5	7.0
WASHINGTON METROPOLITAN	Seneca Creek	36.9	57.2	58,934	13,293.4	22.56%	17.2	13.4	30.6		19.3	19.3	0.0	19.3	27.4	46.7	27.4	46.7
Totals		35.9	57.9	479,999	71,853.3	14.97%	2,474.9	57.0	2,531.9	22.1	36.1	58.2	30.4	88.5	242.5	331.0	242.5	331.0

Potential Impact of Development on Green Infrastructure Corridors within the SCEA Boundary by Subwatershed

Watershed	Subwatershed	Average Ecological Percentile	Average Ecological Rank	Total Acres of Subwatershed within the SCEA Boundary	Total Acres of Green Infrastructure within Subwatershed	Percent of Subwatershed Identified as Green Infrastructure	Near Future (2010) Planned Transportation Projects/Development			No-Action Future (2030) Planned Transportation Projects/Development			Approx. Impacts of No-Action Potential Development	Approx. Cumulative Impacts of No-Action Future (2030) Development (Planned and Potential)	Approx. Secondary Impacts of Corridor 1 Potential Development	Approx. Cumulative Impacts of Corridor 1 Future (2030) Development (Planned and Potential)	Approx. Secondary Impacts of Corridor 2 Potential Development	Approx. Cumulative Impacts of Corridor 2 Future (2030) Development (Planned and Potential)
							Approx. Impact of Near Future Development	Approx. Impact of Near Future Transportation	Approx. Cumulative Impact of Near Future (2010)	Approx. Impact of Development	Approx. Impact of Transportation Projects	Total Approx. Impact of Future (2030)						
MIDDLE POTOMAC RIVER	Lower Monocacy River	54.0	129.7	162,808	9,091.5	5.58%	291.1	23.8	314.9	171.7	52.4	224.1	0.0	224.1	0.0	224.1	0.0	224.1
PATUXENT RIVER	Brighton Dam	55.2	132.7	18,368	751.6	4.09%	49.6		49.6		0.0	12.8	12.8	0.0	12.8	0.0	12.8	
PATUXENT RIVER	Little Patuxent River	42.6	112.0	3,608	530.6	14.70%	195.5	6.4	201.9	49.7	0.1	49.8	0.0	49.8	0.0	49.8	0.0	49.8
PATUXENT RIVER	Middle Patuxent River	33.7	73.2	5,114	1,198.6	23.44%	143.8		143.8		9.9	9.9	43.8	53.7	0.0	53.7	0.0	53.7
PATUXENT RIVER	Patuxent River upper	82.9	180.3	19,632	228.3	1.16%	32.6	0.0	32.6		0.0	0.0	4.0	4.0	1.3	5.3	1.3	5.3
PATUXENT RIVER	Rocky Gorge Dam	50.9	115.5	34,208	3,329.5	9.73%	409.4		409.4		0.9	0.9	64.5	65.4	108.5	174.0	110.9	176.4
WASHINGTON METROPOLITAN	Anacostia River	88.3	205.4	81,458	8,667.3	10.64%	1,011.1	28.8	1,039.8	236.3	82.0	318.2	264.7	582.9	152.3	735.2	121.3	704.2
WASHINGTON METROPOLITAN	Cabin John Creek	77.3	173.4	16,424	963.9	5.87%	11.4		11.4		4.2	4.2	2.9	7.1	0.0	7.1	0.0	7.1
WASHINGTON METROPOLITAN	Potomac River MO Cnty	73.1	168.3	40,193	2,475.3	6.16%	147.0		147.0		4.9	4.9	7.4	12.3	28.1	40.4	28.1	40.4
WASHINGTON METROPOLITAN	Rock Creek	80.0	172.4	39,252	2,891.8	7.37%	154.8	7.4	162.1		28.4	28.4	10.4	38.8	49.0	87.8	49.0	87.8
WASHINGTON METROPOLITAN	Seneca Creek	62.6	140.1	58,934	5,757.2	9.77%	186.7	33.7	220.4		20.4	72.2	0.0	72.2	37.3	109.5	37.3	109.5
Totals		63.7	145.7	479,999	35,885.6	7.48%	2,633.0	100.1	2,733.1	509.4	203.3	712.7	410.4	1,123.1	376.6	1,499.7	348.0	1,471.1

APPENDIX 14
NATIONAL REGISTER OF HISTORIC
PLACES AND MARYLAND INVENTORY
OF HISTORIC PROPERTIES
IDENTIFIED WITHIN THE SCEA
GEOGRAPHICAL BOUNDARY

CARR-0057	Fairview M.E. Church (Fairview U.M. Church)	F-3-016	Dearbought	F-5-001	Jackson Chapel Methodist Episcopal Church	F-5-036	Brice Glissan House
CARR-0074	McKinstry's Mill (Zumbrun Mill)	F-3-017	Edward McPherson House	F-5-002	Stoner Miller's House	F-5-037	Henry Poole House
CARR-0075	McKinstry House (Zumbrun House)	F-3-035	John Loats Farm	F-5-003	Mount Carmel United Methodist Church	F-5-038	Anthony Kimmel House and Farmstead
CARR-0084	Strawbridge Log Meeting House, site	F-3-039	Frederick Historic District	F-5-004	Grace Trinity United Church of Christ	F-5-039	Daniel James House & James-Kimmel Cemetery
CARR-0087	Sam's Creek Church of the Brethren	F-3-043	Nallin Farmhouse (Ft. Detrick Bldg. #1652)	F-5-005	Ormond Hammond House	F-5-040	George Devilbiss House
CARR-0149	Ecker Farm	F-3-044	Nallin Farm Spring House & Bank Barn	F-5-006	Reich's Ford Bridge #71 (#07-07)	F-5-041	Harding-Keller House (Christian Harding Tenant House)
CARR-0150	Hopewell (Locust Hill, Sam's Creek Farm)	F-3-046	One Million Liter Test Sphere (Fort Detrick Bldg.#527)	F-5-007	Reich's Ford Bridge #72	F-5-042	Dorsey United Methodist Church and Graveyard
CARR-0156	Warren Truss Bridge	F-3-047	Schiefferstadt	F-5-008	Reel's Mill Road Bridge #70	F-5-043	Rosedale (Reverend John Wood House)
CARR-0160	McKinstry Mill House (Carlson House)	F-3-051	Waverley	F-5-009	Riggs Sanitarium (Gabriel's French Provincial Inn)	F-5-044	Marvin Chapel United Methodist Church
CARR-0286	Bethel Chapel (Bethel U.M. Church)	F-3-053	Mercer-Todd Farm (John E.W. Hargett House)	F-5-010	Ijamsville Methodist Episcopal Church and Graveyard	F-5-045	Clary House & Woodville General Store
CARR-0327	Stone Building at Englar's Mill	F-3-056	Frederick Survey District	F-5-011	Ijamsville School House	F-5-046	Nathan Harris House
CARR-0328	Englar's Mill	F-3-058	Williams Observatory, Hood College	F-5-012	Ijamsville Survey District	F-5-047	Basil Harding House and Farmstead
CARR-0329	Sams Creek Road House	F-3-059	John C. Motter House	F-5-013	George W. Clay House (Reich'sFordRoad Landfill Office)	F-5-048	Christian Harding House and Farmstead
CARR-0550	Trinity Methodist Church, site	F-3-061	Prospect Hall (Prospect Hall School, Prospect Hill)	F-5-014	Monrovia Survey District	F-5-049	Linganore Post Office
CARR-0953	McKinstry Hall	F-3-062	Old National Pike Milestone #43	F-5-015	New London Survey District	F-5-050	Joseph Plummer House
CARR-1090	Bethany U.M. Church	F-3-063	Old National Pike Milestone #44	F-5-016	Glenellan Academy	F-5-051	Galilean Fisherman Hall
CARR-1331	Daniel Englar Farm (McKinstry Mill)	F-3-064	Old National Pike Milestone #45	F-5-017	John Russell House	F-5-052	Monrovia Bank
CARR-1390	Yoste Greenwood Farm (Hoff Family Farm)	F-3-065	Old National Pike Milestone #46	F-5-018	J. Cromwell Hammond House	F-5-053	Monrovia General Store
CARR-1395	George Washington Devilbiss Farm	F-3-066	Old National Pike Milestone #48	F-5-019	Jacob Lease House (Wet Time)	F-5-054	Nathan Hammond House
CARR-1400	Stem-Nusbaum House	F-3-067	George Rizer Farm House	F-5-020	John Klay House (Heartland Eagle Farm)	F-5-055	Cordelia Dorsey House
CARR-1435	Stoner-Saum Farm	F-3-095	Rocky Springs School House	F-5-021	Charles Cline House (John Clay House, John Klay House)	F-5-056	Bartonsville African Methodist Episcopal Church
CARR-1468	Bridge, MD Rt. 31 over Sams Creek (SHA# 060008)	F-3-096	Rocky Springs Chapel (Rocky Springs Christian Church)	F-5-022	Nicholas Hall House (Charles Wood House)	F-5-057	Albert Esworthy House
CARR-1473	Bridge, MD Rt. 850c over Talbot Branch (SHA# 060042)	F-3-107	Braddock Lutheran Chapel	F-5-023	John Hammond House (Holly Hills CountryClubBrickHouse)	F-5-058	Jonas Thomas House
F-3-001	Worman's Mill	F-3-112	Braddock Survey District (Fair View)	F-5-024	Marly Farms	F-5-059	New Market Historic District
F-3-008	Swinging Bridge	F-3-125	Michael Thomas Farmstead	F-5-025	Benjamin Hall House	F-5-060	Ursula Plummer House
F-3-011	Harry Routzahn House	F-3-126	Rose Hill Manor (part of Tasker's Chance)	F-5-026	Rich Hills	F-5-062	Drummine Farm
F-3-012	Schley House	F-3-127	Tyler-Main House	F-5-027	Vernon Dorsey House	F-5-063	William Walker House
F-3-013	E. L. Umberger House	F-3-128	Jug Bridge Toll House	F-5-028	Thomas Maynard House	F-5-064	Old National Pike Milestone #33
F-3-014	George Umberger House	F-3-129	Shookstown Public School No. 2	F-5-029	Thomas Sollers House (Hobbs-Lowe House)	F-5-065	Old National Pike Milestone #35
F-3-015	Mockheart House	F-3-130	McSherry-Holter House	F-5-030	Evan Dorsey Miller's House	F-5-066	Old National Pike Milestone #36
		F-3-133	Edward Y. Goldsborough House	F-5-031	Old Annapolis Road Bridge	F-5-067	Old National Pike Milestone #37
		F-3-135	Hagan's Tavern (The Old White House)	F-5-032	Owings-Jones House (James Jones House)	F-5-068	Old National Pike Milestone #38
		F-3-136	Crum-Reich House	F-5-033	Central Chapel School (New Market School #1)	F-5-069	Old National Pike Milestone #39
		F-3-143	G. Trummel & E. South Street Houses	F-5-034	Central Chapel and Graveyard	F-5-070	Old National Pike Milestone #40
		F-3-144	J.C. Motter-S.C. Simmons House	F-5-035	Dinton Hammond House (Potts Place)	F-5-071	Old National Pike Milestone #41
		F-3-145	Hoke-Grove House			F-5-072	Old National Pike Milestone #42
						F-5-073	Union Chapel of Bartholows (Upper Room Gospel Tabernacle)

F-5-074	Locust Grove Church of the Brethren	F-5-110	Henry Hood Farmstead	F-7-038	Centerville Survey District	F-7-077	Landsdale Farm
F-5-075	Prospect United Methodist Church (Prospect M.E. Church)	F-5-111	Richard Gartrell Farmstead (Linganore Wine Cellars)	F-7-039	Fountain Mills Methodist Church	F-7-078	Pleasant Hill School (District No. 2, School No. 3)
F-5-076	Joshua Brown House	F-5-112	Nelson-Norris Log House Peace and Plenty (Walter C. Hammond Farmstead)	F-7-041	Kempton Survey District	F-7-079	Bush Creek Church of the Brethren
F-5-077	Samuel W. Dorsey Farmstead Capt. Ignatius W. Dorsey House (Stone Oak Manor, Sedgely)	F-5-113	James P. Barnes House	F-7-042	Jeremiah T. Browning House	F-7-080	Jesse Brandenburg Farmstead
F-5-078	George L. Kaufman House	F-5-114	Harn-Demmitt Farmstead	F-7-044	George J.H. Kanode Farmstead	F-7-081	John F. Simmons Farmstead (High Hope)
F-5-079	Etzler Sears Mail Order House	F-5-115	Harrisville Hotel	F-7-045	Boyer-Yingling House (Green Meadow Farm)	F-7-082	George E. House Farmstead
F-5-081	Charles E. Etzler House	F-5-116	Ridgeville Tunnel & Bartholows Rd. Arch, B&O RR	F-7-046	Amelung House & Glassworks	F-7-083	Simmons-Royer-Ordeman Farmstead
F-5-082	Robert Nelson House	F-5-117	Henry Smith Farmstead	F-7-048	Amelung House & Glassworks	F-7-084	John F. Davis Farmstead (Sunnyside, Verdi Horse Farm)
F-5-083	Manfred (William Downey House)	F-5-118	Woodville Colored Church, site & Cemetery	F-7-050	Araby School	F-7-085	George Montgomery Tenant House
F-5-084	Wright-Downey Farmstead	F-5-119	Fat Oxen Stancioff House(Landon, Tyrone, Shirley Fem.Institute)	F-7-050	Araby Methodist Episcopal Church	F-7-086	Rinehart-Shearer Mill House
F-5-085	Higgins-Bennett House	F-7-001	Koontz Chapel(Dixon Chapel, Koontz Chapel U.M. Church)	F-7-051	Vermont Monument	F-7-087	Williams-Quynn Farmstead
F-5-086	John S. Watkins House	F-7-003	Kohlenberg Glassworks	F-7-052	Araby Toll House	F-7-088	Rine-Saunders Farmstead
F-5-087	Delashmutt-Utz Farmstead	F-7-004	Singleton Burgee House (Addison)	F-7-053	Samuel Schwartz Farmstead	F-7-089	Tobacco Shed
F-5-088	Nicholas Hartman Farmstead	F-7-005	Hollingsworth House	F-7-054	Araby Mill	F-7-090	Rufus K. Day Farmstead
F-5-089	Nelson-Jones House Howard-Brangle-Rosenstock House (Manderley, Rosehaven)	F-7-006	Lewis Cabinet Shop	F-7-055	Gambrill House (Boscobel)	F-7-091	Pleasant Grove United Methodist Church
F-5-090	T. Stuart Haller House (Sunnymeade)	F-7-007	John T. Lewis House	F-7-056	Francis Mantz Farmstead (Wight Farm)	F-7-092	H. Spurrier House & Outbuildings
F-5-091	John N. Clay Farmstead	F-7-008	Thurston Road Bridge #68	F-7-057	Elisha Beall House (Boxwood Lodge)	F-7-093	C. Burgee House & Barns
F-5-092	John T. Buxton Farmstead	F-7-010	Samuel T. Simmons House (Labyrinth)	F-7-058	Browning-Burke Farmstead	F-7-095	Wood House
F-5-093	Josiah W. Purdum Farmstead	F-7-011	Dixon Road Steel Truss Bridge (#07-09)	F-7-059	Murdock-Lawson Farmstead (The Locust)	F-7-096	Idle Wild (Burgess-England Farmstead, England Farm)
F-5-094	Alfred G. Gartrell House	F-7-012	Levi Price House and Distillery Site	F-7-060	Windsor House (Baker House)	F-7-097	Elijah Price House
F-5-095	Jones-Mount Farmstead	F-7-013	Richard Johnson House (Heritage Hills)	F-7-061	Zion Episcopal Church, ruins & Cemetery	F-7-098	Mount-Hendrickson House
F-5-096	Smith-Molesworth Farmstead	F-7-015	Hampton	F-7-062	Boyer House	F-7-099	Hendry-Davis Farmstead
F-5-097	Milton Mealey Farmstead	F-7-016	Roger Johnson House (Wellcome Farms)	F-7-063	St. Ignatius Church Urbana U.M. Church & Cemetery (Wesley U.M. Chapel)	F-7-100	David Mahoney House
F-5-098	Oliver P. Harding House	F-7-017	Mullican Log House	F-7-064	Tucker's Place (Smith Store and Residence)	F-7-101	Ball Place
F-5-099	Still Work	F-7-018	Andrew Strube House	F-7-065	Matthias Geigis House	F-7-102	Worthington Log House
F-5-100	Dorsey-Nelson Farmstead (Hunting Lotte Farm)	F-7-019	The Little House (Orrison Farm)	F-7-066	Cockey-Lawson House Cockey's House & Store (Hendrickson's House & Store)	F-7-103	Fountain Mills Store (Green Valley Store)
F-5-101	Nathan Nelson Farmstead	F-7-020	Bloomsbury Forge (Forge Farm)	F-7-067	Abraham R. Simmons House Dixon House & Graveyard (Peter Pan Inn, Crab Claw Rest.)	F-7-106	Henry Umberger House
F-5-102	Nelson-Burall Farmstead Thomas Russell House & Isaac Russell Cabinet Shop	F-7-022	Park Mills	F-7-068	Simmons Store and Residence	F-7-107	Otho Fout House
F-5-103	Abraham W. Nusbaum Farmstead	F-7-023	Urbana Survey District	F-7-069	Big Woods Bridge over Bennetts Creek	F-7-108	George W. Horman House & Outbuildings
F-5-104	Samuel A. Nusbaum Farmstead	F-7-026	Green Oak School	F-7-070	Walker Place	F-7-109	Burgess-King Farmstead
F-5-105	Poole-Long-Harn House (Red Sleigh Farm)	F-7-031	Ebenezer Methodist Episcopal Church Dr. Benjamin C. Perry House (Turning Point Inn)	F-7-071		F-7-110	Welsh Wilcom Farm (Gayridge Holsteins)
F-5-106	Jacob D. Trostle Farmstead	F-7-033	Hampton School	F-7-072		F-7-111	Providence Methodist Protestant Church
F-5-107	Day-Burdette House	F-7-034		F-7-073		F-7-112	Kempton Council Junior Order Hall (Community Hall)
F-5-108		F-7-035		F-7-074		F-7-113	Griffith-Burrall Farm
F-5-109		F-7-036		F-7-075		F-7-114	J. Windsor William's House
				F-7-076		F-7-115	Brandenburg Store & House
						F-7-116	Leona Pollack House
						F-7-119	Stonemetz Log House

F-7-121	John W. Linthicum Farmstead	F-8-035	Beatty-Kramer House (Kramer House, Cramer House)	F-8-082	Legore Quarry Workers Housing	HO-251	Klein-Flynn House
F-7-126	Bridge, MD 355 over B&O RR (SHA# 100084)	F-8-036	Garst House (Meadowlark Farm)	F-8-084	Centerville Survey District	HO-265	Warfield's Range Log Cabin (Phelps Log Cabin)
F-7-128	Jamison-Fitzsimmon House	F-8-037	Pilgrim's Retreat	F-8-085	Legore Quarry Co. Store & Workers Housing	HO-266	Warfield's Range (Phelps Residence, Twin Cedars)
F-7-129	Mrs. R. Trundle House	F-8-038	Pike's View	F-8-086	Barrick Lime Works Company Housing	HO-269	Charles Scaggs House
F-7-130	H. William Tabler House	F-8-040	Samuel Hoke House	F-8-087	Harry Davis House & Outbuildings	HO-419	Holly House Farm
F-7-131	Dixon-Dudderer Houses (Geisler-Stup Houses)	F-8-041	Ceresville Stone Quarry	F-8-088	Rocky Hill Church (Grace Lutheran Church, Evangelical Luth. Ch.)	HO-424	Grimmet's Chance
F-7-132	Araby Church Road Houses	F-8-042	Ceresville Flour Mill	F-8-091	Bowers-Barton Farm	HO-425	Windy Acres
F-8-002	Crum Road Bridge	F-8-043	Zimmerman House	F-8-101	Creagerstown Road Survey District	HO-434	Sandstone Farm (The Cissel House, Hammond and Gist)
F-8-003	Daysville Road Bridge	F-8-044	Creager House	F-8-102	Sams Creek Mill Survey District	HO-435	Gerald Hopkins House (M. Burke Sullivan House, Hickory Ridge)
F-8-004	Stauffers Road Bridge	F-8-045	Thomas Link House and Barn	F-8-103	Unionville Survey District	HO-465	John T. Swann House (Watkins House)
F-8-005	Water Street Road Bridge	F-8-048	George F. Smith House	F-8-105	Linganore School	HO-467	George Richardson Farmhouse and Outbuildings
F-8-006	James Sappington House (John Laspia Farm)	F-8-050	Abraham Jones House	F-8-108	Union Chapel (Chapel Lutheran Church)	HO-480	Cricket Creek Farm
F-8-009	Casper Devilbiss House (Travelers Rest Farm)	F-8-051	Pearre-Metcalf House	F-8-111	McKinstry's Mill Road Bridge	HO-545	John Layman Farmhouse (Martha Lemmon House)
F-8-010	Mount Pleasant United Methodist Church	F-8-053	Liberty and Frederick Turnpike Road Co. Toll House	F-8-118	Pearre-Ensor Farm	HO-546	Driver Farm (Mathias Farm)
F-8-011	Jacob Diller House	F-8-054	Woods Mill Farm (Col. Joseph Woods House)	F-8-119	Henry Baker Farmstead	HO-571	Marlow House
F-8-012	George Stevens House	F-8-061	Woodsboro Survey District (Woodsboro Historic District)	F-8-120	Reisler Farmstead	HO-575	Highland School House
F-8-013	Mount Pleasant German Reformed Church (United Church. of Christ)	F-8-062	Legore Quarry Workers Housing (Good Husband Row)	F-8-121	John Jones House	HO-584	Paternal Gift Farm
F-8-014	Henry Nelson House	F-8-063	Libertytown Survey District	F-8-122	Legore Quarry Workers Housing	HO-641	Bridge, MD Rt. 97 over Patuxent River (SHA# 13038)
F-8-015	Daniel Stone House	F-8-064	Gieselman House and Cooper Shop	F-8-123	Wayman African Methodist Episcopal Church	M: 10-01	Friendship
F-8-016	Pearl House	F-8-065	Glade Valley Milling Company	F-8-124	Silver Hill M. E. Church (Mount Pleasant Church)	M: 10-02	Moxley Log Cabins
F-8-017	Calvin Thomas House	F-8-066	St. John's Reformed Church	F-8-125	Samuel Nusbaum Farmstead	M: 10-03	John Moxley House
F-8-018	William McDonnell House	F-8-067	Stimm House	F-8-127	Oakland (Hobbs-Smith Farmstead)	M: 10-04	Wormweed Distillery (Wormseed Distillery)
F-8-019	Willa Nusbaum House	F-8-068	Smith-Wickless House	F-8-128	Sollers-Maynard-Thomas Farmstead	M: 10-05	John D. Purdum House
F-8-020	J. Snyder House	F-8-069	L.C. Powell House	F-8-129	Mount Pleasant Survey District	M: 10-06	George Moxley House
F-8-021	Walter Crum House	F-8-070	Rosebud Building	F-8-139	Bridge, MD 50 over Israel Creek Branch (SHA# 100095)	M: 10-07	G. Boyer House
F-8-022	Mount Zion U.M. Church (Mount Zion M.E. Church)	F-8-071	Woodsboro Savings Bank	F-8-141	Spring Plains Mill Property	M: 10-08	Farmhouse
F-8-023	Campbell Plantation House	F-8-072	E. Gilbert House	HO-038	Montpelier	M: 10-09	Mary Day House
F-8-024	Sheetenhelm Homeplace	F-8-073	G.P. Barrick House	HO-153	Fairview (Warfield's Range, Gorman House)	M: 10-10	John L. Purdum House (Farm?) Bethesda M.E. Church (Browningsville Methodist Church)
F-8-025	Reuban Sheetenhelm House	F-8-074	Frees-Reifsnider House	HO-163	Tierney Gambrel Roof House (Howard's Range)	M: 10-11	Mendelsohn Terrace
F-8-026	Frederick's Contentment	F-8-075	M. Beard House	HO-165	Owings-Myerly House, site (Vogel House)	M: 10-12	Browningsville Historic District
F-8-027	Mullen House	F-8-076	Saltbox House	HO-166	St. Mark's Episcopal Church	M: 10-13	Ingalls Farm
F-8-028	Lease House	F-8-077	Ernst-Duncan Farm	HO-226	Victor Myers Farmhouse	M: 10-14	Harold Watkins House
F-8-029	Millard Crum House	F-8-078	Elsie M. Beard House	HO-234	Zubovic Farmhouse	M: 10-15	William Lawson House
F-8-030	Routzahn Home Farm	F-8-079	Lucky Discovery (Frederick Musser House)	HO-236	Overlook Farms (The Gould House)	M: 10-16	Joseph Burdette House (Farm?) James Burdette House & Barn (Riddle House & Barn)
F-8-031	McMurray House	F-8-080	Danner-Poffenbarger Farm	HO-237	Stansfield House (Hearn House)	M: 10-17	
F-8-033	Fairview Methodist Protestant Ch (Fairview U.M. Chapel)	F-8-081	Legore House	HO-250	Howard Chapel U.M. Church (Howard Chapel M.E. Church)	M: 10-18	

M: 10-19	Burdette Log House (Windbrook)	M: 10-55	Zeigler's Mill Ruins	M: 11-16	J.E. Duvall Farm	(Stephen Lewis House)	
M: 10-20	James W. Burdette Tenant Farm	M: 10-56	Stone House Farm (David Zeigler Stone House)	M: 11-17	Ezekiel Moxley House	M: 13-12	J. Pickens Farm (Thomas Jefferson Tompson Farm)
M: 10-21	Damascus Camp Meeting	M: 10-57	Zeigler Log House	M: 11-18	Warfield Log Tobacco House	M: 13-13	William Thompson Farm Moneysworth Farm (Redgrave Farm)
M: 10-22	Gladhill Farm (W.T. Glaze Log House)	M: 10-58	Montgomery Chapel	M: 11-19	Elisha Warfield Farm	M: 13-14	Elizabeth Powers House
M: 10-23	C.E. Purdum Farm	M: 10-59	Hyattstown Historic District	M: 11-20	Widow Hammond Farm	M: 13-15	Benjamin Reed Farm
M: 10-24	Purdum Historic District	M: 10-59-01	Davis House	M: 11-21	McDougall Farm (Rezin Bowman House & Cemetery)	M: 13-16	Charles Purdum House, ruins
M: 10-24-01	Wyndo Farm	M: 10-60	Edward McElfresh House	M: 11-22	George Gue Barn	M: 13-17	George W. Hilton Farm (L.C. King Farm)
M: 10-24-02	Mountain View Church	M: 10-61	Hyattstown Slate Quarry	M: 11-23	Duvall Log House	M: 13-18	Elizabeth Waters Farm
M: 10-25	Middleton King Farm	M: 10-62	Carlisle-Byrne House	M: 11-24	Frank Duvall House (Johnson Farm)	M: 13-19	Waters Log House
M: 10-26	Lewisdale Historic District	M: 10-63	W.H. Cecil House	M: 11-25	Howard Day House	M: 13-20	William Shaw House
M: 10-27	Samuel B. Watkins House	M: 10-64	Mort Cecil House	M: 11-26	DuVall-Kemp Farm	M: 13-21	Gue Family Cemetery
M: 10-28	Basil Beall Farm	M: 10-65	Cecil Farm	M: 11-27	Ira Jones Barn	M: 13-22	Edward Waters Farm
M: 10-29	Ed Beall Farm	M: 10-66	Miles House (New Seat Farm)	M: 11-28	Abrahams Barn	M: 13-23	Byrne-Magee Farm
M: 10-30	Lewis House	M: 10-67	John W. Taylor House	M: 11-29	Damascus High School	M: 13-24	Cephas Summers House
M: 10-31	Ellen Thompson House and Barn	M: 10-68	John P. Sellman House	M: 12-46	C&O Canal National Historical Park	M: 13-25	Pyles Log House & Mill, site (Sellman's Mill)
M: 10-32	James T. Beall Farm	M: 10-69	Louis Sellman House (W.O. Sellman House)	M: 13-01	Barber-Nehouse Farm (Valley View Farm)	M: 13-26	John Carlin House
M: 10-33	Watkins-Mullican Farm	M: 10-70	Sugarloaf Mountain Chapel	M: 13-02	Nelson Beall Barn (Schaeffer Barn)	M: 13-27	William Reid Farm
M: 10-34	Beall Farm (Norwood Farm)	M: 10-72	Benjamin Johnson Log House George Pearre Farm and Cemetery (William Pearre Farm)	M: 13-03	Oliver T. Watkins House (Wells Farm)	M: 13-29	Burdette Hotel (Boyds Hotel, High View)
M: 10-35	W. Day House (Beall Brothers House)	M: 10-73	Hyattstown Mill Complex	M: 13-04	Washington Page Farm	M: 13-30	William Burdette House
M: 10-36	John M. King Barn	M: 10-76	Perry Watkins Farm (Moxley Farm)	M: 13-05	Log House	M: 13-31	Tenmile Creek Stream Valley Historic District
M: 10-37	Glaze Farm	M: 11-01	Milton Boyer House	M: 13-06	Samuel Scott Farm Ned Watkins Farm (Ovid Wells Farm, James Johnson House)	M: 13-32	Perry Dimes Log Cabin (Lawson Tenant House)
M: 10-38	King's Distillery, site	M: 11-02	William Bowman Farmhouse (Hood Farm)	M: 13-07	Ed Burdette Farm	M: 13-32-02	Georgia Lawson House
M: 10-39	R. King Farm	M: 11-03	Nathan Burdette Farm	M: 13-08	Clark Cemetery	M: 13-32-03	Staley Boarding House
M: 10-40	Charles M. King House	M: 11-04	Sheckles House	M: 13-09	Clarksburg Historic District	M: 13-32-04	Tenmile Creek Schoolhouse
M: 10-41	Cedar Heights School House	M: 11-05	Damascus Historic District	M: 13-10	John Gibson House	M: 13-32-05	Dorsey & Julian Carroll House, site
M: 10-42	William Williams Farm	M: 11-06	John Mount House	M: 13-10-02	Horace Willson House	M: 13-33-01	Jackson Family House, site
M: 10-43	John Beall House	M: 11-06-01	Druid Theater	M: 13-10-03	Willson Store	M: 13-33-02	Harry Jackson House, site
M: 10-44	Edward King Farm	M: 11-06-02	Scheckles Log Tobacco House, ruins	M: 13-10-04	Clark-Waters House	M: 13-33-03	Thomas A. & Jennie Jackson House
M: 10-45	A.J. Waters Barn, Fountain View Subdivision	M: 11-07	Thomas I. Hilton House	M: 13-10-05	Leonidas Willson House	M: 13-33-04	William Jackson House, site
M: 10-46	H. Gue Farmhouse	M: 11-08	Rufus S. King House	M: 13-10-06	Elizabeth Powers House	M: 13-33-05	Blocktown Tenant House, site
M: 10-47	W. Day Farmhouse	M: 11-09	John Duckett King Farm (Kingstead Farm)	M: 13-10-07	William Hurley House & Shoe Shop	M: 13-33-06	Lockett Family House
M: 10-48	Kingsley School	M: 11-10	Luther G. King Farm & Grist Mill, site	M: 13-10-08	Columbus Woodward House (Wims House)	M: 13-34	Clarksburg Negro School, site
M: 10-49	Wilson Lee House (Wilson Mill, site)	M: 11-11	Jacob Hagar House, site	M: 13-10-09	John Leaman House	M: 13-35	Davis House
M: 10-50	Jeremiah Norwood Farm	M: 11-12	Young Family Cemetery	M: 13-10-10	Hammer Hill	M: 13-36	Foreman Hill Houses
M: 10-51	J.N. Soper Log House	M: 11-13	Gartrell Farm (E.Brooke Lee Farm)	M: 13-10-11	W.J. Dronenburg House	M: 13-38	Lloyd & Sarah Gibbs House, site
M: 10-52	Charles Browning Farm	M: 11-14	Biggs Farm	M: 13-10-12	Ed Lewis House	M: 13-45	Pleasant Grove Community Church
M: 10-53	Richard Watkins Log House						
M: 10-54	Perry Browning House						

M: 13-47	Thomas & Henrietta Snowden House	M: 14-31	Noah Watkins Farm	M: 15-03	Rezin Moxley Farm (Buxton Farm)	M: 15-40	Rawlings Mill House
M: 13-48	John Wesley Methodist Church	M: 14-32	King Farm	M: 15-04	Al Baker House	M: 15-41	Clifton
M: 13-49	Benjamin Wims Log House	M: 14-33	Charles Coleman Farm	M: 15-05	Joshua Molesworth Farm	M: 15-42	William Moore House
M: 13-52	Clarksburg School	M: 14-34	Sunrise Farm	M: 15-06	Becraft House	M: 15-43	Richard Kinnard House (H.M. and E. Kunold House)
M: 13-53	Dowden's Ordinary, site	M: 14-35	John Allnutt House	M: 15-07	Brown's Log Tobacco House	M: 15-44	Pat Cuff House
M: 14-01	McKendree Bowman Farm	M: 14-36	Old Pope Farm Barn	M: 15-08	Claggettsville Historic District	M: 15-45	Thomas E. Brown House
M: 14-02	Rezin DuVall Farmhouse	M: 14-37	Laytonville Historic District	M: 15-09	Captain Claggett Farm (Hilton Farm)	M: 15-46	Frank Wilson House (Clifton Link, Sr. House)
M: 14-03	Etchison-Warfield Log House (John Allnutt House)	M: 14-37-01	Layton House (Brooke Grove, Weeks-Hawkins House)	M: 15-10	Gue-Thompson Log House	M: 15-47	Malin Poole House
M: 14-04	DuVall Farmhouse	M: 14-38	Rolling Ridge	M: 15-11	A. Mullinix Farm	M: 15-48	Stone Chimney Ruins
M: 14-05	DuVall Cemetery, site	M: 14-39	Brook Church & Cemetery (Brookegrove Methodist Church)	M: 15-12	Thompson-Woodfield Farm	M: 15-49	Alloway, site & Cemetery
M: 14-06	Jerry Williams Farm	M: 14-40	Harry Griffith House	M: 15-13	Harold W. Mullinix Farm (Maple Heights Farm)	M: 15-50	Sunnyside (Asa Stabler House)
M: 14-07	J.M. DuVall Farm	M: 14-41	Goshen M.E. Church (Goshen Mennonite Church)	M: 15-14	Mullinix Store	M: 15-51	Drayton (Roy O. Hunt House)
M: 14-08	Farmhouse, Silvercrest Subdivision	M: 14-42	Green Hills Farm	M: 15-15	Mullinix Mill, site	M: 15-52	Edgewood II (Swan House)
M: 14-09	Griffith Double Log House	M: 14-43	Zachariah McCubbin Waters Farm	M: 15-16	Brandenberg Farm & Log Tobacco Barn	M: 15-53	Oak Hill
M: 14-10	Etchison-Snyder House	M: 14-44	Waters House & Log Cabin	M: 15-17	William Brandenberg House	M: 15-54	Spencerville Historic District
M: 14-11	Rochester Hawkins House (Scott-Etchison Farmhouse)	M: 14-45	J. Magruder House	M: 15-18	Etchison Graveyard & Abandoned Log House	M: 15-55	Spencer-Carr House
M: 14-12	Hawkins Creamery, site (Yesteryear Farms)	M: 14-46	Allin Log House (Jacob Miller Log Tobacco House)	M: 15-19	Tri-Day Farm (Warthan-Day Farm)	M: 15-56	Michael Murphy House (Great Holly)
M: 14-13	Mobley House (Howard House)	M: 14-47	Butler's Orchard Log House	M: 15-20	Mt. Lebanon Church & Cemetery (Assembly of God Church)	M: 15-57	Collier Estate Log House, ruins (Murphy's Ford LogHs)
M: 14-14	James J. Bowen Farmhouse (Upper Seneca Farm)	M: 14-48	Dr. Ed Hughes Farm (King Farm)	M: 15-21	Madison Etchison House	M: 15-58	Spencer House (A.D. Oursler House)
M: 14-15	Singleton L. King Farm	M: 14-49	Woodfield Farm	M: 15-22	Charles A. Stanley House	M: 15-59	Bennett-Allnutt House (Geo. Bennett House, Plummer Allnutt House)
M: 14-16	Woodfield Historic District	M: 14-50	Benson-Sibley Farm	M: 15-23	Perry G. Etchison House	M: 15-60	Duvall-Kruhm Farm
M: 14-16-01	Hawkins Store & Post Office (Woodfield Country Store)	M: 14-51	Woodburn (Blunt House)	M: 15-24	Wilson Warfield House	M: 15-61	Poole House
M: 14-17	Frederick Bright Farm	M: 14-52	Dr. Washington Waters House (Sycamore Hollow Farm)	M: 15-25	William Doyle Log House	M: 15-62	Columbia Primitive Baptist Church
M: 14-18	Nicholson Farm	M: 14-53	William Thompson House	M: 15-26	Fred Watkins Farm	M: 15-63	Thomas Waters House
M: 14-19	Abandoned Log House	M: 14-54	Davis Mill Ruins and Miller's House (Log)	M: 15-27	Lyde Griffith House & Cemetery	M: 15-64	William Wilcox House & Cemetery
M: 14-20	Lorenzo Watkins House	M: 14-55	Avalon Farm (Blunt Farmhouse)	M: 15-28	L. Moore House	M: 15-65	Waters Gift
M: 14-21	J. Rufus Purdum House	M: 14-56	Goshen Schoolhouse	M: 15-29	Etchison	M: 15-66	Burtonsville Fire Tower (Burtonsville Lookout Tower)
M: 14-22	Purdum Cemetery	M: 14-57	John Jones House & Cemetery (Richard Jones House, Honeysuckle Hill)	M: 15-30	Log Barn	M: 15-67	Maiden's Fancy
M: 14-23	Sylvester Burns House	M: 14-58	Goshen Mills Store & Post Office	M: 15-31	Tyson House (Mrs. W. Chandlee Farm)	M: 15-68	Caleb Carr House
M: 14-24	Snyder House and Hotel (Appleby's Antiques)	M: 14-59	Fertile Meadows	M: 15-32	Brinklow Store & Post Office	M: 15-69	Ashton Acres Farm
M: 14-25	William H. Poole House	M: 14-60	Riggs-Wilcoxon House	M: 15-33	Grove Hill	M: 15-70	Harriet Lea House
M: 14-26	Salem United Methodist Church	M: 14-61	Samuel O. Jones House	M: 15-34	Riverside (Iddings House)	M: 15-71	Margaret Gallagher Prince Farmhouse
M: 14-27	Cedar Grove Historic District	M: 14-62	Albert Stewart House	M: 15-35	Springdale	M: 15-72	Merhle Warfield Dairy Barn
M: 14-28	John Cassassa Farmhouse	M: 14-63	John T. Warfield House	M: 15-36	Springdale South (Crain's Content, Argyle)	M: 15-73	Raymond Warfield Farm
M: 14-29	Joshua Riggs House, site	M: 15-02	Matthew Molesworth Farm	M: 15-37	Tanglewood	M: 15-74	Free Methodist Church Camp Meeting Ground
M: 14-30	William Soper House			M: 15-38	Ashland Brook (Ashland)	M: 15-75	William Phair Property
				M: 15-39	Haines House (Willow Spring Farm)	M: 18-01	Richard Thompson House & Store

M: 18-08	Boyds Historic District	M: 18-30	Sarah Hall House	M: 19-21	Clopper Mill Ruins (Maccubbin's Mill, Woodlands Mill)	M: 20-21	Belward Farm (Ward House)
M: 18-08-01	Boyds-White Grounds Historic District (Boyds Station)	M: 18-31	Edwin Warfield House	M: 19-22	Joseph A. Taney Farm (Strider Log Meathouse)	M: 20-22	Hunting Hill Store & P.O. (Ignatius Beall Ward Farm)
M: 18-08-02	Presbyterian Church at Boyds Station	M: 18-32	Augustus Hanfman House	M: 19-23	William Cromwell House	M: 20-23	Ward-Garrett Cemetery
M: 18-08-03	Mahlon T. Lewis House	M: 18-33	Log House	M: 19-24	Snyder-King Barn #2	M: 20-24	Mills House
M: 18-08-04	Caroline Rine House	M: 18-43	Button Property	M: 19-25	Germantown Baptist Church & Cemetery	M: 20-25	Briggs Farm #1
M: 18-08-05	William Williams House (Dwight Mote House) Reverend T. Davis Richards House	M: 18-44	Little Seneca Viaduct	M: 19-26	C.T. Leaman House	M: 20-26	Briggs Farm #2
M: 18-08-06	(Gloyd House)	M: 19-01	Pleasant Field (Dr. William A. Waters House)	M: 19-27	John Hanson Gassaway House (Hammann House)	M: 20-27	Pleasant View M.E. Church (McDonald Chapel)
M: 18-08-07	Smith Hoyle House (Williams-Gibson House)	M: 19-02	Waters Log House	M: 19-28	Zachariah Dowden House	M: 20-28	St. Rose of Lima R.C. Ch. (St. Rose's Church & Cem.)
M: 18-08-08	Ruble Log House (Jacob Ruble Homestead)	M: 19-03	Horace Waters House (Julian Waters House)	M: 19-29	Seneca Ayr Farm	M: 20-29	Woodlands, site & Smokehouse
M: 18-09	Bonnie Brae (Captain James A. Boyd Farm) Winderbourne (Captain F.P. Meigs House, Totten House)	M: 19-04	Londonderry	M: 19-30	James King Farm	M: 20-30	B&O Railroad Underpass
M: 18-10	White Grounds Community	M: 19-05	Neelsville Presbyterian Church Horace Waters Farm (Trundle & Briggs Farmhouses)	M: 19-31	Crawford-Lippart House Suburban Bank Building (Germantown R.R. Station)	M: 20-31	Allen Selby House (Thrift House)
M: 18-11-01	Boyds Negro School	M: 19-06	Watkins Mill, site	M: 19-32	Cider Barrel	M: 21-001	Locust Grove Farm (Rabbitt Farm)
M: 18-11-02	Martha Carter Log House Duffin Family Home (Addison Duffin Homestead)	M: 19-07	E.G. Ward Farm	M: 19-33	Chevron Gabled Barn	M: 21-002	Old Gaithersburg
M: 18-11-03	Duffin-Hebron House	M: 19-08	Ricketts Cemetery	M: 19-34	Wesley Hargett Farm	M: 21-003	Summit Hall (Summit Hall Turf Farm)
M: 18-11-04	John Wesley Dorsey House, site	M: 19-09	Waring Viaduct	M: 19-35	Remus Dorsey Tenant House	M: 21-004	Nathan J. Walker House
M: 18-11-05	Joshua Duffin House, site	M: 19-10	Waring-Crawford Farm	M: 20-01	Waters-Dorsey House (& Cemetery)	M: 21-005	Washington Grove H.D. (Washington Grove/Oakmont)
M: 18-11-06	Nathan Duffin House, site Gibbs-Coates House (William Gibbs Homestead)	M: 19-11	Log Cabin	M: 20-02	Shaw Cemetery	M: 21-005-01	McCathran Hall
M: 18-11-07	Lockett Family House, site	M: 19-12	Germantown Historic District	M: 20-03	Nathan Dickerson Farm (Green Farm)	M: 21-006	Kentland (Tschiffely-Kent Farm, F.A. Tschiffely Farm)
M: 18-11-08	Odd Fellows Lodge	M: 19-13	Germantown Historic District	M: 20-04	Snouffer Schoolhouse	M: 21-007	C.G. Statler House
M: 18-11-09	John & Belle Duffin House St. Mark's U.M. Church (St. Mark's M.E. Church)	M: 19-13-01	Madeline V. Waters House	M: 20-05	Uriah Bowman House	M: 21-008	Farris House
M: 18-11-10	St. Mark's M.E. Church Parsonage	M: 19-13-02	Pumphrey Store	M: 20-06	Day Farm Barns	M: 21-009	T-shaped Frame House-DeSellum & Francis Aves.
M: 18-11-11	Stivers-Hawkins House	M: 19-13-03	Liberty Milling Co.	M: 20-07	Emory Grove Camp Meeting Grounds	M: 21-010	Frame House
M: 18-11-12	Edward Taylor School	M: 19-13-04	Bungalows	M: 20-08	Emory Grove M.E. Church	M: 21-011	House with Bargeboards
M: 18-11-13	Williams-Diggins House	M: 19-13-05	Pumphrey-Matenev House	M: 20-09	Mineral Springs Houses	M: 21-012	House with Shingled Gable
M: 18-11-14	Blanche Williams House, site	M: 19-13-06	Upton Bowman House	M: 20-10	Sylvester Thompson Store & Woodward-Vollmer House	M: 21-045	Colonial Revival Frame House-Office
M: 18-11-15	Americus Dawson Farm	M: 19-13-07	Wallich-Heimer House Hoyle Farm Log Cabin (Henry Musser Farmhouse)	M: 20-11	Fields-King Farm	M: 21-088	Late Victorian Frame House
M: 18-11-16	Americus Dawson Tenant Farm	M: 19-14	Richter House	M: 20-12	Watkins Farmhouse Monument Hill (Daylily Farm, Peters House, Mtn. View Hill)	M: 21-089	Late Victorian Frame House
M: 18-11-17	Brownstown Historic District	M: 19-15	Richter-King Farm	M: 20-13	Gaither-Howes House	M: 21-090	Early 20th Century Bungalow
M: 18-11-18	Brownstown School House	M: 19-16	Old Germantown	M: 20-14	Heater-Crown Farm	M: 21-091	Stone & Frame House
M: 18-27	Francis Asbury Church	M: 19-17	John Leaman Farm	M: 20-15	England-Crown Farm	M: 21-092	Early 20th Century Bungalow
M: 18-28	William Brown House	M: 19-17-01	Old Trinity M.E. Church, site & Cemetery	M: 20-16	Thompson House	M: 21-093	Early 20th Century Bungalow
M: 18-29		M: 19-17-02	Old M.E. Church, South (The Medical Clinic)	M: 20-17	Windy Knoll Farm (Stonestreet Property)	M: 21-094	Early 20th Century Bungalow
M: 18-29-01		M: 19-17-03		M: 20-18	Hunting Hill M.E. Church (Central Baptist Church)	M: 21-095	Colonial Revival Frame House
M: 18-29-02		M: 19-18	Snyder-King Barn #1	M: 20-19		M: 21-096	Late Victorian Frame House
M: 18-29-03		M: 19-19	F. Gusendorf Log House (Dunn Log House)	M: 20-20		M: 21-097	Early 20th Century Bungalow
		M: 19-20	William Musser House, site & Barn			M: 21-098	Late Victorian Frame House
						M: 21-099	Colonial Revival Frame House
						M: 21-100	Early 20th Century Bungalow

M: 21-105	Late Victorian Barn	M: 21-175	Fletcher House (Crawfordtown)	M: 22-32	Gas House and Watergate Phone Booth	M: 23-030	Charles Griffith House, ruins
M: 21-107	Bungalow	M: 21-176	Gartner-Patterson House (Crawfordtown)	M: 22-33	Derwood Railroad District	M: 23-031	Pleasant Fields (Sundown Hills, Henry Chew, Gaither House)
M: 21-108	Late Victorian Frame House	M: 21-177	WSSC Water Plant (WSSC Pump Houses & Water Tank)	M: 22-34	Eubanks Farm	M: 23-031A	August Priebe Barn
M: 21-109	Colonial Revival Frame House	M: 21-178	Chestnut/Meem Historic Area (Meem's Add. to Gaithersburg)	M: 22-35	Needwood Mansion	M: 23-032	Worthington Tenant House (Cuttin Corners Farm)
M: 21-110	Late Victorian Frame House	M: 21-183	Casey Barn	M: 22-36	Bridge, Needwood Road over Rock Creek (SHA# M-0055)	M: 23-033	Dr. Dwyer House (Bleakwood)
M: 21-111	Gothic Revival Frame House	M: 21-5	Washington Grove Historic	M: 22-39	Concrete Slab Bridge (Redland Rd. over Mill Br.)	M: 23-034	Unity Historic District
M: 21-114	Late Victorian Frame House	M: 22-01	Dorsey Springhouse	M: 23-001	Gaither-Gray House	M: 23-034-02	Colliflower and Harvey's Store (Unity Store)
M: 21-115	Early 20th Century Bungalow	M: 22-02	Pugh Farm	M: 23-002	Leamon-Faucett House	M: 23-035	Rolling Acres (Gaither Farm)
M: 21-119	Colonial Revival Frame House	M: 22-03	Claysville	M: 23-003	Dennis Thomas House	M: 23-036	Alfred Brown House and Mill, site (DeSilva House)
M: 21-125	Inns of Court	M: 22-04	Carson Farm-Log Smokehouse	M: 23-004	Griffith-Hawkins House (Windcrest Farm)	M: 23-037	Triadelphia Historic District
M: 21-126	Ballet 106	M: 22-05	Caven-Sabine Farm	M: 23-005	Conrad Royer Farmhouse (Israel Griffith House)	M: 23-038	Triadelphia Cemetery
M: 21-129	Thomas Fulks House	M: 22-06	Newmantown	M: 23-006	Samuel O. Dorsey Farm	M: 23-039	John Curtis Farm
M: 21-131	Late Victorian Stucco House	M: 22-07	Bussard Farm	M: 23-007	Stone Springhouse Ruins	M: 23-040	Elisha Riggs Stone House
M: 21-133	Late Victorian House	M: 22-08	Holland Farm	M: 23-008	Howard Houses and Cemetery	M: 23-041	Musgrove-Hobbs House (Frederick O. Gaither House)
M: 21-136	Ascension P.E. Chapel	M: 22-09	Jonathan Duley House	M: 23-008	Howard Houses and Cemetery	M: 23-042	Sunshine Historic District
M: 21-140	St. Martins Parish House	M: 22-10	Beane Farm Barn	M: 23-009	Elton	M: 23-043	Frank Brown House
M: 21-141	Gaithersburg Latitude Observatory	M: 22-11	Elizabeth Darby House	M: 23-010	William Belt House	M: 23-044	Bushrod Gartrell House (Gartrell-Oland House)
M: 21-143	Late Victorian Frame House	M: 22-12	Thomas Griffith House	M: 23-011	Howard Chapel and Cemetery	M: 23-045	Greenwood Mills site (Greenwood Millers Cottage & Mill Site)
M: 21-144	Late Victorian Frame House	M: 22-13	Chichester House	M: 23-012	Greendale Farm	M: 23-046	Greenwood and Cemetery
M: 21-145	Gothic Revival House	M: 22-14	Oatland	M: 23-013	Log House	M: 23-047	Pleasant View
M: 21-146	Late Victorian House	M: 22-15	The Ridge (Muncaster House)	M: 23-014	Richard Lansdale House	M: 23-048	The Cedars
M: 21-147	Big A Auto Parts (Lyric Theater)	M: 22-16	Grandby Farm Outbuildings	M: 23-014	Carl Freeman Farm (Sundown Farms, Tusculum)	M: 23-049	Dorsey-Clagett-Owens Cemetery
M: 21-154	Lewis Reed Residence	M: 22-17	Flint Hill II	M: 23-015	Elisha Riggs House (Pleasant Valley Farm)	M: 23-050	Charles A.C. Higgins Farm
M: 21-155	Henry H. Fraley House	M: 22-18	Hazel Cashell Farm Outbuildings	M: 23-016	Edgehill	M: 23-051	Clover Hill
M: 21-158	Salvation Army Community House (Severance House)	M: 22-19	H. Bradley Magruder Farm (Water Farm)	M: 23-017	Abandoned Log Cabin	M: 23-052	Fletcher Veitch Farmhouse
M: 21-160	Colonial Revival Frame House	M: 22-20	Redland Historic District	M: 23-018	Retirement	M: 23-053	Mt. Zion
M: 21-163	R. Dorsey House	M: 22-21	David Griffith House	M: 23-019	Fairview Farms (Ulysses Griffith Farm)	M: 23-054	Bon Secours
M: 21-165	Brookes, Russell, & Walker Aves. Historic District	M: 22-22	Cooke's Range (Pope Farm)	M: 23-020	Nellie Griffith Farm	M: 23-055	Spring Garden
M: 21-167	Garrison W. Beall House	M: 22-23	Cashell Tenant House and Barn	M: 23-021	Crow's Content	M: 23-056	Captain Strain House (Melwood Farm)
M: 21-168	Thomas & Company Cannery	M: 22-24	Robertson Log House ruins	M: 23-022	Riggs House	M: 23-057	Falling Green
M: 21-169	Foster & Rosalie Summers House	M: 22-25	J.H. Cashell Farm (Grantham Farm)	M: 23-023	Magruder Cemetery	M: 23-058	Gustavus Jones Farm and Cemetery
M: 21-170	Chas. Beall, Jr. House (Elizabeth Gaither House)	M: 22-26	Belt Farm	M: 23-024	Walter Magruder House	M: 23-059	Locust Hill
M: 21-171	Charles & Nan Fox House (Fox House)	M: 22-27	Adamson Farmhouse	M: 23-025	Oaks II (Riggs Farm)	M: 23-060	Oakley Log House
M: 21-172	Cole-Ward House	M: 22-28	Muncaster Mill, ruins	M: 23-026	Oaks I (Samuel Riggs Farm)	M: 23-061	Locust Grove II (Howard House)
M: 21-173	Oscar Fulks/Wm. Harding House (Mathias Service Center)	M: 22-29	Prather Cemetery	M: 23-027	E.R. Griffith House	M: 23-062	Belmont, site and Cemetery
M: 21-174	First Baptist Church Property (Crawfordtown)	M: 22-30	Barnesley House	M: 23-028	Fair Hill II (Bowman's Store and House)	M: 23-063	Longwood
		M: 22-31	Avery			M: 23-064	Oak Grove

M: 23-065	Brookeville Historic District	M: 23-098-02	Olney House (Little Olney, Olney)	M: 24-01	Old Seneca Baptist Church (Kirkhill Farm)	M: 25-19	Semmes Farm
M: 23-065-02	Madison House	M: 23-098-03	St. John's Episcopal Church	M: 24-04	Darby House	M: 25-20	John Creamer House
M: 23-066	Bordley's Choice (Merrywood, Brookeville Academy)	M: 23-098-04	St. John's Rectory	M: 24-05	Black Rock Miller's House	M: 25-21	Susan Creamer House (Corner House Farm)
M: 23-067	Pleasant Hill, site and Cemetery	M: 23-099	Samuel White House	M: 24-06	Black Rock Mill	M: 25-22	Beale Estate
M: 23-068	Thomas D. Riggs Farmhouse	M: 23-100	Head Waters Farm (Ickes Estate)	M: 24-08	McAtee House	M: 25-23	Samuel Jones House (Samuel Jones House)
M: 23-069	Brookeville Woolen Mill & House (Riggs House)	M: 23-101	Roseneath	M: 24-09	Frank Higgins House (Hoskinson House)	M: 25-24	Charles and Ira Ward Farm
M: 23-070	Flamingo Farm	M: 23-102	Olney Manor Farm (Menden)	M: 24-10	Samuel Higgins House	M: 26-01	Cronise-Veirs House (Glen Haven House)
M: 23-071	Far View	M: 23-103	John D. Berry House (Wickfield Farm)	M: 24-11	James Brooke Beall House (Rudolph Beall House)	M: 26-02	H.M. Cronise House
M: 23-072	Prospect Hill and Cemetery	M: 23-104	Robert Mackall House (Berry-Mackall House, Morris House)	M: 24-12	Beall-Vinson Farm	M: 26-03	Hurley-Carter House
M: 23-073	Gittings Ha-Ha and Cemetery	M: 23-105	Higgins Tavern/Hotel (Silo Inn Antique Shop)	M: 24-13	First United Pentacostal Church (Pleasant View Ch.#2)	M: 26-04	Two Brothers (C.C. Veirs Farm)
M: 23-074	Antique House Property (Log Tenant House)	M: 23-106	Oakdale-Emory U.M. Church (Emory M.E. Church, South)	M: 24-14	Jones-Claggett Farm	M: 26-05	Watts Branch Miller's House (Veirs Log Cabin)
M: 23-075	Marshall Brown House	M: 23-107	George W. Hyatt Houses	M: 24-15	Mills House	M: 26-06	Poor Farm, site and Cemetery
M: 23-076	James H. Brown House (Bienvenue)	M: 23-107-01	Hyatt-Jones House	M: 24-16	Poplar Grove Baptist Church	M: 26-07	West End Park Historic Area
M: 23-077	Thomas Leishear House	M: 23-107-02	Hyatt-Barnesley House	M: 24-17	DuFief Mill, site (Glenwood Mills, Old Mill Farm)	M: 26-08	Rose Hill
M: 23-078	St. Luke's Episcopal Church & Brighton Grange Hall	M: 23-108	Brooke Manor (James Barnesley House, Brooke Johns Farm)	M: 24-18	Andrew Small Academy, site	M: 26-09	Bingham-Brewer House (Casey House)
M: 23-079	Roslyn (Henry Stabler House, Roslyn Bank Barn)	M: 23-109	Emory Church and School	M: 24-19-01	Darnestown Presbyterian Church & Cemetery	M: 26-10-04	Woodlawn Hotel (Chestnut Lodge Administration Bldg.)
M: 23-080	Brown House and Cemetery	M: 23-110	Childs House	M: 24-31	Nathaniel Claggett Farm (Sunrise Farm)	M: 26-10-07	Frank Higgins House
M: 23-081	Holland Farm (Landgate)	M: 23-111	Muncaster Miller's House (Nathan Shaw House)	M: 24-32	Esworthy House (Twin Oaks, Haywire Farm)	M: 26-10-18	England's Cottage (Stackhouse Property)
M: 23-082	Grafton Holland Farm (Sunnymeade Farm)	M: 23-112	Sycamores	M: 25-01	Garrett Farm	M: 26-10-28	Judge Woodward House
M: 23-083	Log House Ruins & Boundary Marker	M: 23-113	Norbeck Historic District	M: 25-02	Garrett Farmhouse (Maple Spring Farm)	M: 26-10-36	Montgomery Country Club
M: 23-084	Brooke Meadow	M: 23-113-01	Mt. Pleasant Church	M: 25-03	Ward Family Cemetery	M: 26-10-40	Jerusalem M.E. Parsonage
M: 23-084-01	Ellicott Mine	M: 23-113-02	Norbeck Colored School	M: 25-04	Heather Crown House	M: 26-10-56	Reiche Cottage/Stone House
M: 23-085	Fairfield	M: 23-113-03	Frame Farmhouse	M: 25-05	E.M. Davis General Store and Hunting Hill	M: 26-10-59	Turner-Osgood House
M: 23-086	Brighton Centennial Methodist Church	M: 23-113-4	White's Hardware Store and Residences	M: 25-06	F.J. Hurl Farmhouse (Amberlea Farm)	M: 26-10-60	Dawson-Nicewarner House
M: 23-087	Richard Lea House (Shippen House)	M: 23-114	Charles Anderson House	M: 25-07	Potomac Horse Center (Z.N. Jones House)	M: 26-10-65	Frank Williams House (Beard House)
M: 23-088	George L. Stabler Farmhouse	M: 23-115	Willow Grove	M: 25-08	Mt. Prospect (Moses Montgomery House)	M: 26-10-66	John Higgins House
M: 23-089	Walnut Hill (Rivermist Kennels)	M: 23-116	Woodburn	M: 25-09	W.H. Poole Farm	M: 26-10-67	Stone-Goodson House
M: 23-090	Riverton	M: 23-117	Beall House (Flint Hill I)	M: 25-10	Travilah Historic District	M: 26-10-68	Magruder Sisters House
M: 23-091	Chandlee Miller's House	M: 23-118	Amersley Holland House and Store (Red Door Country Store)	M: 25-10-01	Travilah Hall (Travilah Town Hall)	M: 26-10-78	Gates House
M: 23-092	Della Brooke (Brother's Content)	M: 23-119	T.R. Moore House	M: 25-10-02	Travilah Baptist Church	M: 26-10-79	Charles Beard Bungalow (Rand House)
M: 23-093	Sharon (Brooke Grove Nursing Home)	M: 23-120	Dr. Bird House	M: 25-11	Duckett Stables (Wesley L. Magruder Farm)	M: 26-10-90	Wilson-Bullard House
M: 23-094	Avalon	M: 23-121	Montgomery County General Hospital	M: 25-12	Query Cemetery	M: 26-10-91	Beard-Moran Cottage
M: 23-095	Marden Lane Houses	M: 23-122	Jacob Allnut Farm (Yesteryear Farm Country Inn)	M: 25-13	Harris House	M: 26-10-92	Brunett House
M: 23-096	Brooke Grove	M: 23-123	Thomas Benson House	M: 25-14	Tobytown Cemetery	M: 26-10-93	Laura Talbott House
M: 23-097	Rockland			M: 25-16	Beall's Mill, site	M: 26-11	Montgomery County Courthouse Historic District
M: 23-098	Olney Historic District			M: 25-18	Elbert Perry Farm (Piney Glen)	M: 26-11-06	B.R. Stone & Jefferson Street Stone
						M: 26-11-06	B.R. Stone & Jefferson Street Stone

M: 26-12	B&O Station Historic District	M: 26-22-07	E.C. Smith House	M: 28-07-01	Miller House	M: 28-37	Union Cemetery
M: 26-12-01	Rockville B&O Railroad Station	M: 26-22-08	Vallonia Bungalow (a Sears House)	M: 28-08	Ingleside (William Henry Stabler, Jr. House)	M: 28-38	Griffith Search House
M: 26-12-02	Jarvis House (Rockville Railroad Station)	M: 26-23	Warwick Montgomery Country House	M: 28-09	Cherry Grove	M: 28-41	Andrew Buskirk House
M: 26-12-03	Wire Hardware and Lumber Company	M: 26-24-01	Johnson-Clarke House	M: 28-10	Free Negro Settlement	M: 28-43	Henry Chaney Property
M: 26-12-04	Brewer-Offutt-WINX House	M: 26-24-02	Bessie Hill House (Stevens House)	M: 28-11	Sandy Spring Historic District Ashton Orthodox Meeting House (Sherwood Library)	M: 28-44	George M. Edwards Farmstead
M: 26-12-05	Spates Bungalow Third Addition to Rockville & St. Mary's Church	M: 26-25	Twinbrook Area - Section 1 - Survey District	M: 28-11-02	Harewood Farm	M: 29-01	John H. Harris Farm & Stone Springhouse
M: 26-12-06	Rockville Park Historic District	M: 26-26-01	Park Street Elementary School	M: 28-11-03	Sharp Street Methodist Church	M: 29-02	Clagett Farmhouse (Harker Preparatory School)
M: 26-13	Rt. 28/Baltimore Rd. Area Chestnut Grove (Christ Child Home, Burgundy Hill)	M: 26-26-02	Richard Montgomery High School	M: 28-11-04	Sandy Springs Friends Meeting House	M: 29-03	Glen Store and Post Office Lucy Connell Farmhouse (Spring Hill Farm, Plummer Farm)
M: 26-13-08	Janeta Houses Survey District	M: 27-01	Rock Spring Milton II (Muncaster Mill site, Muncaster-Winslow Farm)	M: 28-11-05	Auburn Farm Sandy Spring Service Station (Phillips 66 Station)	M: 29-04	Grady Gore Farm (J. Pierce Farmhouse)
M: 26-13-09	Pump House	M: 27-02	Log Cabin	M: 28-11-06	Pen-Y-Bryn	M: 29-05	Marwood (Grady Gore Estate)
M: 26-14	Lincoln Park Area	M: 27-03	Gustavus Cashell House	M: 28-12	Norwood	M: 29-06	John McDonald House (Trespassers W Farm)
M: 26-15	Lincoln Park	M: 27-04	Montmorency	M: 28-13	Woodlawn (Woodlawn Manor)	M: 29-07	Potomac Village Historic District
M: 26-15-01	Haiti (Martin's Lane Survey District)	M: 27-05	A.J. Cashell House	M: 28-14	Snowden Manor Farm (Pleasant Grove) W.L. Cashell Tenant House (Garden Gate Nursery)	M: 29-08-01	Edgar Perry House
M: 26-16	Rock Terrace Elementary School	M: 27-06	Cashell Cemetery	M: 28-15	Llewellyn Fields	M: 29-08-02	Perry Store
M: 26-16-13	Snowden Funeral Home	M: 27-07	Oak Lea Farm (Cashell House) Jacob VanHorn Farmhouse (Frank Willson Place) Layhill M.E. Church, South (Oak Chapel U.M. Church)	M: 28-16	Amberlea Farm (Ed Hill House)	M: 29-08-03	Anson Ball House
M: 26-16-20	Glenview Farm Area	M: 27-08	Layhill Store and Post Office	M: 28-17	Amos Holland Farm (Pleasant View Farm)	M: 29-08-04	Dr. William Pratt House
M: 26-17	Glen View (Rockville Civic Center)	M: 27-09	John R. Champayne Farmhouse	M: 28-18	Montmorency Tenant House	M: 29-09	Dr. Willett House
M: 26-17-01	Warfield-Smith-Brown House	M: 27-10	Parker Farm	M: 28-19	George Bonifant Houses & Cemetery	M: 29-10	Montgomery Clagett Farm (River Oaks Farm)
M: 26-17-02	Rockville Cemeteries	M: 27-11	Houses at Layhill & Atwood Roads	M: 28-20	Thomas Canby House (Rose Hill)	M: 29-11	Potomac Methodist Church and Cemetery
M: 26-18	Rockville Cemetery and Caretaker's House	M: 27-12	Beall Cemetery	M: 28-21	Moore Farm	M: 29-12	Garrett House
M: 26-18-01	Dawson Farm (Rocky Glen) Lyddane-Bradley Farm (Woodmont Country Club)	M: 27-13	Layhill Community Free Methodist Church	M: 28-22	John Leizear Farmhouse	M: 29-13	John C. Meyers House
M: 26-19	Simmons Building	M: 27-14	Aspin Hill Pet Cemetery	M: 28-23	Perrie Leizear House	M: 29-14	Greenbury Jackson House (Julian Stein House)
M: 26-20	Tyson Wheeler Funeral Home	M: 27-15	Baltimore Road Bridge - No. M. 0201 (at Rock Creek)	M: 28-24	The Highlands	M: 29-15	Scotland A.M.E. Zion Church
M: 26-21-01	Halpine Store (Radio Shack)	M: 27-16	Original Veirs Mill Bridge, MD 28 over Batchellors Run (SHA# 15065)	M: 28-25	Joseph Harding House	M: 29-16	Locust Grove I (Samuel Wade Magruder House)
M: 26-21-02	Sprigg Poole House (Doggett House)	M: 27-17	Mary Chandlee House	M: 28-26	W. Plummer Waters House	M: 29-17	Bell's Mill, site
M: 26-21-03	Dixie Cream Donut Shop (Montgomery Donuts) Congressional Airport (Congressional Shopping City)	M: 27-18	George E. Pierce House	M: 28-27	Charles Oursler, Jr. Farmhouse	M: 29-18	Franciscan Center (Kendall Estate, Henry Bradley Farm)
M: 26-21-04	Hunter-Hyatt House (Batz House)	M: 27-19	Mt. Airy	M: 28-28	Richard Leishear House	M: 29-19	Joseph Magruder House (Offutt House)
M: 26-21-05	Frank Tyler House	M: 28-01	Phillip T. Stabler Farm, ruins (Willow Heights)	M: 28-29	Good Hope M.E. Church and Cemetery	M: 29-20	Offutt House
M: 26-21-06	Chambers House	M: 28-02	Adam Noll Log House	M: 28-30	Hopkins-Frey House	M: 29-21	Formstone Houses
M: 26-22-01	Robertson House (Rockville Free Clinic)	M: 28-03	Ebenezer Church, site and Cemetery	M: 28-31	Christopher O'Hare House	M: 29-21-01	Case Brothers House
M: 26-22-02	Fleet Street Houses	M: 28-04	Ashton Historic District	M: 28-32	Mt. Pleasant II (Esther Scott House)	M: 29-21-02	Charles S. Case House
M: 26-22-03	Frame House, Rockville Heights Area	M: 28-05		M: 28-33	Benjamin P. Brown House	M: 29-22	Oaklyn Houses
		M: 28-06		M: 28-34	Walter J. Harding House	M: 29-22-01	Wheatley House
		M: 28-07		M: 28-35		M: 29-22-02	West House
				M: 28-36		M: 29-22-03	Jackson Farmhouse
						M: 29-22-04	Ingalls House

M: 29-23	St. Gabriel's Cemetery	M: 30-11	Timberlawn (Shriver Estate)	M: 31-17	Stoneybrook Drive Bridge	M: 34-06	Estelle Reimer House (Fairland Schoolhouse)
M: 29-24	Samuel Ford House (Charles Ford House)	M: 30-12	Corby Estate (Strathmore Hall Arts Center)	M: 31-19	Bridge - Kensington Parkway over Rock Creek (SHAM0073)	M: 34-07	Elbert Beckwith House
M: 29-25	Lynch House	M: 30-13	Garrett Park Historic District	M: 32-01	Gilmore Mica Mine, ruin	M: 34-08	Julius Marlow House (Bushnell House)
M: 29-26	Carroll School	M: 30-13-02	Israel House (Hill-Avery House)	M: 32-06	Louis L. Brunett House	M: 34-09	St. Mark's Chapel (Paint Chapel)
M: 29-27	Maryland Mine (Great Falls Gold Mines)	M: 30-13-03	Garrett Park Chapel	M: 33-01	Drumeldra	M: 34-10	Conley House (Green Ridge)
M: 29-28	Great Falls (C&O Canal Lock #20)	M: 30-13-04	Garrett Park Town Hall	M: 33-02	Westover (Valdenar House)	M: 34-14	Isaac Burton Jr. House
M: 29-29	Water Supply Building (Waterworks)	M: 30-13-05	Garrett Park School	M: 33-03	St. Andrew's Chapel, site and Cemetery (Colesville Cemetery)	M: 34-17	Lacy Shaw House
M: 29-30	Great Falls Tavern (Crommelin House)	M: 30-14	Garrett Park Day Care Center)	M: 33-04	Chevy House	M: 34-23	John Norton House
M: 29-31	Old Anglers' Inn	M: 30-15	Linden Oak	M: 33-05	Milimar (Girl's Gift, Lazenby Home)	M: 35-01	Bohrer House
M: 29-32	(Anglers Association Club House)	M: 30-16	Wild Acres (Grosvenor Estate)	M: 33-06	Kemp's Mill, site	M: 35-02	Ayrlawn Farm (Mahlon H. Austin House, Ayrlawn School)
M: 29-33	Cropley Houses	M: 30-17	Arnolda Estate (Bethesda Health Center)	M: 33-07	(Lechliders Mill, Claysville Mill)	M: 35-03	Keiser House (Alta Vista)
M: 29-34	Rock Run Gold Mines	M: 30-18	Montgomery Bean House	M: 33-08	Benjamin Fawcett House	M: 35-04	Locust Hill (Clifford House, Samuel Perry House)
M: 29-35	William Hill Houses and Store	M: 30-19	Mt. Zion Baptist Church	M: 33-08-01	(Elizabeth McCulloch House)	M: 35-05	Bethesda Meetinghouse & Cemetery (Temple Hill Baptist Ch.)
M: 29-36	Potter Farmhouse	M: 30-20	(Church in the Wildwood)	M: 33-09	Valley Mill House	M: 35-05	Bethesda Meetinghouse & Cemetery (Temple Hill Baptist Ch.)
M: 29-37	Saunders House (Ellerslie)	M: 31-01	Davis Farm	M: 33-10	Springbrook Estates	M: 35-06	Cedarcroft (Parker Estate, Goodwill Inc. Headquarters)
M: 29-38	Hermon Presbyterian Church	M: 31-02	Georgetown Preparatory School	M: 33-11	John T. Bean House (Blair Lee, III House)	M: 35-07	Stone Ridge (Country Day School of the Sacred Heart)
M: 29-39	Glenmore	M: 31-03	(Our Lady of Lourdes Chapel)	M: 33-12	Shaw House (Quaint Acres)	M: 35-08	Bethesda Naval Hospital Tower Block
M: 29-40	Gibson Grove A.M.E. Zion Church	M: 31-04	Culver Farm (Woodburn Estates)	M: 33-13	George McCeney House	M: 35-09	George F. Peter House (National Institutes of Health)
M: 29-41	Magruder Blacksmith Shop	M: 31-05	Hardy House (Mount Calvert)	M: 33-14	McCeney Farmhouse	M: 35-10	Hayes Manor
M: 29-42	Stoneyhurst	M: 31-06	Subbs House	M: 33-15	Colesville School (Colesville Health Center)	M: 35-11	Chevy Chase Lake Trolley Station (Grandma's Antiques)
M: 29-43	(Samuel's Delight, Samuel Magruder House)	M: 31-07	(Park Police Headquarters, M-NCPPC)	M: 33-16	Rachel Carson House	M: 35-12	Woodend (Wells Estate, Audubon Society Headquarters)
M: 29-44	Stoneyhurst Quarries	M: 31-08	Mitchell House	M: 33-17	White Oak Main Administration/Lab Bldg. (Bldgs. #1-4)	M: 35-13	Chevy Chase Historic District
M: 29-45	Magruder's Mill Ruins (Cabin John Mill)	M: 31-08-01	Mitchell House	M: 33-18	White Oak Cafeteria/Auditorium (Bldg. #5)	M: 35-13-01	Corby Mansion (Ishpiming, Mount Corby)
M: 29-46	Robert Llewellyn Wright House	M: 31-08-02	B&O Viaduct & Newport Mill, site	M: 33-19	White Oak Ordnance Environmental Lab. (Bldg. #20)	M: 35-14	Old Bethesda Commercial District
M: 29-47	Trolley Transformer Station	M: 31-08-03	Kensington Historic District	M: 33-20	White Oak Technical-Public Works Shop (Bldg. #25)	M: 35-14-01	Old Bethesda Commercial District
M: 29-48	(Trolley Substation)	M: 31-08-04	Capitol View Park	M: 33-21	White Oak Explosives Laboratory (Bldg. #30)	M: 35-14-02	Bethesda Women's Market
M: 29-49	Albert Allen House	M: 31-09	Forest Glen Historic District	M: 33-22	White Oak X-Ray and Plastics Lab (Bldg. #70)	M: 35-14-03	(Mo. Co. Farm Women's Co-op Market)
M: 30-01	David W. Taylor Model Basin	M: 31-10	John T. Knott House	M: 33-23	White Oak Marine Barracks (Bldg. #90)	M: 35-14-04	Madonna of the Trails
M: 30-02	Washington Aqueduct	M: 31-11	Shepard S. and Emma Everett House	M: 33-24	Robert B. Morse Water Filtration Plant	M: 35-14-05	Little Tavern
M: 30-03	Wilkins Estate (Parklawn Cemetery)	M: 31-12	(Baldwin House)	M: 34-01	Donald D. Shepard House (Pope House)	M: 35-14-06	Bethesda Cinema
M: 30-04	Montrose Schoolhouse	M: 31-13	Forest Glen P.O. and Country Store	M: 34-02	Smithville Colored School	M: 35-14-07	Bethesda Theater Complex
M: 30-05	Gaegler House (Rammed Earth House)	M: 31-14	(Fowler's Market)	M: 34-03	(Colesville Colored School)	M: 35-14-08	Bethesda Post Office (Darcy's Store)
M: 30-06	Smokehouse	M: 31-15	Glen Castle Apartments (The Castle)	M: 34-04	Burtonsville Baptist Church	M: 35-14-09	Brooks Photographers
M: 30-07	Holly Oaks				(Burtonsville School House)	M: 35-15	Community Paint and Hardware
M: 30-08	Uncle Tom's Cabin (Riley House)				Liberty Grove U.M. Church		Leland Shopping Center (Tudor Shopping Center)
M: 30-09	Luttrell Estate				Pease House (Duvall House)		C&P Telephone Co. Building
M: 30-10	Wall Estate				McKnew House		Schoolhouse
M: 30-11	Mantouri Estate						
M: 30-12	Rainbow Motel						

M: 35-16	C.W. Lansdale House (Landon School)	M: 35-55	King-Sutton House	M: 36-21	Montgomery Blair High School	PG:61-12	Sellman House (Thomas Beall House, USDA Residence)
M: 35-17	Granger Estate (Holton-Arms School)	M: 35-56	Hurley-Sutton House	M: 36-22	Woodlin Elementary School	PG:61-13	Gallant House
M: 35-18	W. Lynch House	M: 35-57	Gilliland-Bloom House	M: 36-23	Montgomery Hills Shopping Center	PG:61-14	Hutchison House
M: 35-19	William Dowling House (Graceland)	M: 35-59	Bonfield's Service Garage	M: 36-24	Art Deco Corner Store	PG:61-15	Storck House
M: 35-20	C&O Canal Lock #10 and Lockhouse	M: 35-60	MD 410 near MD 355 Bridge, Bethesda (#15058)	M: 36-25	Community Food Store & Tradesman Tavern	PG:61-16	Parker-Malin House
M: 35-21	C&O Canal Lock #8, Lockhouses, and Log Houses	M: 35-61	George Washington Memorial Parkway (Clara Barton Pkwy)	M: 36-27	Iva's Market	PG:61-17	B.A.R.C., Range 3, Building 009
M: 35-22	Oakmont (Rammed Earth House)	M: 35-64	B&O Railroad Bridge #3	M: 36-29	Rock Creek Railroad Trestle	PG:61-18	B.A.R.C., Range 2, Building 010
M: 35-23	Cabin John Hotel Gas House	M: 36-01	National Park Seminary H.D. (Walter Reed A.M.C. Annex)	M: 36-30	Talbot Avenue Bridge	PG:61-19	B.A.R.C., Range 1, Building 011
M: 35-24	Reading House (Oakdale Villa)	M: 36-02	Linden Historic District	M: 37-01	Sligo Creek Waterworks, site	PG:61-2	Orme-Shaw House (Culver House)
M: 35-25	Clara Barton House	M: 36-02-01	Center H. & Annie E. Lawrence House	M: 37-02	Davis Graveyard & Presidents' Tree	PG:61-20	North Farm Survey District (B.A.R.C.)
M: 35-26	Chautauqua Tower	M: 36-02-02	Ira Jones House	M: 37-02	Davis Graveyard & Presidents' Tree	PG:61-27	Bridge, MD Rt. 212 over Indian Creek (SHA# 160038)
M: 35-27	C&O Canal Lock #7 and Lock Keeper's House	M: 36-02-03	Lewis S. & Annie A. Smith House	M: 37-03	Takoma Park Historic District	PG:61-3	Samuel Beall House (Crescent Nursery)
M: 35-28	Sycamore Island Club	M: 36-02-04	Enos Keys House	M: 37-03-02	Thomas-Siegler House	PG:61-4	Beltsville Baptist Church (Beall House)
M: 35-29	Baltzley Castles	M: 36-03	Meadowbrook Riding Stable (Rock Creek Stables)	M: 37-03-03	Colonial Revival Frame House	PG:61-5	Jones-Hoyert-Mullikin House
M: 35-30	Fort Sumner, site	M: 36-04	Woodside Historic District	M: 37-03-04	Carroll House	PG:61-6	Bowman Houses
M: 35-31	Cabin John Right-of-Way (Brookmont Trolley R-O-W)	M: 36-04-01	Grace Episcopal Church Cemetery & Confederate Monument	M: 37-03-05	Brown-Whitmer House	PG:61-6a	Emmanuel Methodist Church (Emanuel Methodist Church)
M: 35-32	Battery Bailey (Civil War Earthworks)	M: 36-05	The Silver Spring	M: 37-03-07	Milmoe Property	PG:61-6b	Emmanuel Church Parsonage (Bowman House)
M: 35-33	Shoemaker Cemetery (Crestview Subdivision)	M: 36-06	Jesup Blair House-Local Park	M: 37-04	Washington Adventist Hospital (Washington Sanitarium)	PG:61-7	Dr. Charles Fox House (Coffin House)
M: 35-34	Boundary Stones - DC and MD	M: 36-07	Old Silver Spring Commercial Area	M: 37-07	MD Rt. 195 Bridge over Sligo Creek	PG:61-8	Beltsville (B&O) Railroad Station
M: 35-35	Milton (Milton Ezekiel House, Old Loughborough House)	M: 36-07-01	Silver Theatre and Silver Spring Shopping Center	M: 37-09	Glickman's Service Station (Takoma Old Town AutoService Center)	PG:61-9	St. John's Episcopal Church
M: 35-36	Somerset Historic District	M: 36-07-02	J.C. Penney Co. Building	M: 37-11	Art Deco Gas Station	PG:62-1	Milner's Apartment House
M: 35-37	Cabin John Aqueduct	M: 36-08	William H. Thompson House (Holy Names Convent-Academy)	M: 37-14	Bridge, Maple Avenue over Sligo Creek (SHA# M-T-01)	PG:62-10	Briarley Military Academy (Humes House, Old Hotel)
M: 35-38	In the Woods (David Fairchild Estate)	M: 36-09	Mrs. K's Toll House	PG: 60-13	Richard Hill Property	PG:62-11	Vansville, site
M: 35-39	Carousel at Glen Echo Park	M: 36-10	Wilbur Farmhouse (Barnes House)	PG: 60-14	Morris and Julia Quill Property	PG:62-12	Ulle House (Kalmia Construction Company)
M: 35-41	Glen Echo Park Historic District	M: 36-11	Old Silver Spring Post Office (U.S. Post Office)	PG: 61-29	Susquehanna Transmisson Company Property	PG:62-13	Walnut Grange
M: 35-43	Bethesda Community Store	M: 36-12	Falkland Apartments (Cupola Building)	PG:60-1	Timanus-Supplee House (Joseph Darby House)	PG:62-14	BeltsvilleAgriculturalCtr-USDA(Nat'l.Agric.Res.Ctr.)
M: 35-44	Stonehaven	M: 36-13	Tastee Diner	PG:60-2	Turner/Bond Family Cemetery	PG:62-15	Johnson-Crump House, site
M: 35-46	Walter P. Johnson House	M: 36-14	Armory Place (The New Armory)	PG:60-3	F.W. Plummer House (Nida House)	PG:62-16	Edward T. Gross House
M: 35-47	Bethesda-Chevy Chase High School	M: 36-15	Silver Spring Railroad Station and Underpass	PG:60-4	Ammendale Normal Institute & Chapel	PG:62-17	Thomas Matthews House
M: 35-47-01	Bethesda-Chevy Chase High School Admin. Bldg.	M: 36-16	Little Tavern	PG:60-5	Queen Anne Victorian House (Ammendale Normal Inst House)	PG:62-18	John Carter House
M: 35-48	Somerset Elementary School	M: 36-17	Old Masonic Temple	PG:60-8	Drury Mansion (The Villa)	PG:62-19	William Tolliver House
M: 35-49	Lynnbrook Elementary School	M: 36-18	Woodside Park Historic District	PG:60-9	Washington, Berwyn & Laurel Railway Culvert	PG:62-2	Donaldson House (James Hicks House)
M: 35-50	Westbrook Elementary School	M: 36-19	Spring Gardens Apartments	PG:61-1	Harrison House (Hancock House, Nicholson House)	PG:62-20	Muirkirk School (No. 2 Colored School)
M: 35-51	Clara Barton School	M: 36-20	Hebrew Academy of Greater Washington (Montgomery Hills JHS)	PG:61-10	Old Beltsville Schoolhouse	PG:62-21	Queen Chapel, site, & Cemetery
M: 35-52	Chevy Chase Elementary School			PG:61-11	McLeod-Forrester House	PG:62-22	Augustus Ross House, site
M: 35-54	Hawkins Lane Historic District					PG:62-23	ROSSVILLE SURVEY DISTRICT
						PG:62-24	William J. Perry House

PG:62-3	Oaklands	PG:66-16	McCarthy-Singleton House	PG:67-20	Bonnet-Duck House	PG:68-12-8	Pribula House
PG:62-4	Snow Hill	PG:66-17	Ritchie Gymnasium (Annapolis Hall)	PG:67-21	Elwood Taylor House (Lofgren House)	PG:68-12-9	Gigous House (Brentwood Animal Hospital)
PG:62-5	Converted Barn at Snow Hill		Lake House (Presbyterian Parsonage, Weary House)	PG:67-22	BERWYN HEIGHTS (CHARLTON HEIGHTS) SURVEY DISTRICT	PG:68-13	OLD MT. RAINIER COMMERCIAL SURVEY DISTRICT
PG:62-6	Montpelier (Snowden-Long House, New Birmingham)	PG:66-18		PG:67-23	Graves-Keleher House	PG:68-14	Bladensburg Dueling Grounds
PG:62-7	Abraham Hall (Rebecca Lodge #6)	PG:66-19	Price-Hodkinson House		Greenbelt Cemeteries (Turner, Walker, Hamilton)	PG:68-15	Fort Lincoln Cemetery
PG:62-8	Muirkirk Furnace, site	PG:66-2	Rossborough Inn (Bldg. #080, Ross's Tavern)	PG:67-3	GREENBELT NATIONAL REGISTER HISTORIC DISTRICT	PG:68-15a	Battery Jamison
PG:62-9	First Telegraph Marker	PG:66-20	Nugent House (Help Center)	PG:67-4	Greenbelt Center School (Greenbelt Community Buildings)	PG:68-15b	The Little Chapel (Mortuary Chapel & Cloisters)
PG:64-1	Snowden Hall (Bldg. #016)	PG:66-21	COLLEGE PARK SURVEY DISTRICT	PG:67-4-1	Roosevelt Center (Greenbelt Commercial Center)	PG:68-15c	Fort Lincoln Cemetery Mausoleum
PG:64-2	Duvall Bridge (Gladwood, site)	PG:66-21-30	Taliaferro House	PG:67-4-2	Sportland (Yarrow/Berwyn Heights)	PG:68-19	D.C. Boundary Marker NE #7
PG:64-3	John Snowden House (USDA Farmhouse #2)	PG:66-21-31	Holbrook House	PG:67-5	Beaverdam Creek Bridge	PG:68-2	Walker-Mowatt Mill Site
PG:64-4	Hayden Farm (USDA Farmhouse #3, USDA Bldg. #522)	PG:66-21-34	College Park Shopping Center	PG:67-6	Civilian Conservation Corps Lodge (Log Lodge)	PG:68-20	Cottage City House (Rural Cottage at the Highlands)
PG:64-5	Perkins Chapel	PG:66-21-35	Little Tavern Shops Restaurant	PG:67-8	Traver-Williams House	PG:68-21	William H. Carlton House
PG:64-6	Spacecraft Magnetic Test Facility (Attitude Ctrl Test Facility)	PG:66-21-36	St. Andrew's Episcopal Church	PG:67-9	Hitching Post Hill (Ash Hill)	PG:68-22	Engineering Research Corporation (ERCO)
PG:64-7	Holst Cabin (PWRC Bldg. #001, Pax. Wildlife Res. Ctr.)	PG:66-21-37	St. Andrew's Episcopal Church Rectory	PG:68-1	HYATTSVILLE (RESIDENTIAL) NATIONAL REGISTER H.D.	PG:68-3	Calvert Family Cemetery
PG:65-1	Powder Mill, site	PG:66-22	Hillcrest (Daniels' House at Autoville)	PG:68-11	North Brentwood A.M.E. Zion Church	PG:68-37	Randall-Dimes House
PG:65-10	D.C. Boundary Marker NE #3	PG:66-23	Elliott-McCall House	PG:68-12	BRENTWOOD SURVEY DISTRICT	PG:68-38	Quander House
PG:65-11	D.C. Boundary Marker NE #4	PG:66-24	Baker-Holliday House	PG:68-12-1	Martin Miller House	PG:68-4	RIVERDALE SURVEY DISTRICT (Riverdale Park)
PG:65-12	TAKOMA PARK NATIONAL REGISTER HISTORIC DISTRICT	PG:66-25	LaValle House	PG:68-12-10	Daniel Magruder House	PG:68-40	Hyattsville Post Office
PG:65-13	Green Hill Overseer's House	PG:66-26	Columbia Apartment	PG:68-12-11	Henning House	PG:68-41	OLD HYATTSVILLE COMMERCIAL SURVEY DISTRICT
PG:65-14	Henry Schulze House (Lone Cedar Farm)	PG:66-27	DANIELS PARK HISTORIC COMMUNITY	PG:68-12-12	Magill House	PG:68-4-1	Harry Smith House
PG:65-15	Rizzo House	PG:66-28	Bowers-Sargent House	PG:68-12-13	Stickell House	PG:68-4-2	Warren House (Oliver Street House)
PG:65-17	Green Meadows Radio Station (WRC)	PG:66-3	College Lawn Station	PG:68-12-14	Martha Miller House	PG:68-4-34	Palmer House
PG:65-4	William Forney House (John Forney House)	PG:66-3	College Lawn Station	PG:68-12-15	Rau House	PG:68-4-47	Kilby-Marquis Bungalow
PG:65-5	Cool Spring Farm (Miller's House)	PG:66-33	College Park Volunteer Fire Department Building	PG:68-12-16	McCafferty House	PG:68-4-57	Charles Earl House
PG:65-6	Adelphi Mill & Miller's Cottage	PG:66-35	UNIVERSITY OF MARYLAND COLLEGE PARK	PG:68-12-17	Keys-Schmidt House	PG:68-4-74	Kastler-Kline Bungalow
PG:65-7	McCormick-Goodhart Mansion (Langley Park)	PG:66-4	College Park Airport	PG:68-12-18	Bernabo House	PG:68-4-77	Paul J. Hidgon House
PG:65-8	Green Hill (Chillum Castle Manor)	PG:66-5	Bloomfield (Deakins House)	PG:68-12-19	Reed House	PG:68-5	Riversdale (Calvert Mansion)
PG:65-9	John Miller House	PG:66-6	Morrill Hall	PG:68-12-2	Bakersmith House	PG:68-5a	Riversdale Slave Quarters
PG:66-1	Brown's Tavern (White House Tavern, Rhodes' Tavern)	PG:66-7	Charles B. Calvert Hall	PG:68-12-20	Brentwood School	PG:68-6	Chambers Funeral Home (Marion Wicks House)
PG:66-10	McDonnell House	PG:66-8	Cory House	PG:68-12-21	Brentwood United Methodist Church	PG:68-61	NORTH BRENTWOOD SURVEY DISTRICT
PG:66-11	Harrison Store & Dwelling (Trolley Stop Shop)	PG:66-9	Woman's Club of College Park (St. Andrews Parish Hall)	PG:68-12-3	Zellers House	PG:68-61-1	Jeremiah Hawkins House
PG:66-12	Embry African M.E. Church	PG:67-1	USDA Bldg. #216 (William Shea House)	PG:68-12-4	Altemus House	PG:68-61-10	Nelson-Queen House
PG:66-13	Lakeland Elementary School (John C. Johnson Elem.)	PG:67-10	Wetherald House	PG:68-12-5	Houser House	PG:68-61-2	Robert Orr House
PG:66-14	Lakeland H.S. (Blessed Andrew Kim Korean Pastoral Mission)	PG:67-16	Pickett House	PG:68-12-6	Violland House	PG:68-61-3	William H. Thomas House
PG:66-15	Buck-Singleton House	PG:67-18	Cissel House	PG:68-12-7	Charles Lightbown House	PG:68-61-4	Mack Brown House
		PG:67-19	Schniedman-Seal House			PG:68-61-5	Owings House
		PG:67-2	Methodist Preaching Place, site (Wild Cat Farm)			PG:68-61-6	Seaburn House

PG:68-61-7	A.A. Randall House	PG:69-5	BLADENSBURG (Port of Bladensburg)
PG:68-61-8	Edith Mason House	PG:69-6	St. Paul's Baptist Church (Free Hope Baptist Church)
PG:68-61-9	McKenzie-Bullock House	PG:69-7	Magruder House (William Hilleary House)
PG:68-63	G.A. Meyer House	PG:69-8	Market Master's House (Ship Ballast House)
PG:68-64	Burrhus House	PG:69-9	Bostwick
PG:68-66	Holland-Brown House	PG:70-1	Magnolia Springs
PG:68-67	Read-Low House (Rose Villa)	PG:70-2	Mangold House (Barrett House)
PG:68-68	Thrift House	PG:70-41	O'Gray House
PG:68-69	Grimes-Clayton House	PG:70-42	Kagle-McDonald House
PG:68-7	H.S. Bowen Houses	PG:70-44	Bagelmann House (Vermillion House)
PG:68-70	Clark-Owsley House	PG:70-45	Eberle House
PG:68-74	MT. RAINIER NATIONAL REGISTER HISTORIC DISTRICT	PG:70-46	Sioussa-Hanback House
PG:68-75	D.C. Boundary Marker NE #5	PG:71A-1	Kramer-Thompkins House
PG:68-76	Freeman House (Paxton House)	PG:LAU-1	LAUREL HISTORIC DISTRICT
PG:68-77	Dorr House	PG:LAU-1-1	Sales' House
PG:68-78	Guy Cottage	PG:LAU-1-2	Longfeller-Lepore House
PG:68-79-1	Poppleton-Roberts House	PG:LAU-1-3	Mary Kraski's Double House
PG:68-79-2	Piggott-Sikken House	PG:LAU-1-4	Marion St. Clair House
PG:68-8	B&O Switching Tower	PG:LAU-1-5	Mary Kraski's Double House #2
PG:68-9	Hyattsville Armory	PG:LAU-1-6	Andre-Hansen Double House
PG:69-1	Spa Spring, site	PG:LAU-1-7	McCeny's Brick Double House
PG:69-10	Evergreen Cemetery	PG:LAU-2	St. Mark's Methodist Episcopal Church
PG:69-12	Riverdale Baptist Church	PG:LAU-3	Ivy Hill Cemetery
PG:69-14	Crawford's Adventure Spring	PG:LAU-4	Avondale Mill (Crabbs Mill)
PG:69-15	Bladensburg Public School #1	PG:LAU-5	Laurel High School
PG:69-16	Peace Cross	PG:LAU-6	Baltimore & Ohio Railroad Station
PG:69-18	Friday House (Lawhome House)	PG:LAU-7	Eisenhower House (Mrs. Ray's Boarding House)
PG:69-19	Browning-Baines House	PG:LAU-8	Gude House (Jardin, Armand House)
PG:69-2	Indian Maid Tavern (George Washington House)		
PG:69-20	Sears House & Store		
PG:69-21	Cherry Hill Cemetery		
PG:69-26	Baltimore-Washington Pkwy (Gladys Noon Spellman Pkwy)		
PG:69-27	Bill Green's Motors, Inc.		
PG:69-28	Publick Playhouse (Cheverly Theater)		
PG:69-3	Ogburn House		
PG:69-4	Old Clements (Butler-Davis House)		