4 Watershed-wide Policy and Non-Structural Recommendations

4.1 Introduction

Chapter 4 describes structural projects for the improvement of the Difficult Run watershed that can be implemented through the County's Capital Improvement Program. During meetings with the Difficult Run resident-based Steering Committee and Advisory Committee, a series of policy and land use recommendations were identified that would complement the structural measures in restoring and preserving the watershed.

Most of these recommendations are appropriate for all County watersheds and could be implemented throughout Fairfax County. They include various proposals that would typically involve amendments to the County Code and other supporting documents such as the *Public Facilities Manual*. The current approach for processing the policy recommendations from the *Difficult Run Watershed Management Plan* is to integrate these recommendations with others developed from the watershed management plans for Little Hunting Creek, Popes Head Creek, Cameron Run, Bull Run and Cub Run.

Specific ordinance amendments would then be drafted that factor in other County initiatives and address the common recommendations from all five watershed plans.

The approach used in describing candidate sites for improvements in Chapter 4 has been used below in developing the recommendations. These include recommendations to improve stream conditions, reduce runoff volume or peak flow rates, improve water quality, reduce the potential for flooding, and help preserve areas currently in good condition.

4.2 Stream Restoration

Impairment: Some streams in the Difficult Run watershed are degraded as a result of increased stormwater flow, pollutant loads, channelization, deficient buffers and other causes.

Improvement Goals: The goals of the recommendations in this section are to reduce the direct impacts of disturbances that negatively affect the stream system. Measures that have an indirect effect on streams by changing watershed runoff characteristics are described below in sections 4.3 and 4.4.

Non-Structural Measures:

Non-Structural Measure 4.2.1 Enhance outfall inspections and other interfaces between the man-made and natural drainage systems for scour and erosion and make repairs as necessary. Field work completed during the Difficult Run study showed that existing outfall protection has degraded in many locations. This recommendation if implemented would result in a comprehensive inspection and improvement program to upgrade outfalls and eliminate further scour and erosion.

Non-Structural Measure 4.2.2 Continue and enhance the volunteer monitoring program. Continue supporting training and using volunteers for bioassessments. Look for opportunities to expand the use of volunteers to monitor other measures of stream health, such as reporting flood stages, geomorphic measurements, or water quality testing.

4.3 Hydrology

Impairment: In many areas of the Difficult Run watershed, there are examples of the negative impacts from excessive stormwater runoff caused by impervious surfaces, which include increased volume of runoff, reduced infiltration to groundwater, reduced baseflow in streams, and higher peak flows. Streams may dry up more often, erosion of stream banks may increase, and overall habitat quality may go down.

Improvement Goals: The goal for the policies recommended below is to reduce the amount of imperviousness, or reduce the effects of impervious surfaces on streamflow. These policies should also have a beneficial effect on stormwater runoff quality.

Policy Recommendations:

Policy Action 4.3.1 Evaluate land development regulations to consider setting a maximum impervious percentage for each type of development. Current regulations focus on many aspects of development, but do not specify standards for impervious area. This proposal would set a maximum imperviousness value, depending on the type of development and/or zoning.

Policy Action 4.3.2 Evaluate requesting road widening projects to manage stormwater runoff from the entire roadway, not just the added lane widths. Current standards require that stormwater management for 2- and 10-year detention needs to be provided for any additional imperviousness created in a road reconstruction project. This approach does not mitigate any impacts from older roads built before stormwater management regulations. The recommendation is to request that reconstruction include stormwater management facilities that can manage the entire roadway in the construction zone at a lower volume storm interval such as the 1- or 2-year event for channel protection storage.

Policy Action 4.3.3 Evaluate and implement incentives for the use of porous pavers for seasonal or overflow parking, where appropriate. Many parking areas are designed for peak conditions but remain partially empty for most of the year. This recommendation proposes incentives in the development review process to encourage developers to use pavement systems that allow infiltration for the lightly-used portions of the parking lot.

Policy Action 4.3.4 Evaluate and implement incentives into County ordinances to consider establishing more stringent stormwater quality control standards for redevelopment Ideally, predevelopment conditions for redevelopment would be set at forested or open space conditions, which is similar to the standard for new development However, the new standard should ensure that redevelopment in the County's revitalization Areas and Districts is not precluded or impeded. Further study of this issue is recommended. This proposal would study a revision to the current redevelopment regulations so that redevelopment sites would manage stormwater to the same degree as new development. The long-term effect would be to bring all development in the County to current standards of stormwater management, without reducing opportunities for redevelopment.

Policy Action 4.3.5 Continue efforts to add LID design criteria and keep PFM up to date. The Public Facilities Manual (PFM), which provides design criteria for stormwater management in new development, is in the process of being updated to add LID criteria. This action recommends that updates continue as stormwater management technologies and procedures evolve in the future.

Impairment: While much of Fairfax County was developed prior to stormwater management regulations, a substantial amount of the County is treated by stormwater management facilities. These systems become less effective over time, and may fail completely, if they are not maintained.

Improvement Goals: The policies recommended below will help restore a more natural balance between baseflow and stormwater flow in the streams, increasing the effectiveness of existing stormwater management facilities by enhancing maintenance of publicly-owned systems and increasing inspections of private systems\. While not the primary goal, these policies will also bring about improvements in stormwater quality.

Non-Structural Measures:

> *Non-Structural Measure 4.3.5 Update and expand the County's database of all public and private stormwater management facilities.* Although an enhancement of the database is currently underway, this effort should be sustained on a longterm basis. The first step to enhancing the inspection program is to expand the database of stormwater management facilities to include all facilities in the County. This recommendation will involve research into development plans and stormwater management computations to build a GIS database of stormwater management facilities and the information needed to carry out inspections and estimate their effectiveness.
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> *Non-Structural Measure 4.3.6 Enhance stormwater management inspection, maintenance, and enforcement programs.* Although an enhancement of the inspection program is currently underway, this effort should be sustained on a longterm basis. This action item involves reviewing current inspection standards and improving the County's procedures to increase the frequency of inspections, change the way inspections are done, create maintenance agreements, educate residential and property owners, or provide other assistance in maintaining the existing stock of stormwater management facilities.

Impairment: Two catchments comprising the right fork of Dog Run showed problems of stream erosion found during the stream assessment, high pollutant loads estimated from model results, and flooding identified through public input.

Improvement Goals: The goal for the measure recommended below is to outline a comprehensive drainage study to address all of the issues in the area.

Non-Structural Measures:

> *Non-Structural Measure 4.3.7: Conduct a drainage study and develop an improvement plan for the area.* The drainage study would include hydrologic, hydraulic, and water quality modeling to determine the frequency and cause of stream erosion and flooding, and propose solutions for upstream stormwater management. Upon completion of the study and the selection of feasible alternatives, improvement projects would be initiated to mitigate the existing drainage problems.

4.4 Water Quality

Impairment: Based on field observations, it appears that poor lawn management is contributing excess nitrogen and phosphorus to certain streams through improper fertilizer application.

Improvement Goals: Reduction of nutrient pollutant loads through education and outreach to homeowners and lawn care companies.

Policy Recommendations:

Policy Action 4.4.1 Evaluate and implement incentives that could be applied locally to encourage lawn care companies in Fairfax County to enroll in the Virginia Water Quality Improvement Program. This project would help educate lawn care companies to practice more environmentaly friendly lawn management. Education should include proper application techniques of fertilizer, and other chemicals, to reduce excess chemicals that run the risk of being washed off into streams.

Non-Structural Measures:

Non-Structural Measure 4.4.2 Education and outreach for lawn care. The project would consist of outreach to homeowners to insure that soil nutrients are tested and no more fertilizer is applied than can be taken up by vegetation.

Non-Structural Measure 4.4.3 Golf course nutrient management. Work with golf course managers within the watershed to evaluate turf management practices.

Impairment: Potentially harmful bacteria levels in urban streams are measurably higher than those in less developed areas. There are a number of sources of bacteria, including wildlife, domestic animals, and human sources from leaking sewers, or sewage bypasses and overflows.

Improvement Goals: These policies are intended to reduce the amount of harmful bacteria that reach the waterways.

Non-Structural Measures:

Non-Structural Measure 4.4.4 Enhance illicit discharge and sewer infiltration / inflow removal program to eliminate potential sewer leaks, overflows and illegal cross-connections. Of the harmful bacteria sources mentioned above, human sewage is one that is more controllable than others. This program will help reduce leaks and overflows through a more intensive program to find the sources.

4.5 Flooding

Impairment Areas of the Town of Vienna experience frequent flooding where the mainstem of Wolftrap Creek flows through a developed area bounded by Route 123, Follin Lane, Echols St, and Branch Rd.

Improvement Goals: This measure would provide a more detailed study of the causes and potential solutions for a specific area in the Wolftrap Creek subwatershed, which is beyond the scope of this watershed plan. Based on additional coordination with the Town of Vienna, other drainage problem areas may also be studied.

Non-Structural Measures:

Non-Structural Measure 4.5.1 Conduct a drainage study and develop an improvement plan to reduce flooding. The drainage study would include hydrologic and hydraulic modeling to determine the frequency and cause of flooding, and propose solutions for upstream stormwater management and/or capacity improvements to reduce the frequency and amount of flooding. The final area will be determined via coordination with Vienna. Upon completion of the study and the

selection of feasible alternatives, an improvement project would be initiated to mitigate the existing drainage problems.

No other policies or non-structural measures are proposed specifically to improve or reduce flooding conditions. Many of the recommendations that improve stream hydrology are expected to reduce downstream flooding also. Chapter 4 also outlines many other recommendations to improve or reduce flooding conditions in specific subwatersheds.

4.6 Preservation

Impairment: Streams located in parcels that are undeveloped or slated for redevelopment should be protected because there is a potential that they will be degraded by the effects of urbanization.

Improvement Goals: The goal of these policies is to preserve areas in good condition and minimize the potential to be negatively affected by new development.

Policy Recommendations:

Action 4.6.1 Continue efforts to develop a forest conservation ordinance that will preserve existing woodlands. The County's tree preservation ordinance requires one-for-one replacement of trees removed during development. This policy would work toward a more effective forest ordinance that would preserve the existing woodlands rather than replace them.

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