

CITY OF GAITHERSBURG

SENSITIVE AREAS

A MASTER PLAN ELEMENT



Gaithersburg

Published July 1997

SENSITIVE AREAS
Adopted June 1997

Planning Commission Recommended Approval: June 4, 1997, Resolution PCR-3-97
Mayor and City Council Adoption: June 16, 1997, Resolution R-79-97

MAYOR AND CITY COUNCIL

W. Edward Bohrer, Jr., Mayor

Geraldine E. Edens, Vice President

Stanley J. Alster

Charles F. Davis

Sidney A. Katz

Henry F. Marraffa, Jr.

PLANNING COMMISSION

Basil Waters, Chairman

Blanche Keller, Vice Chairman

John B. Schlichting

Timothy J. Sexton

BOARD OF APPEALS

Carroll R. Kearns, Chairman

Marsha D. Levin, Vice Chairman

Philip Karter

Victor E. Hicks

Phil Andrews

Harvey Kaye

CITY MANAGER

David B. Humpton

PLANNING AND CODE ADMINISTRATION

Jennifer Russel, Director

Urban Design Team:

Clark Wagner, Director*

Long-Range Planning Team:

Michael La Place, Director

Glenn Mlaker, Planner

Publication Team:

Patricia Patula, Publication Coordinator

Maria Fullerton, Graphics and Layout

Manisha Tewari, Geographic Information System

* Principal Author

SENSITIVE AREAS

TABLE OF CONTENTS

Introduction 1

Streams 4

 No Waiver Streams 8

 Rehabilitation Projects 10

 Environmental Standards Revisions 13

 Cleanup Programs 13

Storm Water Management 14

 Ordinance Revisions 14

 Environmental Standards Revisions 14

 Improvements to Existing Programs 15

 Maintenance 15

Greenways 16

Reforestation Areas 20

Street Trees 23

Appendixes

- I. Adopt-A-Stream List
- II. Trail Examples
- III. Sign Examples
- IV. Street Tree Notes
- V. Strategic Direction Number 6
- VI. Conservation Easement Marker

SENSITIVE AREAS

PLAN

INTRODUCTION

A sensitive areas element of the City Master Plan is required by the State of Maryland *Economic Growth, Resource Protection, and Planning Act of 1992 (1992 Planning Act)*. This element is reflected in three of the seven Visions of the Act: "(2) sensitive areas are protected;" "(4) stewardship of the Chesapeake Bay and the land is a universal ethic;" and, "(5) conservation of resources including a reduction in resource consumption, is practiced." The element is required to protect four (4) basic areas including streams and their buffers, 100-year flood plains, habitats of threatened and endangered species, and steep slopes.

In November of 1995 the City adopted *Environmental Standards* (available separately) which were developed as a result of a collaborative effort with environmentalists, developers, consultants, citizens, and City staff. These standards, in effect, provide the protection of the four areas required by the *1992 Planning Act* and go beyond the minimum requirements by providing additional measures to alleviate the impact of development. This was largely a stop-gap measure intended to affect development that was expected to occur in the next several years. Following the adoption of the *Environmental Standards*, the City then proceeded to develop a more comprehensive plan for sensitive areas.

An ad-hoc committee was appointed in December 1995 to evaluate a stream study that was prepared by a private consultant and to develop a report. The committee was made up of residents of the City, members of the Environmental Affairs Committee, environmental consultants, and developers. They deliberated for about two months in developing a report to the Planning Commission which has provided much of the basis for this document.

This plan directly relates to Strategic Direction Number 6 found within the *Strategic Directions: An Overall Approach To Achieving The Vision of The City of Gaithersburg, February 1996*. It was assigned a medium priority by the Mayor and City Council and requires oversight by the Environmental Affairs Committee and staff members from various departments. The text in its entirety, is found in the Appendix V and as put forth by the Mayor and City Council, states: "Implement recommendations from on-going evaluations of natural resources and encourage the protection and enhancement of the environment streams, parks, storm water management, and other CIP projects."

The plan itself addresses five different topics: streams, storm water management, greenways, reforestation, and street trees which goes well beyond the requirements of the *1992 Planning Act*. Two of these topics, greenways and street trees, have a direct correlation to the Transportation Element of the Master Plan.

The major focus for City **streams** is based on the findings and recommendations of the ad-hoc committee and *The City of Gaithersburg Stream Evaluation, March 1995 (The Stream Evaluation –available separately)*. Due to the degraded nature of the City's streams, as identified in the study, efforts will be made toward maintaining the quality of those streams found to be in the best condition and labeled as "Good" in *The Stream Evaluation*. The plan proposes to improve the status of all streams through rehabilitation efforts and changes in regulations affecting streams. The plan also proposes to expand the City's annual Muddy Branch stream clean-up to include all City streams. The program will be a partnership between the City and community associations, businesses, large property owners, and schools that are located adjacent to each stream segment. It is recognized that the City's streams are not only a recreational and aesthetic resource, but also an important part of the City's natural heritage and a major resource for building a positive image of Gaithersburg.

Storm water management, as mentioned above, is also a major area of concern in the plan. Findings and recommendations from a storm water management study and *The Stream Evaluation* are discussed for both public and private storm water management facilities. Changes to current storm water management regulations are proposed mostly to improve stream quality. Improving maintenance of these facilities is a major component of the plan. A program for enforcement of current maintenance requirements for private facilities is included along with a program for the City to partnership in the maintenance of facilities owned by community associations, who may not have the financial resources to perform the maintenance on their own.

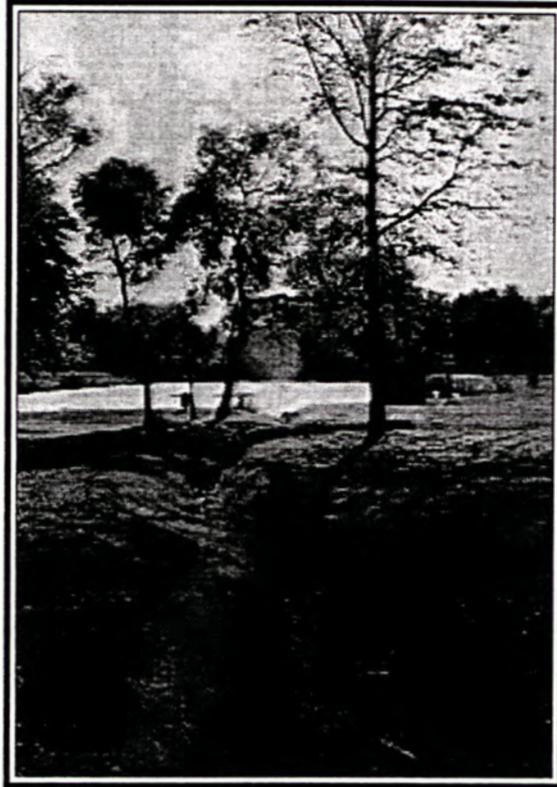
A connected system of **greenways** is also proposed in this element of the Master Plan. Greenways are defined as continuous open space corridors that usually include forest, trees, and streams, as well as bikeways and pedestrian trails. They exist in various widths and vary in terms of environmental sensitivity. Greenways are proposed to include pedestrian and bicycle trails in order to provide recreational and transportation opportunities for all City residents. It is envisioned that through the eventual completion of a regional bikeway within the Muddy Branch Greenway, extending the entire distance to the Potomac River, a major amenity will be created for City and County residents. The City will then be connected to the C&O Canal National Park, which extends to many points north and south along the Potomac River. Existing and planned urban greenway connections, which are in the form of bikeways and sidewalks located along existing roads, provide links between different greenways and to other destinations. Direct connections to surrounding neighborhoods are also planned to link residents to each greenway within the City.

Also included in this plan is a City-wide **reforestation plan** which provides receiving areas for off-site reforestation provided by developers. The City may choose to combine and implement these reforestation projects in order to improve the riparian functions along a specific stream or within an identified subwatershed. These areas are also proposed to be used for natural succession from lawn to forest through modifications in maintenance practices. The City Council and Planning Commission have decided to add the planting of street trees as an option in meeting off-site reforestation requirements.

Finally, a **street tree inventory** is included which is to be used as a guide for future street tree planting by the City and developers, and to help plan maintenance activities for existing street trees. The goal is to eventually have every street in the City planted with street trees so that the City's *Tree City USA* designation can be realized to the greatest extent possible.



Shown in this picture is a portion of the Main Stem of Upper Whetstone Run, a stream that exists in the northeastern part of the City near Emory Grove Road and MidCounty Highway.



This is an example of lawn area that is maintained adjacent to the stream, and therefore, is a prime area for off-site reforestation as discussed in the reforestation section of this plan.



This picture illustrates a storm water management pond at the Asbury Methodist Village, which has been constructed to include wetlands plantings and a water aeration device.

STREAMS

The *Stream Evaluation* utilized a reference stream known as Hobbs Branch, which is considered to be the highest quality stream in Montgomery County and is located in the eastern portion of the county. All City streams were evaluated against this reference stream and they received various scores, which are shown in the chart on page 9. The evaluation system is more fully explained in the document itself. (See *City of Gaithersburg Stream Evaluation*.) The best Gaithersburg streams had scores that were only 65 percent of the Hobbs Branch score. In addition, it was determined that the major cause of the degradation of City streams is due to point source discharges of storm water from developed areas.

GOALS:

- ***Enact stricter storm water management requirements related to streams.***
- ***Repair existing hazardous conditions in City streams.***
- ***Modify the Environmental Standards to discourage waivers for specific streams.***
- ***Expand the stream clean-up program.***

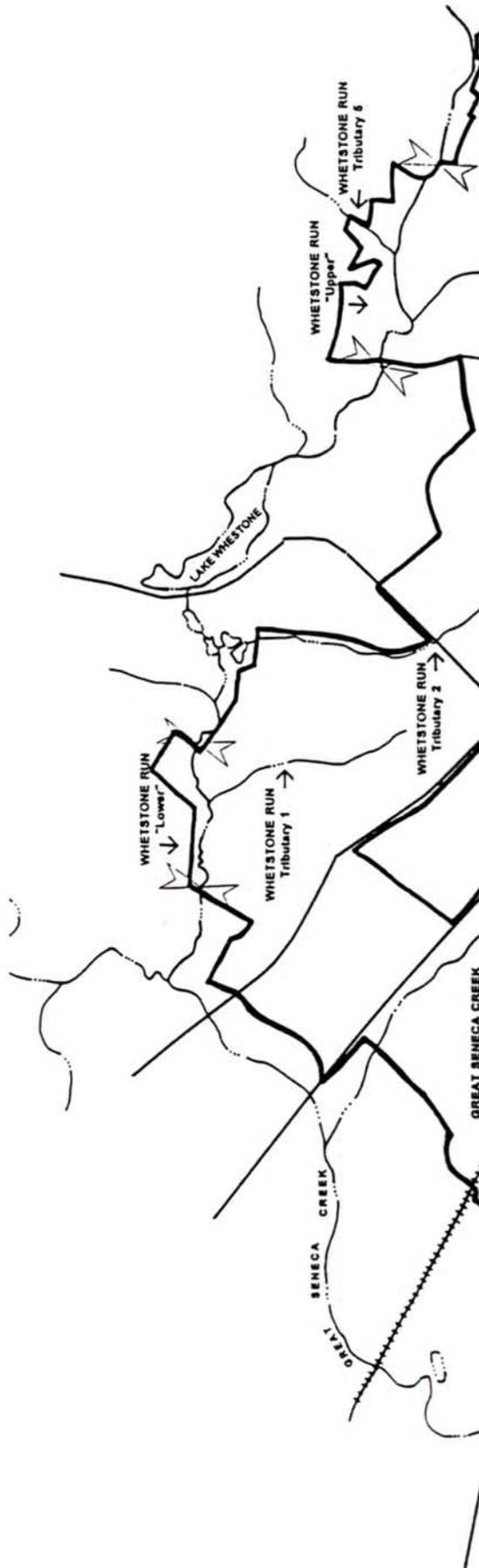
The *Stream Evaluation* confirmed that all of Gaithersburg's streams are Use Class I, the lowest classification. It also found that through the enactment of *Environmental Standards*, adequate protection for sensitive areas existing in the City will be provided. The following recommendations are summarized from the evaluation:

- New storm water management facilities should be constructed for existing communities to contain the one-year storm event, which is now allowed to flow through the system unchecked, and that the one-year storm water management benchmark be enacted as a regulation for new development as well. This recommendation is based on the finding that the one-year storm event is causing the majority of degradation to streams. The one-year storm event is a storm size classification that equates to a typical storm occurring on a yearly basis.
- The present two-year storm event sizing for retention structures is inadequate for protecting the streams against erosion and scouring. In simple terms, using the one-year storm may require larger retention ponds that will retain the water for 24 hours and release it more slowly than the two-year ponds. The one-year pond will also aid in reducing the amount of pollutants and sediments that flow out of the storm water management structures.
- Use better techniques for managing water quality associated with detention ponds such as permanent pools, shallow marshes, baffles, etc. Also use infiltration trenches, surface sand, and peat sand filters as water quality control devices. Size the structures for the 1.25 inch rainfall event which will control 0.6 inches of runoff over the typical drainage area in Gaithersburg.

With respect to the stream buffers established in the *Environmental Standards*, *The Stream Evaluation* found that enlarging these buffers will not significantly improve the condition of City streams, and therefore recommended against doing so. However, it recommended that the City initiate a policy of marking the location of buffers and conservation easements with permanent monuments in order to prevent encroachments upon these areas by residents, who are frequently dumping yard waste and other debris into existing buffer areas. A sample detail of a permanent marker is included as Appendix VI. Finally, the evaluation supports the use of stream buffers for recreational and aesthetic opportunities which is discussed further in the Greenways section on page 16.

CITY OF GAITHERSBURG BOUNDARY MAP

STREAM ASSESSMENT STUDY AREA



Environmental Quality Resources, Inc.

1736 Elton Road, Suite 210
Silver Spring, MD 20903
Tel: (301) 438-2000
Fax: (301) 445-2348



Wetland Mitigation • Afforestation and Reforestation • Stormwater Management Systems • Oil-Grit Separators



This picture illustrates the stream receiving the worst rating in the *Stream Evaluation*, which is Muddy Branch, Tributary 3, located in the Brighton West area of the City.

NO WAIVER STREAMS

The ad-hoc committee recommended that all of the streams listed as "Good" in *The Stream Evaluation* (shown in the chart on page 9) should not have any waivers granted by the City for buffer widths and for storm water management related to adjacent development that has water discharging to these streams. It was finally decided by the committee that waivers should only be granted for a compelling reason and by unanimous vote of the Planning Commission.

"No waiver" streams are listed below:

Muddy Branch, Main stem, Lower
Muddy Branch, Tributary 1
Long Draught Branch, Main stem, Middle
Whetstone Run, Main stem, Lower
Whetstone Run, Tributary 3
Whetstone, Tributary 5

***Implementation: Development Review Team and
the City Planning Commission***



The Lower Muddy Branch, shown in this picture, is the highest rated stream in the *Stream Evaluation* and is located almost entirely within the planned Lakelands development. It will be protected by the City's *Environmental Standards*, which requires adequate buffers and steep slope protection.

EQR Modified RSAT Scores									
Stream Segment	Channel Stability (0-11)	Channel Scouring/ Sediment Deposition (0-8)	In-Stream Habitat (0-8)	Water Quality (0-8)	Riparian Habitat Condition (0-7)	Aesthetic Rating (0-7)	Remoteness (0-7)	Rankings of Stream Segments	Weighted Numerical Score of Physical Stream Characteristics
Muddy Branch									
Main Stem Lower	3.8	3.8	4.6	4.8	5.3	3.8	3.1	29.2	Good
Muddy Branch									
Main Stem Middle	3.8	3.9	3.8	4.5	3.0	2.3	1.4	22.7	Fair
Muddy Branch									
Main Stem Upper	4.4	4.2	4.1	4.3	2.7	2.7	1.8	24.2	Fair
Muddy Branch									
Tributary 1-B	5.6	5.2	4.6	3.5	2.4	1.9	1.3	24.5	Fair
Muddy Branch									
Tributary 1-A	3.7	3.8	3.8	4.0	2.4	3.1	2.0	22.8	Fair
Muddy Branch									
Tributary 1	5.0	4.2	4.7	4.9	2.6	2.4	2.1	25.9	Good
Muddy Branch									
Tributary 2	3.0	2.0	2.0	2.0	2.3	1.0	2.7	15.0	Poor
Muddy Branch									
Tributary 3	3.3	2.8	2.6	2.2	1.5	1.0	1.3	14.7	Poor
Muddy Branch									
Tributary 4	4.8	4.6	3.3	3.6	3.3	2.3	2.0	23.9	Fair
Muddy Branch									
Tributary 5	4.3	3.8	3.8	4.5	3.2	3.1	2.2	24.9	Fair
Long Draught Branch									
Main Stem Upper	4.1	3.2	2.7	2.6	1.6	1.1	1.0	16.3	Fair
Long Draught Branch									
Main Stem Middle	5.1	4.3	5.0	4.5	2.3	2.5	2.2	25.9	Good
Long Draught Branch									
Main Stem Lower	4.0	3.5	3.7	4.2	3.0	3.0	2.5	23.9	Fair
Long Draught Branch									
Tributary 1	3.9	3.3	3.6	3.7	2.3	2.7	1.9	21.4	Fair
Long Draught Branch									
Tributary 2	4.4	3.3	3.7	3.6	1.5	2.8	1.8	21.1	Fair
Great Seneca Creek									
Tributary 1	3.2	3.1	3.6	3.6	2.8	1.9	1.9	20.1	Fair
Whetstone Run									
Main Stem Lower	4.8	4.6	4.8	3.9	3.6	3.3	2.9	27.9	Good
Whetstone Run									
Main Stem Upper	4.8	4.4	4.2	4.6	3.0	2.2	1.3	24.5	Fair
Whetstone Run									
Tributary 1	7.2	5.6	3.2	4.0	1.0	1.8	1.0	23.8	Fair
Whetstone Run									
Tributary 2	3.7	3.7	3.7	3.0	2.3	1.7	1.6	19.7	Fair
Whetstone Run									
Tributary 3	6.2	6.7	4.8	4.3	2.0	2.8	2.5	29.3	Good
Whetstone Run									
Tributary 4	4.6	4.1	4.6	4.0	2.6	2.4	1.9	24.2	Fair
Whetstone Run									
Tributary 5	6.0	4.7	4.0	4.2	4.2	2.5	1.7	27.3	Good
Hobbs Branch v									
Benchmark Stream	7.6	7.0	6.3	6.6	6.6	6.3	6.0	46.4	Excellent

v Hobbs Branch individual RSAT parameters are a compilation average of three stream segments.

Score:
 42 - 56
 26 - 41
 16 - 25
 <16

Ranking:
 Excellent Condition
 Good Condition
 Fair Condition
 Poor Condition

Source: Environmental Quality Resources, Inc.

REHABILITATION PROJECTS

Stream rehabilitation projects are strongly suggested in *The Stream Evaluation* and a priority list was included on page 42 of that document. These are mostly severe erosion problems that need immediate attention:

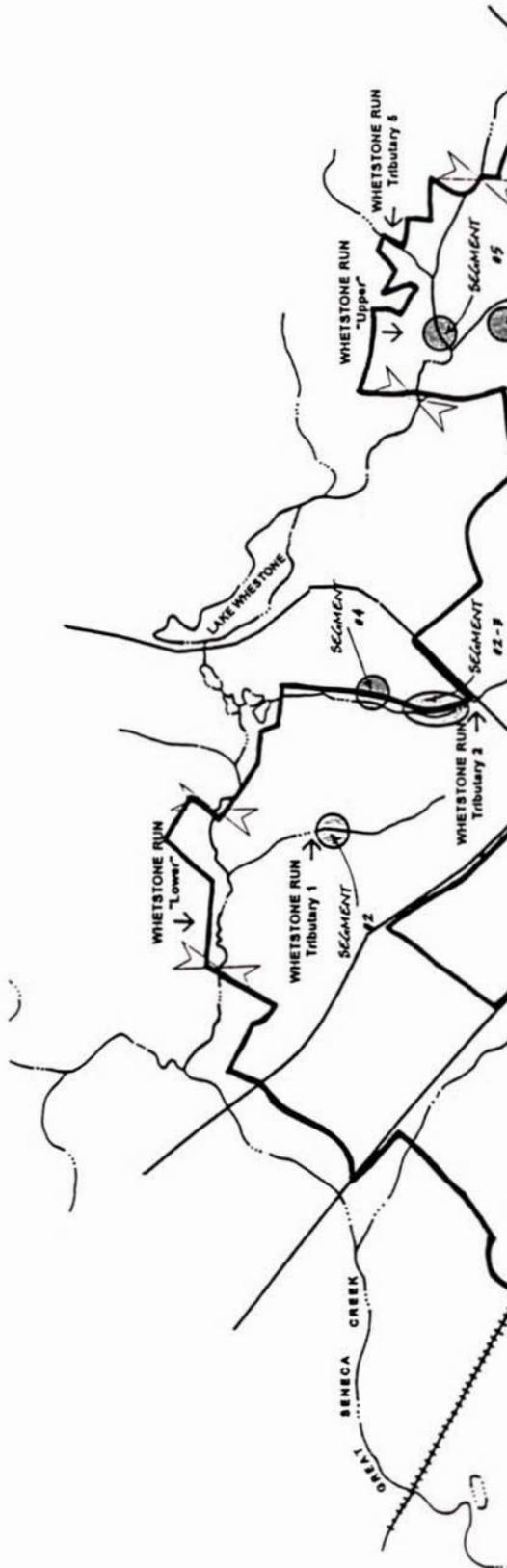
1. Long Draught Branch: Tributary 2, Segment 1.
Vertical stream banks adjacent to house; one tree prevents further massive erosion.
2. Great Seneca Creek: Tributary 1, Segment 11.
Head wall collapse at Interstate 270 on-ramp.
3. Long Draught Branch: Lower, Segment 2.
Vertical eroding near stream banks directly below homes.
4. Whetstone Run: Upper, Segment 5.
Severe erosion near highway support slopes.
5. Muddy Branch: Tributary 2, Segment 51.
Sewer is completely undercut.
6. Muddy Branch: Middle, Segment 46.
Five-foot escarpment adjacent to tot lot at Malcolm King Park.
7. Muddy Branch: Upper, Segment 13.
Future collapse of edge of parking lot is inevitable.
8. Muddy Branch: Tributary 5, Segment 5.
Head cutting at support slopes of Sam Eig Highway.
9. Long Draught Branch: Upper, Segment 7.
Twelve-foot vertical eroded stream banks within 30 feet of apartments.
10. Muddy Branch: Tributary 3, Segment 42.
Severe erosion within 30 feet of apartments; recent private restoration is inadequate.

There are approximately 27 remaining stream rehab projects found on pages 19-29 of *The Stream Evaluation*. These projects should be programmed for completion by the City Department of Public Works and Engineering over the next three to five years and should be funded through a combination of the City's Capital Improvements Program and available state funding.

Implementation: Department of Public Works and Engineering

CITY OF GAITHERSBURG BOUNDARY MAP

STREAM ASSESSMENT STUDY AREA



HAZARDOUS AND UNSTABLE AREAS OF CONCERN

Environmental Quality Resources, Inc.

1726 Eden Road, Suite 310
Silver Spring, MD 20903
Tel: (301) 438-2000
Fax: (301) 445-5346



Wetland Mitigation • Afforestation and Reforestation • Stormwater Management Systems • Oil-Grit Separators

ENVIRONMENTAL STANDARDS REVISIONS

As mentioned previously, the City should enact stream related revisions to the *Environmental Standards* following the recommendations of the ad-hoc committee. The first revision is to modify the waiver provision in the standards to reflect the “no waiver” requirement for those streams listed previously. The report from the committee and *The Stream Evaluation* both recommended that the City not enlarge the buffers required in the *Environmental Standards*. This recommendation is based largely on the finding that storm water management has a greater impact on streams than the width of buffers. The minimum widths of 100 to 150 feet that are now required are sufficient to protect streams and steep slopes from the negative affects of development.

Implementation: Planning and Code Administration (Urban Design Team)

CLEANUP PROGRAM

The City has sponsored a stream clean-up program for a specific segment of the Muddy Branch (Main stem, Middle) in Malcolm King Park for the last several years. This has been accomplished through the efforts of the Environmental Affairs Committee (EAC), who have enlisted volunteer groups to remove trash and debris from the stream and its surrounding shoreline. This is an excellent program that is planned to be expanded to include all City streams in the coming years and is to be dubbed the Adopt-A-Stream Program. The purpose of this document is to provide some guidance to the EAC on how to accomplish their goal. One method for enlisting volunteer groups and organizers for the many stream segments in the City is to have a variety of organizations who are most proximate to each stream segment “adopt” that segment and assume the responsibility for an annual cleanup project during Environmental Awareness Week. The City would continue to provide support through bulk pickup of all trash and debris and by providing necessary materials such as trash bags, gloves, safety vests, etc. The Appendix I includes a list of each stream segment and organizations that may be willing to participate in such a program.

Implementation: Environmental Affairs Committee

STORM WATER MANAGEMENT

As mentioned in the introduction, storm water management is an integral component of mitigating the effects of development on the City's streams and surrounding sensitive areas. *The Stream Evaluation* concluded that the degraded nature of City streams is due primarily to either a complete lack of storm water management or inadequate storm water management related to the development of the City over the last 30 years. Storm water management practices began to improve in the 1980s but today remain ineffective at mitigating the effects of development on the City's streams. While recommending that the City enact stricter regulations, the evaluation also found that existing structures need to be retrofitted to better manage storm water flows.

GOALS

- ***Enact stricter storm water management requirements for new development.***
- ***Retrofit existing storm water management structures in the City.***
- ***Modify Environmental Standards to provide incentives for improved practices.***
- ***Improve enforcement of maintenance practices.***

ORDINANCE REVISIONS

The Stream Evaluation includes evidentiary findings to support a revision to the City's Storm Water Management Ordinance. These findings are shown on pages 38-41 of the evaluation. Most of the problems associated with stream deterioration are related to excessive runoff from storm events which are usually controlled by storm water management. *The Stream Evaluation* states:

Retention of the one-year storm should become the management objective because the science community (Booth, 1986) and the Maryland Department of the Environment (Environment Design Work Group on Storm Water Management Regulations 1994) have found that the small frequent rain falls are the storms which cause the majority of stream channel erosion problems. (*Environmental Quality Resources, 1995*)

This recommendation is also based on field observations indicating that the present criteria for storm water management is not adequately protecting receiving streams. The City's current storm water management ordinance requires quantity control of the two-year post development storm flow peak to the level of the predevelopment peak (Maryland COMAR 26.09.02 and Chapter 8, Article II, Section 25 of the *City Code*). Work is currently underway to amend the ordinance in cooperation with Montgomery Soil Conservation District office and the State of Maryland to require management of the one-year storm event and to make other improvements to the ordinance reflecting state-of-the-art management practices. This task should be complete by the end of 1997.

Implementation: Planning and Code Administration/Department of Public Works and Engineering, and State/County agencies

ENVIRONMENTAL STANDARDS REVISIONS

Both the Ad-Hoc Committee report and *The Stream Evaluation* recommend that the *Environmental Standards* be modified to allow storm water management ponds that manage for the one-year storm event to be constructed within the required buffer area. However, the buffer area must not be forested, or must have a low quality forest, and the pond construction must include reforestation mitigation. This revision would provide an incentive to use the one-year pond,

recognizing that these ponds may be larger and require more land to construct them. Placing the ponds closer to the stream is also helpful in managing storm runoff.

Implementation: *Planning and Code Administration (Urban Design Team)*

IMPROVEMENTS TO EXISTING SYSTEMS

As mentioned in *The Stream Evaluation* and a separate storm water management report, existing ponds and storm water systems should be retrofitted to manage for the one-year storm event. The Department of Public Works and Engineering has developed a list of the top ten sites for storm water management retrofits for implementation through the Capital Improvements Program over the next several years. These projects will be discussed with the City Environmental Affairs Committee and a multi-year program for implementation will be developed.

1. Brighton Weir
2. Victory Farm
3. Rabbitt Road
4. Amberfield
5. Bridlewood
6. Park Summit 1
7. Park Summit 2
8. Hyde Park
9. Green Park
10. Washingtonian Woods

Implementation: *Department of Public Works and Engineering*

MAINTENANCE

A storm water management report, along with *The Stream Evaluation*, identifies many maintenance issues related to structures that are both privately and publicly owned. Maintenance not only relates to ponds but also includes water quality structures such as oil-grit separators. Pond maintenance may include removal of trees, mowing responsibilities, fencing, removing trash and debris, etc. Maintenance of water quality structures can include pumping out oil and grit, removal of trash and debris, "mucking out" sediment, etc. These activities are required by City Code and have not been actively enforced for private or public facilities. Private facilities are owned by both commercial land owners and residential land owners, such as home owner associations (HOAs).

The City should undertake a separate inspection and enforcement program for residential as opposed to commercial properties. Commercial properties simply need to be regularly inspected and cited for maintenance requirements which would be the responsibility of the Department of Planning and Code Administration. However, residential property, held in common ownership by HOAs is generally not adequately financed to undertake full compliance with maintenance requirements. Therefore, in addition to there being a regular inspection by City Staff, a shared maintenance agreement should be executed between the City's Department of Public Works and Engineering and the HOAs to reduce costs to the HOAs. This agreement should spell out how the maintenance responsibility is shared between the two parties.

Furthermore, the periodic inspection and maintenance of publicly owned and maintained facilities should be expanded to include oil-grit separators and other water quality structures.

Implementation: *Planning and Code Administration (Permits and Inspections Team) and the Department of Public Works and Engineering*

GREENWAYS

Greenways, defined as open space corridors that contain trees, streams and other natural features, and include trails for hikers and bikers, are important to the City in containing sprawl, reducing the dependence on the automobile, and help to define the character of Gaithersburg by connecting the various areas and neighborhoods of the City together. Greenways are ideal for walking, jogging, biking, commuting, and enjoying nature. They have many environmental benefits, aside from simply excluding development, such as controlling siltation and erosion, providing wildlife habitat, controlling floods and adding value to adjacent properties.

GOALS:

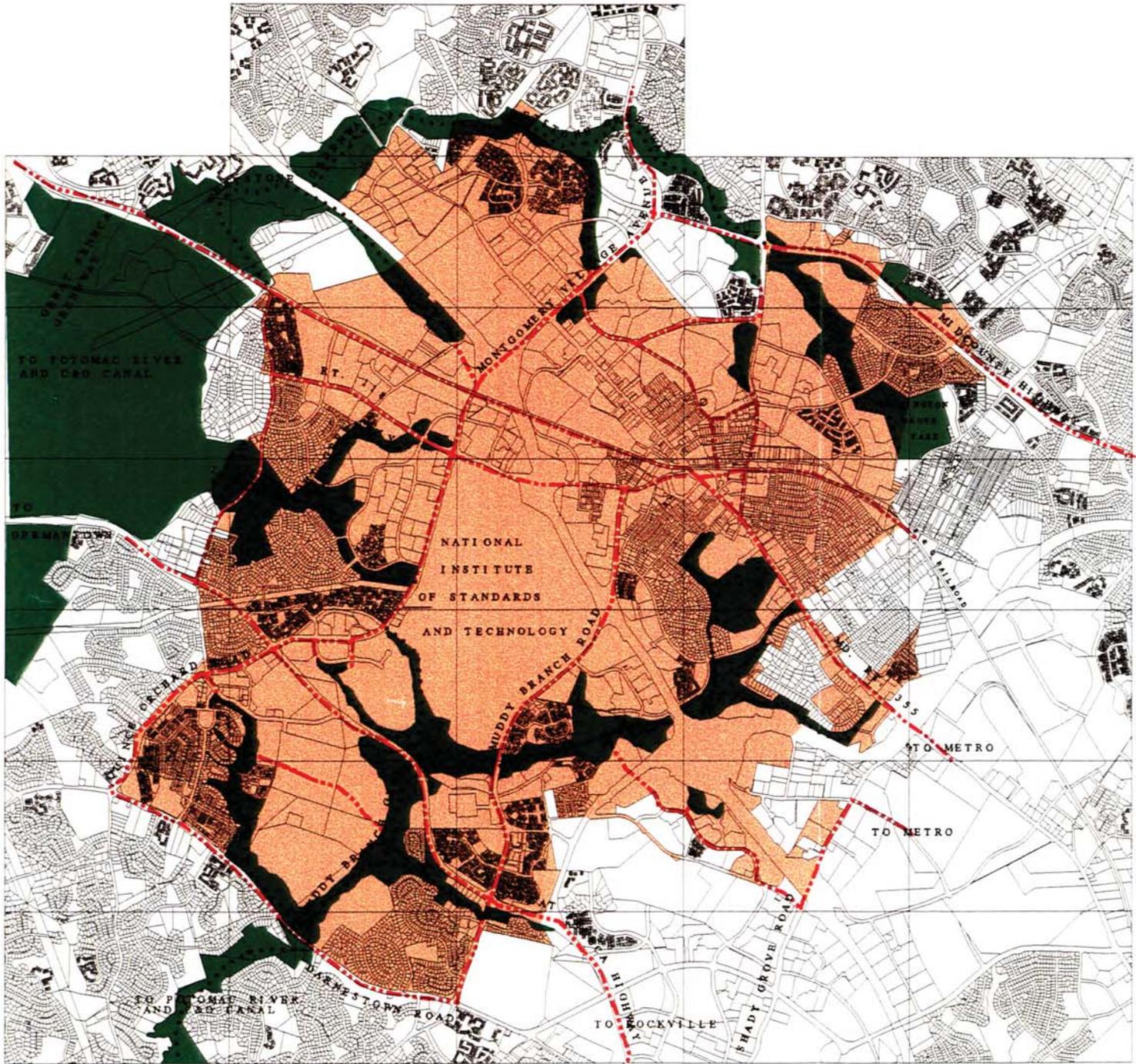
- *To promote the use and development of Greenways in Gaithersburg.*
- *Link Greenways to bodies of water such as the Muddy Branch, Great Seneca Creek, and Potomac River.*
- *Develop uniform criteria for what constitutes a Greenway.*
- *Develop a tiered system of trails within and between Greenways.*
- *Emphasize connections to many destinations within and around Gaithersburg.*
- *Produce a single user-friendly map of Greenways in Gaithersburg.*
- *Link Greenways to regional transportation and park systems.*
- *Develop a consistent method for signage along Greenways.*

A map for greenways has been developed that illustrates open space corridors or greenways that presently exist in the city, proposed hiker/biker trails within and between greenways and designates areas for future greenways. The City is connected to the Potomac River by two existing greenways: Great Seneca Greenway and the Muddy Branch Greenway which exist as state and county parklands. Greenways within the City are: The Muddy Branch Greenway, The Great Seneca Greenway, The Long Draught Greenway, and The Whetstone Greenway. These greenways exist as both City parkland and private open space. There are also subgreenways within these larger greenways that connect to various neighborhoods throughout the city. The challenge of the greenway plan is to transform these corridors from unused open space to a usable network connected by trails, paths and bikeways.

Links to greenways from existing and planned residential neighborhoods are also shown on the map. These links are very important in providing a connected system in a transportation sense but equally important in providing access to these areas for residents of the city. A hierarchy of pathway sections should be developed so that various types of hiker/biker paths can be used depending on the function of the path and the sensitivity of the area. These paths range from a narrow stonedust or wood-chip path to an eight-foot wide asphalt bikeway. A sample of pathways is provided in the Appendix II.

All greenways are also to include a series of informative and interpretive signs that provide directional information, wildlife and plant life information, and trail identification. A complete package of signs for use in the greenways should also be developed by the City, and a sampling of what these may look like is provided in the Appendix III.

Existing and planned bikeway connections are also shown on the greenways map which are bikeway or pedestrian routes along existing roads that connect different greenways together. These routes can also be used to give direction to various greenways from surrounding roads and highways. They act primarily as transportation facilities for bikers and pedestrians. As the map indicates, some of these pathways are existing and some are proposed as future pathways which are to be constructed through the City's Capital Improvements Program. Connections to the regional bikeway system in Montgomery County are also provided as well as connections to



GAITHERSBURG GREENWAYS



Gaithersburg

SCALE : GRAPHICAL

DATE = SEPTEMBER, 1996

MAP LEGEND

-  BIKEWAY CONNECTIONS
-  EXISTING GREENWAY TRAILS
-  PROPOSED GREENWAY TRAILS

transportation centers such as the Shady Grove Metro Station, and the Olde Towne and Metropolitan Grove MARC Stations and stops along the future Shady Grove-Clarksburg Transitway. A future bikeway along the B&O Railroad is also shown which could provide convenient and speedy access to many points along the rail right of way.

***Implementation: Planning and Code Administration
(Long Range Planning Team and Urban Design Team),
Department of Parks and Recreation,
and Department of Public Works and Engineering***

REFORESTATION AREAS

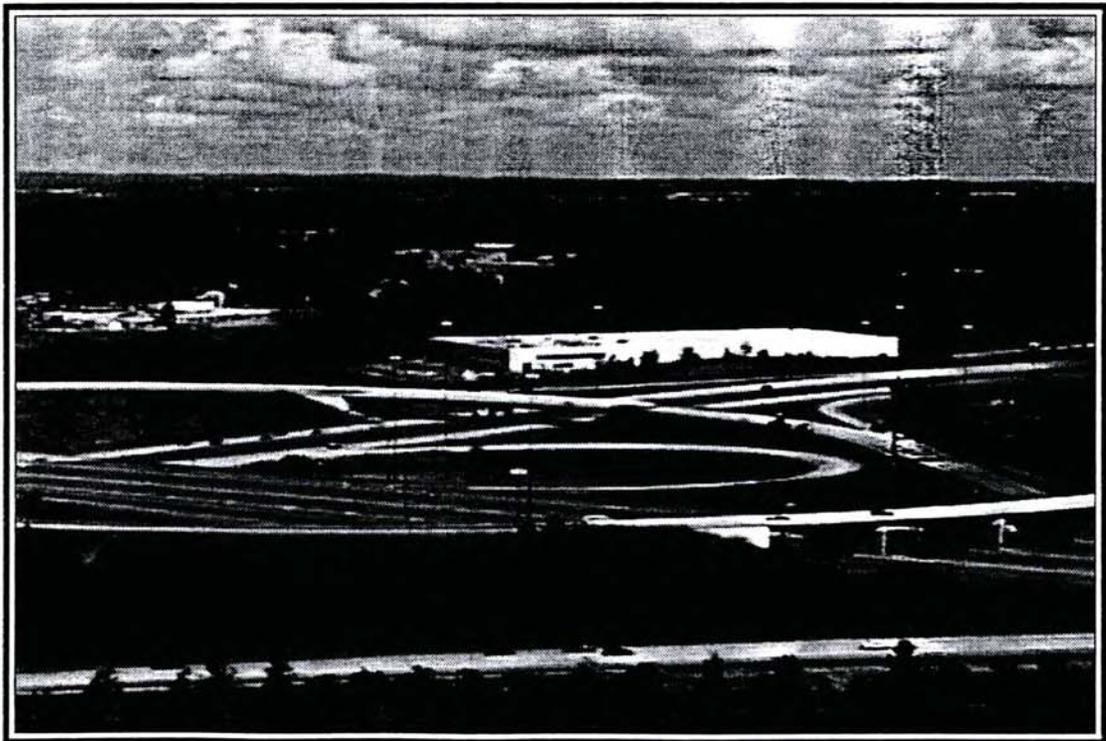
As development of the City progresses, sites for off-site reforestation will continue to be in demand for developers to meet the forest conservation requirements of the City Code. Reforestation has been done in a very piecemeal fashion as individual developers, who are developing in-fill projects, satisfy the reforestation requirement by planting on-site in very small quantities or through landscaping.

GOALS:

- *Develop a map of reforestation receiving areas and prioritize each area.*
- *Develop a program for combining small reforestation projects with implementation by the City.*
- *Allow street trees to meet off-site reforestation requirements.*

In order to gain the highest possible environmental benefit from reforestation mitigation, this plan includes a map of receiving areas where reforestation can be planned on public property in large single projects that can be planted and maintained under one contract, rather than in a piecemeal fashion. The City can place monies received from developers into escrow accounts equal to the cost of the required reforestation for various developments, then implement larger scale projects pursuant to the map of planned reforestation areas. In addition, the planting of street trees where needed (see Street Tree Inventory Maps) can also satisfy off-site reforestation requirement.

Implementation: *Planning and Code Administration
(Urban Design Team, Permits and Inspections Team),
Department of Public Works and Engineering,
and Department of Parks and Recreation*



A view of the I-270 and I-370 interchange which is listed as a potential off-site reforestation area. There are many areas within the right of way that desperately need tree planting.

CITY OF GAITHERSBURG BOUNDARY MAP

STREAM ASSESSMENT STUDY AREA

POTENTIAL REFORESTATION SITES



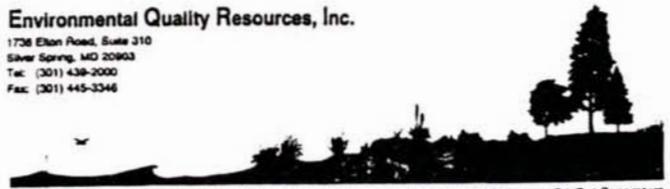
1. WOODLAND HILLS SWM
2. MD124/I--270 INTERCHANGE
3. MD117/I--270 INTERCHANGE
4. I-370/I--270 INTERCHANGE
5. I-370/MD355 INTERCHANGE
6. GREEN PARK
7. NIST STREAMS
8. AMBERFIELD SWM
9. BRIDLEWOOD SWM



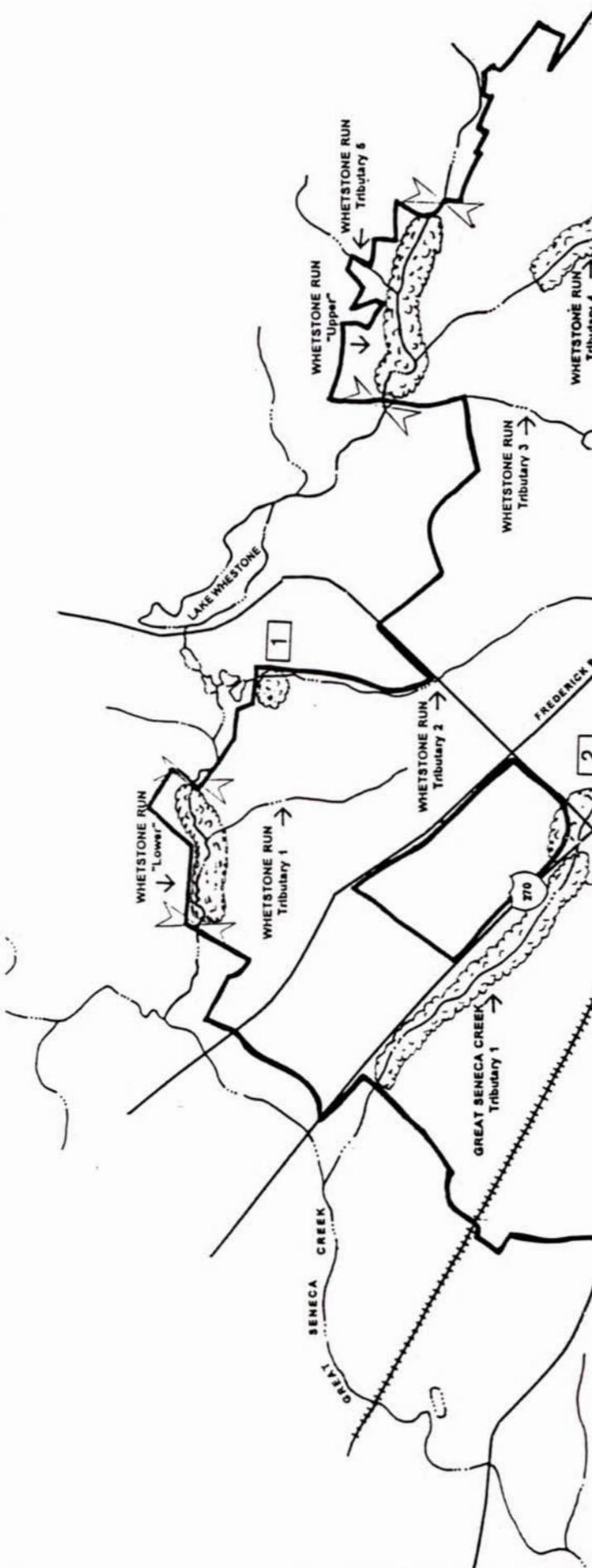
13 ADDITIONAL STREAM
SITES ARE LABELED ON
THE MAP

Environmental Quality Resources, Inc.

1738 Elton Road, Suite 310
Silver Spring, MD 20903
Tel: (301) 438-2000
Fax: (301) 445-3346



Wetland Mitigation • Afforestation and Reforestation • Stormwater Management Systems • Oil-Grit Separators



STREET TREES

The City has been planting street trees within the Capital Improvements Program for many years under the aegis of the City Beautification Committee. The Committee has been doing an excellent job in planning and implementing street tree plans throughout the City where street trees did not previously exist. However, this effort has largely been done on an ad-hoc or in a piecemeal fashion. It is the intent of this portion of the *Sensitive Areas Master Plan* to develop a more comprehensive approach to street tree planting in Gaithersburg.

Street trees are probably the most important single element of high quality streets in urbanized areas. Street trees provide cooling shade that mitigates the urban heat island effect caused by expansive asphalt paving and traffic; they reduce the scale of wide streets and highways to that which is more on the human level; and when planted at regular intervals, using a single type of tree, can add a strong sense of place where none presently exists. The City has received the Tree City USA designation for many years due to its tree planting and maintenance efforts. However, there are many streets in the City that either have a very irregular planting of street trees or have no street trees at all. In addition, the tree types that have been planted in many cases will not adequately shade the street.

GOALS

- *Inventory City for existing street trees.*
- *Identify barriers to future street tree planting and make recommendations for adding trees.*
- *Hire a landscape architect to develop a master plan for the planting of all City streets with trees.*
- *Seek to achieve "canopy closure" in street tree design.*
- *Rely less on smaller ornamental trees by using larger shade trees.*
- *Coordinate with the City Beautification Committee to prioritize streets that are in need of trees.*
- *Adequately fund the City's Capital Improvements Program so that 500 street trees are planted every year. Seek additional outside funding for street tree planting.*

In order to advance the street tree planting effort, this document proposes to identify where new street tree plantings are needed through an inventory of the City's street trees. The Street Tree Inventory Maps identify those streets that have no trees along each side of the street or in the median, have an irregular or partial tree plantings, or are fully planted with street trees. Streets that have irregular street tree plantings or ones that are currently undergoing a loss of street trees due to storm damage or die-off due to age, should continue to have replacement trees added. Physical barriers to planting have been noted in the Appendix IV such as overhead utility lines, narrow planting beds, paved medians, etc. The Street Tree Inventory Maps also illustrate the location of existing specimen trees that are located prominently enough to be of great importance to the public and should be protected. The inventory can be used as a guide for a more detailed Street Tree Master Plan, which should be developed by a landscape architect under contract with the City and can also be used to guide developers in satisfying the street tree planting requirements of the *City Code*. Tree types should be designated on the Street Tree Master Plan, for each street so that as the plan is implemented over the next 20 years, tree types can be planted consistently from street to street throughout the city. Streets should be prioritized for future tree planting so that ones that need trees the most can be planted first. This will aid in meeting the goal of having all of Gaithersburg's streets planted with trees pursuant to an adopted standard. That standard is:

Plant a single type of tree per street or section of street, at no more than 30 foot intervals, between the street and the sidewalk, on both sides of the street and in

the median, if one exists. Species native to this area should be used, especially oaks, due to the historic significance of the Forest Oak and the existence of other large oak trees for which Gaithersburg is well known. Planting strips shall be a minimum of six to eight feet in width.

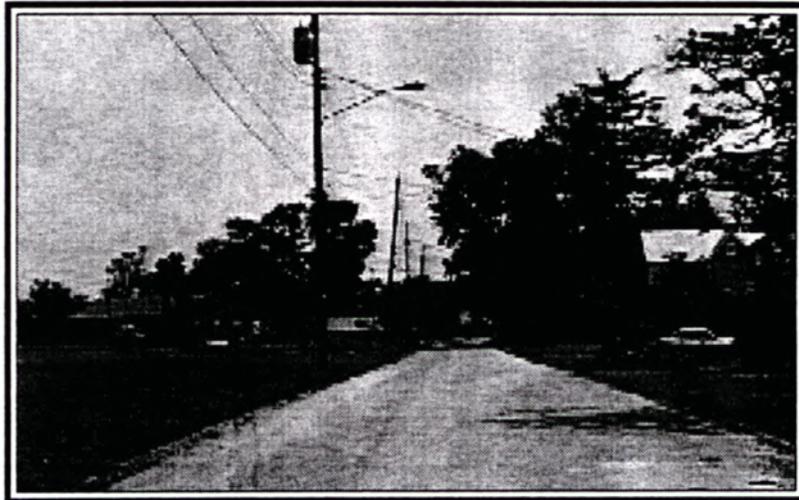
Implementation: *City Beautification Committee for City projects and Planning and Code Administration (Urban Design Team and Long Range Planning Team)*



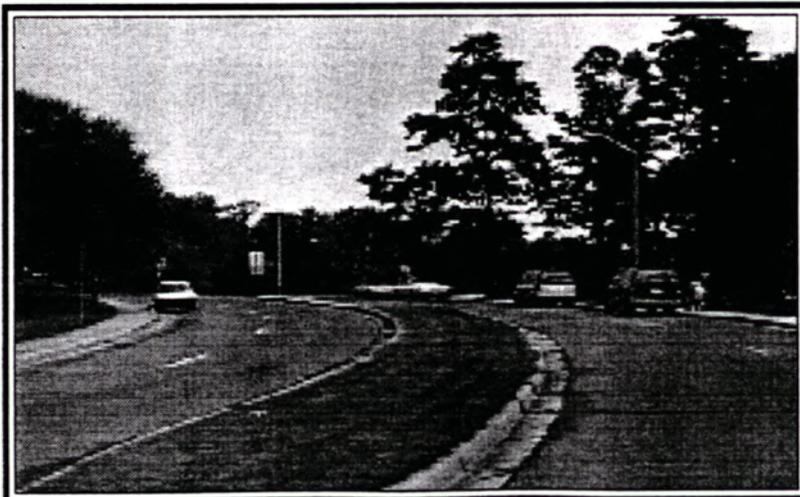
This street in the West Riding neighborhood exemplifies the street tree standard proposed in terms of canopy closure and the close proximity of the trees to the street. It also illustrates how trees can reduce the scale of the street.



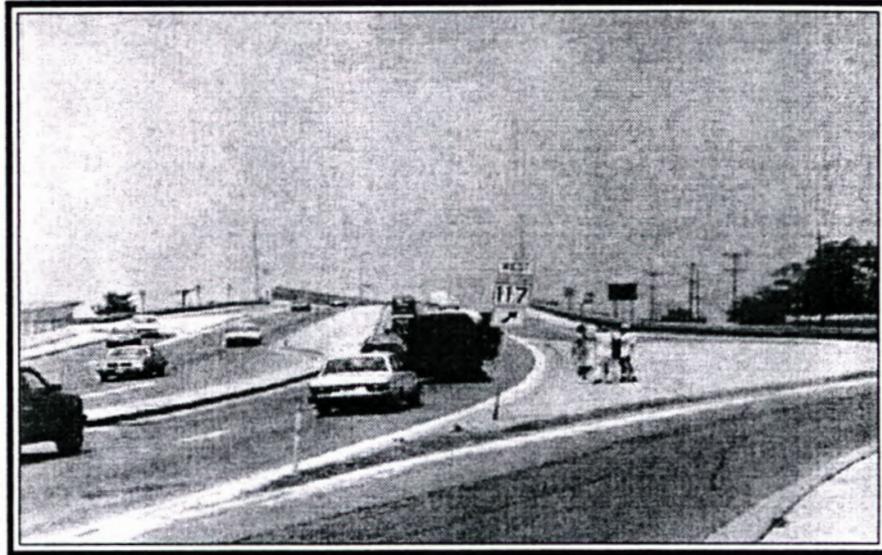
West Diamond Avenue, in front of the First Baptist Church, has a planting strip that could be utilized for street trees.



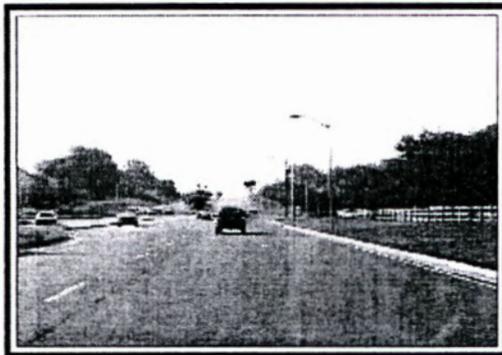
DeSellum Avenue is a small street without curbs which could be improved to include street trees.



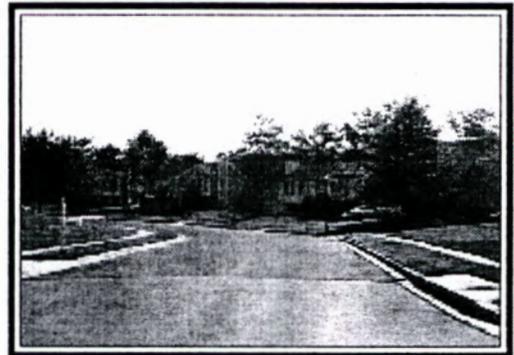
This median on Summit Hall Road could readily be planted with street trees.



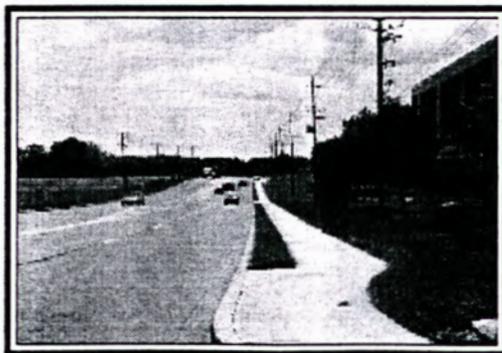
A view of the North Frederick Avenue bridge, looking north. This is one of the areas where concrete islands should be removed and replaced with street trees and landscaping.



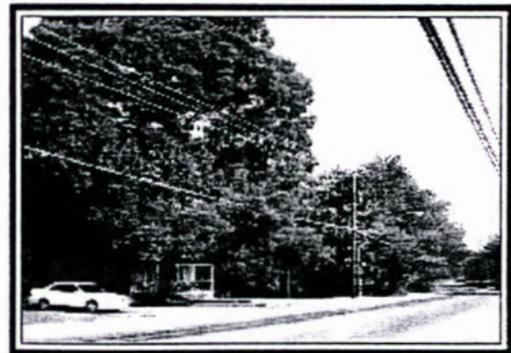
MidCounty Highway is a county maintained road that presently has no street trees.



Fallbrooke Street is a City street that presently has no street trees.



Quince Orchard Road (MD Route 124), presently has no street trees in this location and a raised center median can be constructed to accommodate additional street trees.



This large white oak on North Summit Avenue is one of the identified specimen trees shown on the street tree inventory.



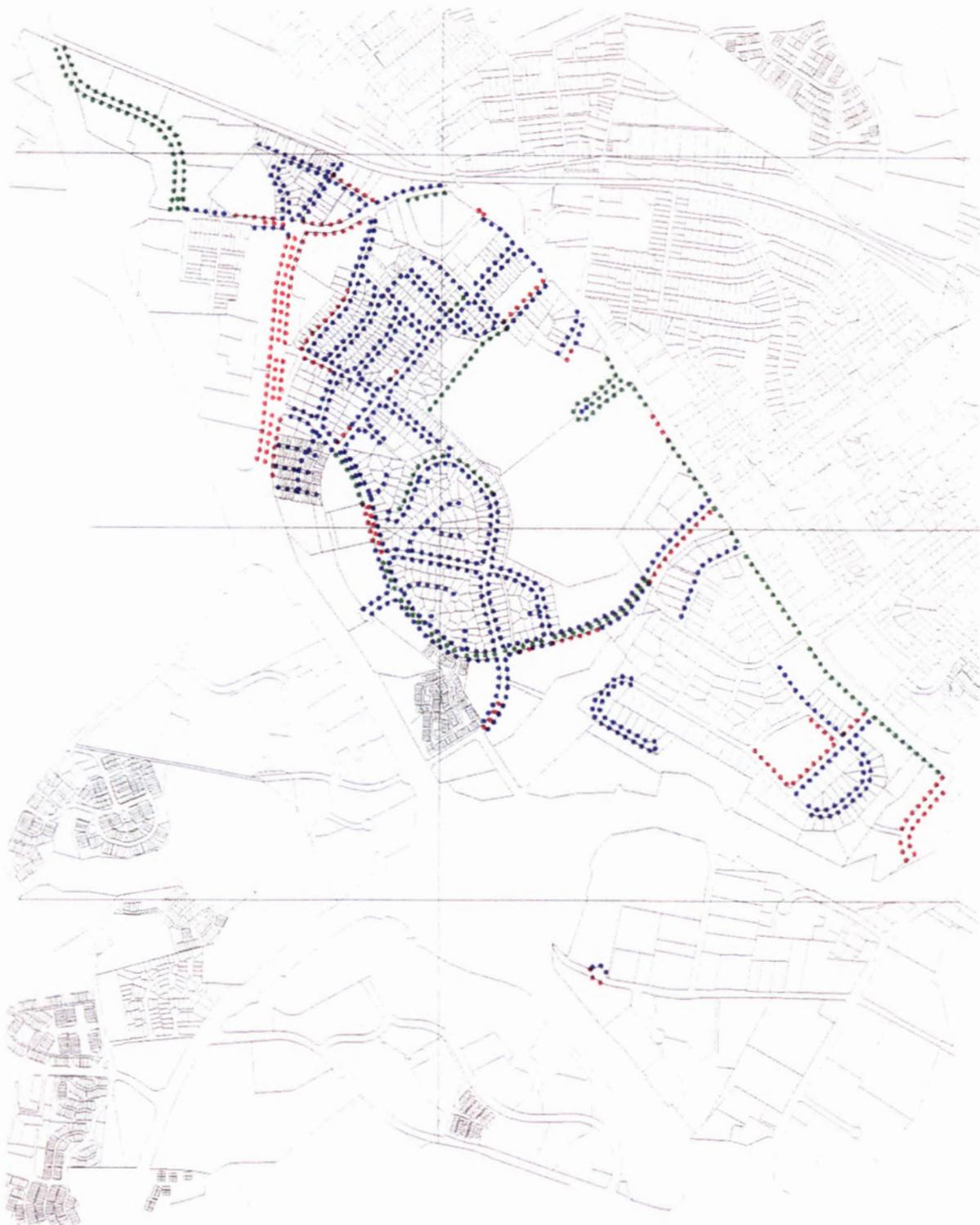
NEIGHBORHOOD ONE - STREET TREE INVENTORY

SCALE : GRAPHICAL
 DATE : NOVEMBER, 1996



-  NO STREET TREES
-  STREET TREES - IRREGULAR PATTERN
-  STREET TREES - REGULAR PATTERN

PLANNING AND CODE ADMINISTRATION



NEIGHBORHOOD TWO - STREET TREE INVENTORY

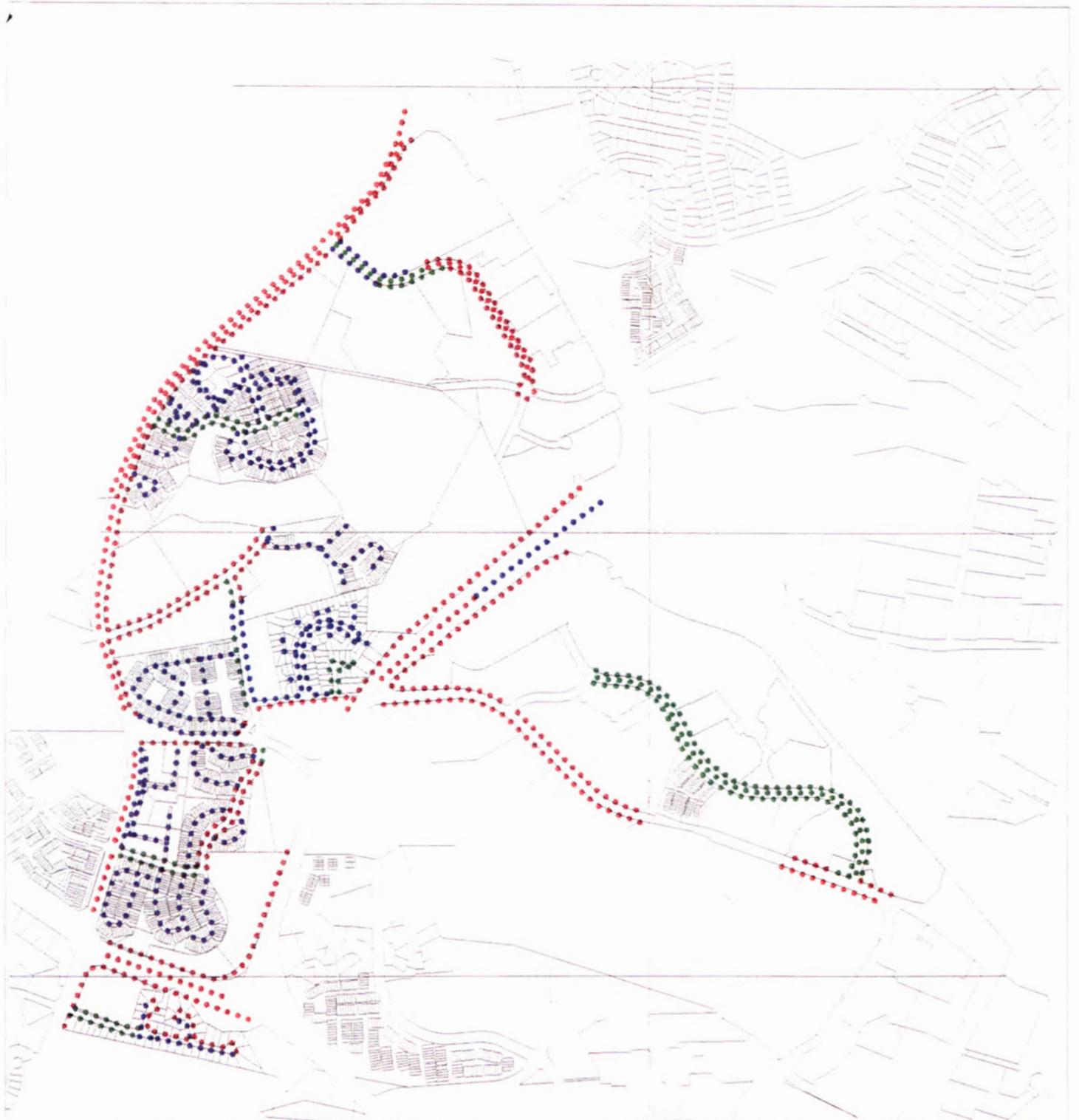
SCALE : GRAPHICAL

DATE : NOVEMBER, 1996



-  NO STREET TREES
-  STREET TREES - IRREGULAR PATTERN
-  STREET TREES - REGULAR PATTERN

PLANNING AND CODE ADMINISTRATION



NEIGHBORHOOD THREE - STREET TREE INVENTORY

SCALE : GRAPHICAL

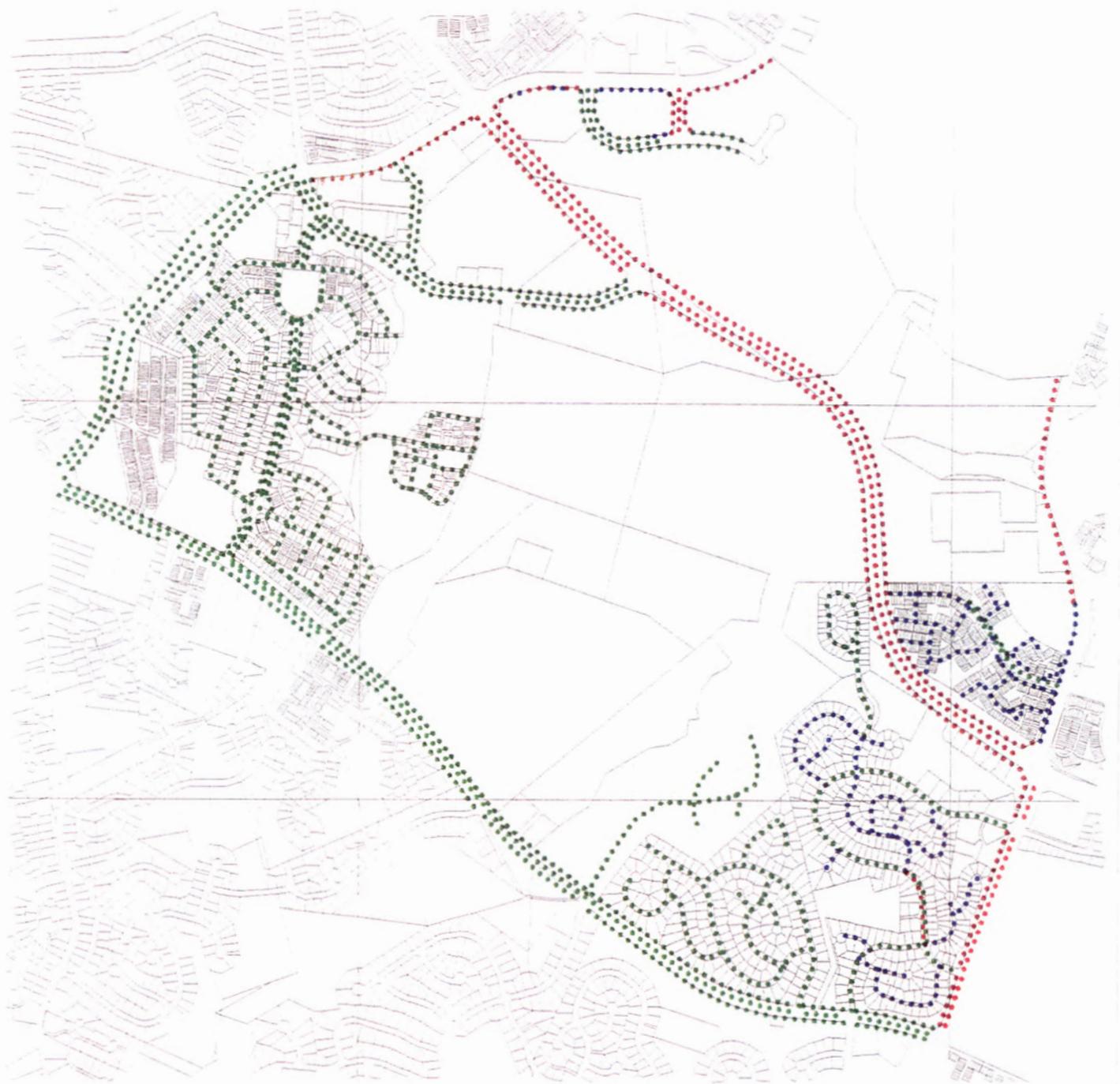
DATE : NOVEMBER, 1996



Gaithersburg

-  NO STREET TREES
-  STREET TREES -
IRREGULAR PATTERN
-  STREET TREES -
REGULAR PATTERN

PLANNING AND CODE ADMINISTRATION



NEIGHBORHOOD FOUR - STREET TREE INVENTORY

SCALE : GRAPHICAL

DATE : NOVEMBER, 1996



Gaithersburg

-  NO STREET TREES
-  STREET TREES - IRREGULAR PATTERN
-  STREET TREES - REGULAR PATTERN

PLANNING AND CODE ADMINISTRATION



NEIGHBORHOOD FIVE - STREET TREE INVENTORY

SCALE : GRAPHICAL



DATE : NOVEMBER, 1996



Gaithersburg

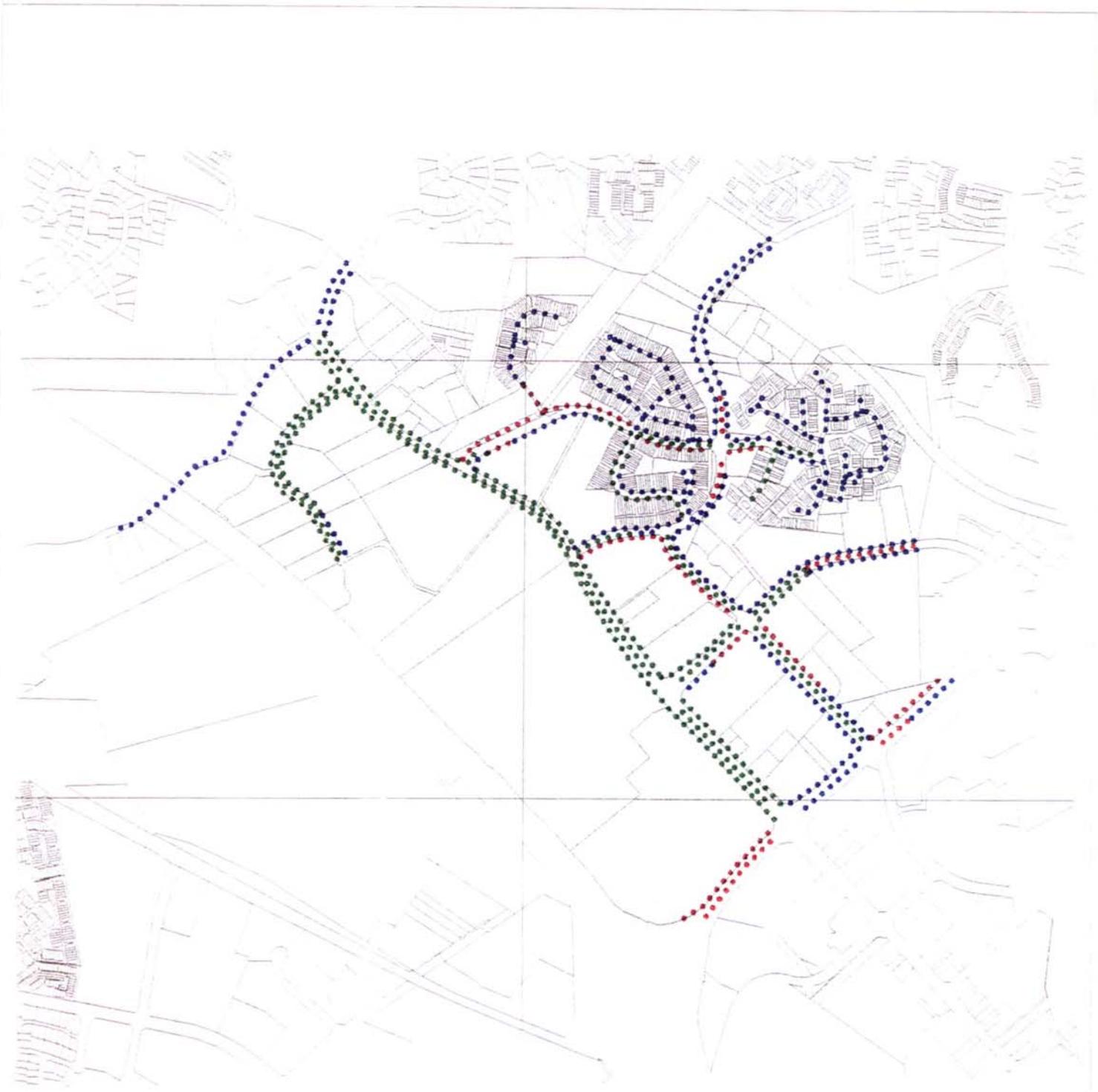


NO STREET TREES

STREET TREES,
IRREGULAR PATTERN

STREET TREES,
REGULAR PATTERN

PLANNING AND CODE ADMINISTRATION



NEIGHBORHOOD SIX - STREET TREE INVENTORY

SCALE : GRAPHICAL

DATE : NOVEMBER, 1996

NORTH



-  NO STREET TREES
-  STREET TREES - IRREGULAR PATTERN
-  STREET TREES - REGULAR PATTERN

PLANNING AND CODE ADMINISTRATION

SENSITIVE AREAS

APPENDIXES

APPENDIX I
ADOPT-A-STREAM LIST

ADOPT-A-STREAM PROGRAM

STREAM SEGMENT	POTENTIAL SPONSORING ORGANIZATIONS
Muddy Branch, Main Stem Lower	Toll Brothers/Woods at Muddy Branch HOA Washingtonian Woods HOA Dufief Elementary School
Muddy Branch, Main Stem Middle	Shady Grove Village HOA's Suburban Park Apts. Fields Road Elementary School
Muddy Branch, Main Stem Upper	Deer Park Citizens Assoc. Deer Park Place HOA Brighton East HOA's Gaithersburg High School
Muddy Branch- Tributary 1B	Washingtonian Woods HOA
Muddy Branch - Lake Helene Tributaries 1, 2 and 3	Kentlands Citizens Assembly Rachael Carson Elementary School
Muddy Branch - Tributary 1A	Manor Care, Inc. Quince Orchard High School
Muddy Branch - Tributary 1	Quadrangle Dev. Co./Quince Orchard Park HOA Natelli Communities/Lakelands HOA
Muddy Branch - Tributary 2	NIST Quadrangle Dev. Co./ Quince Orchard Park HOA Natelli Communities/Lakelands HOA
Muddy Branch - Tributary 3	Brighton West HOA's Park Summit HOA NIST
Muddy Branch - Tributary 4	Hazel-Peterson Co. Rio Owners Marriot, Inc. Bechtel, Inc.
Muddy Branch - Tributary 5	Rosemont Citizens Assoc. Rosedale Apts. I-370 Ltd. Partnership Rosemont Elementary School

STREAM SEGMENT**POTENTIAL SPONSORING ORGANIZATIONS**

Long Draught Branch, Main Stem
Upper

Natelli Communities
Pat & Mike's Restaurant
Chili's Restaurant
Lone Star Restaurant
Giant Food
Quince Diamond Building Owners
Orchard Pond Apts.

Long Draught Branch,
Main Stem Quince
Middle

Orchard Cluster Apts.
Seneca Mews HOA

Long Drought Branch, Main Stem
Lower

Pheasant Run HOA

Long Drought Branch
Tributary 1

Relda Square HOA
Bridlewood HOA
Ridgeview Middle School
Montgomery Players Theater
Child Time Day Care Center
Orchard Place HOA
Diamond Farms Elementary School

Great Seneca Creek

Danac Dev. Corp.
Federal Realty Inv. Trust
Montgomery Agricultural Fair
Loral Federal Systems
IBM
Casey Trust
Montgomery Ward/Toys-R-us
Hilton Hotel

Whetstone Run, Main Stem
Lower

Windbrooke Condo Assoc.
Montgomery Meadows HOA
Montgomery Village Foundation

Whetstone Run, Main Stem
Upper

?

Whetstone Run, Tributary 1

Montgomery Meadows HOA

Whetstone Run, Tributary 2

Woodland Hills HOA
Village Overlook Condo Assoc.
Hunt Club Apts.
Taubman, Inc.
Asbury Methodist Villa's
Forest Oak Apts.
Gaithersburg Elementary School

STREAM SEGMENT

POTENTIAL SPONSORING ORGANIZATIONS

MiddleWhetstone Run, Tributary 3

Asbury Methodist Village
Casey Foundation

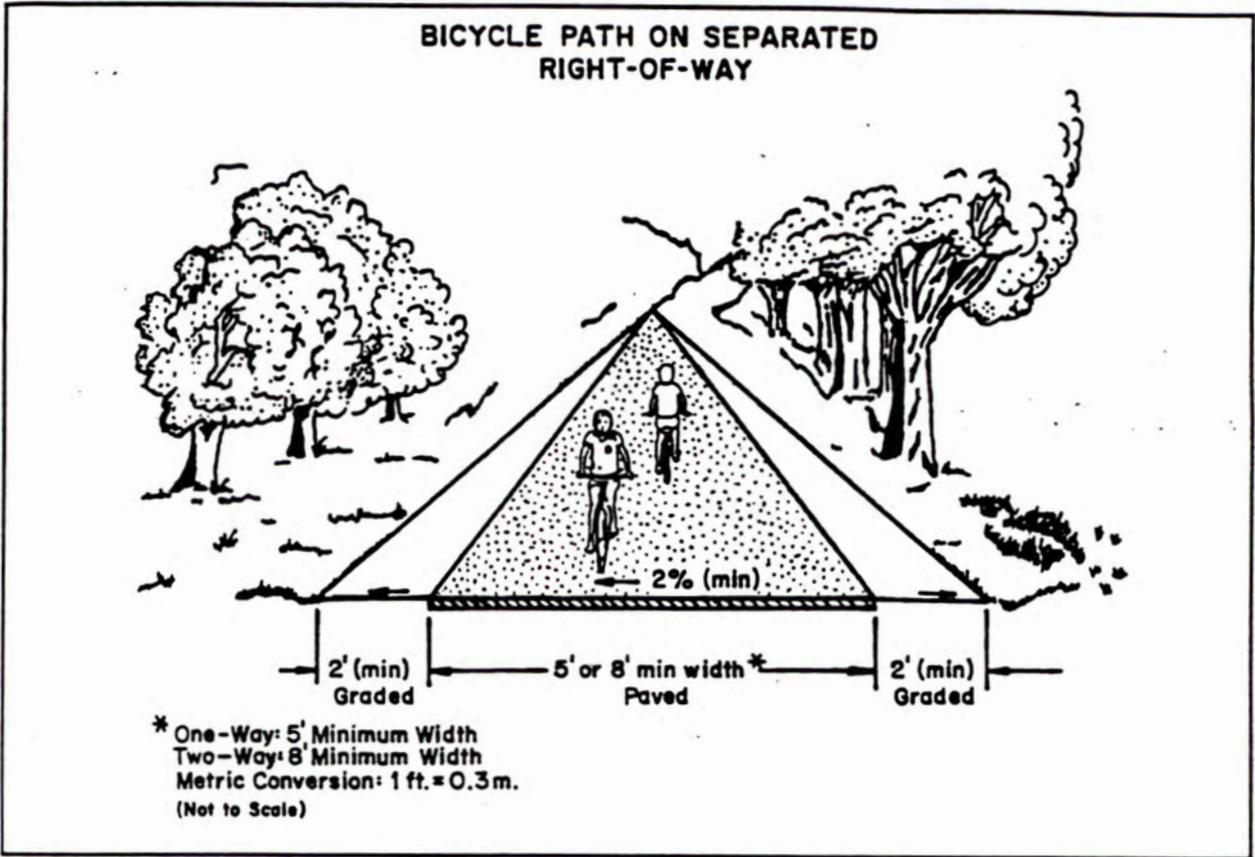
Whetstone Run, Tributary 4

Whetstone Run HOA
Newport Estates HOA
Saybrooke HOA
Perlmutter Co.
Town of Washington Grove
Casey Foundation
Gaithersburg Middle School

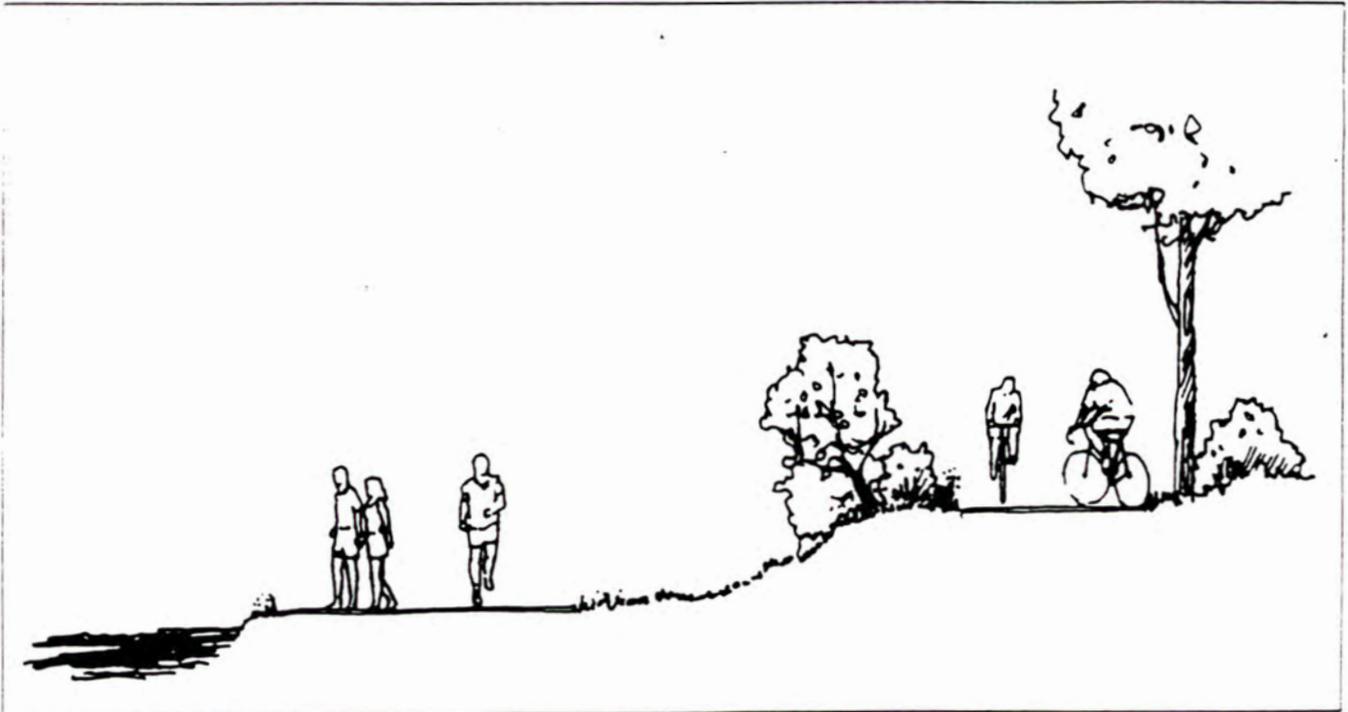
Whetstone Run, Tributary 5

?

APPENDIX II
TRAIL EXAMPLES



Source: Guide for the Development of Bicycle Facilities, AASHTO



When trails become heavily used, it is necessary to separate conflicting uses.

Source: Land Trust Alliance Exchange

FIGURE 16. PHYSICAL BARRIER TO PREVENT UNAUTHORIZED MOTOR VEHICLES ON BIKE PATHS

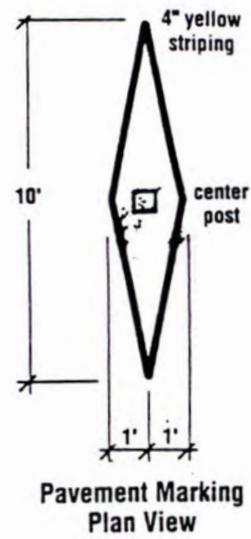
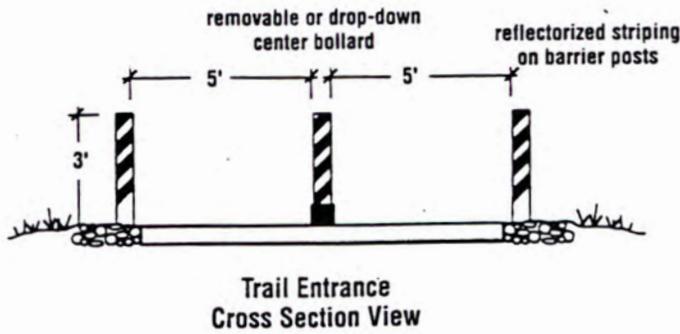
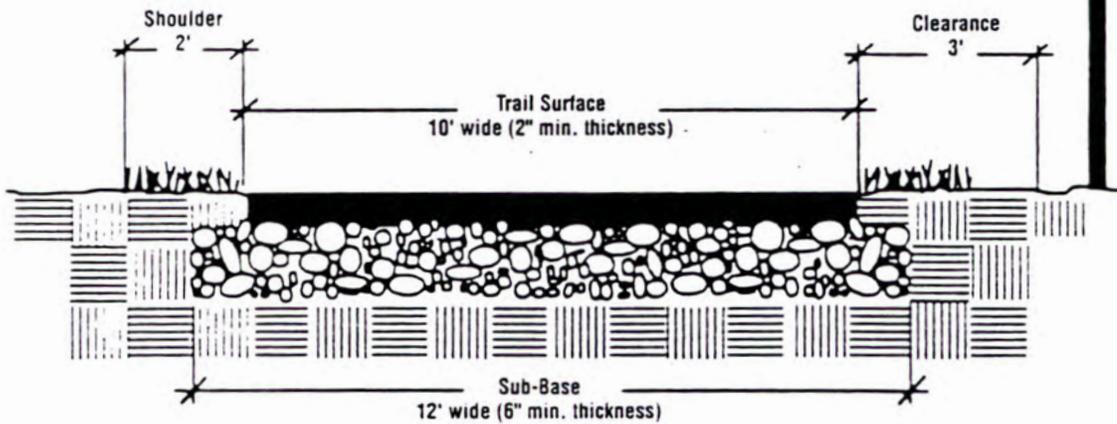
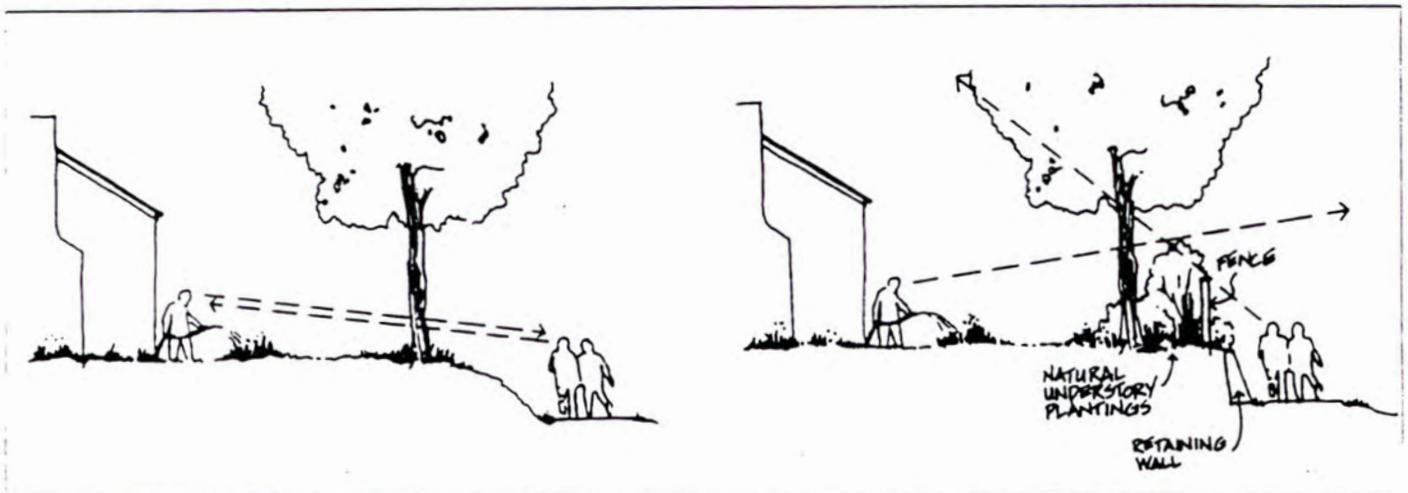


FIGURE 15. TYPICAL TRAIL CROSS SECTION

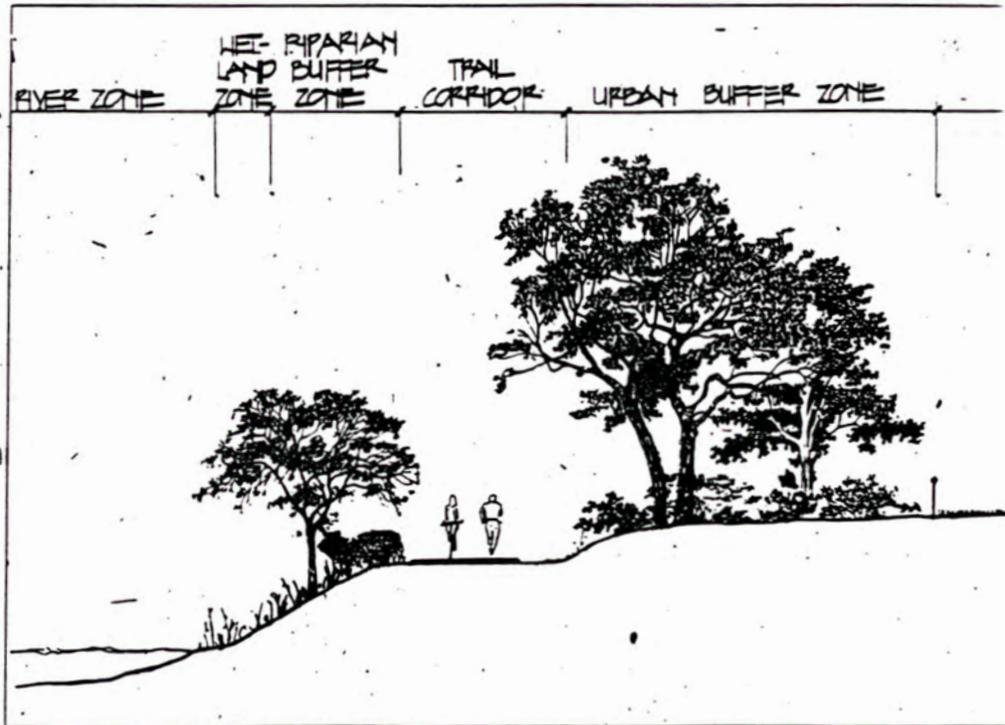
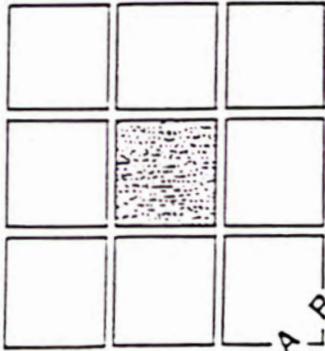


The typical trail cross section depicts minimum path widths and clearan as set by AASHTO (1992: 23-24). Minimum sub-base and asphalt thicknesses are as recommended in a national trail design guide produced by the Rails-to-Trails Conservancy (Ryan 1993: 83).



Physical separations such as fences, hedgerows, and differences in elevation create a sense of privacy along a trail.

APPENDIX III
SIGN EXAMPLES



- For reasons of safety and liability, designated bicycle routes should meet national minimum standards and have all hazards to bicycle travel (parallel drainage grates, rough railroad crossings, etc.) removed before they are signed.

Special Considerations:

- In order to provide directional information, a standard "bike route" sign should be supplemented with arrow plates, names of routes, distances to destinations, etc.
- Bicycle route signage is not recommended for routine use on major arterials or rural roadways with high traffic volumes and speeds. The implementation of bicycle lanes, paved shoulders, or designation of less-traveled alternative routes, are preferred treatments. If no alternatives exist, "share the road" caution signs may be used as an interim measure until bicycling conditions can be improved. (See Figure 23 on page 22.)

Route Signing

As discussed in the *Manual on Uniform Traffic Control Devices* (U.S. DOT 1988, 9B-9), bicycle route signs are information signs designed to guide cyclists to their destinations. As such, these guide signs should be placed at decision points along a bikeway to inform cyclists of bicycle route direction changes and confirm that route direction has been accurately comprehended.

To provide navigational information, supplemental plaques should be used with bicycle route signs (Figure 19) to convey the following information:

- Destination of the route
- Distance to the desired destination
- Direction of travel

As desired or deemed appropriate, supplemental plaques may also be placed above or below the D11-1 sign for the following purposes:

- To clarify which community a bicycle route serves
- To identify a specific route by local name



FIGURE 19. A BICYCLE ROUTE SIGN

Regional bicycle routes. The *MUTCD* recommends a bicycle route marker (also referred to as an M1-8 sign, see Figure 20) for use where it is desired to establish a unique identification through route designation of a state, regional, or local bicycle route. However, if there are numerous jurisdictions responsible for bikeway implementation within a metropolitan area, it may be difficult to coordinate a logical and meaningful bikeway numbering system that could evolve and expand with new opportunities for bicycle facility construction. In such cases, and

because the *MUTCD* allows for variance in sign design where messages other than those provided in the *MUTCD* are needed, a unique regional signage system may be considered to differentiate long-distance routes from routes leading to local destinations only. As one example, the greater Kansas City area is taking a regional signing approach that promotes the region's proposed Metro Bike/Metro Green name and logo. (See Figure 21.)



FIGURE 20. BICYCLE ROUTE SIGN AS AN OPTION FOR REGIONAL ROUTE IDENTIFICATION



FIGURE 21. A CUSTOMIZED REGIONAL ROUTE IDENTIFICATION SIGN

Similar regional bicycle route markers may be appropriate for use in large urban areas in the following situations:

- Multijurisdictional routes that connect one or more communities.
- Multijurisdictional routes between counties or states.
- Regional trail systems.
- Connections to the regional trail system

Special map signs. In certain circumstances, it may prove beneficial to provide even more directional information to cyclists by mapping bikeway routing through particularly confusing areas. (See Figure 22.)

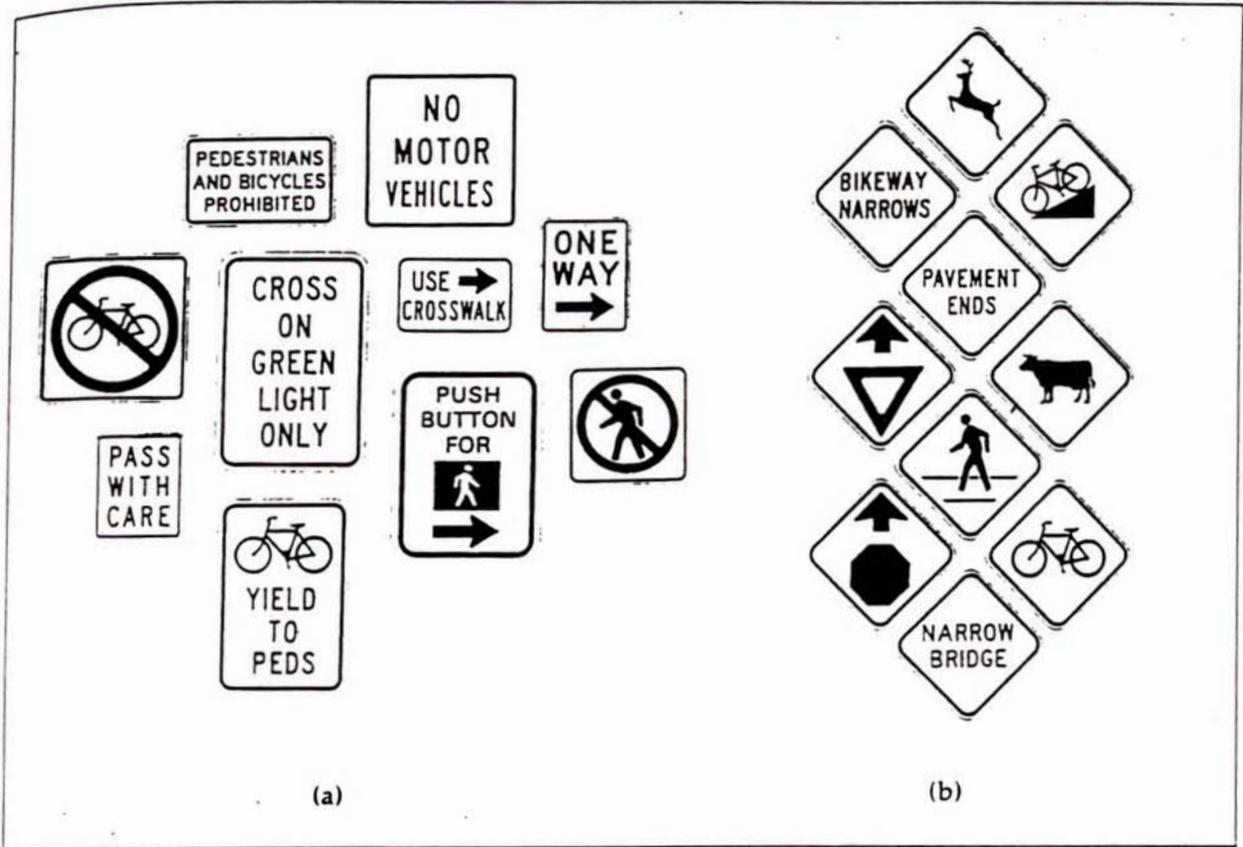
Appropriate application of such treatment would be:

- Where three or more bicycle routes converge in one area.
- Where infrequent users may tend to get lost without supplemental navigational information.
- Where placement of standard route signage would be too frequent or confusing.



FIGURE 22. SPECIAL MAP SIGN

Regulatory and warning signing. While some of the guide signs discussed above are variations of standard signage treatments, national recommendations for the use of regulatory and warning signs should be followed as established in the *MUTCD*.



Source: Greenways. A Guide to Planning, Design, and Development. The Conservation Fund

APPENDIX IV
STREET TREE NOTES

STREET TREE NOTES
LISTED ALPHABETICALLY BY STREET OR SUBDIVISION

Avenel

Road could be narrowed and median added with trees.

Bank Street

Has trees in median, but large gaps exist.
Irregular pattern on outside of sidewalks.

Bennington

Has median at entrance with no trees. Irregular plantings along Longdraft
median could have trees planted.

Brighton Dr.

Has Bradford Pears in planting strip, some being damaged and replaced.
Various sizes of trees.
Some larger gaps along Summit Hall Road near cul-de-sac.
City could set up program where cul-de-sacs are taken over by HOA after islands are added and
shade trees are planted.

Brighton East

Has had replacements of Bradford Pears, which were removed due to storm damage. however,
gaps still exist.

Bureau Drive

Good design along Quincetree frontage.
Median planted with short trees and shrubs.
There are no trees behind shopping center.

Cedar Ave

Regular planting of silver maples between James and George.

Cedar Ave

Trees could be added in front of churches-
200 block - calvary apostle church.

Chestnut Street

Has large mature trees, irr.

Clopper Rd.

From Longdraft road - has trees set back from road along Orchard Hills-
forest along opposite side in front of townhouses.
Trees could be added in strip.
No trees in front of Bennington office park.

Clopper Rd.

Has no trees on south side. North side has pines along Apts. Warehouse and Bowl America have no trees.

In front of Tech Park there are trees set back from road, trees could be added.

Wienshel has no trees.

Clopper Road

Has no trees on Orchard Pond side, irregular trees next to plaza side. No trees in median near Rt. 124.

Crown Farm

Road has no trees on either side.

Curryford/Bickerstaff

Has no trees on park side and no trees on other side.

Deer Park

Neighborhood has many old growth trees in front yards.

There are areas along some streets where trees could be added in.

DeSellum

Along church property could have street trees.

Overhead lines exist.

DeSellum Oaks

Live oak specimen present.

Diamond Farms

Has large oak trees in yards and parking areas.

Diamondback

Has no trees from 370 to Bickerstaff.

Diamondback irregular on left. Strip on right, next to Shady Grove has regular planting of Pine Oaks from Muddy Branch to Bickerstaff.

Dosh Drive

Has trees on side with houses, but not on berm side.

Large painted median at Midline Road could be planted with trees.

E. Deer Park Rd

Has forest along Guardian irregular trees along both sides.

Strip along E. Deer Park could be created by narrowing of road and adding sidewalk.

Trees could be added in front of Deer Park Prof. Park and funeral home.

E. Diamond Ave

No trees between & irregular - trees along Perlmutter prop. are in poor condition
Gaithersburg Ford tractor has regular planting outside walk.

E. Diamond Ave

Street trees could be added in front of The Granary.

Street trees on East Diamond end at last ind. Bldg. On south side - overhead lines on both sides of street.

E. Diamond Ave

Has a lot of constraints to street trees, but some have been added in front of antique shops on south side.

E. Diamond Ave

Has trees in front of old bank and Olde Towne Park parking lot.

Irregular planting the entire length to Girard- in-fill was done several years ago.

Fallbrooke Ct.

Trees outside sidewalk.

Planting strip could receive trees.

Fallbrooke St.

Irregular planting outside sidewalk.

No trees in planting strip.

New trees should be spaced between existing trees outside the sidewalks.

Fernshire Farms

Side streets are irregular, but there are trees in front yards.

Firstfield Rd, # 19

Large gap in outside area in front.

Plantings on outside are irregular compared to median, except for Watkins Johnson, gazette bldg.
has new street trees.

Firstfield median

Planting is regular but, has gaps in median.

Outside of walks is irregular.

Firstfield Rd.

Trees in median. Irregular trees on outside.

Firstfield Rd.

Has median plantings between Bureau and Rt. 124.

No trees along Criswell or shopping center.

Median trees are columnar form of maple with no canopy closure.

Firstfield on West Side of Clopper

Has median trees and irregular trees or forest on outside.

Gaither Rd.

Has irr./reg. Planting along outside of walks.

Some gaps exist.

Cul-de-sac at UPS needs trees.

Girard St.

Regular trees in median where median exists.

Outside walks have irregular plantings of pines, etc.

Girard St.

Oak trees adjacent to Apts across from shopping center.

No trees in front of shopping center.

Median is planted.

Girard St.

Frontage of vacant Casey property needs trees.

Median is planted.

Girard St.

Space for median trees on the street in front of Ameridata business.

In front of Netwave. #602 in poor condition or nonexistent.

Corner of east diamond - Perlmutter prop.

Goshen Road

Right side of Goshen is forested area and culvert.

Left side of Goshen is wetland and culvert.

Great Seneca

Between I-370 and Muddy Branch no trees except for white pines along Warther.

Harmony Hall Road

Has irregular plantings on outside of road.

Harmony Hall Road and Cedar Ave

Most streets have irregular plantings.

Holbrook Center

Could have trees added along Rt. 355 frontage.

Lakeforest Blvd.

Could have trees added in gaps in median and on outside.

Lakeforest Glenn

Entrance road has no trees, but is in PEPCO ROW.

Narrow strip between curb and walk offers no space for new trees.

Longdraft Rd.

Has forest or irregular trees along single family lots.

Through park along bikeway, no trees but forest on one side.

No trees from Pheasant Run Rd. to Clopper along Longdraft Rd.

MD 28

Street trees planned as a part of widening project.

MD 124

Potential for new median on Rt. 124, 117 and I-270.

MD 28

Large existing trees in front of Manor Care that may be preserved.

MD 124

No trees with exception of some trees in front of Denny's and forested areas.

No trees in front of SHA or Orchard Pond Apts.

MD 117

No trees on either side. Some trees in front of Pat and Mikes and Quincetree.

No trees along NIST.

MD 124

Has no trees in median, or on outsides. Irregular planting along Quince Orchard Corporate Park of white pines and pin oaks, no street trees, areas of bike lane could be removed for trees.

Meem Ave

Has large existing trees, irregular planting. New streetscape improvement ?

Midcounty Hwy.

Trees in median at Goshen for 100 feet.,
the rest of median is not planted.

South side has no trees.

Areas of existing Forest close to road.

Embankment areas need trees.

Next to Saybrooke and Camden Apts trees are needed.

Midsummer

Washingtonian Woods has regular trees on one side of, irregular or nothing on opposite side-strip is too narrow.

Mission Hills

Has regular planting on main road, both sides.

Mont. Village. Ave

Has large gaps in median and outside ROW for additional trees.

Muddy Br. Rd.

Has no median trees from W. Deer Park to W. Diamond

Irregular plantings on outside in County.

White pines on outsides.

Muddy Branch

Can add trees in median where curbing exist.

Muddy Branch

Has no trees from Diamondback to I-270 - are planting strips on both sides wide enough?

Muddy Branch

Planting strips along need to be measured.

Large shade trees could be planted outside walk along NIST. Overhead lines on both sides of Muddy Branch.

Muddy Branch Rd.

No trees from Midsummer to Great Seneca Highway.

Past Great Seneca. White Pines and irr. Plantings on outsides adjacent to Amberfield and Warther. no trees in median.

No trees from Rt. 28 to Midsummer.

N. Summit Avenue

Maples at Olde Towne Park.

A few trees at city parking lot.

No trees up to Brookes Ave.

North of Brookes, irregular trees in front of Apts., other side has large specimen trees.

In front of Summit Crest - irregular trees headed back due to utilities.

Asbury frontage has mature oak trees.

Streamside Apts needs trees, existing spruce and pine along path.

Asbury has evergreen plantings , needs trees.

No trees in front of shopping center, overhead lines exist.

Newport Estates

A small area for street trees, but pines eventually at street.

Odendhal Ave

In Saybrooke, trees could be added on outside.
Trees exist in median and outside the sidewalks.
Most of Saybrooke has trees in minor roads in front of houses.
At Saybrooke pool there are London plane street trees.
Trees are needed next to tennis courts.
Irregular from there up to Victory Farm Dr.

Odendhal Ave. between Russell and 355

Has median trees.
No trees outside of walks in front of Sports Authority and Apts.
Add trees in front of Just Tires.

Odendhal Ave. between Lost Knife and Summit

Nothing in median.
Strips on both sides with no trees.
Trees outside walk along Off Price Center.
Trees in median at Lakeforest mall, irregular.
Irr. Plantings outside road, no walk or strip.
No trees along Asbury, but strip exist.

O'Niel Drive

Has no trees.

Perry Parkway

Trees could be added outside of parkway at vacant land up to RR bridge.

Perry Pkwy

Has reg. Planting of cherries on outsides of road in strips and in median to border of neigh. 2.

Perry Parkway

Median trees from 355 along Gaith. Sq.
Irr. Trees on outside along Wards and Gaith. SQ.
Some street trees along Hilton, gaps.
No street trees at all along Fairgrounds.
Trees proposed along CompUSA.
Some street trees along Gaith. SQ. Frontage on Perry.

Pheasant Run Drive

From Clopper has irr. trees along offices, none in strip adjacent To houses. Median is reg. Planted
Trees are fairly reg. along office bldg. Where median exist, irr. On outside next to houses.

Quince Orchard Rd.

Along vistas can receive trees and between guard rails.

Quince Orchard Rd.

Along Diamond Farms townhouses has reg. White pines, trees could be added between new sidewalk and curb and along Crescent area trees can be added between curb and existing sidewalk.

Orchard Ridge Rd. has reg. planting on outsides and groupings of cherries in median, which needs more trees.

Quince Orchard Blvd.

Has reg. planting on outsides and median between Quince Orchard Rd. and Firstfield Rd. No trees from entrance to Montgomery Playhouse to City park.

Quince Orchard Rd.

Has no trees in front of Bridlewood.

Trees in front of Uptons, but far back from curb.

Forest along Beacon Place Apts, trees could be added along berm.

Quince Orchard Blvd.

Has median trees and trees on outside, no trees adjacent to Child Time and City Park.

Planting of trees outside walk adj. To city property nothing in planting strip.

Oaks adj. to Potomac Oaks, too narrow planting strip.

Trees outside walk in front of Brown Station Elementary School, but strip is not planted, they do have reg. Oaks and pines.

Quince Orchard Rd

Adjacent to Sam's, no trees due to sewer easement.

Opposite side adj. to Loral has irr. Pines and existing trees.

Quince Orchard Rd - interch. with I-270

Has no trees, but has forest inside loops.

No trees along St.. Hwy. maint. Depot and Red Roof Inn up to Clopper Road.

Quince Orchard Blvd.

Strip on front of Diamond Farms office condos is not planted, but trees do continue along Potomac oaks condos.

Quince Orchard Cluster has irregular tree, nothing in strip.

Corner of Firstfield and Quince Orchard Blvd. has no trees along old courthouse.

Quince Orchard Rd.

Has trees along widened section.

Along shopping center there are no trees, but they may be added during widening, same with route Rt. 28.

Quince Orchard Rd.

From Bank Street south, no trees, but there are trees set back from road. Strip is too narrow for trees. Trees on NIST side would have to be planted in conjunction with a new sidewalk.

Rabbitt Rd.

Has a strip that has no trees but indiv. homeowners have planted some cherries.

No street trees along Robertson park.

Trees are in the strip next to DPW.

Realty Park

Has trees in front yards, small gaps.

Rt. 355

Between bridge and Mont. Village street trees are planned.

Rt. 355

Trees could be added on in front of Roy Rogers, Shell, Mattress Warehouse, 444 N. Frederick.

Rt. 355 Median

Remove concrete.

Replace ex. trees.

Outsides are irregular.

Rt. 355 Bridge

Concrete median near and triangular areas including bus stop can have concrete removed and replaced with grass and trees.

Rt. 355

Add trees in front of Caldwell Banker, Exxon.

Rt. 355

Add trees in front of 615 S. Frederick.

Rt. 355

Exxon has no trees on, plan requires?

Rt. 355

Reg. Planting of locust trees on along St.. Martins.

Plantings in median across from St.. Martins.

Rt. 355

Needs trees at I-370 ramp.



APPENDIX V
STRATEGIC DIRECTION NUMBER 6

Strategic Direction No. 6:	Implement recommendations from ongoing evaluations of natural resources and encourage the protection and enhancement of the environment (streams, parks, storm water management, and other CIP projects).
Priority:	Medium
Team Leader:	Jim Arnoult
Contributing Members:	Paul Folkers, Dick Blohm, Wally DeBord, Clark Wagner, Greg Ryberg, Environmental Affairs Committee Members

BACKGROUND (Why)

- City vision is a natural environment that is protected, respected, and enhanced.
- Consultant stream condition survey indicated many streams in deteriorated condition.
- Consultant study of existing City and HOA storm water management (SWM) facilities indicated many facilities should be retrofitted to provide improved water quality and quantity management.
- Environmental Affairs Committee has developed Environmental Standards to protect natural areas during development.

APPROACH (How)

General Philosophy

- Halt deterioration and improve quality of streams through two (2) pronged approach, with first priority being SWM retrofit project, and second priority being streambank stabilization projects.
- Utilize part-time staff and consultants to get projects under design /construction.

SWM Projects

- Develop multi-year program for retrofitting SWM facilities.
- Utilize state matching funds for stream and SWM projects.
- Utilize partnerships to improve regional facilities where practical and feasible.
- Contact HOAs with SWM facilities to clarify responsibilities: HOAs are to handle routine items such as mowing and liter pick-up; City is to maintain structural elements.
- Develop program for ensuring that privately owned SWM facilities are maintained.
- Notify and work with property owners to resolve serious stream problems on private property. Consider alternatives and creative approaches such as cooperative purchase contracts for cleaning oil grit structures.

Stream-Projects

- Develop multi-year program for spot stream stabilization projects.
- Sponsor periodic volunteer stream cleanups.
- Monitor changes in NPDE program.
- Monitor development of county-wide tax intended to fund requirements mandated by NPDE.

Tools

- Environmental Affairs Committee.
- State funds under non-point source pollution control program.
- Consultant assessments of SWM facilities and streams.
- Consultants to be selected for design of SWM facilities.
- Environmental standards.
- City Code requirements for forestation, sediment control, storm water management; and flood plains.
- Develop partnerships.

ACCOMPLISHMENTS/ACHIEVEMENTS IN CURRENT FISCAL YEAR (What)

- Report completed by Sensitive Areas Ad Hoc Committee.
- Sensitive areas element of master plan drafted with adoption expected in May/June.
- Cost estimates and project lists prepared.
- Application made to state for funding of three (3) SWM projects and five (5) spot site stabilization projects.
- RFP for design of SWM projects drafted.
- Began revisions to SWM ordinances.

GOALS (When)

FY '97

- Complete RFPs and advertise for design services of three (3) SWM projects (Victory Farm, Amberfield, and Rabbitt Road).
- Complete RFPs for five (5) stream stabilization projects (Solitaire Court, Country Woods Court, West Deer Park, Industrial Drive, Malcolm King Park).
- Select consultants and award design contracts.
- Review preliminary design with community and appropriate agencies.
- Require new SWM facilities to be built in accordance with recommendations of sensitive areas master plan. (Revise SWM ordinance.)
- Request City CIP construction funding for FY '98.
- Review options for requiring maintenance of private SWM facilities.

FY '98

- Complete design of first three (3) SWM projects and first five (5) stream stabilization projects including obtaining appropriate permits (Wetland, Water Resources, etc.).
- Advertise and award construction contracts for SWM and stream projects.
- Finalize selection of next set of projects and apply for state funding, select consultants, etc.
- Notify property owners of maintenance requirements for SWM facilities.
- Revision of SWM ordinances.

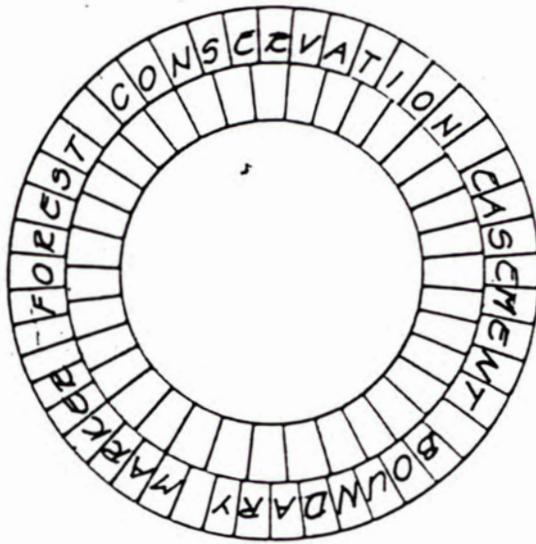
FY '99 and Beyond

- Continue to implement SWM and stream projects.
- Conduct reassessment of stream condition every three to four years.

CRITICAL MEASURES

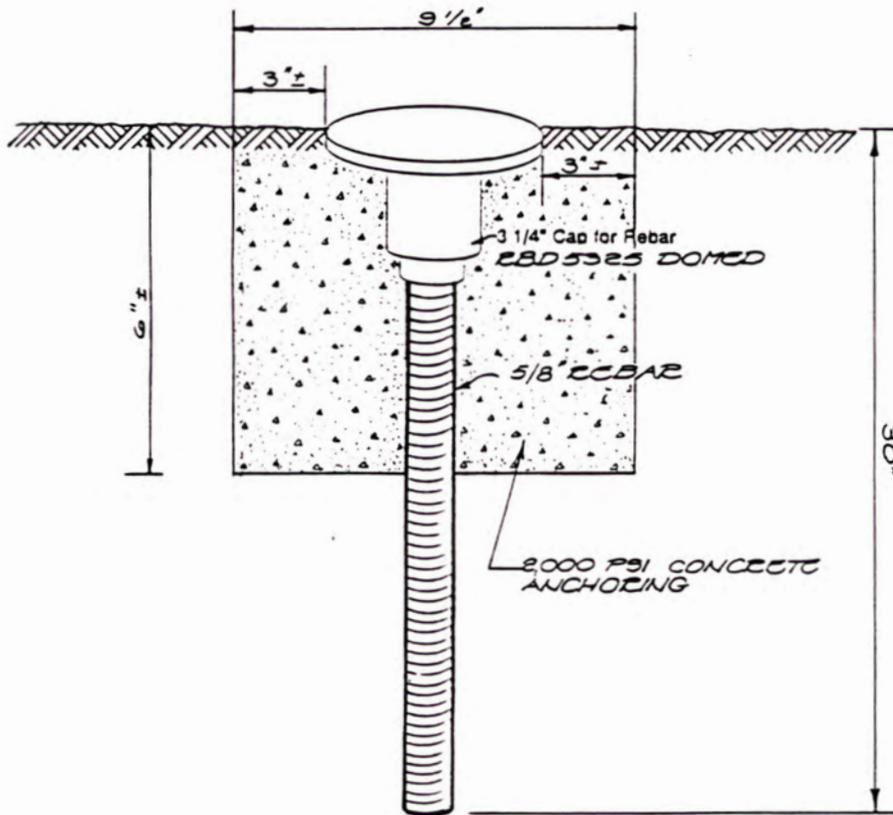
- Success in accomplishing annual SWM retrofitting goals.
- Increase in the level of HOA involvement in SWM maintenance.
- Presentation and improvement in the quality of City streams.

APPENDIX VI
CONSERVATION EASEMENT MARKER



PLAN VIEW

N.T.S.



FLUSH MARKER - SECTION

N.T.S.

NOTE:

1. CAP TO BE SECURED TO REBAR
2. MANUFACTURED BY "BOERTSEN" INT. INC.
MADISON WISC. 53708 MODEL # EBD 5323
ALUMINIUM CAP