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~~Planning Commission Recommended Draft – June 2008~~  
~~Mayor and Council Recommended Draft – April 2009~~

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## Chapter 6: The Environment

### Summary of Recommendations

- Review the Rock Creek Watershed Study to ensure that stormwater management, flood control and stream restoration are adequate and safe.
- Encourage Homeowner Associations, Citizen Associations and property owner participation with the City of Rockville’s Stormwater Quality educational and outreach opportunities.
- Encourage Neighborhood Associations to work with City of Rockville staff to educate property owners on the importance of stream buffers, and on the legal responsibility to properly maintain these buffers as written into the Water Quality Protection Ordinance
- Report locations of drainage problems to the Department of Public Works to help to determine patterns and facilitate future mitigation.
- Explore the possibility of conservation easements for suitable properties.
- Recommend prompt removal of diseased trees, even if they cannot be replaced immediately.
- Support retention and expansion of the urban tree canopy through full funding for tree removal and replacement.
- Encourage citizen participation in the reforestation effort.
- ~~Continue to develop and implement a permanent protection policy mechanisms~~ for City-owned parkland ~~and environmentally sensitive areas.~~
- The City of Rockville and private property owners should use environmentally friendly dark sky shielded lighting systems when replacing street and park lights.
- Support the adoption of Montgomery County’s business and commercial recycling program within the City.

### Analysis of Issues

This chapter provides an overview of the existing environmental settings and natural resources for the Twinbrook community and ~~establishes goals and methods on how to enhance and preserve them. This plan~~ recommends sustainable practices for the neighborhood so that parks, open space, streams and tree canopy will exist for future generations.

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At community meetings held in November 2004, Twinbrook residents indicated that they value their environment, appreciate the number of trees within the neighborhood and enjoy their access to recreational facilities and green space.

Several areas of concern were raised during the community meetings, were identified by staff and the Advisory Group, or have emerged in subsequent discussions. These issues include:

- Flooding and stormwater management
- Tree maintenance

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### **Current Conditions**

Twinbrook is bordered to the north by the John G. Hayes Forest Preserve, to the east by Rock Creek Park and to the west by the CSX and metro rail lines. The neighborhood is largely within the Rock Creek watershed, containing several tributaries but no portion of the main stem. Twinbrook is also partially within the headwaters of the Cabin John Creek watershed.

The Twinbrook neighborhood is comprised primarily of single-family residential development with some townhomes and apartments as well as limited commercial areas. The neighborhood is fully developed and changes in the future will come from infill, homeowner improvements and redevelopment possibilities. Twinbrook was developed in the 1940s and 1950s before modern stormwater conveyance and retention requirements were in place.

Environmental resources in Twinbrook include parks and open space, urban tree canopy and open channel streams at Rockcrest Park, Calvin Park and Civic Center Park. Environmental concerns in the neighborhood include stormwater management/drainage, stream restoration, urban runoff quality (pollution prevention and water quality protection), maintaining and improving tree canopy and keeping a sustainable, livable community.

### **Utilities**

#### **Water**

The City of Rockville Department of Public Works hired a consultant to conduct a citywide water distribution master plan (WDMP). The WDMP was completed in 2008 and included a significant amount of field-testing and calibration of a computer model, which integrated all of Rockville's water pipes (180 miles of transmission and grid

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mains). One of the study's main tasks involved analyzing fire flows. The results of the field-testing and computer model simulations found that Rockville has fire hydrants that cannot provide optimal fire flow (1,000 gpm) in residential communities. These results have translated into a water main rehabilitation program that involves a 20-year schedule and over 30 miles of water main replacements.

The WDMP recommended improvement projects, which were prioritized by fire hydrants providing less than optimal fire flows, aging infrastructure and water main breaks. Many of these projects are planned in the Twinbrook neighborhood, where pipes are more than 50 years old. Cast iron water pipes installed in the 1950s have developed flow restrictions, which reduce the amount of available fire flow. The water main rehabilitation program will begin in 2009. Also, the city has initiated a plan to replace all water meters to increase the accuracy of the water meter readings and therefore improve the billing accuracy. The City of Rockville Department of Public Works hired a consultant to conduct a citywide water distribution master plan (WDMP). The WDMP was completed in 2008 and included a significant amount of field testing and calibration of a computer model, which integrated all of Rockville's water pipes (180 miles of transmission and grid mains). One of the study's main tasks involved analyzing fire flows. The results of the field-testing and computer model simulations found that Rockville has fire hydrants that cannot provide optimal fire flow (1,000 gpm) in residential communities. These results have translated into a water main rehabilitation program that involves a 20-year schedule and 33 miles of water main work.

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### Sanitary Sewer

The Twinbrook neighborhood is located in the Rock Creek sewershed. The City completed two Sanitary Sewer Evaluation Studies (SSES) in separate areas of the Rock Creek sewershed, including the Twinbrook neighborhood south of Veirs Mill Road. The SSES found broken pipes, leaking pipe and manhole joints as well as tree root intrusion into the pipes. The Rock Creek sewer rehabilitation program (sewer pipe and manhole lining) began in 2006 and work on the areas identified for rehabilitation from the SSES was completed in 2008. Another SSES is planned for FY 2010 in the portion of the Twinbrook neighborhood north of Veirs Mill Road. In FY 2009, the City's maintenance division began a sewer preventative maintenance program to inspect all of the sanitary sewers in the city once every 10 years using closed circuit television (CCTV) inspection.

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From the CCTV inspections, a condition rating is assigned to the pipes and manholes and rehabilitation is planned. The goal of these studies and inspections is to identify pipes and manholes in poor structural condition and find evidence of that experience inflow and infiltration (I&I). Infiltration occurs when high groundwater seeps into the sewer pipes through cracks and holes in the pipeline, pipe connections and manholes. Inflow occurs when stormwater directly enters the sewer system through roof drains (connected to the sewer system), manhole covers, or illicit storm drain connections into the sewer. I&I increases the flow of extraneous water in a wastewater collection system. Minimizing I&I decreases the amount of extraneous flows in the sewer system and thus reduces the City's operating expenses and may avoid capital expenses associated with replacing pipe to increase capacity for future development. Additionally, there are environmental benefits of keeping the groundwater in the ground and decreasing the amount of flow requiring treatment.

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Additionally, a sewer capacity study is planned for the entire Rock Creek sewershed to determine the existing sewer capacity. The sewer capacity study will aid the City in planning for sewer system upgrades as well as to assess its current system capacity. The study is planned to begin in FY 20098 and will take approximately one year to complete.

### **Stormwater Management**

The majority of the Twinbrook neighborhood lies in the Rock Creek Watershed, with a small portion at Route 28 and Veirs Mill Road lying in the Cabin John Watershed. There are two Montgomery County-owned and managed lakes to the north of Twinbrook: Lake Bernard Frank and Lake Needwood.

Development in Twinbrook occurred prior to the current adoption of Stormwater management laws, and urban runoff in storm drains is not managed through stormwater treatment facilities. In a new development, ponds or filters are used to clean the runoff before it enters the stream system, but in a development as old as Twinbrook, urban runoff water in storm drains is not treated. Retrofits (adding or upgrading stormwater management for existing development) are an option if enough land is available and the location is suitable. Three stormwater management retrofits of existing public stormwater management ponds were constructed just outside of the Twinbrook neighborhood near and in the Redgate Golf Course. These retrofits were completed to improve the condition of a branch of Rock Creek that runs through the Twinbrook neighborhood near the Glenview Mansion.

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The Rock Creek Watershed Management Plan was adopted in April 2000. ~~The~~ A new watershed study for Rock Creek is scheduled ~~for review to begin~~ in 2011, and new recommendations may be made based on current storm water management regulations, compliance with the City of Rockville's National Pollutant Discharge Elimination System (NPDES) permit and the use and availability of sufficient land. Stream restoration projects in Rockcrest Park and Alsace Lane were completed in 2007.

The City of Rockville has also initiated educational and outreach programs that focus on stormwater quality. The Twinbrook neighborhood has historically had a higher incidence of complaints of illicit discharge of pollutants<sup>\*</sup> (such as motor vehicle oil, house paint, etc.) to the storm drain system than other areas of the City, so a targeted educational campaign would likely prove beneficial. ~~(<sup>\*</sup>such as motor vehicle oil, house paint, etc.)~~ The storm drain marking program affixes colorful "Do Not Pollute!" markers to storm drain inlets to promote proper waste disposal. The markers also have the City of Rockville's Pollution Prevention Hotline number on them (240-314-8348) and residents can report dumping, improper waste manage

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ment that could result in pollution; odors or fish kills in streams. The Adopt-a Stream program will assist community groups with performing cleanups of their adopted section of stream. The City has also partnered with Civic Associations for the implementation of Low Impact Development (LID) stormwater management techniques on residential property (also know as Environmental Site Design, or ESD). These measures include treating stormwater onsite via rain gardens and rain barrels, as well as encouraging downspout disconnection, native plant landscaping and a general reduction of site impervious area. The use of these site-level stormwater management techniques is particularly valuable for an area like Twinbrook, which was developed without traditional regional stormwater controls and now lacks enough space for stormwater retrofits. The City has amended the Stormwater Management ordinance to allow the collection of a stormwater management utility fee from all property owners. The fee will be used through the City's Stormwater Management Fund to subsidize capital and operating expenses for stormwater management, storm drainage and water quality protection. As part of these programs, the City may include assistance with LID techniques to improve drainage problems or water quality on private properties. Twinbrook residents and businesses could benefit greatly from such a program.

### **Drainage Issues**

Certain areas in Twinbrook are prone to surface drainage or groundwater problems. Most drainage problems and complaints occur in the spring when the rainfall is heavy and the groundwater table is higher. Drainage issues are often more common in older neighborhoods, like Twinbrook. At the time Twinbrook was built, developers covered

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streams or low-lying areas to build houses. Groundwater seeks its original level and this results in basement flooding, standing water in yards and the need for sump pumps.

The City of Rockville can assist residents with advice about drainage concerns, but the homeowners must address problems on individual lots. In the past, methods to improve the drainage were identified but proved to be too costly for residents, even with cost sharing by the City.

Several home sites in near Norbeck Road and Burdette Road have large rear yards that are not suitable for building because of the natural features of the land. These sites may be good candidates for conservation easements. A conservation easement is a legal agreement that prohibits or limits certain kinds of development on the land while allowing the landowner to continue to own it, to live on it, and to use it with possible tax benefits.

### **Burgundy Estates Drainage Problems**

Specific drainage problems have been encountered in the Burgundy Estates area. All the land is privately owned with no Home Owners' Association in place. Residents are responsible for upkeep of their own property. There are no common areas or public drainage easements.

Most of the houses, back yards, patios and many driveways drain towards the back of the properties, so the runoff cannot reach the streets to drain there. The flat yards cause overland flow to spread out horizontally across yards, making the yard wet for a prolonged period of time. Numerous springs and seeps have been present within these lots since the original subdivision in 1956. The natural groundwater table is high in this area as well. All of these factors cause basement sump pumps to run more frequently and cause additional soggy areas in low spots in the yards.

In the past, the City of Rockville has offered financial assistance to help with the drainage problems at Burgundy Estates, but most residents did not wish to participate in the cost shared improvements, so the projects were dropped. Over the years, Public Works staff has responded to complaints of clogged storm drain inlets and removed sediment, debris, or blockages from the private storm drain pipes. In their research, Public Works staff has determined that the original grading and subsurface groundwater conditions in the area are the main cause of the drainage issues.

### **Tree Maintenance and Replacement**

The City of Rockville Forestry Department is responsible for approximately 25,000 street trees, park trees, and trees at all facilities. The City tree crew handles hazard abatement,

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urgent removals, and routine work requests. Contractors perform removals, block pruning and emergency work.

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There is funding for tree removal and replacement that was originally funded in 1998 as the Twinbrook Street Tree Replacement CIP. It was meant to remove and replace trees deemed hazardous, that were a major nuisance or those that were incompatible with utilities. Approximately 4,500 trees were inspected with 1,200 trees identified as possible removals over the next 10 years. An estimated 1,000 trees have been removed and replaced to date. In 2003, the CIP was revised and renamed the Urban Forest Renewal CIP to incorporate problem trees throughout the City of Rockville including disease-prone crabapples, aging cherries and certain diseased oaks. These funds transferred to the City Forestry operating budget in 2008. A major portion of the fund will continue to be spent for removals in Twinbrook.

Removals are prioritized City-wide by degree of hazard. Expenditures are divided between removal and replacement. The current average cost per removal for large diameter trees is over \$1000 per tree, which reduces the number of trees that can be removed each year.

Requests for routine tree maintenance are received via the Tree Maintenance Line (Telephone 240 314 8700). City wide, the forestry division receives over 1,000 requests for service annually. Block pruning is done on a regular basis to elevate, thin and remove dead limbs, and improve lighting. Funding levels were increased in 2008 to conduct block pruning on a 15-year **pruning** cycle.

Another issue concerning street trees are the problems associated with clay sewer drainage pipes. Many of the original private sewer pipes in Twinbrook were made of clay and failure of these pipes after fifty years is not uncommon. When this occurs, tree roots often penetrate the broken or disintegrating pipes, causing blockages. It is the homeowner's responsibility to replace the pipe with new pipe. Tree roots will seldom penetrate sound pipes unless there is a joint problem. (Please See Appendix 6 for the City's Master Tree Plan)

### **Critical Issues**

Potomac Electric Power Company (Pepco) has a utility easement to prune any branches that interfere with power lines. They conduct regular pruning, aimed at insuring electrical service to their customers, on a neighborhood-by-neighborhood basis, every 2 to 4 years. For requests concerning tree limbs in electric wires call Pepco at 202 833 7500 and say the word "Agent" when prompted.

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Twinbrook Station has a reforestation requirement of 15% of the total land. All of the trees are not required to be on site however. In the approved preliminary development plan for Twinbrook Station, the developers are providing 85% of the required trees (approximately 400 trees) on site. As these trees will be on private property, there will be no tax dollars spent on maintaining them.

Sidewalks are an on-going concern in relation to street trees. A privately owned tree may need to be removed for sidewalk installation. The roots of existing trees can cause damage to sidewalks with their roots. In Twinbrook, most streets have a sidewalk on one or both sides of the road. The streets that do not have sidewalks on either side are to the west of Hillcrest Park and the south of Veirs Mill Road. If the street already has one sidewalk, it may be desirable to wait until the

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trees on the other side are ready to be removed, rather than remove them prematurely to install the other sidewalk. When a sidewalk project is initiated, Traffic and Transportation staff works with the departments of forestry, planning and neighborhood resources to assess potential impacts.

City of Rockville staff also maintains park trees. Such trees are located in both active areas, like Hillcrest Park and passive areas, like the John G. Hayes Forest Preserve. Maintenance of these trees requires staff time and financial resources. Creation of an Open Space Zone may be considered to protect existing parkland and the trees on it, instead of the residential zoning that is the current base zones for parks. (Open space zones are discussed further in Chapter 7 – Community Facilities, Recreation and Parks and Open Space).

**Noise**

The City of Rockville is covered by the Montgomery County Noise Policy. More information can be found by calling 240-777-7770 and asking to speak with an Environmental Protection Specialist, or on-line at:

<http://www.montgomerycountymd.gov/deptmpl.asp?url=/content/dep/Noise/home.asp>