

**ENVIRONMENTAL
STEWARDSHIP
OPPORTUNITIES**

**Helping Achieve “Smart Growth” in the Rochester
Area**



**Rochester-Olmsted Planning Department
Long Range Division**

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“Over the long run, a successful society is supported by both a healthy economy and a healthy environment, which, in turn, are supported by the health of the community. Each element is one critical leg that supports a three-legged stool. All three legs of the stool must be strong. Remove any of the three legs and the stool will soon collapse.”

The Nature Conservancy, Center for Compatible Economic Development

LAND STEWARDSHIP AND SUSTAINABLE DEVELOPMENT

Introduction

The State of Minnesota and Olmsted County have been and are continuing to experience tremendous development pressures. According to U.S. Census figures, the population of Olmsted County has nearly doubled since 1960, from 65,532 to 124, 277 in 2000, and has increased by almost 18,000 in just the past ten years. With population growth comes the demand for housing. In 2001 alone, 52 preliminary residential housing plats were applied for in the City of Rochester (Rochester-Olmsted Planning Department files).

Growth left unchecked can lead to the destruction of the environmental features that contribute to the quality of life in Minnesota and the Rochester area: wildlife habitat, species diversity, water quality, air quality, and natural flood storage and drainage areas. According to a recent article in the Minneapolis Star Tribune, “The state where many Minnesotans think they live is an idyllic place of towering pines, blue water and campfires on summer nights. The state where they actually live has been cut, ditched, dug, drained, plowed, mined and polluted for more than 100 years” (Anderson, 12/19/01). In fact, an area the size of the Mall of America is paved over every day in state of Minnesota (Green Corridor Project Fact Sheet #1).

Minnesotans support the idea of environmental conservation. A recent Minnesota Poll indicates that Minnesotans would prefer conserving the environment over everything except funding for public education. When asked whether they would prefer natural resource conservation or lower taxes, Minnesotans chose conservation, 75 percent to 20 percent. Conservation topped support of economic growth, 60 percent to 31 percent. These responses were almost identical to the percentages obtained from a 1991 survey that asked the same question. Yet those preferences are not always readily converted to public policy (Anderson, 12/19/01). A 1995 survey of southeastern Minnesota residents living in the Wells Creek Watershed and the counties of Goodhue, Wabasha, Olmsted, Winona, Fillmore, and Houston, indicated that 76% of respondents agreed that a healthy economy depends on a healthy environment (Allman, 1997).

Urban growth and protection of our natural areas need not be a mutually exclusive proposition. Indeed, the *Olmsted County General Land Use Plan* states that effective land use planning is rooted in the ability of the community to strike a balance between the competing claims of the present and the future; of the public and private interests in land use; and of the costs and benefits of changes in land use, management, and development. The purpose of the *Plan* is to balance the growth of the community with the fiscal, environmental, energy consumption, land resource, land use, and public facilities impacts, or side effects, of that growth using planning tools and associated implementation measures to ensure that private sector land use decisions take account of these side effects. If bad development decisions are made, those decisions will continue to affect neighborhood and community fiscal, environmental, and land resources and make future decisions more difficult.

Thus, the community must be willing to adopt a policy of land stewardship, “the careful and responsible management of something entrusted to one’s care” (Merriam-Webster’s Collegiate Dictionary), to facilitate these efforts. In fact, Minnesota Planning has stated “Stewardship requires the recognition that we are all caretakers of the environment and economy for the benefit of present and future generations. We must balance the impacts of today’s decisions with the needs of future generations” (Minnesota Planning, 1998). To this end, the State of Minnesota is promoting the concept of “sustainable development” as defined in Minnesota Statutes, Section 4A.07: “development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Benefits of Natural Areas Stewardship

Many will agree that natural areas, those sites largely unaltered by modern human activity and characterized by native vegetation distributed in naturally occurring patterns, are pleasing to the eye and spirit. These areas, however, provide much more benefit than simple aesthetics to the individual.

- *Contribution to air purity*
As is true of vegetated landscapes in general, natural areas promote air purity by utilizing carbon dioxide and producing oxygen (Allman, 1997). Plants clean the air by absorbing pollutants into their leaves. Vegetation can absorb ozone, sulfur dioxide, carbon monoxide, and airborne particles of heavy metals (National Park Service, 1995). Air quality has a direct impact on human health, in particular as regards the incidence and severity of respiratory diseases. Protection of natural areas can be part of a community's overall plan to promote a healthy living environment for its citizens (Allman, 1997).
- *Purification system for drinking water and surface waters*
Vegetated natural areas protect the quality of surface and groundwater (drinking water sources) by reducing the sediment load that enters waterways and by filtering out toxins and excess nutrients. Impervious surfaces (such as pavement) and chemical-intensive land uses associated with urban development increasingly compromise water resources over time. This may create a public health concern for communities reliant upon compromised drinking water resources, and/or necessitate expenditures for purification systems to meet drinking water standards. Decreases in surface water quality can have a negative impact on resource-related economic activities such as fishing, boating, and tourism (Allman, 1997).

Approximately 36 million Americans get their drinking water from sources that violate the Environmental Protection Agency's (EPA) contaminant standards. The EPA has estimated that \$140 billion will be needed over the next 20 years to make drinking water safe. As a result, more and more communities are realizing that keeping water clean is almost always cheaper than cleaning it later. Congress, therefore, has authorized the use of some federal clean water funds to help communities acquire watershed lands. New York City, for example, is spending \$1.5 billion to protect 80,000 acres of its upstate watershed rather than build a filtration plant costing \$6 billion to \$8 billion (The Trust for Public Land, 1999).

- *Increased property values*
While protected natural areas on public or private land may in some cases be subject to reduced property tax rates, the designation of a site as a natural area is commonly viewed as an amenity that brings a premium for adjacent lands in the real estate market, resulting in an increase in the property value – and thus, the property tax contribution – of adjacent lands (Allman, 1997).

Across the country, communities have used green corridors to improve the appeal of neighborhoods and support their long-term tax base. Economic studies around the country have demonstrated proximity to open spaces, agricultural land, and parks boosts property values and enhances the appeal of neighborhoods. As early as the 1850s, landscape architect Frederick Law Olmsted justified the purchase of land for New York's Central Park by noting that adjacent property values would rise enough to produce property taxes that would pay for the park. By 1873, the park, which until then had cost about \$14 million, accounted for an extra \$5.25 million in taxes each year (The Trust for Public Land, 1999).

In the 1970s, one neighborhood in Boulder, Colorado, saw total property values increase by \$5.4 million after a greenbelt was built, generating an additional \$500,000 in property taxes. This was enough to recoup the greenbelt's purchase price in only three years (The Trust for Public Land, 1999). Another study in Boulder found that properties immediately next to green corridors had market values 32 percent more on average than similar properties without green corridors nearby (The Green Corridor Project, Fact Sheet #1).

In Minnesota, 61 percent of property owners living next to the Luce Line Trail noted an increase in their property values. Realtors confirm that proximity to the trail enhances the appeal and selling value of property (The Green Corridor Project, Fact Sheet #1).

- *Stormwater management and flood control*
Natural areas reduce the rate and volume of stormwater runoff, thereby reducing the incidence and severity of flooding, erosion, and water contamination. When development replaces native groundcover, communities either must undertake the great expense of installing and maintaining elaborate stormwater management systems to avoid repeated episodes of damage related to flooding and topsoil erosion (Allman, 1997). Near Boston, for example, officials protected through the purchase of land and easements, over 8,000 acres of wetlands along the Charles River. These wetlands are capable of holding 50,000 acre-feet of water. This was done as an alternative to a \$100 million system of dams and levees. In addition, loss of these wetlands would have caused an estimated \$17 million annually in flood damage (The Trust for Public Land, 1999).
- *Community appeal to new residents, families, and tourism*
Protection of natural areas promotes the overall livability and vitality of communities by offering scenic beauty, opportunities for low-impact recreation (birdwatching, hiking), and by helping to maintain clean air and water. Communities with ample natural areas and open space are considered good places for children, and offer high quality of life to all residents. Economic vitality associated with these features may be considered one of the best reasons for maintaining natural areas in and around our community. Minnesota's Green Corridor Project, an independent network of seven public and private organizations dedicated to helping Washington and Chisago County residents be stewards of their communities, promotes the use of "green corridors". "Around the Midwest and throughout the country, establishment of green corridors has helped communities accommodate fast growth and still keep the landscapes they need and love. Green corridors provide connections between communities, between already protected lands, and between the people and the land. Green corridors protect our green infrastructure, providing a legacy for future generations" (The Green Corridor Project, Fact Sheet #1).

The City of Austin, Texas, for example has been booming since the 1990s. Their roads, however, are congested, air quality is declining, drinking water sources are being threatened, and woodlands are disappearing. A 1998 Chamber of Commerce report acknowledged Austin's environment as an important economic asset worth protecting, spurring their city council to adopt a "smart growth" initiative. As part of their effort to protect open space, Austin voters have approved over \$130 million in local bonds to help create parks and greenways and protect critical watershed lands. Some of these funds are being used for the purchase of open space to attract new residents to a 5,000 acre "desired development zone", according to real estate developer and Councilmember Beverly Griffith. "We're identifying and setting aside the most threatened lands in terms of water quality, so the desired development zone will have a spine of natural beauty down the middle of it, and that will attract folks to live and work there. Planning for housing, open space, and recreation is what's going to enrich the desired development zone. People will be able to work and live in the same area" (The Trust for Public Land, 1999).

Closer to home, the recently approved Mayo Woodlands residential General Development Plan (GDP) in Rochester Township and Zumbro Haven GDP in Oronoco Township have kept intact large portions of woodlands (some of which are noted on the Olmsted County Biological Survey) clustering smaller lots around them. This has been accomplished at the same overall density as standard suburban-style development. Due to their adjacent landholdings, the Mayo Woodlands developer intends to connect these open spaces to those in other future developments he is planning in the Township and City of Rochester. Yet another area developer is currently working toward submitting a mixed commercial/office/residential GDP that is designed to preserve existing stands of quality woodlands and leave natural drainageways intact (Rochester-Olmsted Planning Department files).

Chris Monson of Arizona's Rocking K Development Corporation says "People will pay a

premium for an environmentally well-thought-out community. Sometimes less is more, so we increased densities, clustered housing, and preserved open space. We think this makes our development look attractive. It also makes the units easier to sell” (The Trust for Public Land, 1999).

Tourists are also drawn to greenways. Locally, the Root River State Trail System, comprising more than 60 miles of paved surface, brings thousands of cyclists, roller-bladers and hikers each year to the towns of Fountain, Harmony, Houston, Lanesboro, and Preston. The Minnesota Department of Natural Resources owns and maintains the trail and charges no user fees, except for cross-country skiing during the winter. The Root River Trail generates millions of dollars each year spent in Fillmore and Houston Counties, the result of the robust tourism industry which has grown along side it (City of Lanesboro, 2001). In 1988, Wisconsin’s Elroy-Sparta Trail generated expenditures of over \$1.2 million. Approximately half of the users were from out-of-state, and the typical user traveled 228 miles to get to the trail (National Park Service, 1995).

- *Storehouses of biological diversity*
Natural areas are irreplaceable storehouses of biological diversity, supporting elements and processes that literally make life on earth possible. Sharing the planet with a diversity of species enriches our lives, and safeguards important genetic material that may be vital to future advances in medical research and our culture’s ability to confront diseases that threaten essential food crops (Allman, 1997).
- *Attraction for new businesses*
Corporate CEOs say that “quality of life” for employees is the third-most important factor in locating a business, ranking only behind access to domestic markets and availability of skilled labor. Furthermore, owners of small companies ranked recreation/parks/open space as their highest priority in choosing a new location for their business (The Trust for Public Land, 1999). Chuck Flink, president of Greenways, Inc., a group that helps communities plan these long, linear parks, says “There are businesses that have decided to locate in communities because of the presence of a greenways system.” Nationwide, easy access to parks and open space has become a new measure of community wealth and an important way to attract business by guaranteeing quality of life and economic health (The Trust for Public Land, 1999).
- *Health Impacts*
Greenways and associated trails can be used by residents to help improve their health. Lifestyle Market Analysts, a report by National Demographics and Lifestyles, Inc., surveyed households in 212 U.S. metropolitan areas and noted that 40.4% of the respondents walk for health, 32.8% pursue physical fitness and exercise, 14.9% bicycle, and 12.4% run or jog (National Park Service, 1995). Other studies have shown that such forms of exercise can reduce health care costs; people who exercise regularly have 14 percent lower health insurance claims, spend 30 percent fewer days in the hospital, and have 41 percent fewer health insurance claims greater than \$5,000. These savings may be shared by public health services, employers, and individuals (National Park Service, 1995).

Others argue that there are even farther reaching economic impacts associated with protection of natural areas.

Any serious and comprehensive cost-benefit analysis will look beyond the simplistic notion that “development = increased tax base” and will teach us that we quite literally cannot afford not to protect natural areas. Increase in a community’s tax base associated with development is only one small part of the economic picture. We must also consider the long-term costs to a community that are often associated with development: increases in infrastructure such as roads and utilities (and their maintenance over time) as well as increased need for the community to provide services such as police and fire protection, schools, and waste treatment facilities. Also factored in must be the present economic value of the services provided by land in its natural state, and the expenditures – such as drinking water treatment systems and flood control devices – that will be required to try to replicate these services and/or to deal with the ramifications of their absence. Unless such monetary values are

determined and incorporated into the discussion, the legitimate economic contributions of natural areas will be consistently under-represented in decisions regarding land use. Studies in which such fiscal impact analyses have been applied to open space preservation have indicated that open space is fiscally better than residential and equal to or better than nonresidential development when comparing the net effect on municipal budgets. (Allman, 1997)

In 1994, the Minnesota Department of Natural Resources computed the average cost to replace an acre-foot of flood water storage to be \$300. In other words, if development eliminates one acre of wetlands that naturally stores twelve inches of water during a storm, it would cost the public \$300 to replace that water storage. Thus, to replace the 5,000 acres of wetlands lost annually in Minnesota, the cost would be \$1.5 million (National Park Service, 1995).

NPDES Phase II permit requirements will, as of March 2003, legally obligate the City of Rochester and other parts of Olmsted County to identify specific problem areas within their jurisdiction and use local planning efforts to initiate innovative solutions and designs to focus attention on those areas. Best management practices involving many of the topics discussed above, as well as infill development, reduction in impervious surfaces, and educational efforts must be formulated as preventative actions for control of potential pollutant sources.

FEDERAL, STATE, AND LOCAL BASIS FOR NATURAL AREAS STEWARDSHIP

The State of Minnesota and its communities have long been recognized for their foresight and efforts regarding environmental conservation. Thus, there are many statutes, plans, and ordinances that have set up an existing framework for land stewardship efforts in our community.

State of Minnesota

In 1971, the State Legislature adopted the Minnesota Environmental Rights Act, declaring that each person is entitled to the protection, preservation, and enhancement of air, water, land, and other resources located within the state. The Act further states its policy to create and maintain within the state conditions in which man and nature can exist in productive harmony such that present and future generations may enjoy clean air and water, productive land, and other natural resources (Nimmer, et. al.)

The Environmental Rights Act was followed in 1973 by the Minnesota Environmental Policy Act (MEPA), a comprehensive environmental planning requirement that declares a state policy to use all practicable methods to create “a harmonious balance between man and nature.” MEPA requires environmental impact statements for all major government action(s) or any major private action of more than local significance that has significant environmental effects. This led to the creation of the Environmental Quality Board and requirements for Environmental Impact Statements and Environmental Assessment Worksheets (Nimmer, et. al.)

Minnesota’s existing water quality protection programs have their foundation in numerous Federal and State acts and other pieces of legislation such as:

- The Federal Clean Water Act (1977) made it illegal for any person to discharge pollutants from an industrial or domestic point source into the waters of the United States without a National Pollution Discharge Elimination System (NPDES) permit (Nimmer et.al.).
- Federal Clean Water Act Amendments (1987) sought to control non-point sources of pollution such as runoff from industrial and agricultural lands by focusing on toxic substances, authorizing citizen suit provisions, and funding sewage treatment plants (Nimmer et.al.).
- North American Wetland Conservation Act (1989) is designed to encourage partnerships among public agencies and other interests in order to protect, enhance, restore and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America. (16 U.S.C. §§ 4401 – 4414).

- Minnesota Groundwater Protection (1971) requires the licensing, with a \$50 application fee, of water well contractors by the State Board of Health in order to reduce and minimize groundwater pollution (Minnesota House of Representatives, 2002).
- Minnesota Wastewater Treatment Classification (1971) classifies, according to pollution hazard, all water supply systems and wastewater treatment facilities. It provides for competency certification for the operators of those systems and facilities (Minnesota House of Representatives, 2002).
- Minnesota Water Pollution Control Fund (1971) establishes a \$34,750,000 state water pollution control fund through the sale of bonds for granting and loaning money to municipalities for sewage treatment facilities (Minnesota House of Representatives, 2002).
- Minnesota Flood Plain Management (1973) declares a state policy that local flood plain management ordinances are given first priority among flood damage reduction practices. Structural projects are to be considered only as one alternative in flood plain management (Minnesota House of Representatives, 2002).
- Minnesota Clean Water Partnership Act (1987) was created to address pollution associated with runoff from agricultural and urban areas. The program provides local governments with resources to protect and improve lakes, streams and ground water (Minnesota Pollution Control Agency, 2002). Olmsted County has been a recipient of these funds in order to study groundwater and wellhead protection.
- Minnesota State Septic Tank Standards (1994) require all Minnesota counties and cities to adopt strict anti-pollution rules for septic tanks. Existing septic sewage systems must be inspected whenever someone wants to add another bedroom or bathroom onto a house. If an inspection shows that a septic system does not meet the anti-pollution rules, a building permit will be denied until the tanks are improved or replaced (Minnesota House of Representatives, 2002).
- Minnesota Wetland Conservation Act (1991 - Chapter 8420 of Minnesota Rules) was spurred on by the increasing loss of wetland habitat across the state. The purpose of this Act is to achieve no net loss in the quantity, quality, and biological diversity of Minnesota's existing wetlands; increase the quantity, quality, and biological diversity of Minnesota's wetlands by restoring or enhancing diminished or drained wetlands; avoid direct or indirect impacts from activities that destroy or diminish the quantity, quality, and biological diversity of wetlands; and replace wetland values where avoidance of activity is not feasible and prudent.
- Minnesota Community Based Planning Act (1997) established 11 goals defining a framework for voluntary community-based comprehensive land use planning, including a goal for sustainable development. The State's goal for sustainable development is based in land stewardship, by striving to provide a better quality of life for all residents while maintaining nature's ability to function over time by minimizing waste, preventing pollution, promoting efficiency, and developing local resources to vitalize the local economy (Nimmer, et. al.).

Olmsted County

Olmsted County General Land Use Plan

As stated earlier, the aim of the *Olmsted County General Land Use Plan* is to balance the growth of the community with fiscal, environmental, energy consumption, land resource, land use, and public facilities impacts, or side effects, of that growth. To that end, there are a number of key community values that were adopted to serve as the starting point for developing our community's land use goals. The key values state that our community should be:

- ***Beautiful*** — we should recognize and protect the natural beauty and diversity and architectural qualities of Olmsted County. New development should preserve and augment those qualities.

- **Efficient** — our land use and infrastructure systems should be cost effective and fiscally sound, reducing the cost of government services.
- **Accessible** — we should make community decisions in an open, fair, and democratic way, so that all citizens have access to and can participate in decisions.
- **Competitive** — the community should provide incentives through the market system to promote community goals and should promote the global competitiveness of area farms and businesses.
- **Habitable** — we should minimize risks to human health from environmental contamination. We should develop safe and secure neighborhoods and communities.
- **Equitable** — we should ensure that the benefits, costs, and impacts of land use decisions apply fairly to all citizens of the community.
- **Sustainable** — we should moderate the demands we make on the environment so that we protect the ability of the environment to provide for the needs of future generations.

The *Plan* went on to adopt planning principles to address the key community values while providing for a wide range of sustainable private property decisions. These principles include:

- Encourage practices and technologies that maximize efficiency of resource use and minimize waste; *in other words, promote land stewardship and sustainable development.*
- Preserve the County’s natural and cultural resources that provide a “sense of place”, including historic, geologic, hydrologic, biological or ecological features.
- Conserve and restore natural resources, including agricultural resources, and protect the ecological systems of the natural environment and economic uses of those resources. Land is not only a commodity but also an ecological system whose diversity guarantees its health. Conservation of that land involves managing renewable resources so that their rates of replenishment are not exceeded. Protecting environmental quality benefits the citizens of the community and the environmental systems that support the community's quality of life. This is particularly true of water and air, which are the major media for diluting or dispersing pollutants. Area citizens should be protected from pollutants that threaten their immediate and long-term health. The County should work to prevent pollution at its source, rather than remove it at its outlet, in order not to transfer pollutants to another system or geographic area.
- Respond to land use and resource management issues in a flexible and proactive way before they become expensive problems for the community. Natural resource plans, housing plans and programs, community development programs, capital improvement programs, orderly annexation agreements, and other public action plans in advance of development pressure serve to avoid undue delay for the private sector and undue cost for public facilities.

Finally, Olmsted County adopted land use, land development, and resource management policies as part of the *Plan* that identify how they will accommodate the demands for the area’s limited land resources while protecting the public’s interest in the long-term use and management of those areas. These policies include:

- **Sensitive Environmental Areas:** The following areas should be protected and their development should be discouraged: areas prone to unstable environmental conditions including floodplains, sinkhole concentrations, and steep or unstable slopes; areas sensitive to human impacts including areas prone to groundwater pollution, soils with severe limitations to development, public waters, wetlands, bluffslands and related natural resources; and areas that may present an unacceptable risk to human health due to present or past pollution.

- **Innovative Site Design:** Land development regulations should encourage innovative site design for urban and suburban development (both residential and non-residential) that protects the natural features and functions of the landscape, minimizes the life-cycle costs of future public services and facilities, and encourages the use of alternatives to the private automobile.
- **Open Space Provision and Environmental Protection:** In areas outside municipalities, encourage the dedication of land, money in lieu of land, or conservation easements for the purpose of providing neighborhood open space and protecting sensitive environmental areas or significant natural features.
- **Traffic Impact:** Proposed land uses involving a significant change in the amount or type of traffic should be carefully reviewed for traffic generation, conflict, and safety. The process for reviewing land use plan changes, zone changes, and general development plans should include a system for detailed review of traffic impacts caused by land use change. The review should address impacts on life cycle maintenance costs, traffic capacity of nearby intersections and collector streets, safety considerations related to geometric design problems, changes in vehicle mix, and traffic conflicts. The costs of road improvements serving predominantly non-farm development should be recovered by assessments or other methods which assign the cost proportionately to those who benefit.
- **Neighborhood Livability:** City and County financial and regulatory policies should support programs to maintain the number and quality of housing units and stabilize or improve the livability of neighborhoods. Such programs could include building or renovating housing units; helping neighborhoods to organize crime prevention programs; and making public investments in parks, landscaping on public property, lighting, etc.
- **Environmental Impact:** Where urban and suburban development patterns and individual development proposals cannot avoid areas with significant natural features, development should be designed to minimize adverse impacts.
- **Historic Preservation:** Sites and buildings which exhibit a significant historical or architectural heritage should be preserved through historic preservation regulations, public acquisition, or easements where appropriate.
- **Groundwater Protection:** Land use designations and best management practices should be used to protect wellhead protection areas and other sensitive hydrogeologic areas from land uses that may cause groundwater pollution.
- **Runoff Control:** Surface water runoff from industrial, commercial, and residential land uses should be controlled. Generally, the rate of runoff from the developed area should not exceed its pre-development level. Accelerated erosion should not occur.
- **Environmental Corridors:** The county, city, and affected state agencies should create systems of environmental corridors in the urban, suburban, and rural areas of the county. Environmental corridors should include floodplain areas, stream corridors, shoreland areas, wetlands, state natural resource lands, natural resource oriented county and city parks, reservoir sites, areas of unique habitat for flora or fauna, wildlife corridors, and bluff areas within shorelands. The acquisition of land and easements should be focused on these areas, especially where there is a possibility to connect large tracts of natural habitat in good condition.
- **Ecosystem Protection:** Critical areas should be managed so as to protect natural ecosystems. Critical areas include river and lake shorelands; wetlands; trout streams; public waters; wildlife management areas; natural resource oriented parks; reservoir sites; habitat for significant fauna

and flora; areas highly sensitive to groundwater pollution; wellhead protection areas; important scenic areas; and steep slopes, ridge tops, and bluff lands.

- **Resource Conservation:** Developers should be encouraged to conserve water and energy and to enhance groundwater recharge through the use of appropriate landscaping and site design in urban and suburban development.
- **Geologic Resources:** Geologic resources including sand, gravel, and rock dictate the location of extraction facilities. Such facilities are considered a reasonable use in the Resource Protection Area and portions of the Urbanizing Area. The operations and site plans of such facilities should address the control of water pollution sources, noise and dust, storage and disposal of waste, impact on surrounding lands, and impact on surface and groundwater. The operators of sand and gravel pits and rock quarries should prepare reclamation plans that address restoration and future use of the site.
- **Groundwater Protection:** The water quality of all aquifers should be protected from pollution. The following strategies should be pursued to prevent groundwater pollution: encouraging best management practices for urban and agricultural uses; regulating land uses, densities, and intensity of use; extending public sewer and water; acquiring conservation easements and other easements; adopting performance standards in zoning ordinances; and designating wellhead protection areas.
- **Shoreland Management:** Shoreland areas should be managed so as to minimize the destruction of existing vegetation, soil erosion from shoreland sites, and streambank erosion.

The intent of the *Plan* is first to protect natural resources by determining land uses that have the least impacts, and second, where these resources are affected by development, to require development design and land management to mitigate resource impacts. These resource areas include

- Surface water resource areas such as wetlands, calcareous fens, trout streams, shorelands, and floodplains;
- Important land form features including bluffs, rock outcroppings, cliffs along stream or river valleys, and areas with relatively high sinkhole concentrations; and
- Sensitive lands and landscapes such as wetlands, habitat of state or federal endangered or threatened species, high value natural communities, lands rated as high to very high sensitivity to groundwater pollution, steep slopes, and wellhead protection areas.

Development activity should avoid or mitigate disruption of these areas.

Olmsted County Environmental Commission

To assist staff in the implementation of these goals, principles, and policies, the Olmsted County Board of Commissioners established the Olmsted County Environmental Commission (EC). Appointed by the Olmsted County Board of Commissioners, the EC is an advisory body comprising a township officer, a member of the Rochester City Council, two County Board members, and seven citizens at large. The main responsibility of the EC is to oversee the County's environmental programs. The EC recommended the following principles (as listed in the *Olmsted County General Land Use Plan*) to the County Board and the Olmsted County Planning Advisory Commission to guide environmental decision-making in Olmsted County:

- Identify, emphasize, and maintain local landscape characteristics that provide a "sense of place" for the region and communities.
- Preserve and protect groundwater, wetlands, lakes, streams, and rivers.

- Maintain and enhance the integrity and diversity of biological systems.
- Develop lifestyles that promote efficient and equitable use of natural resources.
- Develop community design patterns that promote efficient and equitable use of natural and human resources.
- Adopt practices and technologies that maximize efficiency of resource use and minimize waste generation.

Olmsted County Comprehensive Water Management Plan

In accordance with State policy, Olmsted County has also adopted a *Comprehensive Water Management Plan* for our county and its communities. First adopted in 1990 and updated in 1998, the *Plan's* mission is “To help individuals and communities meet their water needs by protecting the county’s lakes, rivers, streams, wetlands, springs, and aquifers.” To implement this mission the following strategies were adopted:

- Help communities identify their potable, non-potable, recreational, and flood protection water needs.
- Help individuals and communities recognize and understand what must be done to meet their water resource needs – both current and future needs.
- Help communities develop partnerships with residents, businesses, farmers, governments, and other organizations within watershed, subwatershed, or aqui-shed areas.
- Help watershed-based community partnerships develop measurable goals and objectives with systems for monitoring, evaluating and reporting progress.
- Help individuals and communities meet their water needs through education, technical assistance, incentives, capital improvement, monitoring, regulation, and enforcement.

Olmsted County Zoning Ordinance

The Olmsted County Zoning Ordinance serves as an implementation tool for Olmsted County’s *General Land Use Plan* and *Comprehensive Water Management Plan* as well as other State mandated programs. Regulations covering the development of such sensitive areas as floodways, floodplains, shorelands, wetlands, and blufflands have been in place for a number of years. The Zoning Ordinance also has provisions covering soil erosion and erosion control measures to help prevent sedimentation in our area’s waterways.

City of Rochester

Rochester Urban Service Area Land Use Plan

Like the *Olmsted County General Land Use Plan*, the *Rochester Urban Service Area Land Use Plan* recognizes that land use decisions have an effect on the need for public expenditures and taxes; on environmental quality; on the consumption of energy, land, and other resources; and, where mixtures of incompatible land uses occur, on the stability of property values. The adverse impacts of bad land use decisions are felt at the neighborhood and community levels and, in general, affect the quality of life of the entire area.

Many policies and recommendations found in the *Plan* address the issues of environmental conservation and land stewardship and constitute the “Growth Guidelines” adopted by both the Rochester City Council

and Olmsted County Board of Commissioners in the spring of 1977. One component of the “Recommended Growth Pattern” for the City, for example, states that, where possible, growth patterns should be structured so as not to interfere with residential neighborhoods, prime agricultural land, and significant environmental areas; prime agricultural land should be preserved. The Recommended Growth Pattern goes on to endorse the preservation of land that has a unique recreational, geological, or environmental significance.

The *Plan’s* Growth Guidelines also provides guidance to both the public and private sectors in matters of land acquisition and development in order to achieve the Recommended Growth Pattern. Public sector land development should encompass the following:

- Provision of a wide range of recreational activities in the area park and recreation systems; these facilities should be provided in conjunction with educational uses or other related public facilities and programs whenever possible.
- Concentration of parkland acquisition in floodplain areas, quarry sites, and other areas of potential environmental and aesthetic appeal that present development problems for other uses.
- Preservation of sites and buildings which exhibit a basic historic or architectural heritage for the people of the Olmsted County area through public acquisition where possible or through the use of heritage preservation districts. An Historic Preservation Committee was recently created in Rochester to aid in this effort.

The *Plan* also prescribes the adoption of regulations encouraging planned unit developments, cluster subdivisions, provision for common open space, and subdivision innovation to facilitate private sector land developments consistent with the City’s Growth Guidelines and Recommended Growth Pattern.

Finally, the City and County adopted Growth Guidelines pertaining to the area’s natural environment including

- Regulation of development in the 100-year flood plain, limited to uses which are properly flood protected, do not have a detrimental effect on the floodway channel and are unharmed by flooding.
- Preservation of the public health, safety, and welfare by discouraging development of areas characterized by wetlands, exposed bedrock, a high water table, soils subject to severe wind and water erosion, and soils of high and low permeability from development.
- Preservation of public access to water-based recreation sites.
- Prohibition of noticeable emissions of objectionable odors from industrial uses and curtailment of development in close proximity to open odor-producing activities such as feedlot operations and sewage treatment plants.

Based on the general policy statements, Growth Guidelines, and locational criteria of the *Rochester Urban Service Area Land Use Plan*, the *Plan* designates several types of land uses on the *Land Use Plan Map*. Beside the standard use categories of “low density residential”, “commercial”, and “industrial” there are three other land use designations not always found on a land use plan map. “Open space and recreation” areas are designated on the *Plan Map* where existing and future uses are of a public recreational nature or where large amounts of land that should remain open. These areas include Department of Natural Resources areas, parks and recreational facilities, environmental corridor areas, and similar areas, excluding those lands included in the “flood-prone areas” designation. “Flood-prone areas” have been designated to indicate locations of floodways and other areas subject to flooding that should be protected from development and kept as open space. In some areas, this designation included park and other open space uses. Finally, “Historic” sites have been designated on the *Plan Map* in order to indicate a need for special attention to ensure their preservation. With the recent expansions of the City’s Urban Service Area

and Urban Reserve Area boundaries, these sites and corridors must be extended to cover similar areas beyond the limits of the current *Land Use Plan Map*.

There are a number of general policy questions that affect the entire Rochester Urban Service/Urban Reserve Area. Chapter III of the *Plan* lists specific issues statements to help clarify the interpretation of the Growth Guidelines, some of which deal with the concepts of natural areas conservation and land stewardship.

Parkland Acquisition and Recreational Facilities.

Recreation areas are considered to be essential services. The acquisition of land for future park development, including neighborhood, community and special parks, as well as environmental corridors is encouraged, particularly regarding

- Parks to serve immediate neighborhoods, as well as community-wide parks to serve recreational needs.
- Special parks to accommodate construction of facilities necessary in a comprehensive park system.
- Environmental corridors along the rivers for trail development, including a minimum width of 200 feet where possible.
- Natural resource based parks containing the following:
 - ❖ Impounded water areas with potential recreational values encompassing a minimum of 1.5 acres.
 - ❖ Sites with unique topographic relief and scenic vistas, with a minimum slope of 20 percent with at least a 100' vertical difference in elevation.
 - ❖ Wooded areas that would otherwise be denuded with urbanized development including a minimum of ten acres.
 - ❖ Wetlands of Type 2 and 3 (State and Federal Classification) that could be a value for wildlife and environmental education, and including a minimum size of 5 acres.

Parklands should be protected from any type of encroachment, including the construction of buildings, streets, highways, parking lots, utilities, and other structures, consistent with the need to balance recreational and environmental needs with other physical and social needs.

The *Land Use Plan* also recommends that environmental corridors be established along the Zumbro River and portions of Bear, Willow, Silver, and Cascade Creeks for the purpose of connecting existing and proposed parks and providing a means of joining developing residential areas with recreational areas. Since most of the area included in these corridors would be in the floodway, dedication of land for corridor purposes could be accomplished without loss of development value to prospective developers while preserving valuable wetland and wildlife habitat and aid in the protection of groundwater recharge areas.

Thus, in order to meet future needs for parkland and recreational facilities, area governing bodies should:

- Prepare general development plans for specific areas in advance of development, identifying sites for park acquisition and other public facilities. Such general development plans should be consistent with the *Plan* and the plans of area park departments: it may also be desirable to develop an overall Open Space and Recreation Plan for the area.
- Modify subdivision regulations to facilitate the acquisition of sites for parks and other public facilities and to equitably distribute the costs arising therefrom.
- Promote the implementation of the environmental corridors concept through cooperative efforts to acquire and link sections of the proposed system.

Natural Environment

Those aspects of the natural and man-made environments affected by or affecting urban development are identified below, with a brief review of the recommendations of the *Plan* in regard to the problems addressed.

- **Preservation of environmentally significant areas.** Locally significant environmental areas, such as flood fringes, prairies, and wooded hillsides, that might not otherwise be held out of development but that might, nevertheless, provide significant native plant and wildlife habitat should be identified prior to general development plan preparation and noted on that plan. From perspectives of air quality, aesthetics, development costs, groundwater quality, and floodwater storage, selected flood fringe areas in particular should be considered for inclusion in an “environmentally significant” designation that would protect these areas from intensive development. Especially since steep hillsides and wet flood fringe areas are marginal areas for development because of added development costs, those areas that are not favorably located in terms of the criteria listed in the *Plan* for uses other than low density residential should not be developed. In short, higher intensity designations should not be considered for land with marginal development potential solely or primarily in order to compensate for the added costs of developing those sites. Consideration should be given to identifying and reserving environmentally significant hillside and flood fringe areas from development.
- **Water quality and supply.** Water quality problems are experienced locally and result from a variety of urban sources. Septic tank effluent can contribute to groundwater pollution. Erosion and sedimentation from construction, stormwater runoff from impervious surfaces, and inadequate treatment of industrial and domestic sewage can be urban sources of surface water pollution. One way the *Plan* addresses the potential problem of groundwater pollution is by providing for the extension of water and sewer services to existing subdivisions relying on septic tanks and to future developing areas in the vicinity of existing sewer service. Sewer service extensions are particularly important in the Bear Creek and Badger Run watersheds because of the high water table, the dense concentration of existing septic tanks, and because both streams cross a major groundwater recharge area. There is potential for pollution of surficial and deep water supply aquifers in these watersheds.

Other urbanization-related sources of water pollution, such as industrial and municipal sewage, are being corrected through the point source control programs of the Minnesota Pollution Control Agency and the construction of advanced wastewater treatment facilities by the City of Rochester. Several existing and forthcoming non-point source pollution programs are also administered by the Minnesota Pollution Control Agency. Septic technologies are also improving, as are their installation requirements.

- **Resource conservation.** In conjunction with the *General Land Use Plan* for Olmsted County, the *Rochester Urban Service Area Land Use Plan* significantly focuses on problems of resource conservation. Both *Plans* promote a more concentrated development pattern than would result from a continuation of current trends, leading to significant savings in transportation related energy costs.

Currently, the two most significant indigenous natural resources in the area are mineral and soil resources. Mineral resources include primarily sand and gravel deposits. Long-term gravel pits are recognized in the *Plan* as industrial uses, while short term operations are identified according to the anticipated redevelopment use of the site. The County and Urban Service Area *Plans* do not prohibit the extraction of mineral resources, provided adjacent residential areas are not adversely affected. The soils resources of Olmsted County rank among the best in the world in terms of agricultural productivity. The *Plan* provides for the protection of these resources for agricultural uses by promoting an expanded urban service area. It is intended that growth will be drawn to the urbanizing area and away from outlying rural areas where conflicts occur between farm and non-farm uses.

- **Flood plain development.** As pointed out above in this section, protecting of floodplain areas from development would contribute to the preservation of groundwater quality and quantity and of environmentally significant areas. In conjunction with the proposals for stormwater runoff controls in new developments, additional floodplain development restrictions could also significantly reduce flood hazards. Ordinances controlling floodplain development should be written so as to prohibit flood fringe development in undeveloped parts of the urban service area, based on criteria of capability for groundwater recharge and flood storage, impact on downstream flood hazards, and the availability of reasonable alternative uses. Flood fringe lands in developed areas should be regulated in the same manner as is currently practiced, recognizing economic limitations on the reasonableness of alternative uses. Open floodplains should help to store floodwaters, thereby reducing downstream flood volumes and velocities, aiding in groundwater recharge, contributing to the public safety, reducing the need for channelization, aiding in the maintenance of more natural waterways, and adding to the quality of urban open space.
- **Social Environment.** The *Plan* addresses three important aspects of the social environment of the Rochester Area, including the preservation of areas and sites of historic significance, the maintenance of social equity in the distribution of housing in the area, and the equitable distribution of services in the area. As with environmentally significant areas, that fact that a large amount of vacant land suitable for development is available within the future urban service area indicates that local governing bodies can and should act to restrict development in the vicinity of historic areas to that which will aid in preserving the area's historic character and appearance. In addition, zoning subdivision regulations must be modified to reflect the need for regulation of uses within and in close proximity to areas of historic significance.

Storm Water Management Plan for the City of Rochester

Written in 1999, the intent of *the Storm Water Management Plan (SWMP)* for the City of Rochester is summarized by the following excerpt:

The plan creates a balance between development and natural resources that meets the needs of individuals, businesses, and the community while integrating natural processes with resources. Citizens, agencies, developers, and industry work together to implement the plan and to collectively manage growth by creating developments that accomplish surface water management goals and create more desirable properties.

As stated earlier, Rochester and Olmsted County have experienced a tremendous amount of population growth over the past years. As housing is developed to accommodate our new residents, agricultural and open space lands are converted to residential, commercial, and industrial uses. With that development comes increases in impervious surfaces due to roads, driveways, and parking areas; these areas cannot absorb and filter stormwater runoff as they did in their predeveloped state. Thus, runoff volumes and flow rates will increase over time. Local streams, culverts and drainageways that were once relied upon to handle rural runoff, can become overloaded, resulting in localized flooding.

Current Rochester ordinances require new developments to limit the rate of runoff from a site to predevelopment conditions. To accomplish this, the construction of stormwater ponding areas is often required. Over time, however, a high number of isolated basins will be constructed that will be difficult for the City to manage and maintain. In addition, the basins tend to be small, with few aesthetic features and minimal wildlife habitat value.

To improve upon the current system, one of the SWMP's main goals is to prevent and/or control flood damage through floodplain management and to use regional storage and detention areas. These areas can be natural locations where stormwater basins provide the greatest benefit by taking advantage of local topography and the existing drainage system's layout. Regional basins also take advantage of the economy of scale and provide a cost-conscious approach to stormwater management by reducing maintenance costs and combining engineering, design, and construction costs. In addition, adequately planned and designed

regional drainage facilities not only provide flood control, but can also provide natural wildlife habitat and aesthetic benefits to a given area or neighborhood.

Thus, the *SWMP* sets goals and policies to protect and improve the water quality of Rochester's lakes, streams and wetlands for existing and future generations. Goals and policies were also developed to control the erosion and sedimentation that threaten water quality, especially during urban construction activity. Past erosion control and stormwater practices had varied among individual developments; while the City of Rochester currently requires developers to implement erosion control measures during development, current policies do not provide the specific design requirements needed to provide efficient and cost-effective water quality protection from urban runoff.

This *Plan* identifies and maps several water quality basins that have been preliminarily sized and located throughout Rochester's Urban Service /Urban Reserve Areas to provide treatment of runoff on a regional basis. Regional water quality basins are usually combined with rate control basins to provide the greatest benefit at the lowest cost. The *Plan* also recommends that best management practices be implemented during construction activity to further minimize erosion.

The area in and around the City of Rochester presents a unique mixture of stream valleys, creeks and wetlands leading to the South Fork Zumbro River. As the City expands further into its Urban Service/Urban Reserve Areas, these waterways may be impacted by development and degraded by the rate and quality of urban runoff. The City's current policy toward natural areas conservation focuses on wetland protection and replacement through the implementation of the Minnesota Wetland Conservation Act, which regulates activities that drain and fill wetlands. The *SWMP*'s goal for natural resources in the surrounding area, however, is to protect and restore lakes, wetlands, streams and upland natural habitats so their functions and values for wildlife habitat, recreation, contaminant attenuation, and scenic qualities are maintained or improved, the benefits of which were described earlier in this paper. The *SWMP* identifies valuable natural features in the City's Urban Service Area. Stream corridor and wetlands inventories were conducted to assess existing features and identify what steps are needed to protect high-value areas. The *SWMP* also recommends implementing specific management practices to protect and preserve these features.

The following five stream corridors were identified to protect, preserve, and enhance some of the natural vegetation and wildlife still present today: Willow Creek, Cascade Creek, Bear Creek, Kings Run, and Silver Creek. These corridors were delineated with primary and secondary boundaries to define appropriate levels of protection. Areas identified within the primary boundary are considered critical to flood control, water quality and ecosystem preservation. They consist of the areas adjacent to the stream where land uses and human activities directly impact the biological and morphological characteristics of a stream. The majority of the primary corridors consist of designated floodplain areas and adjacent steep slopes. Areas identified within the secondary boundary directly contribute to the support and preservation of the primary corridor, including forest and wetland areas adjacent to major streams and other valuable natural areas. Special consideration to ecological sensitivity should be given during development in the secondary corridor.

Finally, the *SWMP* proposes a regional approach for future construction of the City's drainage system. This approach provides an economic benefit to local developers through the economy of scale involved in larger, more efficient regional facilities and funding of the trunk storm sewers to serve upstream drainage areas. This approach also provides an economic benefit to the City by centralizing drainage facilities to reduce operation and maintenance costs and provides more aesthetic, natural, and recreational areas. Considering the population growth and complex drainage patterns characteristic of the Rochester area, strategies are needed to plan and guide the expansion of the City's drainage system. These strategies must:

- Determine improvements needed to prevent and control potential flood damage
- Develop standards for the design and construction of storm sewers and flood storage facilities
- Provide standards for water quality and erosion control practices
- Analyze capital improvement financing options
- Provide for identification and management of natural resources

- Prepare the City for current Phase I and potential Phase II National Pollutant Discharge Elimination System (NPDES) Stormwater Permit requirements, and
- Provide guidance for the implementation of educational programs.

During the preparation of this report, the City obtained funding from the Board of Water and Soil Resources to incorporate a *Comprehensive Wetland Management Plan* into the City's *SWMP*. This *Comprehensive Wetland Management Plan* will improve management of the wetlands in Rochester by prioritizing them according to their functional values and by holistically managing the system. For example, under current practice, an isolated, highly degraded wetland receives the same protection as high quality wetlands, and may be left within a development site, providing little benefit for habitat or water quality. Under the City's *Comprehensive Wetland Management Plan*, degraded, poor quality wetlands could be replaced through restoration or creation of a wetland within an environmental corridor. The replacement wetland will provide a higher level of function, value, and in many cases, more acres of wetland. The system-wide view of the *Plan* includes identification of significant wetland corridors and complexes and opportunities for banking and restoration that are not possible under the current piecemeal approach to wetland regulation and management.

Portions of the *SWMP* have been adopted by reference in the *LDM*. Other aspects of stormwater management planning (e.g., funding, education and good housekeeping practices) will be adopted by the City Council through the NPDES Phase II permit program in March 2003. Although the *Comprehensive Wetland Management Plan* has not been formally adopted by the City Council, the technical information contained therein is referenced during the General Development Plan process.

City of Rochester Zoning Ordinance and Land Development Manual

The City of Rochester Zoning Ordinance and Land Development Manual (*LDM*) provides some tools to effect the implementation of natural areas conservation and land stewardship concepts. These include regulations prohibiting development in the floodway, requiring conditional use permits for development in the 100-year floodplain, and guiding potential development in shorelands, wetlands, and blufflands areas. The *LDM* also provides restrictions on substantial terrain alterations. Density bonuses are available to developers who avoid disturbing natural features and provisions are made for cluster subdivisions.

City of Rochester Parkland Acquisition Plan

As described earlier, the *Rochester Urban Service Area Land Use Plan*, while it did not specifically locate future parklands, implied that as the City grows and neighborhoods are developed, parkland should be acquired and developed. Thus, in 1985, the Board of Park Commissioners and the Rochester Planning and Zoning Commission jointly approved the first *Parkland Acquisition Plan* in an effort to codify parkland acquisition goals. Most recently updated in 1999, the *Parkland Acquisition Plan* states that acquisition of parkland in Rochester's urban service areas is one of the primary responsibilities of the City of Rochester Board of Park Commissioners and it shall be their general policy to recommend to the City Council particular lands for acquisition with special emphasis on the following:

- Parks to serve immediate neighborhoods, as well as community-wide parks to serve recreational needs.
- Special parks to accommodate construction of facilities necessary in a comprehensive park system.
- Environmental corridors along the rivers for trail development, including a minimum width of 200 feet where possible.
- Natural resource based parks containing the following:
 - ❖ Impounded water areas with potential recreational values encompassing a minimum of 1.5 acres.
 - ❖ Sites with unique topographic relief and scenic vistas, with a minimum slope of 20 percent with at least a 100' vertical difference in elevation.
 - ❖ Wooded areas that would otherwise be denuded with urbanized development including a minimum of ten acres.

- ❖ Wetlands of Type 2 and 3 (State and Federal Classification) that could be a value for wildlife and environmental education, and including a minimum size of 5 acres.

In describing properties valuable for “conservancy parks”, the *Parkland Acquisition Plan* states that the Park Department, in coordination with the previously referenced *Storm Water Management Plan*, should “assist and contribute to the acquisition of environmentally fragile corridors along the creeks and water courses that serve as drainage waterways for the region.” The currently proposed SWMP, as well as the updates currently underway, indicate environmental corridors that are vital to storm water management; these maps would be useful guides to the Park Board for corridor and resource-based parkland acquisition.

Emerging Related Issues

There are a number of other issues related to land stewardship that have recently surfaced and must be acknowledged. Stormwater management permitting will impact the need to acquire land for urban drainage control, water quality impact reduction, and possibly even groundwater recharge protection. “Greenways” are needed to extend our area’s recreational trail systems, creating a link to the Flood Control Project’s recreational corridors. The Olmsted County Board of Commissioners has directed the Rochester-Olmsted Planning Department to draft a County Open Space Plan that addresses conservation, stewardship, and recreation issues; this type of plan may be best served by including all of Olmsted County’s cities in order to maintain environmental connectivity. Sensitive environmental areas such as wetlands and undisturbed woodlands are beginning to be treated as amenities by members of the area’s development community, creating a new market feature for residential and commercial developments. Finally, studies on the impact of development in areas influenced by the Decorah Shale, side hill seeps, and steep slopes are beginning to recognize that standard engineering and construction practices may need to be revised in those sensitive areas.

A TOOLBOX FOR LAND STEWARDSHIP AND SMART GROWTH

Mechanisms for Natural Areas Conservation and Land Stewardship Programs

As described above, the Rochester area community has many guiding principles, documents, statutes and ordinances in place to justify the promotion and adoption of conservation and stewardship measures. Nationally, numerous programs, legal measures, and strategies are available for implementation. This section will focus on those mechanisms that are available within the State of Minnesota. Unless otherwise noted, the following passages consist of excerpts from the Minnesota Department of Natural Resources’ publication *Natural Areas: Protecting a Vital Community Asset*.

Local government land acquisition to protect natural areas

What it is: The transfer of land (by purchase or donation) from private to public ownership, so that title is held by a local government unit

What it accomplishes: Local control over the use and development of a property, including the right to manage public access in order to sustain the site’s natural features and processes

When it may be appropriate:

- When local residents are generally supportive of the site’s protection and its designation as a natural preserve and/or a site has natural features of local, regional, or state significance
- When the community has the capability (human and financial resources) to provide for the site’s management on an ongoing basis
-

Examples: In May 1995, Plymouth voters approved purchasing about 125 acres of open space on 4 sites to be preserved. The four sites were selected based on a biological study which identified environmentally significant sites in Plymouth. The sites include portions of the original big woods forest, other hardwood forests, a tamarack wetland area and other land surrounding some of

Plymouth's highest quality wetlands (City of Plymouth, 2002). In addition, the developer of Emerald Hills in Northeast Rochester, donated valley portions of that site to the City of Rochester for use as open space.

Acquisition by private conservation organizations and by State and Federal natural resource agencies that specialize in natural areas protection

What it is: Land is acquired (by purchase or donation) by a private conservation organization or by a governmental entity other than the local government unit

What it accomplishes: Management of the site according to the mission of the acquiring organization or agency, giving priority to those features the agency considers significant

When it may be appropriate:

- When the acquiring entity's goals for the site promote the overall integrity of the site's natural features and are compatible with those aspects of the site valued by the local community
- When the acquiring entity has expertise in the management of the site to protect those functions and features of value to the community
- As an alternative when a local unit of government would like to see an area designated for protection but does not wish to (or is unable to) take on the responsibilities or costs of acquiring/managing the land
- When the site contains outstanding natural features of state or regional significance

Example: The Trust for Public Land specializes in the acquisition of land for resale to public agencies. They have assisted in many projects in Minnesota and have an office set up in the Twin Cities. In addition, the residents of Evergreen Acres in Oronoco Township purchased some undeveloped land in their neighborhood and turned it over to the Minnesota Land Trust in order to maintain it as permanent open space.

Perpetual conservation easements

What it is: A legally binding agreement made between a landowner (public or private) and a qualifying organization (also public or private), in which permanent limits are established on a property's use and development

What it accomplishes: Permanent protection for a site's natural features, to the degree that such protection is provided for in the terms of the easement

When it may be appropriate:

- To protect the natural and open space values of public land planned for sale to private parties or to other public agencies
- To provide permanent protection of required open space in subdivisions and other developments
- To provide the appropriate level of protection for environmentally sensitive features (e.g., groundwater recharge areas, high quality natural communities, rare species habitat) that are found within existing public parks or on other public lands
- To promote voluntary private landowner conservation measures

Example: Residents of the community of Pine Point in Stearns County, Minnesota, were upset upon hearing of development plans for the local pine forest. Enlisting the help of the Minnesota Land Trust (MLT), one owner of the woodland sold his property to an interested resident while the other agreed to five conservation easements to be held by MLT. He received an income tax deduction due to the easement donation.

Legal basis for conservation easements in Minnesota is provided by Chapter 84C of the Minnesota Statutes, which states that a conservation easement may be established on land in order to “assure its availability for agricultural, forest, recreational, or open space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving the historical, architectural, archaeological, or cultural aspects.” To be eligible, land must be evaluated by a conservation organization and determined to have qualities that serve these purposes (Allman, 2000).

Landowners may see financial benefits in that the donation of a conservation easement to a qualified organization may be entitled to a significant charitable contribution deduction on income taxes equal to the amount of any appraised loss of property value that can be attributed to the easement. If the easement is sold, the only benefit comes from the sale price unless it’s sold to a qualifying organization at less than fair market value (Allman, 2000).

Easements may also be made by bequest at the time of death. The landowner may also choose to do this as a life estate in which the donation is made prior to death, but a legal agreement allows them to live on that property until they die (Allman, 2000).

Transfer of development rights

What it is: A system adopted by a local unit of government in which landowners in a designated preservation (also called “sending”) zone may sell development rights to increase their allowable building density in another area designated as a “receiving” zone

What it accomplishes: A reduction in the level of development that occurs in the sending zone, thereby serving the purpose of protecting natural areas, agricultural lands, and other open space land values, while compensating landowners who relinquish specified development rights to their properties.

When it may be appropriate:

- When there is high demand for housing or other development in the receiving zone, such that a good market may be expected for the development credits offered for sale by landowners in the sending zone
- When the administering government agency has the resources necessary to set up and oversee the program on an ongoing basis
- When protection from development is sought for a specific geographic area
- When residents residing in the receiving zone are amenable to the increased density such a plan would bring to their area
-

Examples: Montgomery County, Maryland, has the most successful TDR program in the country. It began in 1981 and has protected over 38,000 acres of land with minimal public expense (Green Corridor Project, 1998). Lee County, Florida adopted an ordinance that gives developers an incentive to preserve critical wildlife habitat. Developers are given transfer development rights from areas they preserve to other portions of their land. In addition, habitat buffer areas can be credited toward their open space requirements and regional park impact fees (National Park Service, 1995).

Purchase of development rights

What it is: A formal program by which a unit of government or nonprofit organization purchases conservation easements (development rights) to privately owned land for the purpose of protecting the land’s natural features, open space or agricultural values. Commonly set up with a “willing seller” policy.

What it accomplishes: Keeps land in private ownership while establishing permanent, legally binding protection for a site’s natural features, to the degree that such protection is specified in the terms of the easements

When it may be appropriate:

- When a funding mechanism can be identified to finance the purchase of easements
- When the administering unit of government or nonprofit organization has the staffing and administrative capability to set up and oversee the program on an ongoing basis
- As an alternative for local protection of high priority natural areas when a community does not have the financial resources to acquire fee simple interest
- When a local government unit prefers protection methods that compensate landowners for restricted development, as opposed to limiting development through zoning or other regulatory means

Example: In 1997, the Minnesota legislature passed enabling legislation to allow local units of government to develop and use PDR programs. The Green Corridor Project is working to develop one of Minnesota's first PDR programs for Washington and Chisago Counties (The Green Corridor Project: Fact Sheet #1, 1998).

Official land use controls

What it is: The use of regulatory authority granted to local governments to protect the public health, safety, and general welfare, which the courts have held to include the protection of open space and environmentally sensitive areas, because of the public benefits they provide

What it accomplishes: Protection and enhancement of the natural environment and its attendant elements and processes as embodied in wholly undeveloped areas maintained within the larger context of managed growth. Maintains important resource values (e.g. wildlife habitat, water quality, etc.) and reduces future government costs resulting from development and societal losses due to environmental degradation

When it may be appropriate: Provisions regarding natural areas protection are appropriate for integration into all local land use regulations that have the potential to impact the functions of natural systems, including but not limited to transportation policy and planning, subdivision ordinance, and zoning

Examples:

- Preservation and/or conservation overlay zones (supplement underlying zoning)
- Conservation zoning districts (basic district just like "residential" and "commercial")
- Open space zoning and subdivision requirements (cluster development with permanent open space protected by homeowners' associations, land trusts, or gifts to government)
- Performance zoning (permissibility of use based on impact)
- Urban growth boundaries such as those found in Olmsted County (contain development in urban service and urban reserve areas)
- Native landscaping requirements
- Vegetation management controls
- "Parallel" zoning ordinances that provide incentives to design more conservation-oriented developments; the developer has the choice of following the standard ordinance or this alternative

Multilevel government partnerships

What it is: Representatives from two or more jurisdictions work cooperatively to make decisions regarding the management and use of a resource such as a watershed, natural area, or system of natural areas in which all jurisdictions share an interest

What it accomplishes: Opportunity to incorporate the varied perspectives and interests of the different jurisdictions into the vision for management of a natural asset, to provide a unified approach to management for natural areas or features that cross jurisdictional boundaries, and (in some cases) to create a vehicle for raising and directing funds toward its management and protection

When it may be appropriate:

- For natural areas in public or private ownership that cross jurisdictional boundaries
- For adjacent properties owned by differing public entities, such as a parcel of city-owned land adjacent to a parcel of land owned and managed by the county or state
- To pool resources for a particular land protection project or initiative

Example: Locally, the South Zumbro Joint Powers Board is a multijurisdictional body overseeing water-related issues such as the area's flood control project.

Special designation of public lands

What it is: The designation of special status to a natural area located on existing publicly owned lands

What it accomplishes: Serves as a basis for the establishment of management and policies that will provide an appropriate level of protection for the site's natural features, within the broader context of public lands that may be managed for different purposes

When it may be appropriate: To be designated under an existing system (e.g., State Scientific and Natural Areas), land must meet the program's established criteria. Local governments may also create their own special designations

Example: The Sattre property in Oronoco Township was purchased by the Minnesota Department of Natural Resources and designated as a State Scientific and Natural Area.

Landowner registry programs

What it is: A program by which private landowners make an informal, nonbinding pledge to provide good care and stewardship of their land's environmental values. In turn, the administering agency (a local government unit or nonprofit conservation organization) commonly provides recognition in the form of a plaque or certificate, as well as technical assistance and information which the landowner may make use of at their discretion

What it accomplishes: Registry programs can be an effective way to make contact with landowners interested in natural areas protection, promoting their continued good stewardship (while keeping land on the tax rolls) and building a sense of community among citizens who may at some point wish to become active in other natural areas protection projects in the community

When it may be appropriate:

- Because registry programs are voluntary and non-binding, they are best used in addition to land protection methods that provide a greater degree of protection (e.g. zoning, acquisition, easements)
- Registry programs require ongoing administration and one or more natural resources specialists who are good communicators and are skilled in assessing the composition, structure, and function of natural communities in a field setting

Example: The South Zumbro Watershed Project uses signage to call attention to conservation-oriented projects they are involved in. Examples of these include prairie restoration projects, the Kutzky Park rain gardens, and the low-maintenance landscaping at the Olmsted County Social Services Campus.

Education

What it is: A coordinated effort to provide landowners, elected officials, community leaders, and local government staff (including natural resource specialists) with an understanding of the value of natural areas in general, the particular features and basic needs of natural communities characteristic of the

region, the impacts of varying land uses, optional protection tools, and appropriate conservation practices

What it accomplishes: Enhances the ability of local governments to evaluate different potential courses of action related to land use, and strengthens the effectiveness of community planning efforts. Decision makers are often more comfortable in their roles when they feel well informed. Education of private landowners about voluntary conservation practices can result in environmental quality improvements

When it may be appropriate: Ideally, on an ongoing basis. At minimum, an educational phase should be a component of any planning process and decision that potentially impacts natural areas. Public education is a necessary facet of successful bond referenda and other efforts to fund natural areas protection using public funds

Example: In March 2001, the Rochester Committee on Urban Design and Environment (CUDE) hosted a “Building with Nature” workshop. Presenters included educators, developers, designers, and government employees with experience in conservation subdivision design. This session was attended by governmental agency staff, realtors, builders, developers, and public officials. Due to the strong positive response to this workshop, CUDE plans to host another workshop dealing with conservation design issues and practices.

Deed restrictions and mutual covenants are conditions placed upon a property or subdivision restricting specified on-site activities. State statutes limit these to a 30-year enforceability period. (Allman, 2000)

Funding Mechanisms to Implement or Provide Incentives to Participate in Conservation/Stewardship Programs

The previous section listed numerous examples of mechanisms for implementing land conservation/stewardship objectives. There are those individuals who are so committed to the environment and their land that they need little prodding to take advantage of these programs. Most people, organizations, and governmental bodies, however, do not have the desire or resources to get involved in their implementation. This section will provide a laundry list (though by no means complete) of funding sources and incentives to get the ball rolling in our community.

Locally initiated funding

- Acquisitions using general funds/cash
- Disbursement from special funds
- Bonding measures
- Special districts – government agency that manages specific resources within defined boundaries that may be able to raise funds through taxes, user fees, or bonds
- Benefit assessment districts – special assessment district established by local government and sells tax-exempt bonds – within the district, an additional sales or property tax is assessed to pay interest on and repay the principal of the bonds – differ from special districts in that they are funding mechanisms, not governmental bodies, and do not have management responsibilities
- Certificates of participation – debt issues that finance a local government’s procurement of capital assets through a lease, installment sales agreement, or loan agreement – they do not qualify as general obligation debt and don’t require voter approval
- Grassroots/citizen fundraising

- Acquisition of tax forfeiture lands
- Acquisition via bargain sales (Allman, 1997)
- Park dedication fees (Green Corridor Project, 1998)
- Grants from state and federal agencies (Green Corridor Project, 1998)
- Real estate transfer taxes (Green Corridor Project, 1998)
- Funding from private individuals, corporations, and foundations (Green Corridor Project, 1998)
- In 1967, Boulder, Colorado, became the first U.S. city to pass a dedicated sales tax to fund open space preservation. Today, Boulder has more than 40,000 acres, much of it in a series of greenbelts and greenways (The Trust for Public Land, 1999).

State funding sources

- *Natural and Scenic Area Grant Program*: The Minnesota Department of Natural Resources provides grants to local governmental units providing up to 50% of the cost of fee title acquisition, perpetual conservation easements, and betterment of natural and scenic areas. There is a minimum project cost of \$10,000 and a maximum grant of \$200,000.
- *Minnesota Environment and Natural Resources Trust Fund (MENRTF), Future Resources Fund (FRF) and Great Lakes Protection Account*: State lottery money (MENRTF), state cigarette tax (FRF), and the state's portion of the Great Lakes Protection Fund provides a pool of funds for environmental protection efforts. The Legislative Commission on Minnesota Resources (LCMR) makes recommendations on the allocation of these funds.
- *Minnesota Native Prairie Bank Program*: This program is used to acquire conservation easements for land covered in native prairie with funding from Reinvest in Minnesota (RIM).
- *Minnesota ReLeaf Program*: The purpose of this program is to assist Minnesota communities with tree planting and tree care in order to increase energy conservation, reduce carbon dioxide, and achieve other environmental benefits.
- *Urban and Community Forestry Challenge Grant Program*: These grants provide local community groups financial incentives to improve community forestry programs.
- *State Sales Tax Designation*: New Jersey voters approved the appropriation of a portion of their state sales tax for open space acquisition for a period of ten years; Minnesota could consider this as well.

Federal funding sources

- *Intermodal Surface Transportation Efficiency Act (ISTEA)*: The purpose of this program is enhancing the nation's transportation system, including the acquisition of land and scenic easements that protect scenic and natural areas located within transportation corridors.

- *Wetland Acquisition Program*: These are funds with which the U.S. Fish and Wildlife Service may purchase fee titles or permanent easements on critical wetlands and adjacent uplands, with a primary emphasis on prairie wetlands that provide waterfowl habitat.
- *Wetland Reserve Program*: Administered by the U.S. Department of Agriculture, cash payments are made to private landowners who establish conservation easements on eligible wetlands (Allman, 1997).

Other financial incentive programs

Land retirement programs such as Debt Cancellation Conservation Easements, Reinvest in Minnesota Reserve Program, Conservation Reserve Program, and Wetlands Reserve Program provide financial incentives for a land owner to retire land from agricultural production or leave natural lands undeveloped. Some programs involve permanent easements, while others are temporary. These programs are administered by federal, state, and local agencies (Allman, 2000), (MN DNR, 1995).

Property tax relief programs such as Native Prairie Tax Exemption Program, Wetland Tax Exemption Program, and Wetland Preservation Areas Program, reduce, defer, or exempt property tax assessment on eligible lands. Landowners are required to maintain the property in a condition stipulated by the program they are participating in (Allman, 2000).

Restoration cost share programs compensate a landowner for a percentage of the cost involved in projects undertaken to restore and protect natural areas on private lands. Examples include Partners for Wildlife, Wetland Establishment and Restoration Program (WERP), Pheasant Habitat Improvement Program, and Forest and Prairie Stewardship of Private Lands Program (Allman, 2000), (MN DNR, 1995).

Local development process incentives, such as accelerated project review times, could be adopted for proposals that meet pre-established design criteria.

WHERE DO WE GO FROM HERE?

The following is a list of ideas to get the Rochester community starting to think and act upon the promotion of natural areas conservation and land stewardship.

1. Educate decision-makers, the development community, local government staff, and citizens on the benefits of and programs available for natural areas conservation and land stewardship
2. Provide a conservation checklist to developers outlining natural resource features and land stewardship options as part of the general development plan process to encourage developers to fit the subdivision to the land rather than make the land fit the subdivision
3. Provide the development community, consulting firms, governmental units, and referral agencies with examples of conservation designed subdivisions and with electronic data (e.g., CDs or ArcIMS access on the Internet) that delineates sensitive areas and links AUAR data and mitigation requirements with parcel base maps to for use in project design and review
4. Work with existing landowners prior to the conception of development plans for their land to inform them about alternative development styles and tools
5. Update the City of Rochester's *Parkland Acquisition Plan* to identify floodplains and other natural areas appropriate for public land acquisition
6. Update the *Rochester Urban Service Area Land Use Plan Map* to delineate "historic" sites and environmental corridors located in the recently expanded areas of the City's Urban Service and Urban Reserve Areas

7. Using programs and tools such as those listed above, implement the policies of the *Rochester Urban Service Area Land Use Plan* to protect and acquire sensitive areas and wildlife corridors and provide the community with “passive recreation” opportunities
8. Promote the use of “green” infrastructure, such as open swales and buffer strips for stormwater management, whenever possible, supplemented by “gray” infrastructure such as pipes
9. Explore the possibility of a local tax relief program for parcels having steep slopes, floodplain, and other sensitive environmental features
10. Create a “conservation overlay map ” to guide development in environmentally sensitive areas
11. Promote the implementation of the environmental corridors concept through cooperative efforts to acquire and link sections of the proposed system.

COMPENDIUM OF LINKS TO ORGANIZATIONS WITH KNOWLEDGE OF LAND STEWARDSHIP ISSUES

1000 Friends of Minnesota
370 Selby Avenue, Suite 300
St. Paul, MN 55102
Phone: 651-312-1000
www.1000fom.org

American Farmland Trust
State and Local Programs Division
Herrick Mill, 1 Short Street
Northampton, MA 01060
Phone: 413-586-9330
www.farmland.org

American Planning Association
122 South Michigan Avenue, Suite 1600
Chicago, IL 60603-6107
Phone: 312-786-6344
www.planning.org

City of Rochester Department of Public Works
201 4th Street SE, Room 108
Rochester, MN 55904
Phone: 287-7800
www.ci.rochester.mn.us/publicworks

Land Stewardship Project
2200 Fourth Street
White Bear Lake, MN 55110
Phone: 612-653-0618 Fax: 612-653-0589
www.landstewardshipproject.org

Metropolitan Council
Mears Park Centre
230 East Fifth Street
St. Paul, MN 55155
Phone: 612-291-6359
www.metrocouncil.org/index.htm

Minnesota Board of Soil and Water Resources
One West Water Street, Suite 200
St. Paul, MN 55107
Phone: 651-296-3767
www.bwsr.state.mn.us

Minnesota Department of Agriculture
Agricultural Land Preservation Program
90 West Plato Boulevard
St. Paul, MN 55107-2094
Phone: 612-215-0369
www.mda.state.mn.us

Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155-4007
www.dnr.state.mn.us

Minnesota Land Trust
2356 University Avenue West, Suite 400
St. Paul, MN 55114
Phone: 651-647-9590 Fax: 651-647-9769
www.mnland.org

Minnesota Parks and Trails Council
26 East Exchange Street
St. Paul, MN 55101
Phone: 612-281-0508
www.mnptc.org

Minnesota Planning
300 Centennial Building
658 Cedar Street
St. Paul, MN 55155
Phone: 612-296-3985
www.mnplan.state.mn.us/index.html

The Nature Conservancy of Minnesota
1313 Fifth Street Southeast, Suite 320
Minneapolis, MN 55414-1588
Phone: 612-331-0750 Fax: 612-331-0770
www.tnc.org/minnesota

Northeastern Area State and Private Forestry
USDA Forest Service
1992 Folwell Avenue
St. Paul, MN 55108
Phone: 651-649-5243 Fax: 651-649-5238
www.willow.ncfes.umn.edu

Olmsted County Environmental Resources Services
2100 Campus Drive SE
Rochester, MN 55904
Phone: 507-285-8339
www.olmstedcounty.com/szwp/

Rochester-Olmsted Planning Department
2122 Campus Drive SE
Rochester, MN 55904
Phone: 507-285-8232 Fax: 507-287-2275
www.olmstedcounty.com/planning/index.htm

The Trust for Public Land, Minnesota State Office
2610 University Avenue, Suite 300
St. Paul, MN 55114
Phone: 651-917-2240 Fax: 651-917-2248
www.tpl.org

U.S. Fish and Wildlife Service
Whipple Federal Building
1 Federal Drive
Fort Snelling, MN 55111
Phone: 612-713-5360
www.fws.gov/r3pao/amps/minn.htm

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The Trust for Public Land. *The Economic Benefits of Parks and Open Space: How Land Conservation Helps Communities Grow Smart and Protect the Bottom Line*. 1999.

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