
Chapter 8: Natural Resource Management and Environmental Protection

Introduction

During the 1990s the City of Woodbury has faced the challenge of controlling urban growth at the rural-urban fringe. As growth occurs at a high rate, it begins to place stress on the community, not only on its infrastructure and in how it operates but also in its physical environment and natural resource base. In the past decade, the development and implementation of environmental protection tools and strategies has vaulted to the forefront of many communities' agenda, as a means to protect what is important to the community and the region. This is particularly the case in Woodbury as evident by the establishment of a citizen advisory committee on open space and the voter approval to spend tax dollars on the acquisition of open space. After all, the open space, wetlands, and woods are what attracted many residents to Woodbury. Natural resources such as wetlands, lakes and woodlands are important features in Woodbury; providing low-cost storm water management and flood control, providing a purification system for drinking water and surface waters, contributing to air purity, increasing property values, and creating a sense of place and identity to the community.

Woodbury is fortunate to be part of a progressive Washington County and three active watershed districts that have in-depth inventories and resource management plans. This type of regional planning allows for better protection of natural systems that may cross municipal boundaries. Woodbury is also fortunate to have the leadership and citizen interest and commitment to work together in protecting the environment.

This chapter of the Comprehensive Plan addresses the management of natural resources and strategies for protecting the environment. The plan carries forward many of the principles, goals and policies established in previous comprehensive plans for Woodbury, as well as identifies new tools and strategies to help implement the goals and policies for protecting the environment.

Existing Natural Resource Base

The City of Woodbury was once covered in oak savanna, wetlands, and prairie. As Europeans settled the land in the 1800s, the more level and dry land was extensively farmed and turned into fields and pastures. Nearly all the land suitable for agriculture was cleared for farming by the early 1900s. The southwest corner of the city, being too hilly to farm, has retained a canopy of mature oak trees under which residents have built their homes. The wetlands also were unable to be farmed. Wetlands that weren't drained or tiled have remained as a habitat refuge for wildlife. The Tamarack Swamp is a unique natural community that has had community importance throughout history, and has now become a park, where residents walk through this unique plant community. The lakes in Woodbury provide enjoyable places for swimming, fishing and boating. The subtle hills to the east offer scenic views of open space and give present residents a sense of place. Productive agricultural lands to the southeast are valued as a community asset and give areas of Woodbury a rural character.

As growth pushes outward from the urban core, it is increasingly important for Woodbury to be able to protect its significant environmental resources. In order to protect these resources Woodbury needs to have policies and guidelines for natural areas, open space, slopes, soils, surface waters, and groundwater.

Natural Areas

Natural areas are sites that have had limited human disturbance. Although natural disturbances do occur that change plant community patterns, native vegetation still makes up the majority of the plant community of these sites. Few quality natural areas remain within the metropolitan area and priority should go to preservation efforts over creating or restoring poorer quality sites. While most of the vegetation was stripped away for agricultural needs, small parcels of natural communities were left, namely the Tamarack Swamp and other wetlands and canopies of oak trees used for cattle shade and wind breaks. In February of 1997, the City completed a *Natural Resources Inventory Report*, which provided a detailed description and quality ranking system of some key remaining natural areas within Woodbury's borders.

Open Space

Open space is a resource many residents use in describing what they like about Woodbury. Open space includes undeveloped sites that do not meet the criteria for natural areas, but still provide habitat, scenery and other community benefits. Open spaces can include areas such as farm fields, golf courses, utility corridors, wetlands, woodlots, and simple views with no developments or parkland. While Woodbury acknowledges that it cannot prohibit future development from occurring, it can create a plan that preserves resources that will continue to give residents a sense of open space within their community. The citizens of Woodbury have taken particular interest in preserving open space and through the efforts of the Parks/Natural Resources/Open Space Committee, have established a thorough description of what defines open space. This definition also distinguishes between passive and active open space areas. For a detailed definition of open space refer to the "City of Woodbury Comprehensive Plan Task Force Final Report of the Parks/Natural Resources/Open Space Committee" June 3, 1997.

Slopes

Woodbury's topography is gently rolling with a wide central draw running north and south that drains most of the City's surface water and includes a chain of lakes and wetlands. Topography will play an important role in Woodbury's character, not so much for its dramatics, but due to the fact that presently there are miles of rolling fields with no trees to block views. As these areas become developed, instead of open views of rolling hills, residents will view miles of rooftops. A policy to provide a greenway overlay on some of these hill crests is intended to break up the sea of roof tops, and provide open space that can be seen from around the community.

Soils

Soils can be both a resource and a constraint for communities. Areas with bedrock near the surface, steep slopes, wet or periodically flooding, or soils with slow percolation rate have severe limitations for the functioning of on-site septic systems and farming. These were mapped in the 1980 Comprehensive Plan. The *Soil Survey of Washington and Ramsey Counties*, published by

the United States Department of Agriculture Soil Conservation Service generally reveal that soils in the southeast corner of Woodbury are the better producing agricultural soils.

Surface Water

Watersheds are areas of land that drain surface water into a common stream, river or lake. Most of Woodbury’s land is in the South Washington County Watershed District, draining south into Bailey Lake. The northwest corner is in the Ramsey-Washington Metro Watershed District, and a small piece in the northeast corner of the city falls into the Valley Branch Watershed District. These watershed districts are important planning agencies and Woodbury will continue to work with them in managing water resources.

Wetlands perform many important functions in the environment. The most important functions include providing stormwater storage, groundwater recharge areas, reducing and buffering nutrient loads in surface water, providing wildlife habitat, and aesthetic and recreational enjoyment for Woodbury residents. There are many types of wetlands, each serving a slightly different function. The national wetland inventory (NWI) is a general mapping inventory that represents approximate locations of these types. Other sources for wetland mapping include the DNR, the South Washington County Watershed District, and the Ramsey-Washington Metro Watershed District.

The Tamarack Swamp is a fine example of a tamarack-hardwood swamp at the southern limit of the tamarack’s range¹. This unique and diverse plant community deserves a strong management plan to protect it from adverse impacts due to surrounding development.

Lakes are surface water bodies of 10 acres or more. There are seven lakes in Woodbury that provide recreation, groundwater recharge, flood retention, and fish and wildlife habitat among other benefits. Undisturbed shoreland is important to the water and habitat quality of lakes. The city has acquired much of this shoreland (through its shoreland ordinance) making it easy to better manage the quality of the lakes. The following table illustrates the City of Woodbury’s shoreland classification and riparian dedication requirements.

Table 8-1 Protected Waters and Riparian Dedication Areas

LAKE NAME	DNR ID #	CLASS	150 FT. RIPARIAN DEDICATION REQUIRED
BATTLE CREEK	82-91	General Development	YES
NONE	82-95	General Development	NO
COLBY LAKE	82-94	Recreational Development	YES
CARVER LAKE	82-166	Recreational Development	YES
WILMES LAKE	82-90	Natural Environment	YES
LA LAKE	82-97	Recreational Development	NO
POWERS LAKE	82-92	Natural Environment	YES
FISH LAKE	82-93	Natural Environment	NO
MARKGRAFS LAKE	82-89	Natural Environment	YES
NONE	82-88	General Development	NO
RIA LAKE	82-98	Natural Environment	NO

¹ Cushing, Edward. *Ecology of Tamarack Nature Preserve*, October, 1985 (Refer to Appendix G, City of Woodbury Comprehensive Plan, 1986)

Groundwater

“Washington County has substantial reserves of high quality groundwater. Due to the geological conditions of the County, most of these reserves are highly sensitive to contamination. If not protected, they will become unusable as a source of potable water.”²

The Geologic Atlas Series, published by the Minnesota Geological Survey, maps geological and hydrological conditions in the County. These maps can be used to determine the general locations where appropriate land uses might occur in order to avoid groundwater contamination. The biggest threats to groundwater are non-point source pollution, fertilizer and pesticide use and feedlots/manure storage. Other threats, which are carefully regulated and monitored, include problems associated with septic systems, solid and hazardous waste and well construction. The City of Woodbury currently obtains its municipal drinking water from the Prairie du Chien-Jordan aquifer out of a well field generally located north of Valley Creek Drive east of Tower Drive.

The Plan for Natural Resources and Environmental Protection

Introduction

As Woodbury becomes a more popular place to live, the environmental resources need ever more protection and management. In order to protect these resources the city must have policies and guidelines for natural areas, open space, slopes, soils, surface waters, and groundwater. In addition the plan needs to recognize special areas and issues that impact the natural environment, and establish direction or guidelines to help minimize negative impacts on the environment.

This section includes a discussion of the special natural resource issues and a list of general goals and policies that direct the community in the management of natural resources and protection of the environment.

Special Natural Resources Issues

Valley Creek Watershed

The headwaters of Valley Creek lie within the northeast corner of Woodbury. The majority of the Valley Branch Watershed within Woodbury drains toward a land locked basin in Afton or into the freeway ditch system. A smaller portion in Woodbury drains towards the Valley Creek. This creek is one of the few naturally reproducing trout streams in the metro area. Trout streams are endangered resources in the metro area, and many agencies are involved in protecting them and the watersheds they are a part of. The Valley Creek watershed lies within Woodbury’s northeast corner and also happens to be within a prime commercial and industrial development corridor along Interstate 94. The future land use plan designates the northeast area as “places to work.” It is anticipated that this corridor will see commercial and industrial development with urban services before 2020. Studies, which will test different development scenarios to determine future development impact on the watershed, are presently underway. The St. Croix Research Station is preparing these studies with assistance from the DNR, the Cities of Woodbury and Afton and the

² [Washington County 2015 Comprehensive Plan](#)

Valley Branch Watershed District. It is anticipated that some type of Overlay District, with special development standards, will be applied in the areas of the Valley Creek Watershed that are determined to affect Valley Creek.

Bailey Lake Stormwater Management

South Bailey Lake was created in 1994 to manage Woodbury's stormwater run-off. (For more information on Bailey Lake, refer to "Preliminary Report on Bailey Lake and Dale Road Improvements," File No. 31443, Bonestroo, Rosene, Anderlik & Associates, October 7, 1993, Woodbury, Minnesota). Most of Woodbury's surface water run-off drains south into Bailey Lake. As Woodbury's population grows, and more areas become paved, there is a need to carefully study the effects additional run-off will have on the capacity of Bailey Lake. An advisory group consisting of health and technical advisors, officials and citizens from Cottage Grove and Woodbury is studying all the possible options. These options include a range of ideas, such as infiltration, storage and piping techniques. The South Washington County Watershed District is studying the possibility of having additional infiltration open space areas near Bailey Lake. These areas would be managed to accept excess run-off during storm events, and function as open space or recreational areas at other times. The City of Woodbury will continue to work with the City of Cottage Grove and the South Washington County Watershed District to resolve issues associated with future surface water run-off.

Tamarack Swamp Management

The Tamarack Swamp that lies within Woodbury's boundaries is one of the furthest south plant communities of its type and is listed on the Minnesota Biological Survey as a significant Natural Plant community. Surrounded by development, its water quality and quantity is difficult to manage. (See Comprehensive Vegetation Survey of Tamarack Swamp, March 1999.) The Ramsey-Washington Metro Watershed District is studying various methods to preserve the valuable plant species found in both the east and west sections of the swamp while accommodating the increase in surface water run-off from surrounding new developments.

Tree Preservation and Restoration

Because of Woodbury's intense use as a farming community since the 1900s, few sizable stands of trees remain. While wide-open fields and expansive views are a character of rural Woodbury that many residents like, it is less appealing as a place for homes. Some remaining woodlots could be subjected to the threat of future development. As future development occurs on sites with existing significant tree standings, mechanisms should be used to preserve as much of the tree stand as possible. The City intends to investigate establishing a tree preservation ordinance in addition to using simple subdivision design tools such as density transfer to encourage preservation of trees.

Wetland Protection

Woodbury incorporated the requirements of the 1991 Wetland Conservation Act, which follows a “no net loss” policy. The draining or filling of wetlands is prohibited unless wetland areas of equal public value are restored or created. By ordinance, the City can require up to a 75-foot buffer around wetlands decided on a case-by-case basis. The South Washington County Watershed District is presently finishing a wetland inventory and a set of management guidelines. Woodbury will review and work to incorporate the new guidelines. While ecologically sound wetlands are better protected than replaced, Woodbury is working on a wetland-banking program for wetlands that cannot be saved on City projects. The banking plan includes restoring previously filled or drained wetlands as part of an overall plan that benefits the public. Through the Shoreland Ordinance, Woodbury also actively works to preserve and protect shorelands of selected major water bodies by acquiring a 150-foot strip of natural vegetation around the perimeter.

Greenway Corridor

The greenway corridor is planned to identify and connect Woodbury’s natural systems and areas. Greenways are often defined as continuous corridors that provide for the movement of wildlife and protection of natural resources. They are generally vegetated, linear in shape, and following natural waterways or land features such as wetlands, slopes, valleys, and ridgelines. Greenways enhance the ecological function and aesthetic quality of natural areas and open spaces by interconnecting them, thereby countering habitat fragmentation and loss.

In Woodbury, the proposed greenway corridor serves to protect environmentally sensitive areas such as natural habitat, wetlands, tree canopy, drainage ways and excessive slopes. While these remnant pieces of nature are presently disconnected by agricultural lands, further opportunity exists to reconnect these systems through re-vegetation to create continuous greenways that will function more like natural systems, creating better habitats and water management systems.

Land within this corridor will be comprised of a combination of public and private open space. Development will not be prohibited within the greenway but will be reasonably restricted to ensure that development is carefully integrated with the natural environment.

Establishing guidelines for this greenway corridor will be a first step in the goal of keeping natural systems intact and incorporating them into developments in an environmentally sensitive way. Special management guidelines will be developed to preserve and improve the habitat, natural functioning and scenic qualities of the greenway.

Goals and Policies for Natural Resource Management and Environmental Protection

Not all important natural resources can be protected within the greenway boundaries. Natural resources such as clean water and air have no boundaries. Choices we make in how our city is developed and how we live our day to day lives affects the quality of our natural resources everywhere. Thus Woodbury has a set of goals and policies that apply over the entire city.

General Goals for Natural Resource Management and Environmental Protection

The following are the City's goals for Natural Resource Management and Environmental Protection. Some of these goals were established in previous planning documents that were completed by the City of Woodbury.

1. To preserve and protect the natural environment with emphasis on the conservation of needed and useful natural resources for the present and future benefit of the community. (1977)
2. To use natural resource areas to provide an overall open space system to satisfy the physiological and psychological needs of the people, considering their needs as individuals and as a community. (1977)
3. Create a livable community where future development respects and integrates the natural resources of Woodbury. (1999)
4. To reduce the waste stream and create a sustainable environment by recycling, reducing and reusing. (1999)
5. To have a continuous green corridor that connects existing natural resource areas, thus providing a more ecological system of open spaces. (1999)

General Policies for the Management of Natural Resources and Environmental Protection

It is the policy of the City to:

1. Protect wetlands (as required through the Wetland Conservation Act), excessive slopes, tree canopy, significant natural habitats, and scenic views from environmentally insensitive development.
2. Encourage activities that conserve energy and result in less/no pollution output such as waste reduction, recycling, alternative transportation modes, alternative energy sources and composting.
3. Support and encourage community efforts in environmental awareness and education.
4. Encourage re-vegetation and management of areas to restore native habitat and natural aesthetic qualities that contribute to environmental quality.
5. Encourage and support sustainable farming practices, Integrated Pest Management (IPM) and the Minnesota Department of Agriculture's "Best Management Practices" for specific crops.
6. Encourage and support tree planting and restoration efforts.
7. Encourage and support composting by providing appropriate site(s) and education for Woodbury residents.
8. Encourage limited and responsible use of herbicides, pesticides and fertilizers on residential and public lands.
9. Continue to provide and encourage curbside recycling of reusable waste materials through educational events, promotional materials and volunteer efforts.

10. Monitor and manage lakes for water quality.

Policies as referenced in the 1977 Park Comprehensive Plan

11. Conserve a variety of natural resource areas including wetlands, peat soils, ground water recharge areas, woodlands, lakeshore lines, and watercourses.
12. Encourage the assistance of metropolitan, state, and federal agencies to preserve natural resource areas that may serve outside of the City of Woodbury.
13. Use open space areas as a structuring element linked to other park and open space areas whenever possible.
14. Ensure natural resource open space areas planned in conjunction with a PUD be coordinated with and contiguous to the open space areas of existing adjacent development. It shall be accessible to all units within the PUD.
15. Use natural resource open space to physically separate elements, which are incompatible by scale or function.
16. Preserve natural drainage ways, and where feasible, reconstruct former natural drainage ways to handle stormwater runoff.
17. Establish and maintain conservation areas for wildlife management and educational and scientific purposes.

Policies as referenced in the 1980 Comprehensive Plan

18. Develop a framework for management of constraint areas.
19. Encourage through development incentives, the preservation and management of all natural resource amenities.

Policies specific to the Greenway Corridor

20. Support a greenway plan that works towards linking together areas of natural resources that include wetlands, slopes, tree canopies, drainage ways and other significant natural resources as to create a continuous greenway corridor.
21. Create mechanisms that allow landowners to achieve reasonable development on lands through which the greenway passes, while preserving a portion of the land as open space.
22. Allow opportunities for neighborhood parks to occur within or adjacent to the greenway corridor such as a tot lot or nature observation area. Physical development of a neighborhood park should minimize disturbance of natural resource areas.
23. Develop partnerships with non-profit or private organizations, neighborhood groups or other interested parties for the purpose of acquiring targeted open spaces, which may be part of the greenway.
24. Promote management efforts that work to improve the habitat and scenic qualities of the greenway corridor.

Implementation Tools and Strategies

Introduction

Past comprehensive planning efforts and more recent action initiated through citizen involvement demonstrate the community's strong interest in the protection of open space and preservation of natural resources. As one reaches the eastern and southern edges of Woodbury, they are presented with open agriculture fields, rolling hills and pockets of woodlands, wetlands and lakes. Located on the rural-urban fringe of a major metropolitan area, these open fields will soon become the home to future Woodbury residents and businesses. Identifying strategies and tools for implementation of the goals and policies described within this chapter is a critical component to preserving the remaining natural resources and ensuring that development respects the community's desires for open space and environmental protection. The following is a list of tools and strategies available to the community for protecting the environment, preserving natural resources and ensuring the protection of quality open space.

- Ordinances
- Open space preservation techniques
- Design guidelines and performance standards
- Educational outreach
- Intergovernmental cooperation

Ordinance Development

Local zoning ordinances are the primary tools for implementing the goals, policies and standards set forth in the Comprehensive Plan. A variety of ordinances are principally designed to protect the environment and thus the health and safety of the general public. The following are zoning ordinances specific to the preservation and protection of the environment.

Open-space zoning or cluster zoning

The purpose for establishing an open-space or cluster zoning district is to direct development in an effort to preserve contiguous open space and protect natural resources that otherwise may be destroyed. These zoning techniques do not reduce overall density rather they simply transfer density from desired preservation areas to development areas. This way, private property owners are granted the reasonable economic use of their property without negatively impacting the remaining natural or open space areas that the community strongly desires. In areas where it is appropriate, residential developments will be clustered together in effort to minimize street and utility construction needs and to systematically provide contiguous open space areas.

Primary components of open-space or cluster zoning

- Smaller lot sizes, street widths, or setbacks in effort to maintain an overall density on a portion of the site that otherwise would be spread over an entire site.

- The developer would be required to preserve a percentage of the land within the development as permanent open space by placing the land in a permanent conservation easement or other land preservation tool such as dedication to the City.
- Identification of preservation areas on a community-wide basis, such as the greenway corridor or the four large areas of significant natural resources as identified in the 1996 Natural Resource Inventory.

The Greenway Corridor

The purpose of this designation is to provide protection and preservation for corridors of continuous open space throughout the future developing areas of the city. Law already restricts development in many areas within the greenway corridor, such as within wetlands and shorelands. The greenway corridor is intended to protect as permanent open space, lands that have other desired natural features or open space characteristics which may not already be protected under existing laws. Developable lands which contain part of the greenway system should not lose density but should plan development to minimally impact the greenway, preserving the greenway as permanent open space. While the greenway corridor may be as narrow as 100 feet in many areas it may be as wide as 500 feet in other areas. It is intended that the greenway corridors work in conjunction with open-space or cluster zoning and open space preservation techniques such as cluster housing or density transfers.

The Greenway Corridor Map

The greenway corridor map reflects preferred opportunities for the continuous greenway corridor. It is important to understand that the actual physical location of the greenway corridor needs to be delineated as property develops. This map uses lines to represent desired routes for the greenway, following such natural features as wetlands, drainage ways, woodlands, and ridgelines, which were identified using USGS maps and aerial photography. Also reflected on the maps are routes that may not contain significant natural resources, but could be important in creating links which would create a continuous greenway corridor system. These areas have the potential to be restored as a natural area or simply managed as other open space opportunities.

Primary components of the Greenway Corridor

- Requirement of natural resource inventories for developments, which contain land in or adjacent to the greenway corridor.
- Further delineation of the greenway corridors based on inventories designating significant natural resources, creating a continuous corridor that connects existing wetlands, drainage ways, woods, natural areas, hill crests, and community parks. (Appropriate widths for the greenway vary depending on habitat, scenic or functional requirements placed on the particular piece. Species requirements can vary from 100 feet for some songbirds and reptiles and amphibians, to 300-600 feet for warblers and raptors. Hydrological systems such as wetlands and lakes should have an adequate buffer of undisturbed vegetation. Ideally, the greenway delineation should be done on foot, by a qualified biologist. No piece of the greenway should fall below 100 feet in width.)
- Establish development guidelines for areas within the greenways that address building materials, setbacks, lot sizes, view sheds and landscaping requirements.

- Requirement of management plan for open space areas that describes how land will be maintained as permanent open space.
- Use the greenway plan as mapped, allowing for on-site evaluation of exact boundaries, and allow for variations in route if new route achieves the same goals.

Shoreland Management Ordinance

The purpose of the Shoreland Management Ordinance is to maintain natural shorelines along streams, lakes, and wetlands and employ measures that minimize the adverse impacts of storm water runoff on surface water bodies. The City will continue to ensure its Shoreland Ordinance stays current with Minnesota Rules (and subsequent amendments) governing shoreland management.

Primary components of Woodbury's Shoreland Management Ordinance

- Shoreland buffer distances for selected lakes and streams
- Restrictions on setbacks, lot sizes, impervious surface coverage, and other site development issues
- Riparian dedication

Tree Preservation Ordinance

The City currently does not have a tree preservation ordinance, however, the City does require in its subdivision ordinance and zoning ordinance planting of trees on a per lot basis. The City also encourages tree planting through site plan review. Trees can function as windbreaks, snow fences, and buffers between incompatible land uses. Trees reduce wind erosion, improve water quality, screen unsightly areas, provide habitat for wildlife, reduce energy consumption, enhance community identity and image, and improve the quality of air and water.

While the main purpose of a tree protection ordinance is to protect the remaining significant stands of mature trees in the community, care must be taken to insure that current owners of large stands of mature trees are not given incentives to log their property before an ordinance is passed. A tree protection ordinance, in addition to protection strategies, could also provide incentives for urban reforestation and restoration efforts.

The City will assemble a task force of interested parties to examine establishing a tree protection ordinance.

Primary components of a tree preservation ordinance

- Establishment of tree preservation criteria: minimum sizes of trees to be preserved, significant tree species to be preserved, identification of significant tree stands or urban forests that need protection.
- Establishment of tree restoration criteria: proper species to be introduced to area, minimum size of tree to be restored, number of trees to be restored, methods and best locations of planting.
- Developers fee to fund public tree restoration and education efforts.

Individual Sewage Treatment System Ordinance

The purpose of the Individual Sewage Treatment System Ordinance is to ensure proper installation and maintenance of future and existing on-site septic systems and to protect the health and welfare of the general public. The City of Woodbury currently has approximately 700 on-site septic systems, most of which are located in the Rural Estate areas of the community. The City currently monitors its own systems however, Washington County also performs this task. The City will work with Washington County for future implementation of an Individual Sewage Treatment System Ordinance. The City will also work with Washington County to do the required inspections. This system also ensures compliance with Minnesota Rule 7080 for on-site septic systems.

Primary components of septic system inspection program

- Adherence to Minnesota Rule Section 7080.
- Establishment of a record of ownership and maintenance responsibilities requiring inspections every 3 years.
- Establishment of a system for reporting and monitoring septic system failures and maintenance records.
- Ensure water conservation and waste flow reduction by using water saving devices and other water conservation techniques.
- Require soil testing to ensure site is suitable for on-site septic systems prior to development.
- A site map showing location of all associated drainfields and discharge areas.
- Plan of action for correction of failing systems.

Wellhead Protection Ordinance

The purpose of a wellhead protection program is to ensure the siting of public wells provides for clean drinking water and that surrounding land uses pose minimal threat to groundwater contamination. As new wells are developed, the City is required by the Minnesota State Health Department to identify wellhead protection areas. The City must also do potential contaminant source inventories for these areas. The City has already done this for the existing wells. As part of a wellhead protection program, the City will develop a Wellhead Protection Ordinance as a next step in protecting groundwater quality, and will update the ordinance as necessary as new wells are brought online.

Primary components of wellhead protection program

- Determining groundwater recharge areas.
- Identifying potential contamination sources.
- Implementation and protection plan.

Wetland Protection Ordinance

The City has officially adopted the requirements of the Wetland Conservation Act of 1991. These requirements are applied to all wetland draining and filling activities in the City. At the present time, a wetland inventory is being completed by the South Washington Watershed District. The inventory includes all wetlands within the SWWD, and includes a functions and values assessment of each wetland. From this, a set of recommendations for buffer requirements for different types of wetlands will be developed. The Ramsey-Washington Metro Watershed District has developed a similar set of recommendations. The City will develop a Wetland Protection Ordinance that incorporates the recommended buffer widths after the SWWD inventory is completed.

Primary components of a wetland protection program

- Inventory
- Management standards
- Development plan review procedures
- Riparian treatment and dedication requirements
- Mitigation requirements

Open Space Preservation

Many development tools and techniques are available to private landowners and local municipalities for the preservation of open space. These techniques and tools are discussed thoroughly in a variety of books and publications designated to conservation planning and open space preservation. The City will consult with organizations such as the Department of Natural Resources, The Nature Conservancy, The Trust for Public Land, The Minnesota Land Trust, and The Urban Land Institute for information on open space preservation tools and techniques. A few of the tools that will be considered are summarized below.

Conservation Easements

Conservation easements are the voluntary transfer of specified development and land use rights from a landowner to a qualifying organization such as a public body or non-profit agency. Conservation easements can be in the form of permanent easements (lasting forever) or “term” easements (lasting for a period of time at which the land use may be changed). Conservation easements in Woodbury will be used to protect natural resources or to permanently preserve areas of the greenway corridor.

Transfer of Development Rights

Transfer of development rights (TDR) allows landowners that may wish to preserve their lands to still profit from the sale of development rights. The purchaser of the development rights would then be able to develop at greater densities. This technique requires the community to establish (on a community wide basis) sending zones, which are areas the community wishes to preserve, and receiving zones, which are areas that are most easily served by utilities and are the most logical growth expansion areas. Examples of sending zones may include lands within the greenway corridor or lands identified as containing significant natural resources. Receiving zones

may be located where utilities are readily available or could be easily extended or possibly within the existing MUSA area.

Purchase of Development Rights

Purchase of development rights (PDR) operates basically the same way as in the TDR program except instead of transferring development rights, the development rights are basically retired. Development rights are typically purchased by the government or non-profit organizations and the land is put into a permanent conservation easement. This program is more of a tool to reduce total growth and can potentially lead to sprawl or leap frog development when areas adjacent to urban services lose their development rights. This program should be used carefully. Residential lands with the most environmental impact on the Valley Creek trout stream may be good candidates for the PDR program.

Preferential Taxation

Preferential taxation can be used to protect wetlands, agricultural lands or open space. Several of these programs currently exist such as the Agricultural Preserves and Green Acres program, which provide tax breaks for agricultural uses and the Wetland Tax Exemption program which exempts wetland areas from property tax assessments. The purpose for preferential taxation programs is to level the playing field by acknowledging the land's actual use rather than a market value based approach on uses to which the landowner has no intention of putting the land.

Property Acquisition

Property acquisition is probably the simplest form of open space preservation to understand in that it simply means the public buys the land. This is currently a technique being implemented by the City of Woodbury with the recent approval of a referendum for open space acquisition. This technique gives the public control over the use of the property; however, this technique can be very expensive and may not always enjoy strong public support. The City should continue to pursue the target areas for open space acquisition as determined by the Open Space Committee Report.

Land Banking

This is a tool similar to property acquisition where the public (City of Woodbury) purchases the land before it is ready to develop. When the area is ready to develop, the City can sell the land with restrictions that preserve open space or limit development. This technique may also be referred to as advanced acquisition.

Design Guidelines/Performance Standards

Design guidelines and performance standards are used to ensure that new development blends in rather than clashes with the natural landscape. These standards should ensure that development compliments the environment and vice versa. Performance criteria can be found in the future land use plans that are used to evaluate the affects of private development on the environment. While development and performance standards may increase the cost and approval process for developers, it also helps in maintaining the quality appearance of the community and builds upon its identity. Some examples of these standards include:

- Minimizing the amount of turf area that needs herbicides, pesticides and fertilizers by using vegetative cover native to the area.
- Where appropriate, designing the storm water management system to utilize infiltration into the soil.
- Ensuring sites are landscaped and laid out to be energy efficient, utilizing shade trees for summer cooling and winter warming.
- Protecting scenic view sheds.
- Maximizing open space opportunities.
- Providing a management plan for open space areas.
- Adopt a checklist wherein environmental concerns will be specifically reviewed with each development.
- Ensure best management practices are adhered to during and after construction projects including the replacement of all vegetative cover removed for construction purposes.

Educational Outreach

An important implementation environmental protection strategy in any community is education outreach. Many people in the community do not realize the benefits of taking care of the environment. The City should continue to support and be a partner with organizations whose mission is to educate the public about environmental protection and natural resource management. Areas of education should be the do's and don'ts of composting, recycling, and gardening or how to take care of trees and yards in a non-chemical environment. Potential partners and resources for this type of educational programming include the Department of Natural Resources, Metropolitan Council and the Minnesota Sustainable Communities Network among others. The City has an Environmental Education Commission, which has played, and will continue to play, an active role in educating the people of the community about environmental issues.

Intergovernmental Cooperation

Woodbury is part of a greater region that includes resources such as the Mississippi River, which stretches all the way to the Gulf of Mexico. While the effect that Woodbury has on the quality of life along the Mississippi River is minimal, it is a good example of how Woodbury decisions on environmental resource management and protection has an impact on a greater region. Thus, Woodbury will continue to work on a regional level with such agencies as the Environmental Protection Agency (EPA), Department of Natural Resources (DNR), Metropolitan Pollution Control Agency (MPCA), Washington County, and adjacent communities in protecting the environment.

Figure 8-1. USGS map with Greenway corridor

<Insert Map>

Other Resources for Maps, Inventories and Management Information:

- City of Woodbury Natural Resource Inventory - 1996
- City of Woodbury Open Space Committee Final Report–1997
- South Washington Watershed District – Watershed Management Plan 1996
- Ramsey-Washington Metro Watershed District- Watershed Management Plan 1997
- Valley Branch Watershed District Water Management, 1995
- Land Protection Options: A Handbook for Minnesota Landowners, 1996, The Nature Conservancy, Minneapolis, MN
- The Green Corridor Project Fact Sheets
- The Trust for Public Land
- Land Stewardship Project
- Meadowview and Tri-Lakes Stormwater Management Plan, 1993