Chapter 5:
Policy and Land Use Recommendations

5.1 Watershed Plan Vision

The strategy for achieving the vision of minimizing runoff, reducing pollution, and restoring the quality of Little Hunting Creek includes a wide range of recommendations. Not only are the capital improvement program projects described in Chapter 4 needed to meet the goals of the watershed management plan, but policy and land use changes are also vital in mitigating the effects of existing development in the watershed. This chapter describes the policy and land use recommendations proposed by the Little Hunting Creek Steering Committee.

The policy recommendations include proposals that would typically involve amendments to the county code and other supporting documents such as the Public Facilities Manual. These recommendations will need to be further evaluated by the county in light of their countywide implications. The current planned approach for processing the policy recommendations from the Little Hunting Creek Watershed Management Plan is to integrate these recommendations with similar recommendations developed with the Popes Head Creek, Cameron Run, Cub Run, and Difficult Run Watershed management plans over the next few years. Specific ordinance amendments would then be drafted in light of other county initiatives and address the common ground that can be established between the various policy recommendations. Land use recommendations will be further evaluated as part of the county's comprehensive plan area plan review (APR) process. Land use recommendations adopted through the APR process will become part of the comprehensive plan.

Staff-year-equivalents (SYE) for each recommended action represent an annualized estimate of the additional staff time for various county agencies to evaluate and implement the recommendation.

5.2 Goals, Objectives, and Actions

The goals put forward in Chapter 4 are restated in this chapter to demonstrate the interaction of these recommendations with the structural and non-structural projects. To facilitate the tracking of all plan recommendations by the community and county agencies, the numbering scheme depicted in the May 2004 final draft plan has been retained.

Goal A: Reduce stormwater impacts on the Little Hunting Creek Watershed from impervious areas to help restore and protect the streams.

Objective A1: Provide incentives for developers to reduce imperviousness.

Rationale: Developers cannot increase the existing peak stormwater runoff rate from development sites, which include the construction, rehabilitation, rebuilding, or substantial alteration of residential, industrial, or commercial properties, unless they can demonstrate that there is adequate capacity for the increased runoff in the downstream drainage system. There should be incentives for the development community, which includes designers, architects, developers, builders, and contractors, to exceed the minimum criteria of matching the existing peak stormwater runoff rate for development and redevelopment projects. Redevelopment projects include substantial alteration, rehabilitation, or rebuilding of a property for residential, commercial, industrial, or other purposes. Additionally, there should be an incentive for runoff from sites to be reduced even if they are not being redeveloped. The environment section of the county's Policy Plan, Objective 2, Policy "k" states, "For new development and redevelopment, apply low-impact site design techniques,…and pursue commitments to reduce stormwater runoff volumes and peak flows…"

The future redevelopment along Richmond Highway is a great opportunity for the county and developers to work together to reduce the existing imperviousness. Any zoning incentives or changes in county ordinances should be coordinated with the Zoning Administration Division of the Department of Planning and Zoning and the Code Analysis Division of the Department of Public Works and Environmental Services. If these incentives are not implemented countywide, they should still be applied in the Little Hunting Creek Watershed.

Action A1.1: Provide a new, expedited review process for developers who include conservation design techniques and low-impact development features in their site plans. This expedited review process should be a separate expedited track from the current process.

Strategy to Achieve Action: The county's zoning and subdivision ordinances may need to be amended for implementing an expedited review process for site and subdivision plans that incorporate a certain minimum percentage of conservation design techniques, low-impact development, or green technologies. It is possible that the board of supervisors can adopt a policy for the expedited site plan review process similar to what was implemented for the expedited site plan review process for commercial revitalization districts.

The Office of Site Development Services (OSDS) staff will need to have an expanded list of approved low-impact development (LID) methods and design objectives and a percentage of use that qualifies a site or subdivision plan for expedited review. The development community and designers will also need to have this list. At this point, this expedited review is only proposed to apply to site and subdivision plan review and would not apply to projects subject to zoning approval and by-right approval. Expedited site plan review would not change the requirements of the county's public hearing process. Any development proposals that go before the Planning Commission and Board of Supervisors will still be subject to relevant state codes for the timing of hearings, decisions, and appeals.

Documentation, training, and public relations will be needed to prepare for implementation of this system. Training must include the Board of Supervisors and its staff, Planning Commissioners, Department of Planning and Zoning (DPZ) staff, and OSDS staff. Training should also be

provided for the private sector to include developers, designers, architects, realtors, large landholders, tenants, etc. Training must be ongoing to provide new staff and developers with information on how to prepare site plans. Develop and codify in the Public Facilities Manual an improved method for quantifying the detention provided with a complete LID layout. Refer to methodologies already in place in Stafford County, Virginia, and Prince George's County, Maryland.

Watershed Benefit: A quantitative evaluation of this action's impact was not made since it is difficult to accurately estimate developer participation in the event that it is implemented. It is anticipated that if this action was implemented, the expedited site plan review would encourage developers to implement conservation design techniques and low-impact development methods that would help control the peak runoff from frequent small storms. Controlling the runoff from frequent small storms will help to reduce the amount of erosion in the streams. For example, if the county allowed the expedited review process for projects that implement LID technologies for 10% of their project's impervious areas, there would be an approximate 182-cubic-foot reduction in runoff volume for each project acre. This example assumes that the LID is designed to detain and treat the first half inch of runoff.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Action A1.2: Provide zoning incentives for developers to reduce imperviousness.

Strategy to Achieve Action: Provide the following incentives for those developers who exceed the minimum runoff reduction standard by 10% if there is a requirement for net reduction. If the runoff reduction program is voluntary, provide these incentives to developers who reduce post development runoff for already developed sites by 10%. The implications of these zoning incentives will need to be considered in coordination with county land use, transportation, and revitalization goals. The zoning incentives proposed below would need to be added to the county code, if implemented, and will require extensive coordination with the Zoning Administration Division of DPZ.

In addition to parking minimums, add a parking maximum so that parking is not overbuilt. In addition to incentives, developers should consider marketing assets of green sites and possibly charging higher rents for sites that are in green developments (as is done for ecologically friendly housing developments). This may be especially palatable to businesses that benefit from being seen as green (e.g., Whole Foods Supermarket).

Recommended Incentives:

- Allow zero setbacks to property lines (side yards) on one side of a building. Allowing zero setbacks should work to result in impervious area reduction and not increase development densities.
- Reduce parking requirement minimums by 20% for commercial developments. This incentive should be evaluated on a case-by-case basis by the county and take into consideration the actual use of the development and potential impacts to surrounding areas.

- Provide for an additional story on the buildings by way of floor area ratio and bulk plane provisions.
- If a stormwater user fee is instituted in the future, provide a reduced rate for LID sites.
- Provide density bonuses, such as allowing 10% more units per acre for residential construction or allowing a 30% to 40% increase in the floor area ratio for commercial construction. However, additional densities must not increase the building footprint and should allow for more onsite integration of LID practices. Other factors, such as air pollution, impacts on traffic and transportation, and impacts on public schools, should be considered when evaluating the benefit of this incentive.

Watershed Benefit: A quantitative evaluation of these zoning incentives was not made since it is difficult to accurately estimate developer participation in the event that they are implemented. However, for every impervious acre that is reduced for a development project, there would be over an approximate 65% reduction in runoff, assuming that area that would have been changed to an impervious land use would remain a pervious land use. Zoning incentives would benefit the watershed by encouraging developers to reduce their site imperviousness, which in turn, would reduce the stormwater runoff that causes stream erosion and nonpoint source pollution.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Objective A2: Require commercial and residential redeveloped sites to have an effective imperviousness that reduces the post-development runoff rate and volume to a targeted percentage below the pre-development runoff rate and volume.

Rationale: Current regulations require that the post-development runoff rate not exceed the pre-development runoff rate. However, similar to many older urban watersheds, much of the Little Hunting Creek Watershed was developed before stormwater controls were required. Redevelopment of sites may result in the same level of untreated runoff water, thus preventing realization of net improvements to the watershed condition.

Action A2.1: Amend the county erosion and sedimentation control ordinance, Chesapeake Bay Preservation ordinance, and other applicable ordinances to require that commercial and residential redevelopment of sites demonstrate a 10% net decrease in runoff. A 10% reduction was selected because it will make a significant difference in reducing runoff without being unmanageable or cost prohibitive for developers. The county may also consider graduated incentives, such as those mentioned in the previous action, for projects that exceed the 10% minimum.

Strategy to Achieve Action: The Virginia Stormwater Management Law under section § 10.1-603.7 states that localities are authorized to adopt more stringent stormwater management regulations than those necessary to ensure compliance with the state's minimum regulations, (with the exception of regulations related to plan approval) provided that the more stringent regulations are based upon the findings of local comprehensive watershed management studies, and that prior to adopting more stringent regulations, a public hearing is held after giving due notice.

The ordinance amendment could be written to apply only to the Little Hunting Creek Watershed with a recommended overlay district for the Richmond Highway commercial corridor, or it could be written to apply to all watersheds in the county. If implemented countywide, each watershed should have its own calculated target reduction percentage. The targeted percentage of reduction should be the same for all subwatersheds in a watershed to make it easier for the county to administer the requirement.

Based on input from the Southeast Fairfax Development Corporation, it could be conservatively estimated that within the Richmond Highway corridor, approximately 25% of the commercial properties may be redeveloped over the next 25 years. The stormwater reduction overlay district would target those properties to reduce their redeveloped imperviousness or to implement BMPs to achieve the desired runoff reduction. The county should partner with the Southeast Fairfax Development Corporation to help developers comply with this recommended action. Current redevelopment sites that may have opportunities for the county to work with developers to implement this strategy and set a positive example for the future include the Groveton Corporate Center, Holly Acres, Shurguard Storage, ServiceMaster of Alexandria, and Mount Vernon Plaza and South Valley Shopping Centers. Adjacent property owners may want to work to together to manage stormwater collectively which may provide cost savings over separate, onsite facilities.

Watershed Benefit: The benefit to the watershed is a 10% net decrease in the two-year peak runoff from the Richmond Highway commercial corridor overlay district for any properties that are redeveloped. Peak flow reduction benefits for this action are included in the peak flow reductions shown on Map 4.2.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Objective A3: Increase the effectiveness and use of BMPs to reduce impacts from impervious areas.

Action A3.1: Increase the frequency of inspection for private BMPs with maintenance agreements from approximately once every three to five years to annually, and provide education to ensure proper maintenance by owners. For those private sites without maintenance agreements, provide education for owners on why and how to provide adequate maintenance. County-owned BMPs are currently inspected once a year and are not included in this action.

Strategy to Achieve Action: Hire additional inspectors or a contractor to increase the frequency of inspection of private BMPs. Inform both residential and commercial property owners of private BMPs with existing maintenance agreements about the more frequent inspections. Tenants will also need to be notified. Educational materials and training may need to be provided by the county for the residential and commercial property owners of all private BMPs and their tenants. The educational materials should include checklists and schedules for maintenance actions for different types of BMPs and information about additional resources for proper maintenance of a BMP.

Watershed Benefit: Routine inspection and proper maintenance of existing BMPs will help to ensure that they perform as intended. A typical dry detention BMP provides storage to manage runoff volumes to match predevelopment two- and 10-year storm flow rates and may also provide water quality treatment for the first half inch of runoff from each rainfall event. Over a 24-hour period, the pollutant removal efficiency for a properly functioning dry detention basin with a water quality component is approximately 75% for suspended solids, 45% for phosphorous, and 30% for nitrogen. This action will help in maintaining existing conditions and aid in preventing the further degradation of the watershed.

Responsible Party: Fairfax County
Cost: $200,000
Staff: 0.1 SYE

Action A3.2: Amend the county's Chesapeake Bay Preservation Ordinance, storm drainage ordinance, and other applicable ordinances to give the county the authority to require property owners to maintain privately owned BMPs and allow the county to inspect the BMPs for compliance with those ordinances.

Strategy to Achieve Action: If the county does not have a maintenance agreement for a privately owned BMP, then the county is not able to inspect the facility to ensure that it is functioning properly. The total number of private stormwater facilities or BMPs in the watershed without maintenance agreements is unknown. Amendments should be prepared for the existing Chesapeake Bay Preservation Ordinance, storm drainage ordinance, and other applicable ordinances to give the county the authority to require a maintenance agreement from the property owner. Education regarding why maintenance is needed and how to provide it should be given to the property owner. A grace period before the first inspection should be provided to allow property owners to fix their BMPs if in disrepair. If a BMP is not working properly after the grace period, the property owner should be assessed a penalty fee. Hire additional inspectors or hire a contractor to inspect the additional BMPs.

Watershed Benefit: This action will help ensure all BMPs in the watershed are functioning properly which will benefit the watershed by maintaining pollutant removal and control of stormwater runoff as originally designed for the facility, thus preventing the further degradation of the watershed. These benefits are the same as those discussed for dry detention BMPs in Action A3.1.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Action A3.3: Evaluate the current list of recommended BMPs and integrated BMPs (dated October 2, 2001) to determine their effectiveness based on current literature, and revise this list to go beyond those found in the Virginia Stormwater Management Handbook. Porous pavement is permitted for stormwater detention in the county and could be added to the recommended BMP list. Green rooftops could also be added. Details on the applicability and use of porous pavement were distributed to the engineering and development community in a county letter to industry, dated March 2004. These practices are currently in use in Fairfax

County, and adding them to the recommended list will make it easier for developers to submit their site plan for review. As new stormwater management technologies become available in the future, they should also be evaluated, and if approved, added to the county's recommended list. The use of experimental BMPs should be allowed with a system for monitoring their effectiveness so as not to preclude innovation.

Action A3.4: Adopt a comprehensive methodology to quantify the detention and retention achieved for integrated BMPs to enable developers and DPZ/OSDS review staff to consistently and quickly calculate whether adequate stormwater control is achieved. Methods such as those described in Prince George's County Low Impact Development Design Strategies: An Integrated Design Approach and the credit system developed by Center for Watershed Protection for the Maryland Stormwater Design Manual are recommended based on their documented evaluation and support by the regulatory and engineering communities.

Action A3.5: Allow for the siting of integrated LID management practices, such as bioretention, on individual residential lots. Currently, they are only allowed on non-residential lots if they service more than one lot.

Strategy to Achieve Actions: Distribute an industry letter, which can be used to quickly accomplish Actions A3.3, A3.4, and A3.5, or if necessary, amend the Public Facilities Manual.

Watershed Benefit: The benefit of implementing these actions was not quantified, however they will result in more flexibility in the selection and siting of BMPs for developers in the case of Actions 3.3 and 3.5. By allowing the implementation of LID management practices, stormwater runoff can often be treated more directly at the source. The typical LID practice treats the first half inch of runoff, which equals 1,815 cubic feet per acre. Action 3.4 will provide developers and the county with consistency and efficiency during the site plan review process. The benefit to the watershed will be the siting and use of effective BMPs to reduce runoff and nonpoint source pollution.

Responsible Party: Fairfax County
Cost: $600,000
Staff: 0.1 SYE for each action = 0.3 SYE

Action A3.9: Fairfax County staff should not grant waivers of water quality controls for non-bonded lots exceeding 18% imperviousness. Non-bonded lots refer to existing lots that were created with an older development project for which the performance bond has already been released.

Strategy to Achieve Action: In the past, the county often granted waivers to county policy requiring water quality controls for non-bonded lots exceeding 18% imperviousness. Granting waivers to water quality controls for non-bonded lots exceeding 18% imperviousness directly affects water quality in the watershed. County water quality standards and criteria are established based upon an average 18% imperviousness for residential lots. The average imperviousness of residential lots in the Little Hunting Creek watershed is approximately 19%, and water quality controls are absent on most properties that exceed the 18% standard. By no longer granting waivers to this policy, water quality controls will be installed on all residential lots

exceeding the 18% future imperviousness. Adopt a policy of not granting waivers for water quality controls for non-bonded lots exceeding 18% imperviousness. Distribute a memo to all review and permit approving authorities to make them aware of this new policy. A brief training session should also be given on this policy and its enforcement. County personnel should enforce this policy for all future development plans and develop educational materials for property owners that describe ways to reduce site imperviousness.

Watershed Benefit: For every 1% over the maximum 18% imperviousness, this action will result in the treatment of over 100 square feet of imperviousness and approximately five cubic feet of stormwater runoff per lot. In light of the continued mansionization of properties within the watershed, this policy has the potential to make a significant impact on improving water quality.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Action A3.10: Adopt a policy of implementing natural landscaping including native trees and vegetation and green building approaches at all county facilities in the watershed. The county should be a model for implementing these beneficial watershed management approaches so it can set the example for current and future development.

Strategy to Achieve Action: Adopt a policy of implementing natural landscaping and green building approaches, as related to stormwater quality, at future county facilities. Use guidelines developed by the Virginia Department of Conservation and Recreation for natural landscaping and the Environmental Protection Agency for green buildings.

Watershed Benefit: The benefits of this action are the implementation of more suitable landscaping materials for the watershed as a result of using natural landscaping, and water quality and quantity benefits when green building approaches are implemented. Natural landscaping promotes the use of native species, which may not be currently present at county facilities. Green building technologies focus on practices that will provide improved water quality and reduced stormwater runoff, which are significant problems within the watershed.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Action A3.11: The county and the Virginia Department of Transportation (VDOT) should institute an inspection protocol and perform more frequent assessments of ditches, pipes, and outfalls within the watershed every five years and make repairs as necessary.

Strategy to Achieve Action: Based upon the planning team's and advisory committee's review of the watershed, there are numerous locations where ditches require cleaning, pipes are failing, and outfalls are excessively eroded. Appropriate county or VDOT personnel should document these observations and develop maintenance plans to correct deficiencies. County or VDOT field crews should perform a condition assessment of these drainage conveyances and submit a report to the county and VDOT to determine responsibility for correction of observed problems.

Watershed Benefit: Evaluating the condition of existing drainage systems will document the adequacy of those conveyances and prevent future drainage problems. This process will help the county and VDOT identify existing and potential future drainage problems and allow them to develop a prioritized approach to correcting any existing inadequacies and schedule future maintenance projects.

Responsible Party: Fairfax County and VDOT
Cost: $216,000
Staff: 0.1 SYE

Objective A5: Reduce stormwater impacts from existing and proposed roadways based on new countywide watershed management requirements.

Rationale: Roads make up 34% of the total impervious area. As public rights-of-way, they must be designed and maintained to VDOT standards. VDOT applies BMPs that are established for use by the Virginia Department of Conservation and Recreation. The county can request that VDOT meet more stringent standards by establishing a new county stormwater ordinance or amending its existing ordinances. Currently, curbs and gutters are required for streets in subdivisions with lots smaller than 18,000 square feet and for heavily traveled and multi-lane roadways with limited rights-of-way, precluding the use of grassed swales and channeling more water to stormwater structures. In older watersheds, such as Little Hunting Creek, much of the roadway system was developed before stormwater management was required. Thus, new standards and methods are needed to reduce impacts from existing roadways that have no stormwater management controls. Based on current Virginia stormwater management law, the only way to require new stormwater controls for roads is if a road improvement project increases the paved area, thus increasing the net imperviousness.

Action A5.1: Require that road widening projects be designed to control the runoff from existing paved areas that do not have any existing stormwater management controls and reduce the existing peak runoff rate by 5%.

Strategy to Achieve Action: The Virginia Stormwater Management Regulations, section 4 VAC 3-20-101.F, state that if a locality has adopted more stringent requirements or implemented a regional (watershed-wide) stormwater management plan, it may request, in writing, that the Department of Conservation and Recreation consider these requirements in its review of state projects including VDOT projects within that locality. Amend the county erosion and sedimentation control ordinance, Chesapeake Bay Preservation Ordinance, and other applicable ordinances to require stormwater management for existing pavement

The proposed Richmond Highway improvement project would be a good opportunity to reduce the amount of stormwater runoff from existing paved areas that do not have any stormwater controls. The location of the existing pavement area to be controlled by this recommended action is shown on Map 4.1, NLHC8. The control of quantity and quality runoff could be achieved by implementing LID techniques and installing structural BMPs along the proposed improvement corridor.

One possible approach to implement this action would be to size the stormwater management facility based on a desired reduction in flow rate. This approach could include existing and

proposed pavement and be targeted on a subwatershed basis instead of by individual outfalls. This will provide a greater capture of runoff water and mitigate runoff from both old and new road surfaces. Another possible approach would be to reduce imperviousness along the project corridor by providing more efficient access to entrances, removing old pavement instead of abandoning it, or reducing overall pavement footprints.

Minor roadway improvement projects, such as the addition of turn lanes, should be excluded from this proposed ordinance. This is because they typically have small cumulative impacts, often less than 0.10 acres of new imperviousness for each project. Also, the addition of stormwater management controls for minor urban improvement projects would be cost prohibitive and their installation would be extremely difficult, if not impossible, without major improvements to downstream stormwater conveyances.

Watershed Benefit: The benefit to the watershed for this action is a net reduction of 5% in the two-year peak flow runoff from the Richmond Highway roadway. Peak flow reduction benefits for this action are included in the peak flow reductions shown on Map 4.2.

Responsible Party: VDOT and Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Goal B: Preserve, maintain, and improve watershed habitats to support native flora and fauna.

Objective B1: Preserve, restore, and manage riparian buffers to benefit native flora and fauna.

Action B1.4: Evaluate the enforcement and application of the Chesapeake Bay Preservation Ordinance, including the granting of waivers or exceptions, to determine if riparian buffers are being adequately preserved and protected. Changes should be made to the Chesapeake Bay Preservation Ordinance if the intent of the ordinance is not being carried out.

Strategy to Achieve Action: Review the existing policies that may permit construction in the RPA such as allowing the replacement of existing bulkheads or construction of new bulkheads that allow property owners to fill behind the bulkheads (thus changing the floodplain limits). Density calculations allow land area located below low tide to be included as part of the total land area, thus allowing construction on small parcels.

A recent amendment to the Chesapeake Bay Preservation Ordinance gives much of the authority for granting exceptions to the RPA requirements to an independent review committee. It may be appropriate to defer analysis of the waivers and the consideration of any amendments to the Chesapeake Bay Preservation Ordinance concerning the granting of waivers until this committee has developed a significant track record. Upon evaluation of these policies and the granting of waivers, the Chesapeake Bay Preservation Ordinance, wetlands zoning ordinance, and other applicable ordinances may need to be amended which will need to be considered within a countywide context. The review of the Chesapeake Bay Preservation Ordinance should determine if stricter enforcement using civil and criminal penalties is required.

The Code Analysis Division of the DPWES will need to be involved in any amendments to the ordinance. County DPZ and OSDS staff, developers, and property owners should be educated regarding any future changes to the ordinances.

Watershed Benefit: The benefit to the watershed for this action is that the riparian buffer area should not decrease as a result of waivers or exceptions granted to the Chesapeake Bay Preservation Ordinance. The typical quantified benefits of riparian buffers are discussed in Action B1.1.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Action B1.5: Require restoration of vegetation in the riparian buffer for development or redevelopment sites within the RPA that do not have existing buffer vegetation. Native vegetation mixes, suitable for local habitat, should be used.

Strategy to Achieve Action: Revise the Chesapeake Bay Preservation Ordinance amendment to require the planting of trees in the RPA riparian buffers of development sites that have few or no existing trees in the buffer. This ordinance amendment should also be reviewed against requirements detailed in the county's Public Facilities Manual, and the manual should be revised if necessary. The planted trees will count towards the minimum tree cover requirements in the zoning ordinance, i.e. 10% tree coverage for commercial sites, 15% tree coverage for high-density residential sites, and 20% tree coverage for all other residential sites. Guidelines will need to be developed to describe the type of vegetation to be planted in the RPA. The minimum tree cover density in riparian buffer area immediately adjacent to the stream is recommended to be between 40% and 70%. The County Code Analysis Division and the Urban Forestry Division will need to be involved in this action to determine if the existing structure of the ordinance is sufficient to address this recommendation and to help write the amendments to address the tree cover densities recommended in the riparian buffer area.

A future strategy that will require more public support will be to require the planting of new and appropriate species mixes in the RPA riparian buffer in addition to the existing minimum tree cover requirements. This strategy will benefit the stream by providing more trees on development properties within the RPA. The county's Tree Preservation Task Force should be reconvened to study this recommended action and determine other actions that will help meet the goals of the county watershed plans.

Watershed Benefit: This action will benefit the watershed by providing the restoration of riparian buffers which will increase the amount of habitat area, protect the stream bank areas from erosion, and filter pollutants from runoff. Quantified benefits of typical riparian buffers are discussed in Action B1.1.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Objective B3: Preserve, restore, and manage wetlands to benefit native flora and fauna.

Action B3.4: Promote the use of natural shorelines instead of hardened shorelines such as bulkheads or riprap as described in the Wetlands Guidelines prepared for the Virginia Marine Resources Commission (reprinted in September 1993). The construction of replacement bulkheads should go through the wetland permitting process.

Strategy to Achieve Action: Promote natural shoreline protection measures, including bioengineering, through public education workshops and materials targeted at shoreline property owners. Permit applicants should also have to demonstrate that a vegetative or natural solution will not work because of active and detrimental erosion and that riprap or a bulkhead is the only solution. In order to adequately demonstrate that a vegetative or natural solution will not be sufficient to adequately control erosion, the permit applicant must have its claim substantiated by a qualified professional (e.g., a professional engineer). The county wetlands review board should review permits for bulkhead repair and replacement projects. The state should also provide clarification of the phrase "active and detrimental," when used in this context, to the county wetlands review board, so they will have a standard by which to measure the necessity of a proposed project.

Watershed Benefit: The benefit of this action is not quantifiable, but it will help to promote the establishment and health of wetlands along watershed shorelines and improve natural habitats in those areas.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Action B3.6: All impacts to wetlands shall have mitigation such as buying into a wetlands bank or creating compensatory wetlands. Wetland banks used for mitigation shall be deemed appropriate by state regulatory agencies.

Strategy to Achieve Action: The county shall revise the appropriate ordinances to require mitigation for all wetland impacts.

Watershed Benefit: This action will help preserve the remaining wetlands located in the watershed or create new wetlands in the watershed.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Goal C: Preserve, maintain, and improve the water quality of the streams to benefit humans and aquatic life.

Objective C2: Reduce the amount of pollutants such as fecal coliform bacteria, phosphorous, and nitrogen in stormwater runoff.

Action C2.6: Strengthen enforcement of the "pooper scooper" regulation by instituting a $100 fine for violators.

Strategy to Achieve Action: Amend the county code to include the suggested fine to further deter dog owners from allowing their pets to defecate outdoors without cleaning up afterwards. Actual enforcement of this action may prove difficult for occasional violators, but including a fine could further deter this practice. However, frequent offenders could be easily identified and cited for violation.

Watershed Benefit: The potential benefit of this action would be to reduce the amount of fecal coliform in the watershed.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Action C2.7: Require all lawn management companies to participate in the Virginia Water Quality Improvement Program and sign agreements to apply nutrients within established criteria, to better control application rates and timing. Hire companies that have signed these agreements for work at county facilities. Provide a list of these companies to residential and commercial property owners and homeowner associations.

Strategy to Achieve Action: The county code should be amended to implement this action. The requirements for certification should include education of the lawn care retailer or company by the county in the application of fertilizer and then the signing of an agreement with the Department of Conservation and Recreation that states that the company will abide by the proper management methods. As of March 24th, 2004, 53 contractors throughout the state have agreed to safeguard the state's natural resources by following a nutrient management plan approved by the DCR (21 of those contractors are in northern Virginia).

Watershed Benefit: The requirements for enrollment in the Virginia Water Quality Improvement Program are minimal, but the benefits to the watershed are very large in terms of nutrient management. In addition, knowledge that the program exists could foster greater stewardship by homeowners who are more educated about application rates and timing of the application. Based on the program's recent record of accomplishment, it appears to be successful and one that could provide a significant benefit to the watershed.

Responsible Party: Fairfax County
Cost: $216,000
Staff: 0.1 SYE

Goal D: Provide a means for increasing community involvement for long-term watershed stewardship.

Objective D1: Reduce the amount of trash and dumpsites in the watershed to help protect and improve the streams.

Action D1.3: Enforce the solid waste ordinance and erosion and sedimentation control ordinance prohibition against illegal dumping. Target the locations experiencing frequent dumpings of trash and waste and identify private, potentially illegal dumpsites located in the watershed. Impose fines on persons caught dumping illegally, take legal action against the property owners of illegal dumpsites, and require restoration of the sites.

Strategy to Achieve Action: Investigate methods for increasing the enforcement of illegal dumping in the watershed, perhaps by hiring more inspectors or a contractor to perform dumpsite monitoring and investigation of potential illegal dumpsites. One potential illegal dumpsite may be located east of Martin Luther King Jr. Park, as shown on Map 4.1 at SLHC15.

Watershed Benefit: The benefit to the watershed will be less pollution as a result of illegal dumping. This action would help to improve the health and reduce the amount of pollutants in streams within the watershed.

Responsible Party: Fairfax County
Cost: Included in Action C2.4
Staff: 0.1 SYE

5.3 Benefits of Plan Actions

The recommended policy and land use plan actions will provide benefits to the watershed in mitigating the effects of existing development. Most of the recommended policy and land use recommendations were not included in the model because it was difficult to accurately determine the extent of implementation of the action. The policy and land use actions that were modeled included Action A2.1 for the 10% peak flow reduction for 25% of the commercial properties located along the Richmond Highway corridor and Action A5.1 for the 5% peak flow reduction for the Richmond Highway roadway. The modeling results for these actions are included on Map 4.2. These policy actions, along with the other recommended policy actions under Goal A, will help to reduce the peak runoff, especially in the headwater regions. The policy and land use recommendations described under Goals B, C, and D will help to improve the quality of the runoff by improving the enforcement of existing regulations and adding additional requirements for wetland protection, buffer restoration, and control of sources of pollution.

5.4 Implementation of Plan Actions

The recommended policy and land use actions described in Section 5.2 will be reviewed by the county in the next few years to evaluate countywide implications and to compare with similar recommendations provided in other watershed plans in the county. If ordinance amendments are needed, they would be developed to include other county initiatives and address the common ground that can be established between the various policy recommendations. Land use recommendations will be further evaluated as part of the county's APR process. Land use recommendations adopted through the APR process will become part of the comprehensive plan. The 25-year estimated funding requirements for all of the policy and land use action recommendations is $3.8 million.

The first step in developing a logical and feasible implementation schedule was to provide a prioritization of the actions to evaluate how well they met the plan goals. The objective of the

prioritization was to determine which actions best meet the goals of the plan, and the Little Hunting Creek Steering Committee used this information to help prepare the implementation schedule. The following prioritization criteria were used:

1. Peak flow reduction: This criterion describes how much runoff is reduced by the action.
2. Habitat benefit: This criterion describes the amount and type of habitat that is improved or created by the action.
3. Water quality improvement: This criterion describes the amount of water quality improvement.
4. Promotion of watershed stewardship: This criterion describes the amount of community involvement and increase in stakeholder watershed ownership.

The actions in the plan were scored from 1 to 5 for each of the prioritization criteria, with 5 as the best score and 1 as the worst score. The information that was used to score the policy and land use actions according to the criteria included primarily qualitative information. The qualitative assessment evaluated how well an action would meet the criteria. For example, how well would a public education program motivate stakeholders to perform an action that would benefit the watershed.

The reduction of peak flows throughout the watershed is one of the primary goals of the plan, and the peak flow reduction criterion was weighted at 40% to reflect a greater need to have actions that mitigate the effects of the increased runoff from the existing and proposed imperviousness. With this focus in mind, recommendations that targeted the headwaters of the subwatersheds were given higher scores, since they would provide a more significant peak flow reduction benefit. All the other criteria were weighted at 15% and a total score was given for each action. The actions were ranked according to their total score.

Table 5.1 Policy Actions

Project Description and ID	Peak Flow Reduction	Habitat Benefit	Water Quality Treatment	Watershed Stewardship	Total Score
Weighting Factor	40%	15%	15%	15%	
Reduce Existing Runoff from Redevelopment: A2.1	5	1	3	1	2.75
No Waivers for 18% Imperviousness A3.9	3	3	4	2	2.55
Countywide Maintenance Agreement Authority: A3.2	3	1	3	3	2.25
Wetland Mitigation for Impacts: B3.6	2	4	3	2	2.15
Reduce Existing Peak Runoff from Roads: A5.1	3	1	3	1	1.95
Require Buffer Vegetation Restoration for Development: B1.5	1	5	2	3	1.9
Zoning Incentives: A1.2	3	1	2	1	1.8

Project Description and ID	Peak Flow Reduction	Habitat Benefit	Water Quality Treatment	Watershed Stewardship	Total Score
Weighting Factor	40%	15%	15%	15%	
Evaluate CBPA Waivers: B1.4	1	4	2	2	1.6
Promote Use of Natural Shorelines: B3.4	1	4	2	2	1.6
Lawn Management Company Requirement: C2.7	1	2	3	3	1.6
BMP Siting on Individual Residential Lots: A3.5	2	1	2	2	1.55
County Facilities Natural Landscaping and Green Buildings A3.10	2	3	2	2	1.45
Expedited Review Process: A1.1	2	1	2	1	1.4
Evaluate Recommended BMP List: A3.3	2	1	2	1	1.4
Adopt Comprehensive LID Calculation Methodology: A3.4	2	1	2	1	1.4
Strengthen Pooper Scooper Ordinance: C2.6	1	1	2	3	1.3

5.5 Monitoring of Plan Actions

This section describes the monitoring actions and targets for determining the success or failure of the future policy and/or land use related plan actions. The monitoring will help to determine if the plan actions should be modified in the future because of a low success rate or as watershed conditions change.

Action A1.1: Provide a new expedited review process for developers who include conservation design techniques and low-impact development features in their site plans. This expedited review process should be a separate expedited track from the current process.

MONITOR: How many developers apply for and receive expedited review each year?

TARGET: 50% of development site plans using LID and conservation design by 2008 and 60% by 2010.

Action A1.2: Provide zoning incentives for developers to reduce imperviousness.

MONITOR: How many developers apply for and use green development techniques in exchange for incentives? What incentives were most/least popular based on those used in site plans?

TARGET: 50% of developments use green development in exchange for incentives.

Action A2.1: Amend the county erosion and sedimentation control ordinance, Chesapeake Bay Preservation Ordinance, and other applicable ordinances to require that commercial and residential redevelopment of sites demonstrate a 10% net decrease in runoff.

MONITOR: What is the number of sites that were redeveloped with a 10% net decrease in runoff? How can we account for the percentage of peak flow reduction overall (or by subbasin)?

TARGET: 10% net decrease in the two-year peak runoff from redevelopment sites along the Richmond Highway commercial corridor district.

Action A3.1: Increase the frequency of inspection for private BMPs with maintenance agreements from approximately once every three to five years to annually, and provide education to ensure proper maintenance by owners. For those private sites without maintenance agreements, provide education for owners on why and how to provide adequate maintenance. County-owned BMPs are currently inspected once a year and are not included in this action.

MONITOR: What is the number of BMP inspections per year and annual increase in sites inspected as well as compliance (e.g. how many failed to be maintained?)?

TARGET: 100% annual inspection rate achieved by FY 2009.

Action A3.2: Amend the county's Chesapeake Bay Preservation Ordinance, storm drainage ordinance, and other applicable ordinances to give the county the authority to require property owners to maintain privately owned BMPs and allow the county to inspect the BMPs for compliance with those ordinances.

MONITOR: What is the number of private BMPs without maintenance agreements inspected per year and annual increase in sites inspected as well as compliance (e.g. how many failed to be maintained?)?

TARGET: 100% inspection of all BMPs by FY 2008 and improved condition of BMPs.

Action A3.3: Evaluate the current list of recommended BMPs and integrated BMPs (dated October 2, 2001) to determine their effectiveness based on current literature, and revise this list to go beyond those found in the Virginia Stormwater Management Handbook.

MONITOR: What is the number of BMPs added to the list and evaluation of their proper functioning? What is the percentage of site plan applications which use innovative and/or experimental BMPs?

TARGET: Increase the use of new types of BMPs on site plan applications by 33% per year versus previous years.

Action A3.4: Adopt a comprehensive methodology to quantify the detention and retention achieved for integrated BMPs to enable developers and DPZ/OSDS review staff to consistently and quickly calculate whether adequate stormwater control is achieved. Methods such as those described in Prince George's County Low Impact Development Design Strategies: An Integrated Design Approach and the credit system developed by Center for Watershed Protection for the Maryland Stormwater Design Manual are recommended based on their documented evaluation and support by the regulatory and engineering communities.

MONITOR: What is the methodology development and training of DPZ/OSDS staff in methodology and increase in requests from developers to use integrated BMPs?

TARGET: Implement new review and permitting methodologies and processes for use of integrated BMPs by FY 2007.

Action A3.5: Allow for the siting of integrated LID management practices, such as bioretention, on individual residential lots. Currently, they are only allowed on non-residential lots if they service more than one lot.

MONITOR: What is the number of integrated LID management practices projects implemented on residential lots?

TARGET: Allow by FY 2007.

Action A3.10: Adopt a policy of implementing natural landscaping and green building approaches at all county facilities in the watershed. The county should be a model for implementing these beneficial watershed management approaches so it can set the example for future development.

MONITOR: Adopt natural landscaping and green building policy for county facilities.

TARGET: 100% compliance with this policy for new county facilities starting FY 2007 and 100% implementation of natural landscaping at existing county facilities by FY 2010.

Action A3.11: The county and VDOT should institute an inspection protocol and perform more frequent assessment of ditches, pipes, and outfalls within the watershed every five years and make repairs as necessary.

MONITOR: What is the development of an inspection protocol, assessment of the storm drain system, and performance of maintenance and repair?

TARGET: Develop an inspection protocol in FY 2005 and inspect 20% of the stormwater infrastructure every five years beginning FY 2007. Continue the five-year inspection cycle during the life of the plan and beyond.

Action A5.1: Require that road widening projects be designed to control the runoff from existing paved areas that do not have any existing stormwater management controls and reduce the existing peak runoff rate by 5%.

MONITOR: Revision of stormwater management requirements for road projects in Fairfax County and percent reduction in imperviousness

TARGET: 5% reduction in the existing peak runoff rate for the two-year storm for road widening projects.

Action B1.4: Evaluate the enforcement and application of the Chesapeake Bay Preservation Ordinance, including the granting of waivers or exceptions, to determine if riparian buffers are being adequately preserved and protected. Changes should be made to the Chesapeake Bay Preservation Ordinance if the intent of the ordinance is not being carried out.

MONITOR: Number, percentage, and types of waivers granted by independent review committee

TARGET: No waivers granted.

Action B1.5: Require restoration of vegetation in the riparian buffer for development or redevelopment sites within the RPA that do not have existing buffer vegetation. Native vegetation mixes, suitable for local habitat, should be used.

MONITOR: Number of trees planted in buffer areas and percentage increase in canopy coverage

TARGET: 50% increase in the amount of planted buffer area to protect the stream bank areas from erosion and filter pollutants from runoff.

Action B3.4: Promote the use of natural shorelines instead of hardened shorelines such as bulkheads or riprap as described in the Wetlands Guidelines prepared for the Virginia Marine Resources Commission (reprinted in September 1993). The construction of replacement bulkheads should go through the wetland permitting process.

MONITOR: What is the number of total linear feet of existing hardened shorelines, and what is the percentage of total number of linear feet of hardened shoreline converted to natural shorelines?

TARGET: 100 linear feet of new natural shoreline (net) every five years.

Action B3.6: All impacts to wetlands shall have mitigation such as buying into a wetlands bank or creating compensatory wetlands. Wetland banks used for mitigation shall be deemed appropriate by state regulatory agencies.

MONITOR: Mitigation actions for impacts to existing wetlands

TARGET: No net loss of wetlands.

Action C2.6: Strengthen enforcement of the "pooper scooper" regulation by instituting a $100 fine for violators.

MONITOR: Number of fines collected

TARGET: 90% participation of dog owners in picking up pet waste by FY 2029.

Action C2.7: Require all lawn management companies to participate in the Virginia Water Quality Improvement Program and to sign agreements to apply nutrients within established criteria to better control application rates and timing. Hire companies that have signed these agreements for work at county facilities. Provide a list of these companies to residential and commercial property owners and homeowner associations.

MONITOR: Number of lawn management companies participating in the Virginia Water Quality Improvement Program

TARGET: 100% participation of lawn management companies operating in Fairfax County.

Action D1.3: Enforce the solid waste ordinance and erosion and sedimentation control ordinance prohibition against illegal dumping. Target the locations experiencing frequent dumpings of trash and waste and identify private, potentially illegal dumpsites located in the watershed. Take legal action against the property owners of illegal dumpsites and require restoration of the sites.

MONITOR: What is the number of illegal dumping reports received by the county, and what is the number and location of illegal dump sites in the watershed?

TARGET: 100% reduction in illegal dump sites by FY 2020.