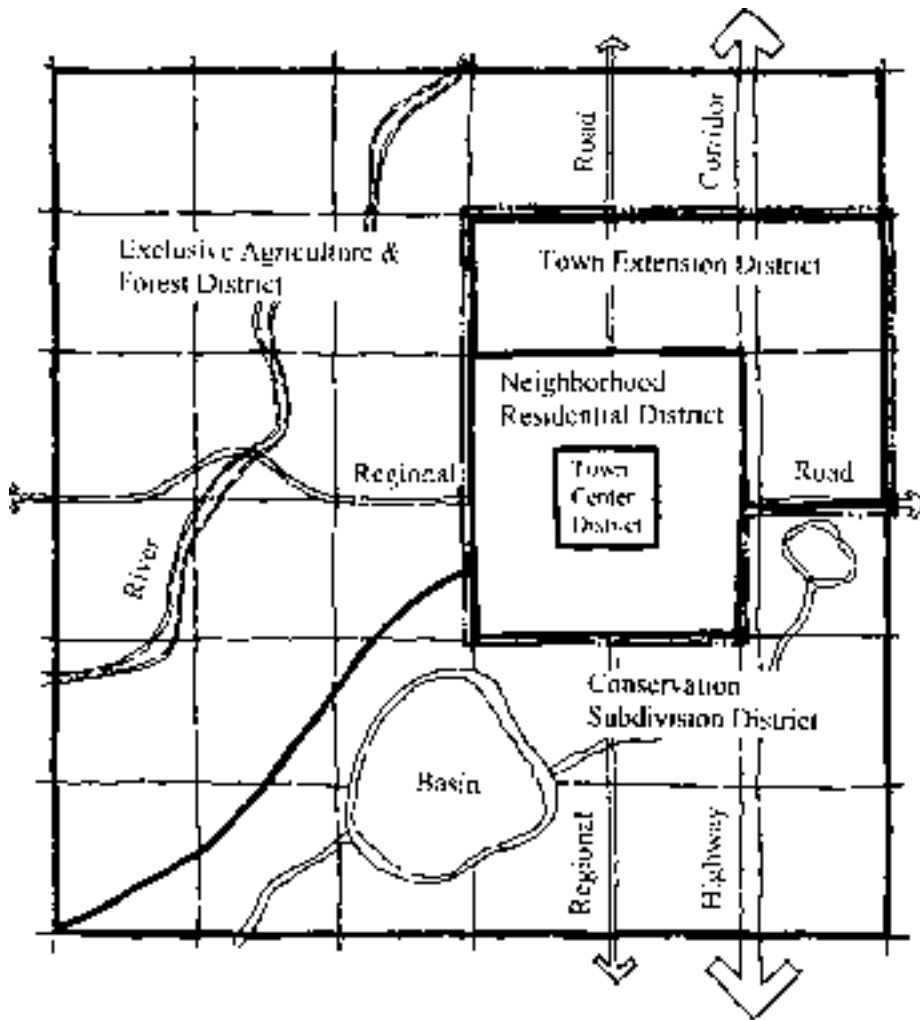


From Policy to Reality: Model Ordinances for Sustainable Development



September 2000

The Environmental Quality Board, staffed by Minnesota Planning, draws together five citizen members and the heads of 10 state agencies that play a vital role in Minnesota's environment and development. The board develops policy, creates long-range plans and reviews proposed projects that would significantly influence Minnesota's environment. The Environmental Quality Board and Minnesota Planning coordinate the **Minnesota Sustainable Development Initiative**, a collaboration of business, government and civic interests to promote policies, institutions and actions that ensure Minnesota's long-term environmental, economic and social well-being.

Minnesota Planning is charged with developing a long-range plan for the state, stimulating public participation in Minnesota's future and coordinating public policy among state agencies, the Legislature and other units of government.

Acknowledgements

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Upon request, copies of *From Policy to Reality: Model Ordinances for Sustainable Development* will be made available in an alternative format, such as Braille, large print or audio tape. For TTY, contact Minnesota Relay at (800) 627-3529 and ask for Minnesota Planning. This report is available on the web at: <http://www.mnplan.state.mn.us/SDI/ordinancestoc.html>

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INTRODUCTION

Sustainable Development Principles and Local Planning

Then I say the earth belongs to each ... generation during its course, fully and in its own right, no generation can contract debts greater than may be paid during the course of its own existence.

— Thomas Jefferson, September 6, 1789

... 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.

— Sustainable development as defined
in Minnesota Statutes, Section 4A.07(1)

Minnesota Statutes, Section 4A.07(3) directs Minnesota Planning (the Office of Strategic and Long Range Planning) to prepare, in consultation with appropriate and affected parties, a model ordinance to guide sustainable development.

This guide is a first step in response to this mandate. The ultimate goal is a group of model ordinances that Minnesota communities can use in charting their futures. This document is a first edition in pursuit of that goal. A second edition will follow once the ideas have been tested by communities that are ready today to apply the concepts of sustainable development.

Many Minnesota communities have practiced the general principles of sustainable development for a long time. They have avoided choosing between economic prosperity and a quality environment, knowing that both are necessary ingredients for their health. Most communities also think about their long-term future. They realize their children will have to live with the effects of today's decisions. And they want those outcomes to be positive.

The challenge is to know *how* and *what* to do. This guide offers tools to help make the best choices today for the health of tomorrow's community. The model ordinances it identifies can make a difference if communities adapt them to their own special circumstances and if this happens as a natural result of a citizen-based community planning process.

Helping communities chart the future they want is the key purpose of this guide.

Sustainable Development Goals

Eleven goals were adopted by the Minnesota Legislature under the Community-Based Planning Act of 1997. Communities may find these goals useful in developing their plans and taking steps through ordinances to implement them. The goals are:

- **Citizen participation.** To develop a community-based planning process with broad citizen participation in order to build local capacity to plan for sustainable development and to benefit from the insights, knowledge, and support of local residents. The process must include at least one citizen from each affected unit of local government.
- **Cooperation.** To promote cooperation among communities to work towards the most efficient, planned, and cost-effective delivery of government services by, among other means, facilitating cooperative agreements among adjacent communities and to coordinate planning to ensure compatibility of one community's development with development of neighboring communities.
- **Economic development.** To create sustainable economic development strategies and provide economic opportunities throughout the state that will achieve a balanced distribution of growth statewide.
- **Conservation.** To protect, preserve, and enhance the state's resources, including agricultural land, forests, surface water and groundwater, recreation and open space, scenic areas, and significant historic and archaeological sites.
- **Livable community design.** To strengthen communities by following the principles of livable community design in development and redevelopment, including integration of all income and age groups, mixed land uses and compact development, affordable and life-cycle housing, green spaces, access to public transit, bicycle and pedestrian ways, and enhanced aesthetics and beauty in public spaces.
- **Housing.** To provide and preserve an adequate supply of affordable and life-cycle housing throughout the state.
- **Transportation.** To focus on the movement of people and goods, rather than on the movement of automobiles, in transportation planning, and to maximize the efficient use of the transportation infrastructure by increasing the availability and use of appropriate public transit throughout the state through land-use planning and design that makes public transit economically viable and desirable.
- **Land-use planning.** To establish a community-based framework as a basis for all decisions and actions related to land use.
- **Public investments.** To account for the full environmental, social, and economic costs of new development, including infrastructure costs such as transportation, sewers and wastewater treatment, water, schools, recreation, and open space, and plan the funding mechanisms necessary to cover the costs of the infrastructure.
- **Public education.** To support research and public education on a community's and the state's finite capacity to accommodate growth, and the need for planning and resource management that will sustain growth.

- **Sustainable development.** 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 revitalize the local economy.

More recently, Governor Jesse Ventura announced an initiative to help communities work for “smart” or responsible growth. Still a work in progress, this initiative asks state agencies to listen to citizens, business and local governments, and encourage their involvement at the local level in deciding what smart growth will look like in their communities. It puts the state in a position to support communities as they pursue smart growth strategies through offering incentives, rather than top-down mandates.

The Smart Growth Initiative suggests four principles to guide responsible growth as well as many options for how Minnesota can develop and change while enhancing its quality of life. It is not a one-size-fits-all approach. These common-sense principles can help guide public decisions and achieve the results Minnesotans expect:

- **Stewardship: Use land and natural resources wisely to sustain them for the future.** Minnesota will protect the environment and conserve agricultural land, open space and other lands that support sustainable outdoor recreation, tourism and natural resource based industries. This will allow for growth that is sustainable for the long term.
- **Efficiency: Make more efficient, integrated public investments in transportation, housing, schools, utilities, information infrastructure and other public services.** Minnesota needs to coordinate and link its tax policies with smart growth. It also must coordinate and link new public investments in transportation, information infrastructure, land use, housing, schools and utilities so they expand economic opportunity for the entire state. By maintaining and improving existing investments in roads, schools and utilities, rather than needlessly duplicating expensive new investments on the edges of communities, Minnesota will avoid wasteful public spending and support economic growth.
- **Choice: Give communities smart growth options and choices.** Communities can be shaped by choice, or they can be shaped by chance. The state will work with local governments to encourage citizen and business participation in decisions about what smart growth should look like. Minnesota will create choices and incentives for linking transportation, housing, jobs, education and the amenities that make communities desirable places to live.
- **Accountability: Reinforce responsibility and accountability for development decisions.** For smart growth to become a reality, everyone — individuals, businesses and government — must make smart choices and take responsibility for the true costs and consequences of the decisions they make. The marketplace can be an effective force for smart growth, but only if state and local policy sends consistent signals and development decisions are predictable, fair and cost-effective. If communities choose to make short-sighted development decisions, it is not up to Minnesota taxpayers to pay the costs of their mistakes.

Developing Model Ordinances

This guidebook offers suggestions to local governments about actions they might take to implement these goals and principles. The idea is to give elected officials, local residents, local government staff and other stakeholders a starting point for addressing the issues that concern their communities. Most of the ordinances are related to land use (zoning, subdivision regulation, natural and economic resource protection, stormwater and wastewater management, etc.). Some additional topics include design of sustainable buildings, solid waste management, procurement of renewable energy and sustainable economic development.

Process Used to Create the Model Ordinances

A five-step process was used to create the model ordinances in this guidebook. Minnesota Planning, its partners and its consultant:

1. Identified the kinds and range of sustainable development ordinances that have been enacted by local governments or written as models.
2. Set priorities for the potential ordinance subjects according to the typical needs of Minnesota communities.
3. Adapted existing ordinance language to the range of needs for Minnesota communities.
4. Created new model ordinance language for important topics for which no model could be identified.
5. Provided application and implementation language for the model ordinances, noting where local governments might need to identify local priorities and where Minnesota law restricts or overrides local decision making.

The first step identified the range of existing ordinances and a list of possible models for adaptation. While the literature review for the project was extensive, additional ordinances that may provide guidance to communities may be identified in the future.

The second step, the priority-setting process, included a review of the possible topics by a group of stakeholders, including representatives of city, county and township associations; state environmental, economic development and land use planning agencies; environmental organizations; and sustainable community advocates.

In the third step, the language was modified to reflect both the general set of laws, regulations and situations found in Minnesota and the principles of sustainable development. Most of the models were tailored from existing ordinances — some from communities that had codified their sustainable development strategies, others from ordinances that were easily modified to incorporate such language. A number of these ordinances were from outside Minnesota. The process of adapting the language did not, however, include an

exhaustive review of Minnesota case law or administrative rules applicable to the particular subject of the ordinance. Communities using the models are urged to review the range of legal interpretations for regulatory authority and jurisdiction.

In the fourth step, new ordinances or guidelines were developed for those situations for which no suitable models could be found. All ordinances, including both those modeled on existing regulations and those created for this guide, provide a logical framework and structure for adaptation by communities. Each community will need to carefully review the models for language that may need to be adjusted to be compatible with local situations or priorities.

In the fifth and final step, “applications and implementation” language was created to help communities adapt wording for consistency with local priorities or goals. The guidebook also identifies a number of legal, regulatory or administrative variations that may need to be considered. Finally, the applications and implementation language describes where different kinds of local governments (city, county, township) may need to address an issue differently and where differences in natural resources (urban, suburban, rural forest, rural agriculture, etc.) may require different standards or thresholds in an ordinance.

Use of the Model Ordinances

To create provisions that are as broadly applicable as possible, the model ordinances in this guidebook are not linked to a particular type of jurisdiction. The typical settlement pattern in Minnesota is that of a city surrounded by one or more rural townships from which the city may gradually annex land. Alternatively, a township may contain one or more small unincorporated settlements that could be called villages. Moreover, land use within townships is frequently managed at the county level. Regardless of the jurisdictions, the model ordinances look at “city and countryside” as a unit. Where ordinances are primarily applicable to one type of jurisdiction, the guidebook notes such limitations in the comment section. For land use components, each model provides an illustration of how the ordinance relates to land uses in and around a targeted zone. The community name used throughout the ordinance is “Model Community,” or simply “the community.”

The Model Community includes the following characteristics:

- A city center, or downtown
- Higher-density neighborhoods surrounding the city center
- Undeveloped or lightly developed areas on the fringe of the community that are or can be served by the community’s water and sewer systems
- Prime managed agricultural and forested areas outside the community

- Lower-quality undeveloped agricultural, forest or grassland areas outside the community
- Several watersheds, including some with sensitive environmental areas

Comprehensive Plans and Other Policy Guides

Comprehensive planning or other policy decision-making should always precede — and take precedence over — zoning, subdivision regulations or other ordinances. A community’s comprehensive plan or similar policy documents (e.g., a natural resource inventory or management plan, solid waste management plan, comprehensive water plan, sustainable development principles or economic development plan) lay the groundwork for the community’s desired land uses or programs.

Implementing Comprehensive Plan or Sustainable Development Goals

Local government has three options for realizing a community’s goals:

1. **Encouraging actions that are consistent with the goals.** Examples include education programs to encourage certain actions, demonstrations and pilot programs that show how a policy can be implemented and resolutions supporting nongovernmental initiatives that further a community’s goals.
2. **Providing incentives for actions consistent with goals.** Examples include programs and ordinances that decrease fees or regulatory requirements for actions supportive of community goals, financial participation when community goals are advanced and various specific measures, such as allowances for increased density or floor-to-area ratios for developments that further community goals.
3. **Regulating actions to be consistent with goals.** Examples include use of zoning, subdivision regulations and environmental overlays to limit or prevent some land uses in targeted areas and requiring certain land uses to meet performance standards.

Zoning and other ordinances are simply one set of tools among many for implementing a comprehensive plan. The model ordinances provided in this guide represent potential tools for comprehensive plan implementation. They do not represent the full range of options for a community to meet sustainable development goals. A community should consider the full range of tools and select those that are appropriate to its vision and the degree of governmental action that it may warrant.

The vision, issues, development goals and social, economic and environmental characteristics of each community are unique. The ordinances in this guidebook could not address every contingency that a local government will face nor the variety of local priorities,

resources or economic geography that is found in Minnesota. A community's unique situation will frequently call for modifications to the models. In such cases, the models are the clay to be molded by each community.

Sustainable Development Ordinances and Comprehensive Planning Processes

Sustainable development begins at home. It starts with a community planning process that identifies a community's vision for the future and the principles and goals that will take the community toward that vision. A community's ordinances are the regulatory vehicles that may be used to pursue the vision and goals. A community's principles and goals cannot be adequately addressed in the absence of a coherent set of policies and priorities. These should be set under a community planning process. The guiding principles behind zoning, subdivision, economic development and environmental protection ordinances should be found in a community's comprehensive plan, associated resolutions and related documents. Ordinances are merely one of several implementation tools a community can use to encourage sustainable development.

A planning process that reflects sustainable development principles must start with a well-defined community participation process. Residents, businesses and other stakeholders must define a long-term community vision, create general goals reflecting their community's issues and priorities, and identify objectives to be implemented through the various tools available to local government and other community institutions. The vision, goals, priorities and objectives become the community's comprehensive plan, providing the foundation upon which implementation tools such as ordinances rest.

This guidebook assumes that a community has completed a comprehensive plan using a public participation process. It offers no guidance on how a community sets its vision, goals, principles or priorities, or how it identifies objectives and strategies for development and growth. Principles that guided the design of the models were taken from the Smart Growth Initiative, the Minnesota Round Table on Sustainable Development, the Community-Based Planning Act and the work of communities around the nation that have adopted sustainable development strategies and implemented the strategies through ordinances.

Turning Policy into Reality: Local Ordinances and Programs

This guidebook provides model ordinances for a number of sustainable development topics, including:

- Growth management, including both zoning and subdivision regulations, and ordinances creating growth management programs
- Community resources protection, including an overlay district for natural resources and ordinances ensuring sustainable use of valuable local resources
- Urban design, including ordinances to stage new development and use land efficiently, promote infill, protect historic resources, and direct appropriate commercial development to retail nodes
- Infrastructure, including public infrastructure in roads, sewers and schools, private infrastructure in septic systems and management of storm water
- Resource-efficient buildings, including efforts to increase energy efficiency and minimize construction and demolition waste, and resource-efficient procurement practices
- Economic development, including linking sustainable development goals to governing language for an economic development authority and performance standards for commercial and industrial investment

The ordinances in this guidebook are merely a sampling of the options available to local communities that wish to pursue sustainable development. Additional references for other language or information are noted at the end of each chapter.

As noted, each community should adapt guidebook language and concepts to fit its own vision, priorities and goals. Minnesota communities face a wide range of resource and development issues and will have unique ways to address them. The comment section in each model ordinance describes some of the different choices communities have.

A CITIZEN PARTICIPATION PLAN

Sustainable development is community-driven. It cannot be imposed on a community from the outside. A fundamental tenet of sustainable development is to engage a community's citizens in planning, design and program implementation to the greatest extent possible.

Planning for sustainable development is inherently community-focused. Community residents, businesses and other stakeholders must define a vision, set priorities and agree on the appropriate implementation tools. The Community-Based Planning Act's citizen participation goal — “to build local capacity to plan for sustainable development and to benefit from the insights, knowledge, and support of local residents” — reflects the importance of stakeholder and citizen participation in ensuring sustainable development.

Successful implementation of a plan demands that citizens and stakeholders be involved in the planning process. Citizens must support the policies and goals contained in the comprehensive plan, or efforts to implement ordinances likely will fail. Citizens must also understand the available strategies and tools so they can help choose those that will work best in their community. If local support and understanding of the tools do not exist, an educational effort should be undertaken before policy changes are considered.

A citizen participation plan should achieve three specific goals: 1) educating citizens and stakeholders on the problems and issues that might need to be addressed and the options available to the community; 2) providing citizens with meaningful opportunities to shape a community's vision, principles, goals and strategies; and 3) providing ways for citizens to assist in implementation. If a plan is developed with and supported by citizens, they will likely assist in its implementation.

A community might consider creating a written “citizen participation plan” that would provide details on how the community will achieve participation throughout the planning process, including the creation of its comprehensive plan and plan implementation tools, such as ordinances. A written plan should address such items as:

- Tailoring the plan to fit the community's culture
- Considering the differing information needs and potential concerns of various segments of the public
- Providing a variety of outreach and involvement opportunities
- Defining indicators of successful public participation

Model language for a community participation ordinance follows.

This ordinance is adapted from the zoning ordinance of Glendale, Arizona, one of the few jurisdictions that actually requires a citizen participation plan. The ordinance has been in effect since 1997. It formalizes a process that many jurisdictions try to achieve and requires an applicant to make a good-faith effort to involve citizens in development review.

CITIZEN PARTICIPATION ORDINANCE

XX.010 Purpose.

Every application requiring a public hearing shall include a citizen participation plan that must be implemented prior to the first public hearing. The purpose of the citizen participation plan is to:

- A. Ensure that applicants pursue early and effective citizen participation in conjunction with their applications, giving them the opportunity to understand and try to mitigate any real or perceived impacts their application may have on the community;
- B. Ensure that the citizens and property owners of Model Community have an adequate opportunity to learn about applications that may affect them and to work with applicants to resolve concerns at an early stage of the process.
- C. Facilitate ongoing communication between the applicant, interested citizens and property owners, city staff, and elected officials throughout the application review process.

The citizen participation plan is not intended to produce complete consensus on all applications, but to encourage applicants to be good neighbors and to allow for informed decision making.

XX.020 Information Required.

At a minimum the citizen participation plan shall include the following information:

- A. Which residents, property owners, interested parties, political jurisdictions and public agencies may be affected by the application.
- B. How those interested in and potentially affected by an application will be notified that an application has been made.
- C. How those interested and potentially affected parties will be informed of the substance of the change, amendment, or development proposed by the application.
- D. How those affected or otherwise interested will be provided an opportunity to discuss the applicant's proposal with the applicant and express any concerns, issues, or problems they may have with the proposal in advance of the public hearing.
- E. The applicant's schedule for completion of the citizen participation plan.
- F. How the applicant will keep the planning department informed on the status of their citizen participation efforts.

XX.030 Target Area.

The level of citizen interest and area of involvement will vary depending on the nature of the application and the location of the site. The target area for early notification will be determined by

the applicant after consultation with the Planning Department. At a minimum, the target area shall include the following:

- A. Property owners within the public hearing notice area required by other sections of the ordinance codified in this section;
- B. The head of any homeowners association or registered neighborhood within the public notice area required by other sections of the ordinance codified in this section;
- C. Other interested parties who have requested that they be placed on the interested parties notification list maintained by the Planning Department.

These requirements apply in addition to any public notice provisions required elsewhere in the ordinance.

XX.050 Phasing.

The applicant may submit a citizen participation plan and begin implementation prior to formal application at their discretion. This shall not occur until after the required pre-application meeting and consultation with the Planning Department staff.

XX.060 Citizen Participation Report.

This section applies only when a citizen participation plan is required by the ordinance codified in this section.

- A. The applicant shall provide a written report on the results of their citizen participation effort prior to the notice of public hearing. This report will be attached to the Planning Department's public hearing report.

- B. At a minimum, the citizen participation report shall include the following information:
1. Details of techniques the applicant used to involve the public, including:
 - a. Dates and locations of all meetings where citizens were invited to discuss the applicant's proposal;
 - b. Content, dates mailed, and numbers of mailings, including letters, meeting notices, newsletters and other publications;
 - c. Where residents, property owners, and interested parties receiving notices, newsletters, or other written materials are located; and
 - d. The number of people that participated in the process.
 2. A summary of concerns, issues and problems expressed during the process, including:
 - a. The substance of the concerns, issues, and problems;
 - b. How the applicant has addressed or intends to address concerns, issues and problems expressed during the process; and
 - c. Concerns, issues and problems the applicant is unwilling or unable to address and why.

CLUSTER #1: GROWTH MANAGEMENT

The Growth Management Cluster of ordinances addresses how a community defines areas most appropriate to accommodate growth and areas where resources will be protected. The first tool presented is an urban growth boundary. It is used to establish a boundary between the two areas. The placement of the urban growth boundary is determined by a community through a comprehensive planning process that accounts for population growth, and commercial and industrial growth within the long-term vision of the community.

The Growth Management Cluster relates directly to the Neighborhood Design Cluster. The Growth Management Cluster defines zoning districts and programs outside of the urban growth boundary. The Neighborhood Design Cluster defines zoning districts and design standards inside of the urban growth boundary. Urban services will be provided to districts inside the growth boundary to promote dense development that maximizes the community's investment in infrastructure. Districts and programs outside the urban growth boundary are directed at promoting industries that are dependent on land-based resources (agriculture and forestry) and protecting natural resources important to the community.

Outside of the urban growth boundary, Model Community has defined two zoning districts and created two programs to manage growth and protect resources. The agricultural and forest protection zone encompasses those areas of Model Community that have historically supported agriculture and forestry and have soils and land suited to these uses. This zone restricts land use to production agriculture and forestry and the dwellings associated directly with these uses. Non-agriculture and non-forest related dwellings are restricted in order to prevent conflicts that inevitably arise when urban uses move into areas of active agriculture and forestry.

The conservation subdivision zone is a residential zone communities may choose to use in rural areas. The district allows residential development to occur in clusters while permanently protecting large blocks of open space and natural areas. The district is not designed as a staging area for future urban development. Residents must understand the limitations of building in this zone, i.e. they will not receive urban services, such as public utilities, road expansions, street lighting, etc., in the future.

Two programs that can complement rural zoning districts are a Purchase of Development Rights (PDR) program and Transfer of Development Rights (TDR) program. In a PDR program, a landowner is paid to permanently restrict the future development of parcels. PDR programs are often targeted to permanently protecting agricultural lands and natural areas. In a TDR program, a landowner sells development rights to a private developer. The development rights are sold from areas designated to remain rural and transferred to areas that are designated for urban development.

Two additional ordinances are attached to the integrated growth management ordinance: a sample Orderly Annexation Agreement, and an example of the general provisions of a subdivision ordinance. An orderly annexation agreement is an agreement between two units of government about how the communities will grow. Instead of a city annexing land when there is a perceived need for increased tax base or whenever a landowner decides to develop, the city and the surrounding township can negotiate an orderly annexation agreement that defines what parcels will be annexed and when. As with urban growth boundaries, these agreements should be based on the projected population growth, and commercial and industrial needs of the two communities.

The subdivision ordinance demonstrates how a community can use the subdivision process to ensure that sustainable development goals are met in new development. A subdivision ordinance is often a lengthy ordinance including a number of procedural details, reporting requirements, and bonding requirements. The attached subdivision ordinance language focuses on how sustainable development goals can be met through the general provisions section of a typical subdivision ordinance.

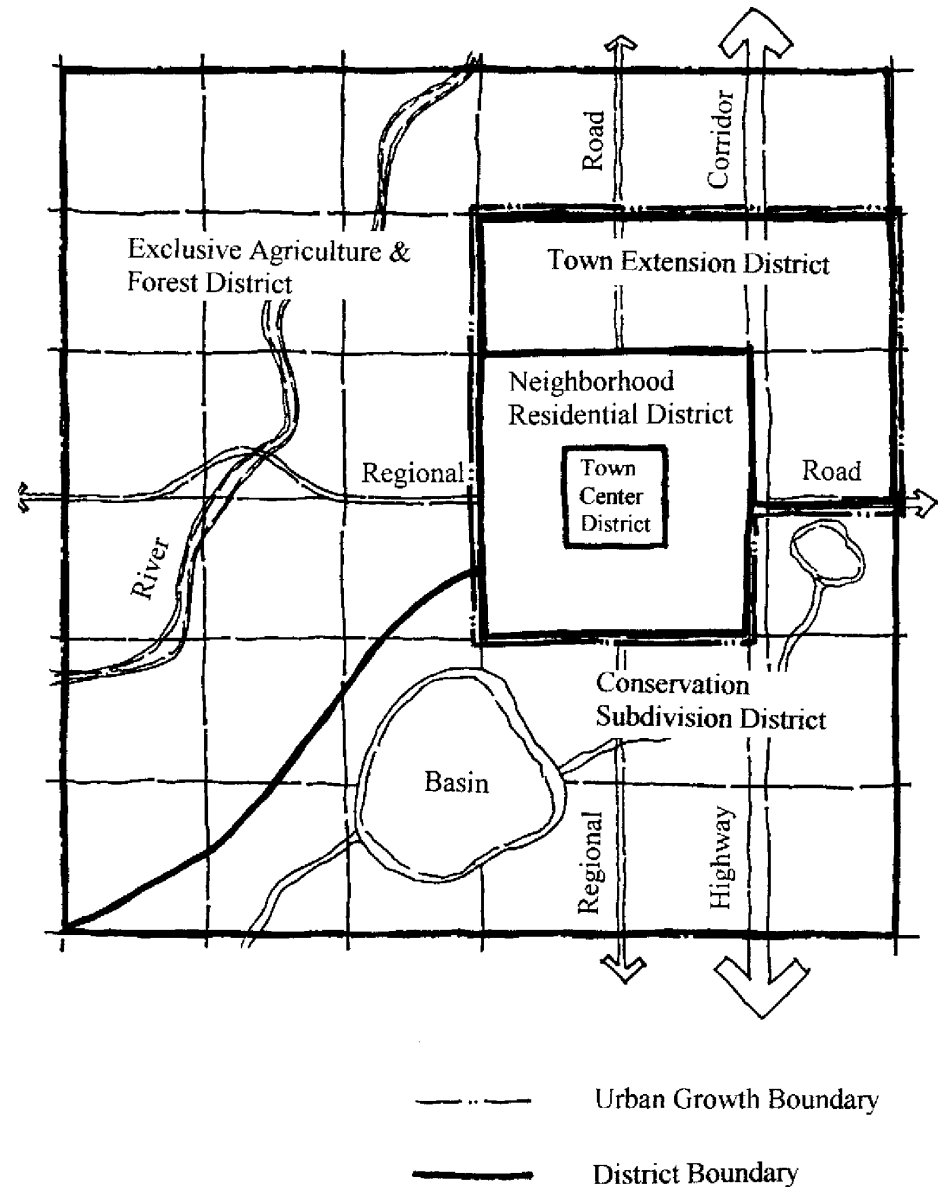
Urban Growth Boundary Ordinance

Establishing an urban growth boundary (UGB) is critical to the success of an integrated growth management strategy. A UGB is an established line beyond which urban services such as public sewer and water and transportation improvements will not occur. Urban growth boundaries provide integrity to the sustainable development decision to direct growth to areas within and contiguous to existing urban areas. They promote efficient, compact development within their boundaries and discourage the premature low-density development of rural areas.

UGB's are not effective in isolation. A community must define zones outside the UGB that will deter leapfrog development. If the zones outside the UGB allow sprawling small-lot development (10, 5, 2.5 acre lots per house or less) on septic, developers will choose to develop in rural areas. The combination of a well-defined UGB, a transitional Rural Conservation Subdivision Zone immediately outside the UGB, and a surrounding Agriculture and Forest Protection Zone will provide a strong incentive for developers to develop within the urban areas or within the constraints of the Rural Conservation Subdivision Zone. Maps showing how the UGB is used with these other tools are presented later in this chapter.

UGB's should be designed with different considerations in urban, suburban, and rural areas of the state. In urban and suburban areas, UGB's can be part of a strategy to protect open space and environmentally sensitive areas, and to ensure efficient use of increasingly scarce developable land. In rural areas, UGB's can help protect the small town quality of life, directing denser development to the center, or downtown, of a small city. In both rural and urban areas, UGB's help ensure an efficient use of road, water, sewer and other infrastructure by keeping development adjacent to areas already served by urban services. UGB's also can protect the discernable boundaries between cities, instead of cities blending unrecognizably into one another.

Choosing the location of the UGB should be based on the following information:



- *an analysis of estimated population growth for a given planning period, often twenty years;*
- *an inventory and projected needs analysis of public facilities and infrastructure based on desired densities and patterns of development; and*
- *an estimate of the amount of land needed and available for development at the desired densities to meet the population growth.*

The established UGB should be clearly mapped and incorporated in the community's comprehensive plan or adopted by the governing body as policy. The model ordinance included in this Chapter codifies and implements a defined growth boundary.

A UGB could be adopted by a municipality that has both urban and rural areas. In Minnesota, however, UGB's will often require the cooperation of a municipality with a township or a county. An agreement between the municipality and the township or county should be created that includes a description of the boundary, the process of developing the original boundary, and a process for reviewing and adjusting the boundary. This language could be part of an orderly annexation agreement. An example of an orderly annexation agreement is included at the end of this chapter.

A UGB does not need to remain static. As areas within the UGB are developed to their maximum capacity, the UGB can be modified to include once rural areas that are now contiguous to the expanding urban area. UGB's used in this way provide clear boundaries for planned, phased development.

The Minnesota Statutes include a definition of an Urban Growth Area, and describe how such an area must be incorporated into a comprehensive plan consistent with the Community-Based Planning Act (Section 462.352, subd. 18, 462. 3535, subd. 5). These provisions are targeted toward a multi-governmental planning effort. The UGB ordinance listed below is targeted to a single community, but provisions consistent with the Community-Based Planning Act appear in both the UGB ordinance or the Orderly Annexation Agreement attached to this chapter.

The following Urban Growth Boundary ordinance is adapted from Chapter 18.30 of the City of San Jose Municipal Code.

Chapter XX Model Community Urban Growth Boundary

XX.01. Intent

- A. **Intent.** The Urban Growth Boundary (UGB), as shown on the Official Map of Model Community and described in the Comprehensive Plan, is intended to define the limit to which urbanization should occur. The UGB is designed to encourage compact, efficient development and discourage development that is more costly and consumes natural resources. The UGB also helps to ensure that urban services provided by Model Community to existing neighborhoods will not be reduced by service demands of new development in rural areas.
- B. **Modifications of the UGB.** Significant modifications to the UGB, or significant modifications to the comprehensive plan text describing the UGB, will only be considered in the context of a major, comprehensive update of the comprehensive plan which fully considers all of the implications of expanding the limits of urbanization. Significant modifications will not be considered on a case-by-case basis as part of an application for subdivision, rezoning, conditional use permit, or variance. Minor modifications to the UGB will be considered only under the standards and process for a general plan amendment as outlined in Section 2 of this ordinance.

XX.02. Modification Process

- A. **General Plan Amendment.** Any request or application that would result in a modification in the UGB definition or location as shown on the Official Map, including requests to change non-urban land use designations to urban land use designations, will be considered to be a request for a general plan amendment and must be considered under the modification process outlined in this Chapter.
- B. **Date for Filing General Plan Amendment Requests.** Any request or application for a general plan amendment to modify the UGB definition or location shall be filed by December 1 to qualify for hearing during the

Section E., criteria for a minor modification, should be very clear and narrow in scope. The criteria are designed to discourage requests for changes in the UGB. The result of applying the criteria should be that most requests receive a high level of scrutiny. Granting many modifications to a UGB can threaten the perception of the line as a real limit. It can also set precedents for changing the line regardless of the criteria set forth in the ordinance. Criteria number E.4. should be modified to reflect the important natural resources present in your community. A community may also include a criteria that excludes all proposed modifications within particular zones, such as a river protection zone.

- annual review process of the comprehensive plan for the succeeding year.
- C. **Determination of a Minor Modification.** If, within ninety days after the request or application is filed, the Planning Director determines the request or application clearly qualifies as a minor modification based on a strict interpretation of the criteria set forth in Section XXX.02.E, the modification may be considered during the annual review of the comprehensive plan.
- D. **Determination of a Significant Modification.** If, within ninety days after the request or application is filed, the Planning Director determines the request or application does not qualify as a minor modification based on a strict interpretation of the criteria set forth in Section XXX.02.E., the modification is to be considered a significant modification to the UGB and a hearing shall be set pursuant to Section XXX.02.G.
- E. **Criteria – Minor Modification.** To qualify as a minor modification, a proposed modification to the UGB must strictly meet all of the following criteria:
1. Be no larger than five acres in size; and
 2. Be contiguous to lands with an urban designation; and
 3. Be proposed for development with a single development plan adhering to all the requirements of the urban zone under which the land will be designated after the modification; and
 4. There is no presence of protected waterways, steep slopes, sites identified in the County Biological Survey, or other significant natural features.
- F. **Minor Modification – Change to Official Map.** If the Planning Director determines the request or application is a minor modification based on a strict interpretation of the criteria set forth in Section XXX.02.E., the following process shall be undertaken to modify the UGB and the Official Map:
1. The Planning Director shall issue a determination letter clearly stating the bases upon which the determination of a minor modification was made;
 2. The UGB line on the Official Map shall be modified reflecting the change, the original UGB line shall be retained as a dashed line, and a note shall be recorded on the map stating the date of the determination

The rezoning requirement noted in subsection F.3. insures that the modification will fall under the public notification requirements for a rezoning. The rezoning also guarantees that the development of the land will comply with all the requirements of an urban zone.

letter.

3. The subject land of the modification shall be officially rezoned, through a rezoning process, to reflect the new zoning district within which it lies.

G. Significant Modification

1. **Generally Discouraged.** Significant modifications to the UGB are strongly discouraged in order to ensure the long term stability of the boundary by directing urban growth to areas of the community that are urbanized or planned for urbanization.
2. **Hearing Issues.** If the Planning Director determines that the request or application is a significant modification, the Planning Director shall set hearing before the Governing Body on the following issues:
 - a. Whether the request or application qualifies as a minor modification;
 - b. Whether a comprehensive update to the comprehensive plan is currently underway or scheduled, and whether to refer the application to that process based on the criteria set forth in XXX.02.G.5 ; or
 - c. Whether a comprehensive update of the comprehensive plan shall be undertaken with the application referred to that process.
3. **Notice.** Notice of the time and place of the hearing by one publication in a newspaper of general circulation in the community at least ten days before the date set for the hearing.
4. **Denial.** The request or application for a significant modification to the UGB shall be denied unless the Governing Body:
 - a. Determines that the request or application is a minor modification; or
 - b. Refers the application to an existing comprehensive update of the comprehensive plan; or
 - c. Initiates a comprehensive update of the comprehensive plan during which the significant modification requested will be considered.
5. **Criteria for Referral to Comprehensive Plan Update.** The Governing Body shall refer a significant modification to a

The criteria for referring a request or application for a significant modification to a comprehensive plan update (section G.5.a-b.) are extremely limited. This reflects the statement that modifications are strongly discouraged. If the criteria for referral are less restrictive, more modifications will be requested and possibly granted, thus decreasing the effectiveness of the boundary. The distinction between denial of economic viability and economic hardship reflects the current law on takings of private property. If a regulation results in economic hardship it is not a taking of property by a government. If a regulation results in the denial of all economically viable uses, it may result in a taking and therefore should be remedied by modifying the urban growth boundary. The denial of all economically viable use through the establishment of an urban growth boundary, however, is unlikely since rural uses are still allowed on land outside the boundary.

comprehensive update of the comprehensive plan only if the Governing Body makes one of the following findings:

- a. A comprehensive update of the general plan is being scheduled for reasons independent of this application; or
- b. The applicant has demonstrated that without the modification, an owner would be denied all economically viable use of the land. Proving economic hardship is not to be considered proof of a denial of all economically viable uses.

Agriculture and Forest Protection District

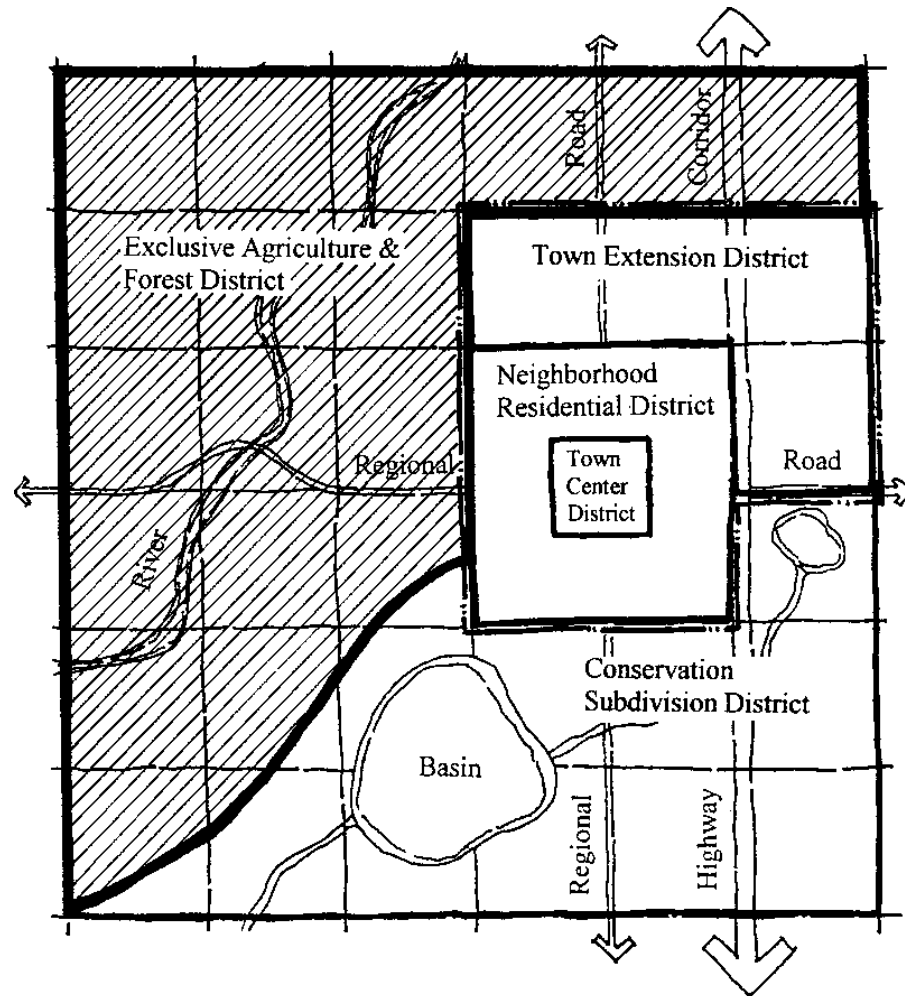
An effective growth management plan clearly establishes residential growth areas within and adjacent to existing urban areas. This can be accomplished defining an urban growth boundary (see the previous section) and residential Districts within the boundary. This Chapter addresses the issue of preventing inefficient development outside the urban growth area while protecting natural resources and basic economic activities. These goals can be accomplished by establishing an Agriculture and Forest Protection District.

Agricultural soils and forested lands for timber production are natural resources necessary for the economic activities of farming and timber harvesting. A diverse economy is essential to sustaining a community through downturns in any single industry. Agriculture and timber harvesting are also natural resource based activities that can be conducted in a sustainable manner using renewable resources. Farms can also provide locally-grown food to the community. Many of Minnesota's counties and townships rely heavily on agriculture and forestry for economic activity. This Chapter applies to communities with rural agricultural and forested areas.

In addition to preventing the development of forested land, Model Community may wish to go further and protect some special and unique forested areas by limiting certain activities in these areas. This issue is addressed through the use of natural resource protection ordinances as discussed in the Community Resources chapter.

Prior to adopting an ordinance, Model Community should establish goals and policies supporting the protection of agricultural and forested land in their comprehensive plan. These goals and policies should state the sustainability and natural resource based reasons for protecting and maintaining agricultural and forested areas within the community.

There are several effective methods of protecting agricultural



- · — · — Urban Growth Boundary
- — — District Boundary

and forest lands through ordinances. Underlying each of these ordinance types is the community's decision to direct non-farm and non-forest land uses away from farming and forested areas. This Chapter provides language for more than one alternative.

Agriculture and forestry are combined in the model ordinances because of their similar characteristics: need for large contiguous parcels of land for economic use; conflicts with residential uses arising from the industrial aspects of agriculture (e.g., noise, dust, chemical application) and forestry (e.g., use of large machines, trucking, changing the visual aspect of the forest by cutting).

Also, agriculture is tied to the presence of soil types suited to agricultural production. Good soils can not be moved and non-farm development on these soils diminishes the quantity available for agriculture. Farming does not occur exclusively on good agricultural soils, but farms may include land with good soils, poorer soils and forest land. Therefore, the ordinances do not limit agricultural protection Districts only lands with good agricultural soils. The District boundaries are more often are tied to areas that have historically been farming ideas.

Communities may, however, wish to protect just one of the resources. If the community wishes to focus on just one resource, the ordinances can be modified to specify just agricultural lands or just forest lands.

The agriculture and forest protection model ordinance is derived from the following sources:

- *Model agricultural district in Planning and Zoning for Farmland Protection: A Community Based Approach, 1987, by the American Farmland Trust.*
- *Model Agricultural Zoning Ordinance in Holding Our Ground: Protecting America's Farms and Farmlands, 1997, by Tom Daniels and Deborah Bowers.*

Chapter XX Model Community Agriculture and Forest Protection District

XX.01 Intent and Purpose

- A. **Intent.** The Agriculture and Forest Protection District as Model Community is intended to protect areas of the community which are well suited for production of food, fiber, and wood fiber. It is also the intention of this ordinance to minimize conflicts between incompatible uses by directing non-farm/forestry residential uses to other Districts within the community.
- B. **Purpose.** The purposes of the Agriculture and Forest Protection District are:
1. To protect and promote the continuation of farming in areas with the most suitable soils.
 2. To protect and promote the continuation of forestry as a long-term industry in areas suitable to forestry.
 3. To protect and promote the continuation of farming and forestry in areas of Model Community that have historically contained these uses and therefore have developed compatible residential patterns and transportation infrastructure.
 4. To permit primarily agriculture and forestry land uses and activities.
 5. To separate agricultural and forestry land uses and activities from incompatible residential, commercial, and industrial development, and public facilities.
 6. To achieve the goals of growth management, natural resource protection, and economic diversity as stated in the Model Community Comprehensive Plan.
 7. To prevent the conversion of agricultural and forest land to scattered non-farm/forest development which when unregulated, unnecessarily increases the cost of public services to all citizens and often results in the premature disinvestment in agriculture or forestry.
 8. To preserve wetlands and natural areas associated with farms and forest land which because of their natural physical features, are useful, as water retention and groundwater recharge areas, and as

habitat for plant and animal life; and which have an important aesthetic and scenic value which contributes to the unique character of the community.

XX.02 Definitions. For the purpose of this Ordinance, certain words and phrases are defined as follows:

Agricultural Land: Land whose use is devoted to the production of livestock, dairy animals, dairy products, poultry, poultry products, nursery plants; Christmas trees; forages and sod crops; grains and feed crops; and other similar uses and activities, including equestrian activities.

Farm or Forest Parcel: A tract or parcel of land containing at least 25 acres, devoted primarily to agricultural or forestry uses, may contain a dwelling or other accessory uses.

Non-farm/forest Lot: A lot or parcel containing less than 25 acres and containing one or more dwelling units; or a lot within an agriculture or forest zoning district devoted to uses other than agriculture, forestry, or residential uses.

Parent Tract: Each tract of land located within the Agriculture and Forest Protection District on the effective date of this ordinance, and held in single and separate ownership.

XX. 03 Permitted Uses.

- A. The following uses of land are permitted in this district :
1. All forms of agriculture, horticulture, and animal husbandry, including necessary farm structures;
 2. All forms of forestry uses, including processing, and necessary structures;
 3. Single-family dwelling units directly associated with farm and forest uses;
 4. Production nurseries and production greenhouses;

5. Wildlife refuges and fish hatcheries;
6. Conservation areas; and
7. Transmission and distribution lines, and pipelines of public utility companies within existing public rights of way.

- B. The following uses accessory to the principal agriculture or forestry uses:
1. Roadside stands, not more than 300 square feet in size, for the sale of agricultural products, at least half of which are grown on the premises;
 2. Garages;
 3. Manure storage facility; and
 4. Noncommercial recreation, which may include hunting by persons other than the landowner for which a nominal fee is paid to the landowner.

XX.04 Conditional uses.

- A. The following are conditional uses in the Agriculture and Forest Protection District that require a conditional use permit based upon procedures, factors and conditions set forth in other regulations of Model Community:
1. Single-family dwelling units on non-farm/forest lots, provided that:
 - a. The permit application for construction includes a scaled drawing indicating the location of the proposed dwelling relative to the surrounding parcels;
 - b. The dwelling is sited on that portion of the lot which separates it as much as possible from adjacent farming and forestry, including minimizing the length of property lines shared by the residential lot and the adjoining farms and forest used for production;
 - c. The dwelling and its lot are located on the least productive agriculture and forest land wherever practical; and
 - d. The dwelling is sited on the smallest practical areas to satisfy the requirements of this ordinance and on-site sewage disposal requirements.

 1. Temporary farm housing, provided that this use:
 - a. Takes place on a farm of at least twenty-five acres;
 - b. Utilizes mobile homes or manufactured housing;

- c. Is used only to house farm laborers; and
 - d. Is removed when farm laborers no longer occupy the housing;
2. Home occupations as defined by Model Community in other ordinances;
 3. The conversion of a single-family dwelling to a two-or three family dwelling;
 4. Bed and breakfast inns;
 5. Family care for fewer than six (6) children or adults;
- B. At a minimum, the following standards shall be applied when reviewing applications for conditional use permits within the Agriculture and Forest Protection District:
1. The proposed use shall be sited upon lands which are less suitable for commercial agriculture and forestry than other agricultural or forestry lands within the district.
 2. The proposed use shall be sited on a parcel in a manner which minimizes the amount of productive agricultural and forest land which is converted to the proposed use.
 3. The proposed use shall be located in close proximity to existing buildings whenever possible and appropriate.

XX.05 Incompatible Uses.

Uses not specifically permitted by section XX.03 above are not permitted in the Agriculture and Forest Protection District. In general, uses and activities that are not directly related to agriculture or forestry, including, but not limited to the following, are incompatible with this District, alter the essential character of the District, and are not permitted:

- A. Uses and activities that induce non-farm/forest development;
- B. Uses and activities that generate large amounts of traffic;
- C. Uses and activities that require substantial parking;
- D. Landfills;
- E. Golf courses;
- F. Airports; and

G. Country clubs.

XX.06 Minimum area requirements and limitations on subdivision of parent tracts.

- A. In order to protect agricultural and forest uses within this District, it is the intent of this provision that the creation of non-farm/forest lots and the subdivision of parcels from parent tracts shall be limited, in order to provide for the retention of tracts of sufficient size to be used reasonably for agricultural and forestry purposes.
- B. Each parent tract of forty (40) or more acres shall be permitted limited rights of subdivision. Each parent tract of forty (40) or more acres shall be permitted to subdivide a combination of one or more farm/forest parcels and/or non-farm/forest lots up to, but not in excess of, a total of one such non-farm/forest lot or one such farm/forest parcel for each forty (40) acres of area within the parent tract. For example, a parent tract having one hundred twenty (120) acres is permitted three subdivisions into a total of three lots or parcels. The subdivisions may produce one of the following combinations:
 - 1. the remainder of the parent tract, and two farm/forest parcels; or
 - 2. the remainder of the parent tract, and one farm/forest parcel, and one non-farm/forest lot; or
 - 3. the remainder of the parent tract, and two non-farm/forest parcels.
- C. The minimum areas required for parcels and lots are:
 - 1. A non-farm/forest lot subdivided from a parent tract shall have a minimum of one (1) acre and a maximum of two (2) acres;
 - 2. A farm/forest parcel subdivided from a parent tract shall have a minimum of twenty-five (25) acres;
 - 3. All other permitted uses and uses allowed by conditional use permit shall have a minimum lot area of one (1) acre.
- D. One single-family dwelling unit may be erected on any single undeveloped parent tract (lot of record) as of the effective date of this ordinance, notwithstanding the requirements of section XX.06.B above. Such lot must

be a parent tract in single ownership and not contiguous with other tracts in the same ownership. The parent tract must meet applicable design standards as stated in section XX.07 of this ordinance.

- E. The provisions of this section shall apply to all parent tracts as of the effective date of this ordinance. Regardless of size, no parcel or lot subsequently divided from its parent tract shall qualify for additional single-family dwellings or lots pursuant to this section. All subsequent owners of parcels of land subdivided from a parent tract shall be bound by the actions of the previous owners of the parent tract. Any subdivision or land development application hereafter filed for a parent tract shall specify which lot or lots shall carry with them the right to erect or place thereon any unused quota of dwellings as determined and limited by the provisions of this section.

XX.07 Design standards.

In general, the use of land and structures within the Agriculture and Forest Protection District shall seek to maximize agriculture and forest productivity. The use of land and structures must also conform to the following design standards that create a minimum level of consistency in lot and parcel configuration:

- A. All lots or parcels shall have a minimum width of one hundred (100) feet at the building setback line and sixty (60) feet at the street right-of-way line.
- B. All structures located on non-farm/forest lots shall have a minimum front and rear yard of twenty-five (25) feet, and a minimum side yard of ten (10) feet on each side.
- C. All structures located on farm or forest parcels shall have a front setback of at least fifty (50) feet from the street right-of-way line.
- D. The maximum height of a residential building is thirty-five (35) feet. The maximum height of all other permitted and accessory buildings is seventy-five (75) feet, excluding silos and windmills, which shall, however, be set back a distance at least equal to their height from all property lines.
- E. The total impervious coverage, including structures and other impervious surfaces, of a non-farm/forest parcel shall not be more than ten percent (10%).
- F. On-site septic systems shall comply with the Model Community septic

Agriculture and Forest Management Standards (see next page)

The community can choose to adopt a variety of soil management standards, that range from the soil and nutrient management noted in Chapter XX.08, Section A., to certifying

as “organic” farms that choose to capture added value in retail markets. Such certification can be encouraged in ordinance and implemented through programs or incentives.

Section B. discusses forest management standards. A number of sustainable forest management standards can be used by the community to meet sustainable forestry goals. Lands owned by or managed by the community should use a rigorous and complete set of standards, such as the Minnesota Forest Resource Council’s Voluntary Forest Management Guidelines, or certification under the Forest Stewardship Council (FSC) or the Sustainable Forestry Initiative (administered by the American Forest & Paper Association). The Voluntary Guidelines do not require third party certification, but do set a verifiable sustainable management standard. Alternatively, the community can adopt standards that not only sustain the resource, but add value to the timber product through third party certification. The American Forest & Paper Association management standards allow self-auditing or third party certification to ensure sustainable harvest and management of forest lands. Aitken County, Minnesota enrolled county-managed forest lands under the “Smartwood” certification. Smartwood is one of the official certification entities for the FSC’s sustainable forest products program. FSC’s mission is to enhance the retail value of forest products that come from sustainably-managed forest lands. FSC certified forests must meet strict standards that protect forest eco-systems, water quality, and wildlife habitats, and strengthen local economies.

The community can set management standards for privately-owned land as well, or it can develop educational or incentive programs to supplement the zoning protection described above. Land owned by forest products companies frequently must meet specific forest management guidelines set by the corporate parent. These guidelines may be sufficient to ensure sustainable management of these forest parcels.

ordinance and County Health Department requirements.

- G. A driveway shall be separated from adjacent driveways on the same side of the road by the following minimum distances:
 1. Local secondary road: 100 feet
 2. County primary/state highway: 125 feet
 3. Minimum distance from an intersection: 80 feet

XX.08 Agriculture and Forest Management Standards

- A. All farms shall develop and keep current soil conservation and nutrient management plans in compliance with Natural Resource Conservation Service standards.
- B. All forest parcels shall be managed to sustain the forest resource in accordance with the following standards:
 1. Privately held land.
 2. Land owned by Model Community.
 3. Land publically owned by an entity other than Model Community, but managed by Model Community.

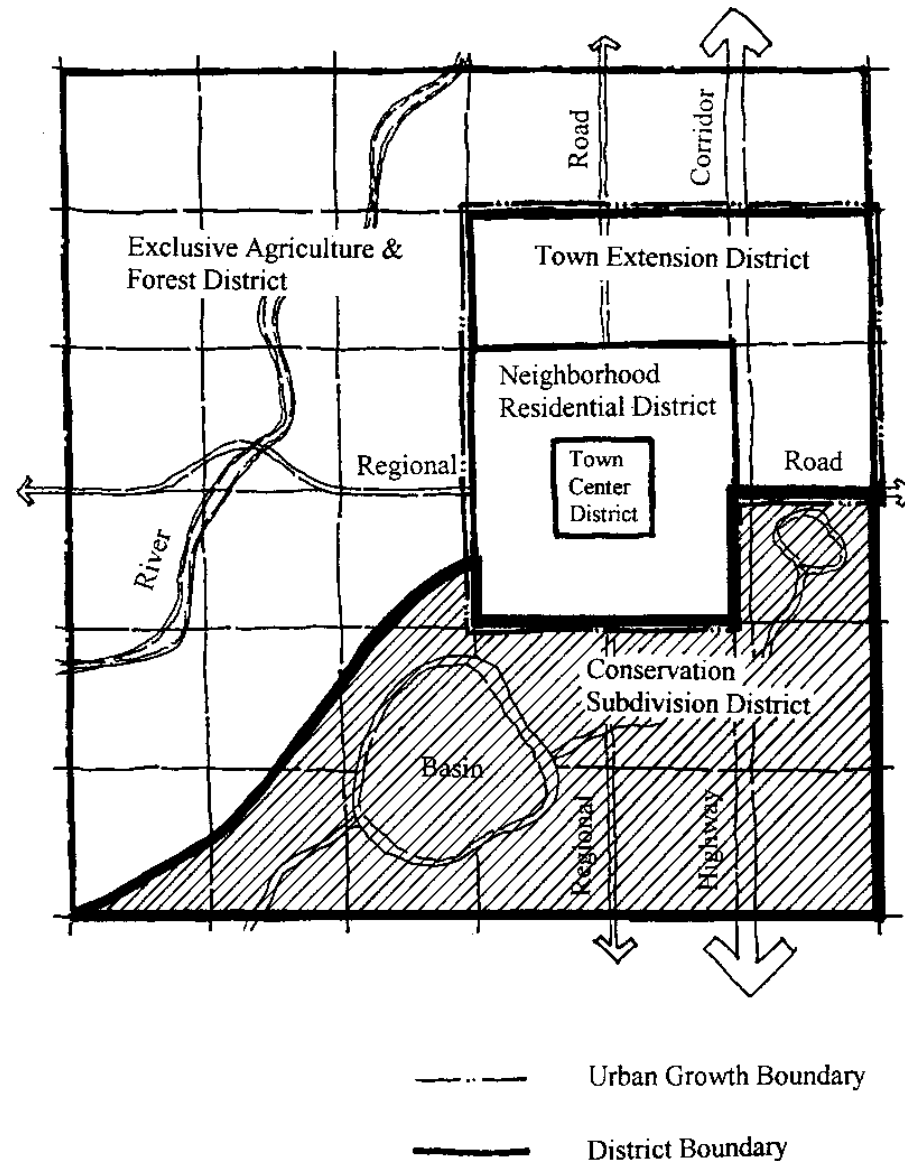
Conservation Subdivision District

A conservation subdivision zone allows landowners to develop parcels by clustering residences on smaller lots while protecting the remaining open space. While not a critical growth management tool, a rural conservation subdivision zone can be used in two ways as part of an integrated growth management strategy. First, a community may choose to create a transition zone between clearly rural zones and urban zones. The development of this transition zone with clusters of homes and permanent open space can firmly define the future outer limits of urban development. Secondly, a community can allow conservation subdivisions as a residential option in a rural area that does not have productive resources, such as agricultural or forest lands.

Conservation subdivision zones should be carefully located. Allowing the development of clusters of homes in areas where active farming and forestry will continue can lead to conflicts over noise, aesthetics, use of roads, etc. The integrity of rural zones should be maintained. They should not become a mixture of urban and rural uses. Conservation subdivision zones are a quasi-urban option that some communities may choose for limited use outside a defined urban area (i.e. outside an urban growth boundary). They are a more sustainable alternative to the often used 2.5, 5, and 10 acre "estate" lots found in typical suburban areas.

When making choices about what type of development to allow where, communities should try to visualize what the landscape would look like if fully developed under each zone. Communities need to ask, what would this area look like if it was filled with clusters of homes? If cluster development fits within the vision of the community, they may be allowed in clearly defined areas separate from agricultural and forest protection zones.

In the comprehensive plan, a community should clearly define



the goals that they want to reach by using a conservation subdivision zone. Conservation subdivisions contribute to the sustainability of a community by reducing the number of individual septic systems, providing for permanent open space and protection of natural resources, reducing the amount of new road construction, and reducing the amount of impervious surfaces.

The comprehensive plan and the zoning district ordinance must clearly state that a conservation subdivision zone is not merely a staging area for future urban development. The plan and ordinance should state that urban services, such as public utilities, will not be provided to the zone.

The model Conservation Subdivision ordinance contains materials from the following sources:

- *Conservation Subdivision Overlay District, City of North Branch, Minnesota, 1997;*
- *Open Space Design Development: A Guide for Local Governments, Washington County Planning and Administrative Services, Metropolitan Council, and BRW, Inc. 1997;*
- *Natural Areas: Protecting a Vital Community Asset, by Laurie Allmann, Minnesota Department of Natural Resources, 1997;*
- *Open Space Preservation District, City of Lake Elmo, Minnesota, Municipal Code Chapter 3, Section 300.7 subd. 4.0*

The purpose statements (Section C.) should mimic language contained in the comprehensive plan or adopted as policy by resolution of the Governing Body.

Chapter XX Model Community Conservation Subdivision District

XX.01 Statutory Authorization, Intent, and Purpose

- A. **Statutory Authorization.** This ordinance is adopted pursuant to the planning, development and zoning authorization contained in Minnesota Statutes Chapter 394 (for counties) or Chapter 462 (for cities and townships).
- B. **Intent.** The Conservation Subdivision (CS) District is intended to provide a non-farm residential development option that supports the sustainable development goals of Model Community, protects open space and natural resources, and retains the predominantly rural character of areas outside the Urban Growth Boundary. It is not the intent of Model Community to create a zone for future expansion of urban services through this ordinance.
- C. **Purpose.** The purposes of the Conservation Subdivision District are:
 1. To implement the goals of the Model Community Comprehensive Plan for sustainable development;
 2. To allow development that permanently preserves the open space, agricultural lands, woodlands, wetlands, critical views and other natural features of rural Model Community;
 3. To allow limited development in rural areas that do not contain natural resources, such as agricultural and forest lands, and significant natural areas;
 4. To allow limited development in areas outside the Urban Growth Boundary where urban services will not be extended;
 5. To connect open space, trails, and recreation sites within the District and to the integrated open space and recreation system of Model Community.
 6. To allow flexibility in the placement and type of dwelling units within the subdivision;
 7. To promote the use of shared septic, drinking water and stormwater systems that prevent the degradation of water quality;
 8. To reduce the amount of new roads and to allow flexibility in road specifications for roads serving residences in the District; and
 9. To reduce the amount of impervious surfaces in subdivisions, including driveways,

XX.02 Definitions. For the purpose of this Ordinance, certain words and phrases are defined as follows:

Agricultural Land: Land whose use is devoted to the production of livestock, dairy animals, dairy products, poultry, poultry products, nursery plants; Christmas trees; forages and sod crops; grains and feed crops; and other similar uses and activities, including equestrian activities.

Conservation Easement: As defined in Minnesota Statutes, Chapter 84C: A nonpossessory interest of a holder in real property imposing limitations or affirmative obligations the purposes of which include retaining or protecting natural, scenic, or open-space values of real property, assuring 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 of real property.

Conservation subdivision: Any development of land within the boundaries of the conservation subdivision zone that incorporates the concepts of designated open space and clustering of dwelling units.

Designated Open Space: Open space that is designated within a conservation subdivision to be placed under a conservation easement permanently restricting future development.

Developable Area: All land in a proposed subdivision that are not defined as undevelopable due to environmental conditions or in ordinances adopted by Model Community.

Development: An activity other than agricultural, forestry, or mining practices which materially alters or affects the existing conditions or use of any land.

Gross Density: A density standard establishing the number of dwelling units allowed to be built in a conservation subdivision.

Homeowners Association: A formally constituted non-profit association or corporation made up of the property owners and/or residents of the

development for the purpose of owning, operating and maintaining common open space and facilities.

Open Space: Land used for agriculture, forestry, natural habitat, pedestrian corridors and/or recreational purposes, that is undivided and permanently protected from future development.

Primary Conservation Area: Lands identified in the resource inventory and subdivision application as having important natural values that should be permanently protected such as wetlands, floodplains, steep slopes, unique habitat, productive agricultural soils, and forested land.

Secondary Conservation Area: Lands identified in the resource inventory and subdivision application as lands that complement or provide a buffer to the primary conservation areas, or provide additional open space or recreational lands.

Undevelopable Area: Those lands in a proposed subdivision that are restricted from development due to environmental conditions such as steep slopes, the presence of wetlands or waterways, or are restricted from development under ordinances adopted by Model Community such as Natural Resource Protection or Natural Resource Conservation Zones.

In Section XX.03.A., the minimum size of allowed subdivision must be large enough to allow for creative site design and the protection of open space. If the minimum size is too small, the open space is minimized and clusters may run into each other. The result will be the type of suburban development conservation subdivisions are designed to avoid. The additional requirements placed on subdivisions of smaller parcel size should be used to mitigate the visual and environmental impacts. A community may choose not to even allow smaller subdivisions. This model ordinance allows the subdivision of smaller parcels (down to twenty acres in size) but does not give an density bonus incentive for this size of subdivision.

XX. 03 Development standards.

A. Minimum Size of Subdivision.

1. The minimum size of subdivision in the CS District is forty acres.
2. A subdivision of over twenty but less than forty acres may apply for subdivision approval under this ordinance if the subdivision meets all the requirements for a Conservation Subdivision, plus the following additional requirements:
 - a. The visual impact of the subdivision from adjacent roadways, residences, and agricultural fields is mitigated through additional landscaping which complements the prevailing landscape.
 - b. The maximum allowed gross density is two units per twenty acres

and can not exceed four units total for the entire subdivision.

In Section B., after establishing a minimum size for allowed subdivisions, there will be some existing parcels that do not meet the minimum size and/or landowners who do not wish to develop clusters. The model ordinance allows one single-family residence on each parcel of record that does not meet the minimum size for subdivision. In effect, this is similar to overlaying a conservation subdivision option over a one unit per twenty acre district. It sets a floor of twenty acres per residential unit. Twenty acres is suggested because the pattern of development that will result from a build out at this density will still retain a rural character and minimize the impact on natural resources.

The maximum gross density discussed in Section C. is a local choice. The model ordinance suggests six dwelling units per forty acres because it creates a slight incentive for developers to assemble larger parcels for development. Many conservation subdivision zones offer density bonuses that equal the development density that was allowed under prior zoning. Other ordinances allow for additional bonuses in density if the developer is willing to contribute additional benefits such as: preservation of historic structures, construction of trails, or provision of affordable housing.

A community can choose to include (rather than exclude as done here) undevelopable land in the gross density calculation. The result, however, may be that parcels with a large percentage of wetlands, or lakes will have many homes clustered in a very small area of the subdivision. This result is mitigated by setting a minimum lot size. If you choose to exclude undevelopable land from the gross density calculation, the local ordinances that prohibit development in certain areas should be cited in this section of the conservation subdivision ordinance.

B. Parcels of Less than Twenty Acres.

1. Parcels of record as of the effective date of this ordinance under twenty acres in size can not be further subdivided or split.
2. Permitted uses for parcels of less than twenty acres are the same as those for conservation subdivisions served by individual well and septic systems as listed in XX.30.F below.
3. Allowed accessory uses for parcels of less than twenty acres are the same as those for conservation subdivisions served by individual well and septic systems as listed in XX.30.F below.

C. Maximum gross density.

1. The maximum gross density in Conservation Subdivisions is six dwelling units per forty acres.
2. Gross density for all subdivisions allowed under this ordinance shall be calculated using the following method:
 - a. Subtract areas that are defined as undevelopable areas under local natural resource protection ordinances (wetlands, some shorelands, steep slopes, natural resource protection zones, etc) from the total acreage of the parcel(s) in the subdivision application, multiply the resulting developable acreage by 0.15. Any calculation resulting in a fraction of a dwelling unit shall be rounded down to the nearest whole dwelling unit.

For example, an application for development of 80 acres where 6 acres are defined as undevelopable would result in 72 developable acres. Multiply 72 acres by 0.15 to arrive at 10.8. The fraction (.8) of a unit would be rounded down, so that the allowed gross density would be 10 dwelling units.

The community may add or change the open space requirements. The goal of the open space requirement is to protect natural resources in the community and preserve a rural character in the conservation subdivision district.

D. Open Space Requirement.

1. Conservation Subdivisions shall identify a conservation theme. Conservation themes may include, but are not limited to: forest preservation, water quality preservation, farmland preservation, or viewshed preservation. The conservation theme should guide the location and use of the designated open space.
2. Fifty percent (50%) of the total acreage in the application, including developable and undevelopable land, shall be designated as open space for natural habitat, active or passive recreation, and/or conservation or preservation, including conservation for agricultural and forestry uses.
3. Where possible, designated open space shall be contiguous with open space uses on adjacent parcels in order to provide large expanses of open space.
4. Open space in Conservation Subdivisions shall be physically connected, whenever possible, to the Model Community Open Space System outlined in the Model Community Comprehensive Plan. Designated public trail systems which abut a Conservation Subdivision shall be connected through the subdivision.
5. Access shall be provided to designated active or passive recreation areas or open space or natural areas from one or more streets in the subdivision.
6. Access will not be required if the open space is to remain in active agriculture or forestry or if the natural areas contain habitat where public access should be limited.
7. No more than fifty percent (50%) of the designated open space shall be wetlands and/or floodplains.

E. Open Space Ownership and Management. All lands and improvements in designated open space shall be established, managed and maintained in accordance with the following guidelines:

1. Designated open space shall be surveyed and subdivided as a separate parcel or parcels.
2. Designated open space must be restricted from further development by a permanent conservation easement (in accordance with Chapter 84C.01- 05 of Minnesota Statutes) running with the land. The

permanent conservation easement must be submitted with the preliminary site plan and approved by the Model Community Attorney and Governing Body.

- a. The permanent conservation easement may be held by the following entities, but in no case may the holder of the conservation easement be the same as the owner of the underlying fee:
 - i. Model Community, or other governmental agency; and/or
 - ii. a private, nonprofit organization that has been designated by the Internal Revenue Service as qualifying under section 501(c)(3) of the Internal Revenue Code.
 - b. The permanent conservation easement must specify:
 - i. what entity will maintain the designated open space;
 - ii. the purposes of the conservation easement and the conservation values of the property;
 - iii. the legal description of the land under the easement;
 - iv. the restrictions on the use of the land;
 - v. the restriction from future development of the land;
 - vi. to what standards the open space will be maintained; and
 - iii. who will have access to the open space.
3. Ownership of the underlying fee of each designated open space parcel, subject to the terms of the permanent conservation easement, may be held by:
- a. A common ownership association which owns non-open space land within the subdivision and in which membership in the association by all property owners in the subdivision shall be mandatory;
 - b. An individual who will use the land in accordance with the permanent conservation easement;
 - c. Model Community, or other governmental agency;
 - d. A private, nonprofit organization that has been designated by the Internal Revenue Service as qualifying under section 501(c)(3) of the Internal Revenue Code; or
 - e. A combination of the entities in subsection a.- d. above.

4. The owner of the underlying fee shall be responsible for the payment of

The long-term success of a conservation subdivision zone lies with permanently restricted open space in subdivisions. If the restrictions are not permanent, development of those areas could happen if zoning changes. Conservation easements are a tool that has been specifically authorized and used in Minnesota, and most states, to provide for permanent protection of natural resources. The conservation easement must be held by a separate entity from the underlying fee. The conservation easement holder is responsible for monitoring the easement parcels to ensure development does not occur and for enforcing the terms of the easement if it is violated.

taxes and assessments on any designated open space parcel.

F. **Utilities.** Individual well and septic systems are allowed in conservation subdivisions, however, common utilities (shared water and/or sewer or septic systems) are encouraged. Common utilities shall meet Minnesota Pollution Control Agency standards for sewage treatment systems and be approved by the Model Community Engineer and the County Health Department.

Section F. encourages common water and wastewater systems, or jointly managed individual systems within the cluster development. Common systems (or jointly managed individuals systems) are more likely to be maintained and thus less likely to fail. Poorly maintained septic systems are a frequent problem in Greater Minnesota, and can result in degraded surface waters, contaminated groundwater, or other health and environmental problems. A frequent solution to failing septic systems is to extend the nearby centralized wastewater central system, regardless of whether the community had planned to allow urban density lots and urban services in this area of the community. For more information on ISTS management, see the ISTS ordinance in Cluster 4 (Infrastructure).

1. Communal drainfields for shared septic systems may be partially or completely located in designated open space, provided that:
 - a. The dedicated open space parcel containing the communal drainfield is owned in fee by a common ownership association which owns non-open space land within the subdivision and in which membership in the association by all property owners in the subdivision shall be mandatory;
 - b. The common ownership association is responsible for maintenance and repair of the communal drainfield;
 - c. The ground cover is restored to its natural condition after installation;
 - d. Recreational uses are prohibited above or within fifty feet of communal drainfields; and
 - e. The conservation easement for the dedicated open space parcel describes the location of the communal drainfield.
2. To ensure protection of ground and surface waters in the Conservation area, Conservation subdivisions that do not use common utilities must provide for, in an ownership association, joint maintenance of individual wastewater systems through a Responsible Management Entity, consistent with the Model Community ISTS ordinance.

The lot design standards in Section G. prioritize agricultural soils and fields over forest land. This priority can be reversed depending on community priorities, or other lot design standards may be included.

G. **Lot and Building Site Design.** Lots and building sites shall be designed to achieve the following objectives listed in order of priority:

1. Locating individual and communal septic systems on the most suitable soils for sub-surface septic disposal.
2. Locating lots and building sites on the least fertile soils for agricultural uses, and in a manner which maximizes the usable area remaining for

such agricultural use.

5. Locating building sites to minimize the impact of blocks of forest land and to maximize the continuity of forest lands.
3. Locating building sites within any non-production forest land contained in the lot, or along the edges of open fields adjacent to woodlands only as a means to reduce the impact on agriculture, to provide summer shade and shelter from winter wind, and/or to enable buildings to be visually absorbed by natural landscape features.
4. Locating building sites in areas least likely to block or interrupt scenic vistas as viewed from roads.

The buffer requirement is included to reduce the potential for conflict between agricultural and non-farm residential uses.

Section I. discusses subdivision street standards. The community should define standards for the design of streets within the subdivision and how subdivision streets connect to the community roadway system.

Street widths and other design elements should be consistent with the street design standards discussed in the Neighborhood Design chapter.

- H. **Buffer Zones.** Buffer zones of at least one hundred (100) feet shall be required between residential structures and agricultural uses. The buffer zone must be included in the area to be subdivided and not within any designated open space. The buffer areas shall be appropriately planted with native grasses, forbs, shrubs and trees, and/or permanent agroforestry features such as fruit or nut trees, and/or a windbreak. Roads may be substituted for the buffer if the road creates an effective barrier separating yards from agricultural uses as determined by the Planning Director.
- I. **Streets.** Streets within the conservation subdivision shall be developed according to the following standards that promote road safety, minimize visual impacts, and minimize impervious surfaces:
1. Streets shall be designed to minimize the visual size and scale of the development and help discourage excessive speeds.
 2. Street widths and construction shall conform to the width and standards contained in the street cross section without curb and gutters (or rural cross section) as adopted by Model Community.
 3. Street surface for local streets within the subdivision may be gravel, or other surface with high permeability, unless the streets are an extension of existing paved roads.
 4. The number of local street intersections with collector and arterial roads should be minimized, however, the applicant must demonstrate that such intersections are adequate, have the capacity to handle traffic generated by the proposed project, and will not endanger the safety of the general public.

5. If conservation subdivisions abut one another or existing development, direct links should be made to emphasize the connection between existing and new development.

The subdivision process for a conservation subdivision outlined in Section J. should be a collaborative process between the developer and planning staff. The process included in the model ordinance encourages discussion before submission of an application and several times during the approval process. The site design process includes the following primary steps:

- *identifying and precisely locating lands that should be permanently protected as primary conservation areas (wetlands, floodplains, steep slopes, unique habitat, etc.);*
- *identifying and precisely locating secondary conservation areas, those lands that buffer or complement the primary conservation areas, or provide additional open space or recreational lands within the proposed designated open space;*
- *identifying and mapping the remaining land which becomes the potential development area within which house sites, lot lines, and streets are located; and*
- *detailing proposed plans or practices for the protection of conservation areas and other natural resource areas during the construction process.*

J. Subdivision Process. The subdivision process for a Conservation Subdivision shall comply with the Model Community Subdivision Ordinance and at a minimum shall include the following:

1. A pre-application meeting with the Zoning Administrator to discuss:
 - a. The application process;
 - b. The conservation theme;
 - c. The Model Community Design Guidelines;
 - d. Any proposed common ownership plans for land and structures; and
 - e. Management and ownership of designated open space.
2. Submission of a Concept Plan that contains:
 - a. Base mapping at a scale of 1" = 100' (one inch equals 100 feet);
 - b. A mapped resource inventory that includes:
 - i. topographic contours at 10-foot intervals;
 - ii. soil type locations and identification of soil type characteristics such as agricultural capability, depth to bedrock, and suitability for wastewater disposal systems;
 - iii. hydrologic characteristics, including surface water bodies, floodplains, wetlands, natural swales and drainageways;
 - iv. vegetation present on the site according to cover type (pasture, woodland, etc.) and vegetative type (classified as generally deciduous, coniferous or mixed), and described by plant community (such as the Minnesota Department of Natural Resources Natural Heritage Community types), relative age and condition, also noting trees with a caliper of more than 18 inches; and
 - v. current land use including all buildings and structures.
 - c. A site analysis that identifies, precisely locates, and for i. and ii. calculates the acreage of:

- i. primary conservation areas, including protected wetlands, floodplains, natural resource protection zones, steep slopes;
 - ii. secondary conservation areas;
 - iii. special views;
 - iv. connections to the Model Community Open Space System;
- d. Net developable acreage and allowed gross density as defined in section C. above;
 - e. Street and open space concept;
 - f. Street sections;
 - g. Building setbacks;
 - h. Parcel lines and building placement concepts for residential and accessory buildings;
 - i. Natural resource and tree protection plan;
 - j. Landscape plan;
 - k. Utility easements; and
 - l. If applicable, statement of intent to establish a homeowners association.
- 3. A meeting with the Planning Director to review the Concept Plan
 - 4. Submission of a Preliminary Site Plan and review by the Planning Commission
 - 5. Submission of a Final Site Plan and review by the Planning Commission and Governing Body.

XX.04 Permitted uses.

The following are permitted uses in the CS Conservation Subdivision District:

- A. In conservation subdivisions served by individual well and septic systems:
 - 1. Agriculture, including farm dwellings and agricultural related buildings and structures subject to Minnesota Pollution Control Standards, but not including animal feedlots or other commercial operations;
 - 2. Commercial and non-commercial forestry;
 - 3. Public parks, recreational areas, wildlife areas and game refuges;

Chapter XX.04 defines permitted uses in the conservation subdivision. Other uses may be permitted in conservation subdivisions, they should, however, be compatible with a rural setting. Industrial and commercial uses are generally avoided. Home based businesses, other than day care, are allowed as a permitted accessory use but could be a permitted use if the community has definitions and controls for this type of use.

4. Conservation easements;
 5. Single family detached dwellings;
 6. Boarding (house) home -- foster children. Restricted to serving six (6) or fewer persons.
 7. Day care home -- Restricted to a family dwelling in which foster care, supervision, and training for children of school or pre-school age, out of their own home is provided during part of a day (less than 24 hours) with no overnight accommodations or facilities and children are delivered and removed daily. All such uses shall be licensed in accordance with state law and Minnesota Department of Public Welfare Regulations and such facilities are restricted to serving ten (10) or fewer persons.
- B. In conservation subdivisions served by approved common utilities;
1. Agriculture, including farm dwellings and agricultural related buildings and structures subject to Minnesota Pollution Control Standards, but not including animal feedlots or other commercial operations;
 2. Commercial or non-commercial forestry;
 3. Public parks, recreational areas, wildlife areas and game refuges;
 4. Single-family detached dwellings;
 5. Two-family dwellings;
 6. Townhouses;
 7. Boarding (house) home -- foster children. Restricted to serving six (6) or fewer persons.
 8. Day Care Home. Restricted to a family dwelling in which foster care, supervision and training for children of school or pre-school age out of their own home is provided during part of a day (less than twenty-four hours) with no overnight accommodations or facilities and children are delivered and removed daily. All such uses shall be licensed in accordance with state law and Minnesota Department of Public Welfare Regulations, and such facilities are restricted to serving ten (10) or fewer persons;

XX.05 Accessory uses.

The following are permitted accessory uses in the CS Conservation Subdivision District:

- A. Private garages, parking spaces and car ports for licensed and operable passenger cars and trucks not to exceed a gross capacity of nine thousand pounds. Private garages are intended for use to store the private passenger vehicles of the family or families resident upon the premises, and in which no business, service or industry is carried on. Such space can be rented to nonresidents of the property for private passenger vehicles and/or noncommercial vehicles, trailers or equipment if sufficient off-street parking in full compliance with this title is provided elsewhere on the property. Such garage shall not be used for the storage of more than one commercial vehicle owned or operated by a resident per dwelling unit;
- B. Parking of recreational vehicles and equipment;
- C. Accessory uses in side yards shall be limited to garages and carports only;
- D. Accessory buildings are permitted in any rear yard.
- E. Home occupations in accordance with other regulations of Model Community.
- F. Noncommercial greenhouses and conservatories;
- G. Swimming pool, tennis courts and other recreational facilities which are operated for the enjoyment and convenience of the residents of the principal use and their guests;
- H. Tool houses, sheds and similar buildings for storage of domestic supplies and noncommercial recreational equipment;
- I. Boarding or renting of rooms to not more than one person;
- J. Fencing, screening and landscaping as permitted and regulated by other regulations of Model Community;
- K. Boat houses, piers and docks;
- L. Signs in compliance with other regulations of Model Community.

XX.06 Conditional uses.

The following are conditional uses in the CS Conservation Subdivision District that

Conditional uses discussed in Chapter XX.06 are discretionary and each community may choose other kinds or more or less conditional uses.

require a conditional use permit based upon procedures, factors and conditions set forth in other regulations of Model Community:

- A. Public or semi-public recreational buildings and neighborhood or community centers; public and private educational institutions, limited to elementary, junior high and senior high schools; and religious institutions such as churches, chapels, temples and synagogues;
- B. Governmental and public utility buildings and structures necessary for the health, safety and general welfare of the community;

Design standards set in Chapter XX.07 will vary by community. Minimizing impervious surfaces is a stated goal of this district and is reflected in the driveway design standard.

XX.07 Design standards.

The following are minimum design standards for the CS Conservation Subdivision District.

- A. Dwelling units in this zoning district must meet the following minimum structural design standards.
 - 1. Minimum square footage:
 - a. Single-family detached dwelling: Minimum ground floor area shall be 800 finished square feet.
 - b. Two-family dwelling units: Minimum ground floor area shall be 800 finished square feet and each dwelling unit shall have a minimum of 800 finished square feet.
 - c. Townhouses: Each dwelling unit shall have a minimum of 800 finished square feet.
 - 2. Permanent full perimeter frost footings with foundation walls of concrete, concrete block, or wood.
 - 3. Compliance with the requirements of the Uniform Building Code.
- B. Garages in this zoning district must meet the following minimum structural design standards.
 - 1. Rear yard or attached garage required.

2. One garage stall shall be built for each dwelling unit. Provisions for an additional parking space must be provided on original plans.
- C. Accessory buildings in this zoning district must meet the following minimum structural design standards.
1. Shall not be erected within five feet of any lot boundary or alley.
 2. The total area of all accessory buildings to be erected on any lot shall not cover more than twenty percent of the required rear yard area.
- D. Driveways in this zoning district must meet the following minimum design standards.
1. May not be constructed from a hard, impervious surface such as tar or concrete, except for the 10' (ten feet) immediately adjacent to the front wall of the garage.
 2. Maximum width of driveways - 20 feet.
 3. Shall be completed within the same time frame as that of the building permit.

XX.08 Yard, Area and Building Size requirements.

The following are yard, area and building size regulations for permitted dwellings units in the CS Conservation Subdivision District.

- A. Area and bulk requirements in a conservation subdivision served by individual well and septic systems are as follows:
1. Lot area: a minimum of 1 acre.
 2. Lot width at front yard setback line: minimum of 50 feet
 3. Yard dimensions:
 - a. Front yard: minimum 20 feet
 - b. Side yard (each side): minimum 10 feet or 10% of lot width, whichever is greater
 4. Build-up line:
 - a. Two and one half stories, first finished floor level must be a minimum two feet above grade.
 - b. Maximum building height: 35 feet

5. Maximum building coverage, including primary and accessory structures: 10 percent
 6. Maximum non-impervious area: 15 percent
- B. Area and bulk requirements in conservation subdivisions served by approved common utilities for single-family, two-family and townhouse units shall be the same as those requirements for A. above, except as follows:
1. The minimum lot size for single-family dwelling units shall be one-half acre.
 2. The minimum lot size for two-family and townhouse units shall be 8,000 square feet per unit.
 3. Maximum building coverage, including primary and accessory structures: 20 percent
 4. Maximum non-impervious area: 25 percent

XX.09 Landscaping requirements.

A landscape plan for the entire subdivision is required for final site plan approval, and at a minimum must include the following:

- A. All ground cover areas disturbed in the construction process shall be seeded or sodded with low-water usage species or site appropriate native species.
- B. The developer of any dwelling unit shall plant native shade trees. At a minimum, one tree shall be planted for every thirty feet of frontage along each road unless the Planning Commission shall grant a waiver. Such waiver shall be granted only if there are trees growing along such right-of-way or on the abutting property which in the opinion of the Planning Commission comply with these regulations.
- C. Additional landscaping may be required to satisfy buffering requirements, and landscape requirements contained in other Model Community ordinances.

XX.10 Off-street Parking and Loading.

For permitted single-family, two-family, townhouse and apartment dwellings, two (2) free off-street parking and loading spaces per unit shall be provided and maintained.

Chapter XX Model Community Purchase of Development Rights Ordinance

A Purchase of Development Rights (PDR) Ordinance establishes a program for Model Community to permanently restrict the development of important parcels of land. As part of a sustainable growth strategy, PDR ordinances complement the community's decision to direct new growth to urban areas and away from rural areas or areas with significant natural resources. Zoning changes can direct development away from an area. Zoning changes, however, are not necessarily permanent. Model Community uses a PDR program to permanently protect parcels of land with important natural resources.

PDR programs compensate individual landowners for voluntarily selling development rights and providing resource protection for the community. As part of an integrated growth management program, PDR programs can balance the perceived negative action of regulatory changes by offering compensation to landowners who voluntarily and permanently restrict their land to protect community resources.

PDR programs can effectively be paired with urban growth boundaries and planned, staged development. Purchasing development rights outside of the growth areas prevents land speculators from purchasing the land and holding it hoping that the zoning will change someday to allow them to develop. If development rights are purchased outside the designated growth areas, the integrity of the established boundary stays in tact. PDR programs can be costly, and therefore, should be targeted to areas where the purchases will complement the overall growth management plan.

Because PDR programs are targeted at rural, natural areas, they are most useful to communities with both urban and rural areas, such as counties. A PDR program could also be implemented jointly between a municipality and the surrounding township. PDR programs have most often been used to permanently protect agricultural areas from residential development. They have also targeted forest land, rural landscapes, open space, viewsheds, sensitive areas, natural habitat and aquifer recharge areas.

Development rights are the rights landowners have to develop their property under the local zoning ordinance. For example, someone owning ten acres of land in a single-family residential zone with a one acre minimum lot size could develop ten lots under the local zoning. The development rights the landowner has are the right to develop ten single-family lots. In a PDR program, the local government pays the landowner to permanently give up the right to develop the ten single-family lots.

The PDR program in Model Community operates within the agricultural and forest protection zone and the rural conservation subdivision zone. Development rights are purchased from owners of land with important agriculture, forest, or other natural resources such as waterways, wetlands, and significant habitat.

When Model Community purchases the development rights from a parcel of land, a perpetual conservation easement is placed on the land. A conservation easement is a written agreement between a landowner and a government agency or nonprofit organization in which the landowner agrees to sell the development rights to the land and restrict the use of the land. The conservation easement is filed in the county records as an attachment to the deed and is binding on all future owners of the land. The landowner keeps title to the land and continues to maintain the land and pay property taxes. The landowner can sell or lease the land, or transfer it to heirs, although leaseholders and future owners are bound by the terms of the conservation easement.

This model PDR ordinance is derived from the draft ordinance being considered by Washington County, Minnesota. The draft ordinance was developed through an extensive public participation process conducted by the Green Corridor Project, a collaborative effort funded by the Legislative Commission on Minnesota Resources. Washington County developed the ordinance as part of the implementation of their 1997 comprehensive plan.

XX.01 Statutory Authorization, Purpose and Geographic Application

In 1997, the Minnesota Legislature amended the land use authority of counties and municipalities to specifically include the authority to establish PDR programs.

The purpose paragraph should contain direct references to language from the community's comprehensive plan or other policy resolutions authorizing the community to create a PDR program. The purpose statements included in this model ordinance reflect both sustainable development goals and open space/parkland goals.

- A. **Statutory Authorization.** Pursuant to Minnesota Statutes, Chapter 394.25 (for counties) or 462.357 (for townships and municipalities), Model Community establishes a purchase of development rights program for the purpose of preserving open space, including natural and scenic areas, and productive agricultural and forest land, while the fee title to these areas remains in private ownership. The program's policies, rules and official controls are adopted in this ordinance, hereafter known as the Model Community Purchase of Development Rights Ordinance.
- B. **Purpose.** This Ordinance is adopted for the following purposes:
1. To protect and preserve the rural landscape and high-quality natural areas that make Model Community a special place to live.
 2. To implement the goals of the Model Community Comprehensive Plan regarding managing growth and protecting rural areas. This PDR program addresses the following specific goals as stated in the Comprehensive Plan.
 - a. Direct development away from rural areas and areas without existing or planned infrastructure.
 - b. Maintain a distinction between urban and rural areas.
 - c. Preserve the rural character and landscapes of Model Community.
 - d. Preserve agriculture and forestry as permanent land uses and viable economic activities in the community.
 - e. Create an integrated system of open space, parkland and trails throughout the community.
 3. To serve additional public purposes through open space protection, including storm water management, habitat protection, trail corridor extension, and linking of public parks and other amenities.
- C. **Geographic Application.** Purchase of development rights will occur generally within the Agricultural and Forest Protection Zone and the Rural Conservation Subdivision Zone as mapped in the adopted Official Zoning Map of Model Community.

Section D. identifies the resources to be protected or conserved by the PDR program. Local governments should use a community involvement process to identify and prioritize resources to be protected under a PDR program. Priorities will vary from community to community. By involving community members, the local government can build support for funding and implementing a PDR program. Communities that have adopted PDR programs typically spend 1 to 3 years building support for the program through educational meetings, newsletters, surveys, presentations to small and large groups, public meetings with elected officials, individual meetings with landowners, and facilitated discussion meetings.

- D. **Resources Protected.** Model Community has completed a public process identifying and prioritizing specific resources to be protected within the zones listed above. These specific resource priorities shall form the basis for reviewing parcels for acquisition. The specific resource priorities include: contiguous blocks and corridors of high-quality natural areas, productive agricultural land and scenic views within the community, lands that surround and connect the community park system and other public and private open space areas. Existing zoning restrictions, while effective at controlling densities, cannot keep these lands in their present undeveloped state. Purchase of development rights is one of several voluntary, incentive based means for achieving public benefits through private land conservation. This program directly confers a public benefit through voluntary private action.

XX.02 Definitions

- A. For the purpose of this Ordinance, certain words and phrases are defined as follows:

Agricultural Land: Land whose use is devoted to the production of livestock, dairy animals, dairy products, poultry, poultry products, nursery plants; Christmas trees; forages and sod crops; grains and feed crops; and other similar uses and activities, including equestrian activities.

Conservation Easement: As defined in Minnesota Statutes, Chapter 84C: A nonpossessory interest of a holder in real property imposing limitations or affirmative obligations the purposes of which include retaining or protecting natural, scenic, or open-space values of real property, assuring 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 of real property.

Development: An activity which materially alters or affects the existing

conditions or use of any land.

Development Rights: An interest in and the right to use and subdivide land for any and all residential, commercial and industrial purposes and activities which are not incident to agriculture and open space, in accordance with zoning and other regulations.

Eligible Land: Properties for which the purchase of development rights is authorized pursuant to this Ordinance.

Open Space: Land used for natural habitat, agriculture and/or scenic views.

Resource Values: The values that a conservation easement is intended to protect, as defined and recorded in the baseline documentation. Values may include but are not limited to natural habitat, productive agricultural land, scenic views and connections to or extensions of existing parks or protected open space.

Selection Round: A cycle of the purchase of development rights program, from initial advertisement of the program through completion of offers to purchase development rights easements.

Chapter XX.03 discusses financing the PDR program. A stable, adequate funding source is important to the success of a PDR program. Stability provides assurances to elected officials, landowners, and the general public that funding will exist long enough to acquire a critical mass of development rights. Development rights purchases should be extensive enough to accomplish the purposes of the program including protecting resources and precluding speculation and future development outside designated growth areas. Funding options for local governments in Minnesota include: general obligation bonding repaid through general tax revenues or special levies; direct funding by general revenues; special state funding; grants from foundations; and park dedication fees.

XX.03 Authorizations

- A. **Expenditure of Revenues and Acquisition Authorized.** The Governing Body (i.e., City Council/County Board/Township Board) may choose to expend tax revenues and any other money which may become legally available to acquire conservation easements over any eligible land within the community, as defined in Section 5. Such acquisition may be accomplished by purchase, gift, grant, bequest, devise, covenant or contract, but only at a price which is equal to or less than the appraised value determined as provided in this Ordinance. The collected revenues shall be used to acquire such property interests only upon application of the Owner

The option of an investment purchase, in Section B., gives the local government to opportunity to extend payments over several years, thus keeping year to year costs lower.

Many local governments work with local nonprofit organizations to administer PDR programs and hold the conservation easements which restrict properties from future development. Nonprofit land trusts are familiar with the acquisition, holding and monitoring of conservation easements. Local governments often prefer to work with land trusts to avoid the long-term monitoring responsibilities and to deter future elected officials from attempting to extinguish the easements through eminent domain proceedings.

Chapter XX.04 sets up an advisory committee for the program. An advisory committee is recommended to assist the governing body and staff in reviewing applications. The composition of the advisory committee, voting and non-voting members, should reflect the local community. An advisory committee can provide a link between the general public and the governing body, and a sense of continual public input. Technical advisors serve as resources for the advisory committee in evaluating applications. The purpose of limiting the number of technical advisors is merely to keep the group at a manageable size.

and in a strictly voluntary manner.

- B. **Cash or Investment Purchase Authorized.** The Governing Body is authorized to enter into cash purchase and/or investment purchase contracts consistent with applicable law.
- C. **Joint Acquisition Authorized.** The Governing Body may participate jointly in the acquisition of interests in Eligible Lands with other qualified organizations empowered to hold interest in real property (in accordance with Minnesota Statutes, Section 84C.01-05).
- D. **Contracting for Staff Activities Authorized.** The Governing Body may contract with a recognized and legally established nonprofit conservancy, land trust, or other individual or organization qualified under Minnesota Statutes Section 1033C.331 et. al. and 170(H) of the Internal Revenue Code, that would share in the process of negotiating easements and establishing both the baseline studies and the procedures for monitoring of any conservation easements acquired under this Ordinance. Such studies and monitoring shall be conducted according to the current guidelines of the Land Trust Alliance or similar accepted best practices.

XX.04 Establishment of Advisory Committee

- A. **Purpose.** The Governing Body shall establish an Advisory Committee which shall advise the Governing Body on the selection of Eligible Lands on which Development Rights are offered for acquisition by their owners.
- B. **Voting Members.** The Advisory Committee shall be composed of at least 9 and a maximum of 15 voting members, with representation from each of the following:
 - 1. farmers and foresters;
 - 2. landowners;
 - 3. local governments, including water management organizations;
 - 4. citizens at large with knowledge or experience related to the purpose of the program;
 - 5. conservation organizations;
 - 6. geographic areas throughout the community;
 - 7. a liaison from the Governing Body;
 - 8. a liaison from the Parks and Open Space Commission;

9. a liaison from the Planning Commission; and
10. a liaison from the Soil and Water Conservation District Board.

Each member may represent one or more of the above interest groups.

- C. **Non-voting Members.** The Advisory Committee shall also include a maximum of five additional non-voting technical advisory members from the Natural Resources Conservation Service, the Soil and Water Conservation District, the Department of Natural Resources, and other agencies involved in land and water protection activities.
- D. **Term.** The Advisory Committee shall be appointed to staggered three-year terms. The initial members shall be appointed to one-year, two-year and three-year terms so that no more than five members' terms expire in one year. Each member may serve a maximum of two consecutive three-year terms.
- E. **Duties and Responsibilities.** The Advisory Committee is assigned the following duties and responsibilities:
 1. Make recommendations to the Governing Body regarding selection criteria;
 2. Review applications (following initial staff screening);
 3. Visit sites and evaluate based on "Phase 2" criteria as outlined in Section 5;
 4. Evaluate applications based on available funding and potential for bargain sale or additional funding;
 5. Review comments from local governments and watershed management associations;
 6. Provide input to staff on all program activities;
 7. Assist in seeking funding opportunities; and
 8. Recommend parcels to the Governing Body for purchase of conservation easements.

Chapter XX.05 Section A. sets eligibility for the advisory committee. The initial eligibility is broad and establishes minimum criteria and a geographic area within which parcels must be located before and application will be accepted. Acceptance of an application does not guarantee the development rights will be purchased. In any given application cycle, all eligible applications will be ranked according to established ranking criteria. Higher ranked parcels will be purchased before lower ranked parcels.

Section B. identifies ranking criteria. As with the resources to be protected, ranking criteria will vary considerably among communities. The model ordinance presents the ranking criteria developed for Washington County, Minnesota, a county under significant development pressure. The ranking criteria can include both positive points and negative points. Negative points may be given for factors that indicate the parcel is planned for development under a community-wide plan, such as proximity to current or planned sewer services, and current zoning.

The ranking criteria may change significantly depending on your community's resource protection priorities. Many PDR programs are used to protect agricultural land. The model ordinance blends protection of agricultural land with protection of significant natural areas, scenic views, and open space. Community priorities should be developed in the public input process used to develop a PDR program.

The model PDR ordinance splits the ranking criteria into two phases. The first phase criteria are presented in the application and reviewed on paper by the selection committee. After the applications are ranked by priority for purchase under the first phase criteria, information on second phase criteria are gathered through a field survey. Parcels can move up in priority based on second phase criteria. The process flowchart (Attachment 2) graphically shows the entire selection process including the two phase ranking process.

XX.05 Eligibility and Priorities

Tax revenues and other funds shall be used to purchase property interests in the following lands in the following order of priority:

- A. **Initial Eligibility.** All of the following factors must be present for a property to be considered for purchase of development rights:
 1. Voluntary application by the property owner;
 2. Inclusion within the targeted geographic area as defined in section 1.XXX above.
 3. The parcel must have some development rights remaining under current zoning.

- B. **Ranking Criteria - Phase 1.** The following criteria shall be used in determining which applications to consider in any selection round. Each criterion is assigned point values on a worksheet, which is included in this Ordinance as Attachment 1, and which shall be used as a guide. Point values may be established or modified by the Governing Body prior to each selection round.
 1. Natural Resource Values
 - a. Presence of substantial forest interior.
 - b. Presence of lakeshore or stream corridor.
 - c. County Biological Survey site or area.
 - d. Presence of erosion-prone soils (including steep slopes).

 2. Agricultural Values
 - a. History of agricultural production.
 - b. Prime or significant farmland soils.
 - c. Enrollment in farmland protection programs.
 - d. Historic farmstead or landmark (National or State Registers or County inventory).

 3. Spatial Values

- a. Proximity to parks or other protected open space (adjacent or within ½ mile).
 - b. Application size of 80 acres or more (could include multiple contiguous parcels under single ownership).
 - c. Public access provided (may or may not enhance existing recreational opportunity).
 - d. Within a designated scenic corridor.
 - e. Planned for municipal sewer service (a negative point value).
4. Planning and Zoning Considerations
Comprehensive plan designation for agriculture, resource protection or an equivalent designation.
- a. (Zoning densities of 1 unit per 10 acres or lower (a sliding scale of points; lower densities receive higher point values).

- C. **Ranking Criteria - Phase 2.** The following criteria shall be used by the Advisory Committee and program staff, in conjunction with site visits, to determine final ranking of parcels recommended for easement purchase. Point values may be established or modified by the Governing Body prior to any selection round.
- 1. Additional natural values, based on field survey
 - 2. Additional scenic or historic values, based on field survey and research
 - 3. Ability to serve multiple public purposes, such as storm water management, recreation, etc. (to be determined by field survey, comments from local government units and additional research).

Staff and Committee will also consider factors such as willingness of the landowner to offer a bargain sale (a below-value sale price), opportunities for leveraging additional funding, or multiple applications from the same general area, in developing a list of “Recommended Parcels,” as outlined in Section 6.

Chapter XX.06 defines the selection process. An application cycle (Section A.) controls the workload for program staff, and makes the process clear to program participants.

XX.06 Selection Process

The Governing Body will establish program rules and set the schedule for each

selection round. In general, the process will include, but is not limited to, the following steps:

- A. **Acceptance of Applications.** The Governing Board will accept applications during a set period, to be held at least annually. Applications indicate an interest in participating in the program, and do not represent a binding commitment or offer to sell a conservation easement.
- B. **Screening and Phase 1 Ranking of Applications.** Staff will screen applications for eligibility, and will then conduct the Phase I ranking of eligible parcels, using the Phase 1 criteria listed in Section 5. The resulting list of “Candidate Parcels” will be reviewed by the Advisory Committee. Comments on candidate parcels will be solicited from local units of government.
- C. **Site Visits and Phase 2 Ranking of Candidate Parcels.** The Advisory Committee and staff will conduct site visits and Phase 2 ranking of candidate parcels, using the Phase 2 criteria listed in Section 5, to develop a list of “Recommended Parcels.” The resulting list will be submitted to the Governing Body for review and approval to pursue easement valuations.
- D. **Easement Valuations and Negotiation.** Easement valuations will be conducted as described in Section 7. The program staff will negotiate price and easement terms with landowners. Landowners may make offers to sell at a price lower than the easement value (bargain sale) during this period.
- E. **Prioritized Purchases.** Based on easement values, bargain sale offers, availability of additional funding for specific purchases, comments from local government units, and other factors, the Advisory Committee will prepare a prioritized list of Recommended Purchases for approval by the Governing Body.
- F. **Modification of Recommended Priorities.** The Governing Body may accept or modify the list of Recommended Purchases. Modification includes only the removal of parcels from the list of Recommended Purchases and/or substitution of parcels which were included in applications accepted during the application period which produced the list of Recommended Purchases. Easements will be approved for purchase based upon available funding, and those not funded shall be placed on a waiting list.

Section D. discusses easement valuation. Landowners may choose to sell at a bargain sale price in order to take advantage of income tax benefits. Section 170(h) of the Internal Revenue Code allows donors or partial donors of qualified conservation easements to take a charitable deduction for the bargain portion of the sale. Briefly stated, a landowner may use the donation to deduct up to 30% of adjusted gross income in the year of the sale and for up to five years in the future.

- G. **Offers to Purchase.** Upon Governing Body approval, offers to purchase easements will be tendered to the landowner. An offer may specify terms, contingencies and conditions not contained in the original application, based on negotiations with the landowner and other factors. A period will be established within which landowners may accept or reject offers to purchase. If an offer is rejected, funds will be reallocated to the next available parcel on the waiting list.
- H. **Closing and Payment.** Settlement will occur following the landowner's acceptance of the offer to purchase an easement, and is contingent upon due diligence, a title search, mortgagee's consent to the easement, and any other evidence that may be necessary to clear title. Payment terms may be by lump sum, by installments, or by other arrangements satisfactory to both parties.
- I. **Recording and Monitoring.** The acquisition of an easement will be recorded in the County land records, the Assessor's records, and the administrative records of the PDR program. Monitoring will be conducted as specified in Section 9.

XX.07 Easement Valuation

Chapter XX.07 discusses easement valuation. The model PDR program provides for flexibility in choosing a method for valuing easements to be purchased. Local governments can not purchase interests in property for more than fair market value. A full appraisal of an easement clearly defines fair market value. Conducting a full appraisal for each easement, however, can be costly and time consuming. Established PDR programs often use other methods for establishing value. Montgomery County, Maryland, a well established program, uses a worksheet that assigns set points that translate into dollar values for characteristics of the easement parcel. For example, USDA Class I soils receive a high point value, Class II receive fewer points, and Class III soils receive the fewest. Each method should be based on an initial round of appraisals or sample appraisals in order to establish fair market values for different characteristics.

- A. **Valuation Methods.** Value of conservation easements shall be determined using a method established by the Governing Body prior to each selection round. Appraisals may be used, or an equivalent method of valuing easements may be determined using assessed valuation, appraisal sampling, or other methods. It is likely that appraisals will be used initially to gather data on the relative values of natural and agricultural lands within the community.
- B. **Appraised Value Defined.** The appraised value of the conservation easement is the difference between:
 1. The parcel's fair market value, based on its potential for development; and
 2. The parcel's restricted value, based upon the agricultural or

A sample development rights easement used by Peninsula Township, Michigan, is included as Attachment 3.

Chapter XX.08 sets conservation easement restrictions. The community should establish a minimum set of restrictions that will be required in every conservation easement. Other terms may be negotiated with the landowner to achieve additional goals of the landowner or the community.

Section D. sets permitted uses. Like other land use conditions, the permitted uses will vary according to community priorities.

conservation activities that could occur on the property under the terms of the easement.

- C. **Landowner Appraisals.** Whatever method is used, landowners may obtain their own appraisal at their own expense from a qualified appraiser for purposes of comparison and negotiation, and/or for the purpose of calculating tax benefits.

XX.08 NATURE OF EASEMENT RESTRICTIONS

- A. **Nature of Restrictions.** Conservation easements shall be permanent. The specific terms of the easement shall be negotiated on a case-by-case basis. The terms will be designed to protect the property's resource values, as defined through the initial application and the ranking and selection process.
- B. **Holding of Easements.** Easements shall be held by a qualified unit of government, conservation organization, land trust or similar organization authorized to hold interest in real property (pursuant to Minnesota Statutes, Section 84C.01-05) as approved by the Governing Body. Model Community will co-hold all easements. Other local units of government may also hold or co-hold an easement.
- C. **Prohibited Uses of Land.** The following land uses shall be prohibited on lands under a conservation easement:
 - 1. Additional residential units (other than the existing residence, if present) are not permitted within the designated easement area. The applicant must designate any areas to be set aside for residential development at the time of application. The area must be subdivided from the eased property prior to closing. Any remaining density left unused on lands under easement shall be extinguished under the terms of the easement.
 - 2. Non-agricultural commercial or industrial development are not permitted within the designated easement area without prior written approval of the easement holder(s).
- D. **Permitted Uses.** Lands under a development rights easement may continue to be used for the following purposes, except as regulated by the specific terms of the easement and as restricted by local zoning

requirements and other applicable regulations:

1. Customary agricultural uses, including seasonal and specialty agricultural businesses and customary home occupations as defined by applicable zoning requirements.
2. Land conservation and management activities, as specified in the terms of the easement.
3. The landowner's residence or farmstead.
4. Replacement, expansion or modification of existing buildings within the immediate area of the house site or farmstead, up to a specified percentage of the original building footprint(s), which shall be negotiated as part of the terms of the easement.
5. Customary agricultural buildings shall be permitted as specified in the terms of the easement.
6. Other activities and alterations that may occur on the property shall be defined by the terms of the easement. In general, such activities shall be permitted to the extent that they do not lessen or degrade the resource values the easement is intended to protect.
7. A conservation plan prepared according to the standards of the Natural Resources Conservation Service or similar agency shall be required for all agricultural land under easement.

Chapter XX.09 discusses monitoring and enforcement standards. On-going monitoring and enforcement of the easement terms is extremely important to the success of a PDR program. Easements should be monitored at least yearly to check for violations and educate new landowners about the terms of the easements, and document natural and human-made changes. If violations are discovered, the holder of the easement should notify the landowner of the violation and ask that corrective measures be undertaken. If the landowner is not cooperative, the easement holder may need to pursue legal remedies to correct the violation. Many PDR programs contract with land trusts (nonprofit land conservation organizations) to conduct monitoring activities because land trusts are already set up to conduct monitoring activities.

XX.09 Easement Monitoring and Enforcement

- A. **Documentation.** At the time the easement is recorded, documentation of the property shall be conducted, using aerial photographs, maps, photos and/or other media, as a baseline for future monitoring. Such documentation shall be updated periodically by the easement holder(s).
- B. **Frequency of Monitoring.** Easements shall be monitored on an annual basis to ensure compliance. Monitoring may include a site visit, with prior notice to the landowner.
- C. **Monitoring Organization.** The County may contract with an outside organization, such as a land trust, to co-hold, document and monitor easements, as described in Section 3.5.
- D. **Enforcement.** If the terms of the easement are violated, the easement holder(s) may pursue all legal remedies available, including, but not limited to, correction of the violation.

**Attachment 1
Criteria Worksheet**

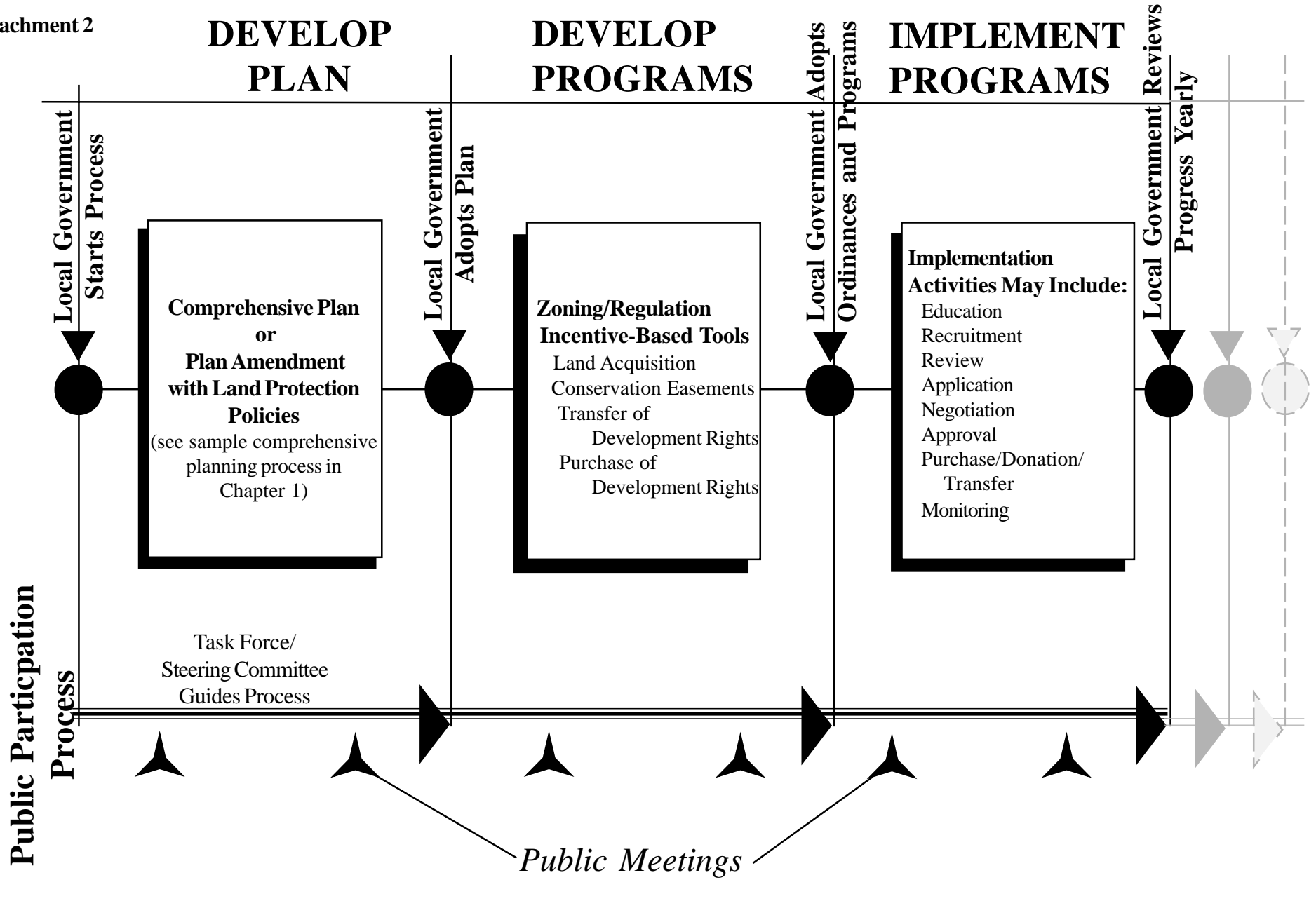
Phase I Criteria	Points	Min.	Med.	Max.
Natural Resource Values				
1. Substantial forest interior		3	5	8
2. Presence of lakeshore or stream corridor < 1/4 mi. = 3; 1/4 mi. + = 5		3		5
3. County Biological Survey site or area Site = 8; area = 10		8		10
4. Presence of erosion prone soils (incl. steep slopes)				<u>3</u>
	Max. points			26
Agricultural Values				
1. Active ag. in large blocks		3	4	5
2. Prime or sinnif. soils Prime = 3; signif. = 2		2		3
3. Enrollment in Ag. Preserves or Green Acres				5
4. Historic farmstead or landmark Landmark (Natl./State Reg.) = 5; Framstead = 3		3		<u>5</u>
	Max Points			18
Spatial Criteria				
1. Proximity to parks/protected lands Within 1/2 mi. = 7; adjacent = 10		7		10
2. Prancel size > 80 ac.				5
3. Public access Enhances existing rec. opportunity =				5
4. Presence in designated scenic corr.				5
5. Planned for munic. sewer				<u>-5</u>
	Max points			25

Planning/Zoning Criteria

1. Comprehensive plan designation (Ag. or resource protect.)			3	
2. Zoning – max. gross densities				
1:10 = 2; 1:20 = 3; 1:40 = 5	2	3	<u>5</u>	
Max points				8
Max. Phase I Points				72

Field evaluation - Phase II Criteria

1. Additional natural values (field check)			5	
2. Additional scenic values (field check)			5	
3. Serves multiple public purposes; 1 point each, up to 5			5	
4. Bargain sale offered	3	4	5	
10-25% reduction = 5				
25-50% = 6				
50%+ = 7				
5. Leverages additional funds	5		<u>10</u>	5-10 points, determined by review board
Max. Phase II points				30
Max. Phase I and Phase II points				102



SAMPLE LAND PROTECTION PLANNING PROCESS

Attachment 3

The following easement is from an existing Purchase of Development Rights program administered by a Michigan Township. The easement contains all the terms necessary to make it permanent and acceptable to the I.R.S. for tax benefit purposes.

**PENINSULA TOWNSHIP, MICHIGAN
DEVELOPMENT RIGHTS EASEMENT**

THIS DEED AND AGREEMENT is made this day of 199__, BY AND BETWEEN _____ (“Grantor”), in favor of PENINSULA TOWNSHIP, a quasi-municipal corporation, of Grand Traverse County, Michigan, having an address at 13235 Center Road, Traverse City MI, 49686-8560, (“Grantee”).

WITNESSETH

WHEREAS, Grantor is the sole owner in fee simple of certain real property located in Peninsula Township, Grand Traverse County, Michigan, more particularly described in Exhibit “A” attached hereto and incorporated herein by this reference (the “Property”); and

WHEREAS, the Property possesses agricultural, scenic, and/or open-space values (collectively, “conservation values”) of great importance to Grantor, Peninsula Township, the people of Grand Traverse County and the people of the State of Michigan; and

WHEREAS, the Property is located within Peninsula Township, a community with an agricultural-based economy in an area presently experiencing rapid development, including the subdivision of prime farmland; and

WHEREAS, maintaining the scenic and rural beauty of the area along with preserving the agricultural industry of Peninsula Township is an important planning goal of Peninsula Township and area residents; and

WHEREAS, the Township Board has made specific findings of fact regarding the importance of protecting the conservation values of certain lands within Peninsula Township and the citizens of Peninsula Township through their Township Board have established Peninsula Township

Purchase of Development Rights Ordinance No. 23 (the “Ordinance”) to acquire, through voluntary participation of Grantor, an interest in the Property for the protection of conservation values; and

WHEREAS, the Grantor recognizes that the Property has been identified as Farmland and Open Space Land as defined in the Ordinance; and

WHEREAS, the Grantor is willing to grant and convey to the Grantee the Development Rights in the Property as such rights are defined in the Ordinance (said rights being the interest in and the right to use and subdivide land for any and all residential, commercial, and industrial purposes and activities which are not incident to agricultural and/or open space uses), on the terms and conditions and for the purposes hereinafter set forth; and

WHEREAS, the Grantee is willing to purchase the Development Rights in the Property and accept this instrument of conveyance; and

WHEREAS, the conservation of the Property by this Easement guarantees that the land will forever be available for agricultural production and/or open space uses; and

WHEREAS, the specific conservation values of the Property are documented (“Baseline Documentation”, dated _____, 19____, on file at the office of Grantee and incorporated herein by this reference) in an inventory of relevant features of the Property, consisting of reports, maps, photographs, and other documentation (list attached hereto as Exhibit C) that the parties agree provide, collectively, an accurate representation of the Property at the time of this grant and which is intended to serve as an objective information baseline for monitoring compliance with the terms of this grant; and

WHEREAS, Grantor intends that the conservation values of the Property be preserved and maintained by the continuation of land use patterns including, without limitation, those existing at the time of this grant, that do not significantly impair or interfere with those values; and

WHEREAS, Grantor further intends, as owner of the Property, to convey to Grantee the right to preserve and protect the conservation values of the Property in perpetuity.

NOW THEREFORE WITNESSETH, that the Grantor, for and in consideration of _____ DOLLARS (\$ _____) lawful money of the United States of America, paid to the Grantor by the Grantee, the receipt whereof is hereby acknowledged, and the Grantors being therewith fully satisfied, does by these presents grant, bargain, sell, transfer and convey unto the Grantee forever all Development Rights in respect to the Property, hereby perpetually binding the Property to the restrictions limiting permitted activities to agricultural and open space uses as specifically delineated in the covenants, terms, and conditions contained herein, and do also grant such interests, rights and easements, make such covenants and subject the land to such servitude as is necessary to bind the Property in perpetuity to such restrictions.

PURPOSE

It is the purpose of this Easement to assure that the Property will be retained forever in its predominantly agricultural, scenic, and/or open space condition and to prevent any use of the Property that will significantly impair or interfere with the conservation values of the Property.

I. Uses Restricted to Agricultural and Open Space Uses; Agricultural and Open Space Uses Defined. Use of the land is permanently restricted to solely agricultural and/or open space uses.

A. “**Agricultural Use,**” means substantially undeveloped land devoted to the production of horticultural, silvicultural and agricultural crops

and animals useful to man, including fruits; nuts; vegetables; mushrooms; green house plants; Christmas trees; timber; forages and sod crops; grains and feed crops; dairy and dairy products; livestock, including breeding, boarding and grazing; and the following related uses and activities:

1. Retail and wholesale sales of the above agricultural products grown on the farm;
2. Composting of agricultural plants, animal manures and residential lawn materials.
3. The lying fallow or nonuse of the Property;
4. The use of a Licensed Agricultural Labor Camp or Agricultural Labor Camp including the right to build farm labor housing structures to house migrant farm laborers while they are principally employed on the grantor's farm operation. (limitations on location, if any, shall be shown on Exhibit B);
5. Tenant house, as a part of farm property for full-time farm employees associated with the principal use of the Property; provided, however, that such Tenant house shall be counted as a reserved dwelling unit as shown on Exhibit B;
6. Agricultural buildings and structures including new buildings such as greenhouses, roadside stands and other structures and improvements to be used solely for agricultural purposes. (limitations on their location, if any, shall be shown on Exhibit B);
7. Storage of Agricultural Machinery, Equipment and Agricultural Materials including but not limited to chemicals and fertilizers. (limitations on their location, if any, shall be shown on Exhibit B);
8. Processing of agricultural products is allowed provided a majority of the agricultural products processed are grown by the Grantor's farm operation;
9. Other Agricultural Practices that may in the future be determined by the Township Board to be a common agricultural practice in the region after the use is recommended by the Planning Commission and at least one other state or nationally recognized agricultural organization.

B. **“Open Space uses,”** as used herein, means:

1. Agricultural uses as defined above;
2. Non-agricultural uses that conserve natural, scenic, or designated historic resources;
3. Windbreaks and other vegetation unless restricted as shown on Exhibit B.

C. **Open space and agricultural uses do not include** the following:

1. The construction, habitation, or other use of a dwelling unit, except to the extent such use is specifically reserved in this instrument;
2. The construction or expansion of buildings and structures for non-agricultural uses, except to the extent such use is specifically reserved in this instrument;
3. The dumping or storage of non-agricultural solids or liquid wastes, including but not limited to trash, rubbish, or noxious material;
4. The construction or use of golf courses, parking lots not associated with agricultural uses, athletic fields, campgrounds, travel trailer parks, institutional structures, livestock auction yards, veterinary hospitals and clinics, commercial sawmills (not including the temporary use of a sawmill for sawing timber grown on the Property), public buildings and public service installations, incinerators and sanitary land fills, sewage treatment and disposal installations (not including tile fields for residential dwellings shown on Exhibit B), commercial

airports and airfields, non-agricultural warehousing or vehicle raceways or animal raceways other than those principally used for the exercise of animals grown, boarded or produced on the Property.

II. Further Restrictions on Use of the Property. Potential uses of the Property are limited in that the Grantor, his heirs, successors, and assigns shall only be entitled to use, lease, maintain, or improve the Property for agricultural and/or open space uses, and they shall comply with the following terms, conditions, restrictions, and covenants, which are permanently binding on the Property:

- A. **No mining, drilling or extracting of oil, gas, gravel, or minerals** on or under the Property shall be permitted that causes disruption of the surface of the Property to any extent that adversely affects the agricultural production or the preservation of scenic views, and no part of the land shall be used for storage or processing of gas, oil, or minerals taken from the Property, other than storage for agricultural uses or the private use of the occupants of the Property.
- B. **Sand and gravel extraction** for use on the farm is permitted, however, no commercial sales of sand and/or gravel shall be permitted without approval of the Township Board. Any such approval for commercial sales shall be consistent with the intent of Ordinance #23 and Section A. above.
- C. **No surface activities**, including excavation for underground utilities, pipelines, or other underground installations, shall be permitted that cause permanent disruption of the surface of the Property. Temporarily disrupted soil surfaces shall be restored in a manner consistent with agricultural uses, including replacement of a minimum of four (4) inches of topsoil and seeding within a reasonable period of time after such disruption.
- D. **No signs** shall be erected on the Property except for the following purposes:
 - 1. To state the name of the property and the name and address of the occupant;
 - 2. Historic designation;
 - 3. No Trespassing signs;
 - 4. To advertise any use or activity consistent with the agricultural or open space uses as herein defined; or to advertise the property for sale or rent.
 - 5. Signs required by local, state, or federal statute.
- E. **The property shall not be used to contribute toward the satisfaction of any open space or setback requirement**, contained in any statute, ordinance, regulation, or law involving the use of other real property.

III. Reserved Rights. Grantor reserves to himself, and to his personal representatives, heirs, successors and assigns, all rights accruing from his ownership of the Property, including the right to engage in or permit or invite others to engage in all uses of the Property that are not prohibited and are not inconsistent with the purpose of this Easement. Without limiting the generality of the foregoing, the following rights are expressly reserved and shall be deemed not inconsistent with the purposes of this Easement:

- A. **Right to Convey:** The right to sell, give or otherwise convey the Property, provided such conveyance is subject to the terms of this

Easement.

B. **Right to Divide:** Any new parcels resulting from a division of the Property shall be subject to the terms of this Easement.

C. **Reservation of Dwelling Unit(s):**

1. The Grantor reserves the right to the use of _____ dwelling unit(s) along with accessory uses on the land as shown on Exhibit B. If the right to build a dwelling unit is retained, the permitted dwelling shall be constructed on a parcel within the “Building Envelope/s” as shown on Exhibit B including adequate land for sewage disposal. The Grantor reserves the right of an ingress and egress easement for utilities and a driveway between the building envelope/s and _____ road. The location of the permitted driveway is as shown in Exhibit B.
2. No more than _____ dwelling unit(s) in total (reserved and existing) will be permitted regardless of whether the Property is subdivided by the Grantor or by any successor in interest of the Grantors.
3. If the Property is subdivided, the number of dwelling units allocated to each subdivided parcel out of the total number of dwelling units specified above shall be indicated in the deed to each such parcel and on the face of any plat or other instrument creating the subdivision or conveying an interest in the Property; however failure to indicate the number of such dwelling units thereon shall not invalidate or otherwise affect the restriction of the total number of dwelling units on the Property.
4. Grantor shall have the right to renovate or replace existing permitted residences or agricultural buildings and structures. Improvements, shall be substantially in their current or permitted locations as shown in Exhibit “B”.

IV. Additional Covenants and Agreements

- A. **Covenant Against Encumbrances.** The Grantor covenants that they have not done or executed, or allowed to be done or executed, any act, deed, or thing whatsoever whereby the Development Rights hereby conveyed, or any part thereof, now or at any time hereafter, will or may be charged or encumbered in any manner or way whatsoever.
- B. **Access.** No right of access by the general public to any portion of the Property is conveyed by this instrument.
- C. **Taxes.** If the Grantor becomes delinquent in payment of taxes such that a lien against the Property is created, the Grantee, at its option, shall have the right to discharge said lien, or take other actions as may be necessary to protect the Grantee’s interest in the Property and to assure the continued enforceability of this instrument.
- D. **Remedies.** If the Grantors, their heirs, successors, assigns, agents, or employees violate or allow the violation of any of the terms, conditions, restrictions, and covenants set forth herein, then the Grantee will be entitled to all remedies available at law or in equity, including, but not limited to injunctive relief, rescission of contract, or damages, including actual attorney’s fees and court costs reasonably incurred by the Grantee in prosecuting such action(s). No waiver or waivers by the Grantee, or by its successors or assigns, of any breach of a term, condition, restriction, or covenant contained herein shall be deemed a waiver of any subsequent breach of such term, condition, restriction or covenant or of any other term, condition, restriction, or covenant contained herein.
- E. **No Alteration or Amendment.** The terms, conditions, restrictions, and covenants contained herein shall not be altered or amended unless such alteration or amendment shall be made with the written consent of the Grantee, or its successors or assigns, and any such alteration or amendment shall be consistent with the purposes of Peninsula Township Ordinance No. 23, as heretofore or hereafter

amended.

- F. **Restrictions Binding on Successors.** The Grantor and Grantee agree that the terms, conditions, restrictions, and covenants contained herein shall be binding upon the Grantor, his agents, personal representatives, heirs, assigns, and all other successors in interest to the Property and possessors of the Property, and shall be permanent terms, conditions, restrictions, covenants, servitudes, and easements running with and perpetually binding the Property.
- G. **Transfer of Rights by Grantee.** The Grantee agrees that the Development Rights to the Property shall not be sold, given, divested, transferred, or otherwise reconveyed in whole or in part in any manner except as provided in Peninsula Township Ordinance No. 23, as heretofore or hereafter amended. The Grantor, his personal representatives, heirs, successors, or assigns, shall be given the right of first refusal to purchase the Development Rights in the Property provided such disposition and reconveyance be lawfully approved.
- H. **Condemnation.** If the Property is subject to any condemnation action, and if a mutually acceptable agreement as to the compensation to be provided to the Grantee is not reached between Grantee and Grantor within a reasonable period of time, the Grantor will request that the Grantee be made a party to such action in order that it be fully compensated for the loss of, or devaluation in, the Development Rights hereby conveyed.
- I. **No Affirmative Obligations; Indemnification.** Grantor, his successors, heirs, or assigns, retain ownership with full rights to control and manage the Property and shall bear all costs and liabilities of any kind related to property ownership, operation, and maintenance, including maintaining adequate comprehensive general liability insurance. Grantee, in purchasing the Development Rights and related interests described herein, assumes no affirmative obligations whatsoever for the management, supervision or control of the Property or of any activities occurring on the Property. Grantor shall indemnify Grantee and hold Grantee harmless from all damages, costs (including but not limited to, actual attorneys' fees and other costs of defense incurred by Grantee), and other expenses of every kind arising from or incident to any claim or action for damages, injury, or loss suffered or alleged to have been suffered on or with respect to the Property. This paragraph is intended to ensure that none of the liabilities attendant on land ownership are inadvertently transferred to Grantee under this Easement as the Grantee will have no management responsibilities and will exercise no direct control over any potential hazards on the Property.
- J. **Grantee's Right to Enter onto the Property.** After giving reasonable notice to the possessors of the Property, the Grantee or its authorized representative shall have the right to enter from time to time onto the Property for the purposes of inspection and enforcement of the terms, conditions, restrictions and covenants hereby imposed. This is to occur no more than once per year unless the Grantee has good reason to believe a violation has taken place.
- K. **Termination of Party's Rights and Obligations.** A party's rights and obligations under this instrument terminate upon transfer of the party's interest in the instrument or the Property, except that liability for acts or omissions occurring prior to transfer shall survive transfer.
- L. **All uses Must Comply with Applicable Laws.** None of these covenants, terms, and conditions shall be construed as allowing a use that is not otherwise permitted by applicable state and local laws, codes, standards, and ordinances.
- M. **Severability.** If any section or provision of this instrument shall be held by any court of competent jurisdiction to be unenforceable, this instrument shall be construed as though such section or provision had not been included in it, and the remainder of this instrument shall be enforced as the expression of the parties' intentions. If any section or provision of this instrument is found to be subject to two constructions, one of which would render such section or provision invalid, and one of which would render such section or provision valid,

then the latter construction shall prevail. If any section or provision of this instrument is determined to be ambiguous or unclear, it shall be interpreted in accordance with the policies and provisions expressed in Peninsula Township Ordinance No. 23.

N. Pronouns. If more than one joins in the execution hereof as Grantor, or either be of the feminine sex, or a corporation, the pronouns and relative words used herein shall be read as if written in plural, feminine or neuter, respectively.

IN WITNESS WHEREOF, the parties have hereunto set their hand and seals the day and year first above written.

Signed in the presence of:

GRANTORS

GRANTEE
PENINSULA TOWNSHIP

_____ By: _____
Supervisor

_____ By: _____
Clerk

STATE OF MICHIGAN)
)ss.
COUNTY OF GRAND TRAVERSE)

STATE OF MICHIGAN)
)ss.
COUNTY OF GRAND TRAVERSE)

The foregoing instrument was acknowledged before me this
_____ day of _____, 20__, by _____
Grantor herein.

The foregoing instrument was acknowledged before me this
_____ day of _____, 20__, by _____
Supervisor and Clerk of PENINSULA TOWNSHIP, a quasi-municipal
corporation, of behalf of the Township.

Notary Public
Grand Traverse County, Michigan
My commission expires: _____

Notary Public
Grand Traverse County, Michigan
My commission expires: _____

Transfer of Development Rights

A Transfer of Development Rights (TDR) Program, like a PDR program, complements the underlying zoning districts of an integrated growth management strategy. TDR programs encourage movement of development rights from one parcel of land to a non-contiguous parcel. TDR programs encourage the movement of development rights from areas that are designated to remain rural and open to areas that are designated for urban development. The movement of these development rights away from rural areas ensures these areas remain rural permanently unlike zoning which can be changed.

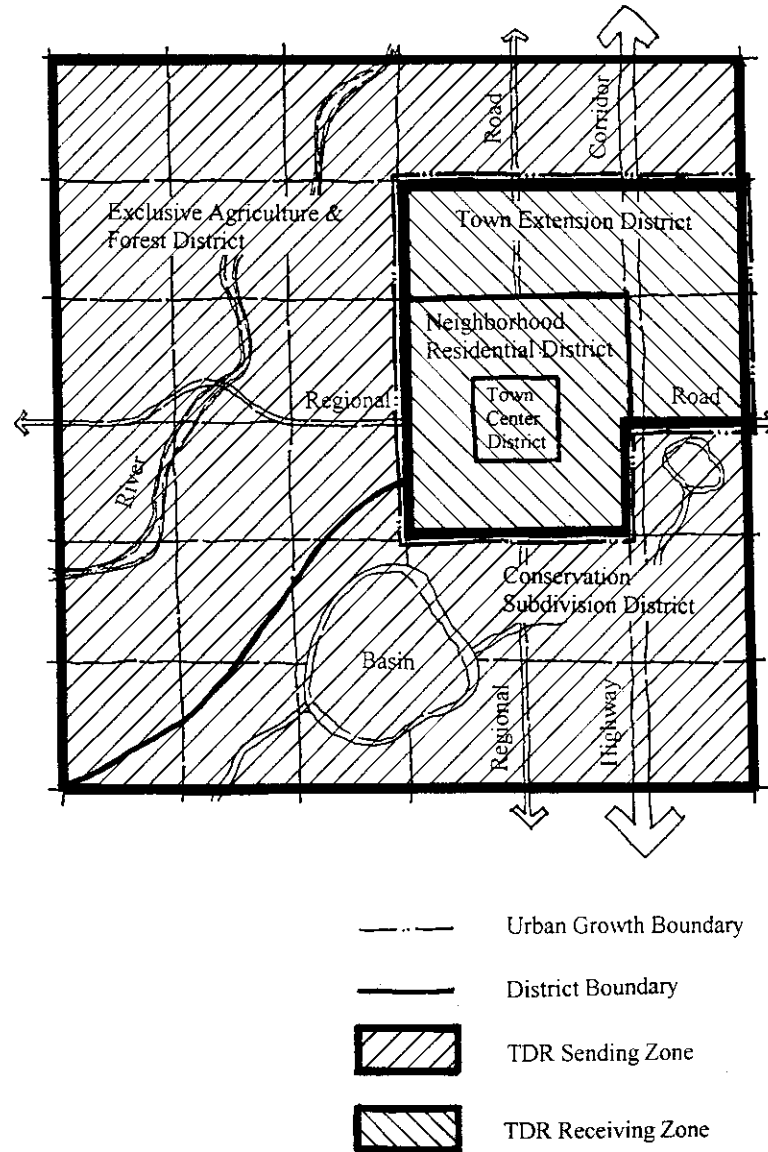
A TDR program should be based on the comprehensive plan, which shows where urban uses should be developed and where rural areas should remain. Local governments then adopt an ordinance defining **sending zones**, where development is discouraged, and **receiving zones**, where urban development is encouraged. Landowners in sending zones voluntarily choose to sell development rights to developers who use the rights to develop at increased densities in receiving zones.

The number of development rights that a landowner can sell is defined in the ordinance and is usually based on the number of acres in the selling parcel. The type of development that can occur in receiving zones is also defined in the ordinance and is more intense than that allowed by the underlying zoning. The underlying zoning defines the type and amount of development that can occur if no development rights are bought or sold.

The model TDR ordinance is based on:

- Model TDR Ordinance, pages 309 through 314, in *When City and Country Collide*, by Tom Daniels (1999),
- Excerpts from the Montgomery County, Maryland, Zoning Code as presented in *Protecting Your Community's Natural Resources: A Land Protection Toolbox for Local Government* (Green Corridor Project and the State of Minnesota, 1998).

Transfer of Development Rights Over Zoning Map



Chapter XX Model Community Transfer of Development Rights Program

XX.01 Authorization and Purpose

The statutory authority in Section A. was set in 1997. The Minnesota Legislature amended the land use authority of counties and municipalities to specifically include the authority to establish TDR programs.

The purpose paragraph (Section B.) should contain direct references to language from the community's comprehensive plan or other policy resolutions authorizing the community to create a TDR program. The purpose statements included in this model ordinance reflect both sustainable development goals and open space goals.

- A. **Statutory Authorization.** Pursuant to Minnesota Statutes, Chapter 394.25 (for counties) or 462.357 (for townships and municipalities) Model Community establishes a transfer of development rights program for the purpose of preserving open space, including natural and scenic areas, and productive agricultural and forest land. The program's policies, rules and official controls are adopted in this ordinance, hereafter known as the Model Community Transfer of Development Rights (TDR) Ordinance.
- B. **Purpose.** This Ordinance is adopted for the following purposes:
1. To establish procedures by which development rights are granted, conveyed, applied and recorded.
 2. To implement the goals of the Model Community Comprehensive Plan regarding managing growth and protecting rural areas. This TDR program addresses the following specific goals as stated in the Comprehensive Plan.
 - a. Direct development away from rural areas and areas without existing or planned infrastructure.
 - b. Maximize the use of existing transportation and utility infrastructure before making new investments.
 - c. Maintain a distinction between urban and rural areas.
 - d. Preserve the rural character and landscapes of Model Community.
 - e. Preserve agriculture and forestry as permanent land uses and viable economic activities in the community.
 - f. Create an integrated system of open space, parkland and trails throughout the community.
 3. To serve additional public purposes through open space protection, including storm water management, and habitat protection.

XX.02 Definitions

- A. For the purpose of this Ordinance, certain words and phrases are defined as follows:

Agricultural Land: Land whose use is devoted to the production of livestock, dairy animals, dairy products, poultry, poultry products, nursery plants; Christmas trees; forages and sod crops; grains and feed crops; and other similar uses and activities, including equestrian activities.

Development: An activity which materially alters or affects the existing conditions or use of any land.

Development Rights: An interest in and the right to use and subdivide land for any and all residential, commercial and industrial purposes and activities which are not incident to agriculture and open space, in accordance with zoning and other regulations.

Open Space: Land used for natural habitat, agriculture and/or scenic views.

Sending Zone: A zone, defined in a TDR ordinance, designated for continued rural uses, within which landowners may sell their development rights to private individuals or a government agency. The development rights which are sold may be used to build homes in a designated receiving zone.

Receiving Zone: A zone, defined in a TDR ordinance, designated for urban uses, within which developers may use development rights transferred from land in a sending zone.

XX.03 Establishment of Sending and Receiving Zones

- A. **Establishment of Sending and Receiving Zones.** The following

procedures and regulations apply to the transfer of development rights from land classified in the Sending Zone to land classified in the Receiving Zone. The Sending and Receiving Zones are overlay zones as shown on the official zoning map. The Sending Zone generally overlays rural zones outside the urban growth boundary, and the Receiving Zone generally overlays urban zones inside the urban growth boundary.

B. Granting Transferable Development Rights Within the Sending Zone. Except as noted below, every parcel of record as of the effective date of this ordinance within the Sending Zone is granted one (1) transferable development right for every five (5) acres contained therein. Transferable development rights are not granted to:

1. Land within a Natural Resource Protection Zone as defined in other ordinance of Model Community;
2. Land restricted from development by covenant, easement, or deed restriction, unless and until such time as said covenant, easement, or restriction is dissolved or rescinded;
3. Land restricted by conservation easement, including a conservation easement created through the Model Community Purchase of Development Rights program;
4. Tracts of land or portions thereof owned by or subject to easements (including, but not limited to, easements of roads, rights-of-way, railroads, electrical transmission lines, telephone lines, and water, sewer, gas or petroleum pipelines) in favor of governmental agencies, utilities and railroads; and
5. Two acres of the curtilage around any existing dwelling unit.

XX.04 Process for Transferring Development Rights

A. Voluntary Nature of Transfer. The conveyance of transferable development rights will occur only on a voluntary basis. Landowners will not be compelled in any way to convey their transferable development rights. If conveyances occur, they must be done according to paragraph **XX.05.D** of this ordinance. Unconveyed transferable development rights may be transferred with land sold, transferred, donated, or bequeathed.

- B. Value of Transferable Development Rights.** The monetary value of transferable development rights is completely determined by negotiation between the transferor and the transferee of the rights.
- C. Process for Conveying Transferable Development Rights from the Sending Zone.** Transferable development rights granted under paragraph XX.03.B of this ordinance may be transferred, through sale or donation, to any party, subject to the requirements stated below.
1. The transferor and transferee shall submit an application signed by both on a form developed by Model Community stating the intent to transfer and acquire transferable development rights. The application form shall include:
 - a. A surveyed or metes-and-bounds description of the total property owned by the transferor from which the rights will be transferred.
 - b. A site plan or survey must also be submitted showing the following elements:
 - i. total acreage;
 - ii. land within a Natural Resource Protection Zone as defined in other ordinance of Model Community;
 - iii. land restricted from development by covenant, easement, or deed restriction, unless and until such time as said covenant, easement, or restriction is dissolved or rescinded;
 - iv. land restricted by conservation easement, including a conservation easement created through the Model Community Purchase of Development Rights program; and
 - v. tracts of land or portions thereof owned by or subject to easements (including, but not limited to, easements of roads, rights-of-way, railroads, electrical transmission lines, telephone lines, and water, sewer, gas or petroleum pipelines) in favor of governmental agencies, utilities and railroads;
 - vi. two acres of the curtilage around any existing dwelling unit.
 - c. If a transfer of development rights involves less than the entire number of rights of a parcel, the portion of the parcel from which the development rights are transferred shall be clearly identified through a survey or metes-and-bounds description, and shall be

- clearly identified on the site plan.
- d. The application must also state:
 - i. the number of transferable development rights granted to the entire parcel under paragraph XX.03.B above;
 - ii. the number of transferable development rights granted to the identified portion of the parcel from which the development rights are to be transferred; and
 - iii. the number of transferable development rights that would remain available to the parcel after the proposed transfer.
 - e. A title search of the tract from which the transferable development rights will be conveyed sufficient to determine all owners of the tract and all lienholders.
 - f. A copy of the proposed Deed of Transferable Development Rights and a copy of the proposed Conservation Easement in accordance with paragraph XX.04.D of this ordinance.
2. Upon receiving a complete application, the zoning officer shall:
 - a. Determine the number of transferable development rights that can be conveyed from the sending property.
 - b. With the advice of the Model Community attorney, determine the sufficiency of:
 - i. the plan indicating the portion of the property to be restricted from future development;
 - ii. the proposed Conservation Easement; and
 - iii. the Deed of Transferable Development Rights.
 - c. The zoning officer shall inform the applicants of any determination in writing.
 3. Upon receipt of written approval by the zoning officer, the transferor and transferee together may present Model Community with the Deed of Transferable Development Rights for endorsement. Model Community shall not endorse the Deed of Transferable Development Rights until Model Community has received evidence that the Conservation Easement has been duly signed by all relevant parties and

recorded with the county recorder of deeds.

- D. Conditions of the Conservation Easement.** The owner conveying transferable development rights from the sending zone shall perpetually restrict the use of the parcel from which transferable development rights are conveyed by a conservation easement. The conservation easement shall comply with Minnesota Statutes Chapter 84C and shall be in a form approved by Model Community. The conservation easement shall comply with the following conditions:
1. The conservation easement shall restrict future use of the property to agricultural, forestry, habitat and open space uses.
 2. The conservation easement shall be held by a qualified unit of government, conservation organization, land trust or similar organization authorized to hold interest in real property (pursuant to Minnesota Statutes, Section 84C.01-05) as approved by the Governing Body. Model Community will co-hold all easements. Other local units of government may also hold or co-hold an easement.
 3. If the development rights are to be conveyed from less than the entire parcel, the application prepared in accordance with XX.04.C.1 above shall be attached to and recorded with the conservation easement.
 4. All owners of the tracts from which transferable development rights are conveyed shall execute the conservation easement.
 5. All lienholders of the tracts from which transferable development rights are conveyed shall execute a subordination agreement to the conservation easement. Such subordination agreement shall be recorded with the county recorder of deeds.

XX.05 Using Transferable Development Rights in the Receiving Zone.

- A. Transferable development rights may only be used to increase permitted density in the Receiving Zone as it is shown on the official zoning map of Model Community.
- B. For each transferable development right that is approved for conveyance, the transferee is entitled to:
 1. an increase of one additional dwelling unit per acre subject to the

- minimum lot size of the underlying zoning district; or
 - 2. an increase of 500 square feet for a commercial or industrial building subject to the bulk requirements of the underlying zoning district.
- C. Along with the application materials required in paragraph XX.04.C.1 above, the transferee shall submit:
- 1. A preliminary subdivision plan for the site to which development rights are to be transferred prepared in accordance with the Model Community subdivision ordinance, and indicating:
 - a. that transferable development rights are to be used;
 - b. the base density allowed for the site according to the underlying zoning district;
 - c. the proposed number and size of lots of the site; and
 - d. the number of transferable development rights to be applied to the site.
 - 2. An agreement of conveyance for the development rights between:
 - a. the owner of the tract to which development rights have been granted, or the owner of development rights that have previously been severed from a tract in the sending zone, as evidenced by a recorded Deed of Transferable Development Rights; and
 - b. the owner of the tract proposed to be developed using the transferable development rights.
- The agreement may be contingent upon approval of a final subdivision plan of the tract to be developed using the transferable development rights.
- 3. A title search of any previously severed transferable development rights proposed to be used.
- D. No final approval for any subdivision that utilizes transferable development shall be executed until Model Community has received a copy of the applicable recorded Deed of Transferable Development Rights and a copy of the duly executed and recorded Conservation Easement.

XX.06 Public Acquisition of Transferable Development Rights.

Model Community may purchase, or accept by gift, transferable development rights. Any purchase or acceptance by gift must comply with the requirements for a recorded Deed of Transferable Development Rights and a recorded Conservation Easement as set forth in this ordinance. Model Community may hold, resell, or retire any transferable development rights it has acquired.

AGREEMENT BETWEEN THE CITY OF MODEL COMMUNITY
AND THE TOWNSHIP OF FOR GROWTH MANAGEMENT.
ORDERLY ANNEXATION AND THE EXERCISE OF JOINT POWERS
FOR PLANNING AND LAND USE CONTROL

Orderly Annexation Agreement

The following model orderly annexation agreement is based on:

- *the 1996 Orderly Annexation Agreement between the City of Stillwater and Stillwater Township; and*
- *the 1995 Orderly Annexation Agreement between the City of Mankato and Mankato Township.*

THIS AGREEMENT is made this day of 199 , (“Effective Date”) between Model Community (“City”) and the Township (“Township”) and is an agreement relating to growth management and constitutes a “Joint Resolution” between the City and Township authorized by Minnesota Statutes §414.0325 providing for a procedure and a framework for orderly annexation of a part of the Township to the City. This Agreement also provides for the joint exercise by the City and Township of their respective planning and land use control authority pursuant to Minn. Stat. 471,59 and Minn. Stat. 414.0325 (Subd. 5).

**SECTION ONE
INTRODUCTION**

- A. The City has undertaken a review of its Comprehensive Plan and has studied the ability of the City to provide services to areas outside its boundary to accommodate future projected growth, that urban growth in certain areas would benefit the City. The Township has participated in a review of the City’s Comprehensive Plan and has concluded that it would be beneficial to the Township, and to property owners remaining in the Township after annexation, to enter this Agreement with the City so that the area to be annexed will be developed in an orderly fashion, maximizing the use of investments in utility and roadway infrastructure.

INTENT

- B. The parties to this agreement intend it to be binding with all the rights, privileges, and obligations attached thereto. Both parties intend to be bound by this agreement and shall not violate its terms. Neither party shall exercise any legislative authority either now existing or which may be later created in a way which violates the terms of the agreement. Both parties understand that they may not limit the power of the legislature over

annexation, and such is not their intent. Instead, the parties agree to refrain from exercising any legislative authority, now or into the future, in a way that would violate the terms of this agreement.

**SECTION TWO
ORDERLY ANNEXATION AREA**

- A. The property described in Exhibit “A” that is subject to annexation by the City pursuant to this Agreement will constitute the “Orderly Annexation Area.” This area includes (describe orderly annexation area generally). The Orderly Annexation Area is designated as in need of orderly annexation and no consideration by the Minnesota Municipal Board is necessary, no alteration of the boundaries is appropriate, and all conditions of annexation have been provided for in this Resolution and the Minnesota Municipal Board may review and comment only and within thirty (30) days of receipt of this Resolution and each subsequent phase as described in this Agreement upon the filing of a Resolution as described in this Agreement.

**SECTION THREE
PHASING SCHEDULE**

- A. The Township and City agree that phasing the growth envisioned for the annexation area would benefit the City by reducing the financial risk of extending core facilities into the Orderly Annexation Area by extending such facilities gradually rather than at one time. This would also allow for the burden imposed by the growth to be gradually born by the City so that the level of services needed by the new development could be supplied on a gradual and phased basis. The Township has agreed that a phased development plan as envisioned by this Agreement would benefit the Township by phasing the impact of lost tax base on the remaining Township government and easing financial and lifestyle burdens that an immediate annexation of the entire area would impose on Township residents. For the purposes of this Agreement, the Orderly Annexation Area will be divided into four

(4) phases described as follows: (specifically describe parcels to be annexed in each phase)

**SECTION FOUR
TIMING OF ANNEXATION OF PHASES**

- A. Under no circumstances will the growth in the Orderly Annexation Area exceed a cumulative total of 120 dwelling units per calendar year measured from the year 199X as year one. This limitation shall apply to the issuance of building permits. The City shall provide a written report to the Joint Board on July 15 and January 15 of each year commencing in 1997 identifying the number and location of building permits for new residential dwelling units issued during the previous six months.
- B. Phase I property will be annexed to the City after the execution of this Agreement. The Municipal Board shall order annexation of the Phase I property within thirty (30) days following receipt of this Joint Resolution.
- C. Phase II property may be annexed by the City filing a Resolution with the Minnesota Municipal Board any time after January 1, 2002.
- D. Phase III property may be annexed by the City filing a Resolution with the Minnesota Municipal Board any time after January 1, 2006
- E. Phase IV property may be annexed by the City filing a Resolution with the Minnesota Municipal Board any time after January 1, 2010.
- F. The City may annex any phase prior to the date stated above, provided that the accelerated growth does not exceed the one hundred twenty (120) dwelling units per year limitation; and that seventy-five percent (75 %) of the net developable area of the prior phase property annexed to the City has been platted and developed into occupied residential dwellings.
- G. The City is free to deny an annexation or extend the timing of a phase at any time at its sole discretion. This Agreement does not confer any rights upon any individual property owner to require the City to annex his or her property.
- H. As an exception to the Phasing Schedule, the City may annex

property not described in Phases I, II or III by Resolution if the property is adjacent to the City, is petitioned for by one hundred percent (100%) of the property owners within the area to be annexed and if the resulting annexation will not create a level of growth that exceeds the one hundred twenty (120) dwelling units per year limitation.

SECTION FIVE COMMERCIAL AND OTHER DEVELOPMENT

- A. Commercial development within the Phase I Annexation Area will be limited to the XX acres of commercial property at (describe general location for commercial development). These are the only properties designated for commercial use in the City's Comprehensive Plan.
- B. Upon execution of the annexation, the City will amend its Zoning Ordinance to include a separate zoning classification that will be described as "Village Commercial Zoning" or "Neighborhood Commercial".
- C. Agriculture will continue to be a permitted use in the areas re-zoned pursuant to this Section.

SECTION SIX ASSESSMENT AND UTILITY POLICY

- A. Concurrent with the adoption of this "Joint Resolution", the City Council will adopt an assessment policy that will protect new City property owners who are neither subdividing their property nor requesting municipal services from special assessments and utility charges for sanitary sewer, storm sewer, water and street upgrading.
- B. Concurrent with the City's adoption of this "Joint Resolution", the City will adopt a sanitary sewer and water hook-up policy which includes the following provisions relating to property within the orderly annexation area:
 - 1. Prior to subdivision of the property, no property owner will be

- required to hook-up to the City's municipal water system.
2. Prior to subdivision of the property, no property owner will be required to hook-up to the City's sanitary sewer system unless hook-up is mandated by State Statute or Minnesota Pollution Control Agency (MPCA) regulation and enforcement action is initiated. A property owner will be permitted to upgrade or replace a failing system in accordance with MPCA standards. The City ordinance will not impose regulations that are more stringent than those required by the MPCA.
 - C. This section does not require the City, if requested to by a Property Owner, to extend sanitary sewer service to property which has a failed on-site system if the extension is not feasible or cost effective.
 - D. The benefits and limitations set forth in this Section do not apply nor are they for the benefit of owners who subdivide their property.

SECTION SEVEN REAL ESTATE TAXATION

- A. **Rural Tax Rate Adjustment.** It is recognized that there is a significant difference between the City's municipal percent of tax capacity rate, and the Township's existing percent of tax capacity rate and that to require property that is brought into the City against the wishes of a property owner to pay the full municipal rate would be burdensome. The City, therefore, will concurrent with the City's adoption of this "Joint Resolution" amend, subject to the second reading required by City Charter, its Rural Service Taxing District Ordinance to include:
 1. A rural service district that will include only parcels that are not connected to municipal sewer or water services.
 2. A rural service tax rate that will be set at seventy-five percent (75%) of the City Urban Service District rate.
 3. Pursuant to Minn. Stat. 414.035, for parcels that have not requested annexation, the initial rural service tax rate in the year of annexation will be Fifty percent (50%) of the urban rate, with the percentage being increased five percent (5%) each year to the

seventy-five percent (75%) rural service rate.

- B. **Tax Rate Adjustment for Parcels Not Requesting Annexation.** Pursuant to Minn. Stat. 414.035, for parcels that have not requested annexation and do not qualify for the rural service taxing district, the initial urban tax rate in the year of annexation will be fifty percent (50%) of the urban rate, with the percentage being increased 10 percent (10%) each year for five (5) years to the full urban rate.
- C. **Tax Payment to Township.** During the term of this Agreement, taxes received by the City based upon the tax capacity generated from any area annexed in the year of annexation will be paid over to the Township and thereafter the amount to be paid to the Township will be reduced by twenty percent (20%) each year until the amount reaches zero (0), when taxes based upon the full tax capacity will remain with the City. For the purpose of this section, any increase in tax capacity over the tax capacity generated in the year of annexation will remain with the City.
- D. **Year of Annexation.** If the annexation becomes effective on or before August 1 of any year, the City may levy on the annexed area beginning with that year. If the annexation becomes effective after August 1 of any year, the Township may continue to levy on the annexed area for that year, and the City may not levy in the annexed area until the following year.

SECTION EIGHT JOINT PLANNING AND LAND USE CONTROL

- A. The purpose of this section of the Agreement is to provide for the joint exercise of governmental authority by the City and Township pursuant to Minn. Stat. 471.59 and 414.0325, Subd. 5 in order to insure orderly development within the annexation area in accordance with this Orderly Annexation Agreement and the City's Comprehensive Plan.
- B. The powers set forth herein shall be exercised by a four (4) member board consisting of two (2) City Council members appointed by the City and two (2) Township Board members appointed by the Township Board of Supervisors.

- C. The Joint Board will review official controls necessary to regulate development of property and development applications within the Orderly Annexation Area before its annexation by the City in order to insure that the property remains in a status available for development into urban density residential uses in accordance with the City's Comprehensive Plan.
- D. As to property within the Orderly Annexation Area after its annexation into the City, the Joint Board shall have the following delegated powers:
 - 1. Approve amendments to the City's Comprehensive Plan relating to the Orderly Annexation Area;
 - 2. Approve the initial adoption of, amendments to, or variances from the City's official controls relating to the Orderly Annexation Area.
 - 3. Approve any special assessment and sanitary sewer and water hook-up ordinance, or policy and any amendments for consistency with Section Six.
 - 4. Approve the Rural Service Taxing District ordinance or any amendments thereto, for consistency with Section Seven herein.
 - 5. Review and comment on the consistency of any development application with City's Comprehensive Plan and Orderly Annexation Agreement.
 - 6. All matters subject to approval by the Joint Board shall be processed in the same manner by the City as any other such matter. Any required public hearing before the City Planning Commission or City Council shall also be noticed as a public hearing before the Joint Board.

Final action by the City may not be taken unless the Joint Board certifies approval of the action. If the Joint Board fails to certify approval, the Joint Board Members shall designate a qualified neutral from the Minnesota Supreme Court Certified Neutrals list to conduct Alternative Dispute Resolution ("ADR") in the form of mediation/arbitration ("Med-Arb") or such other agreed upon ADR format. If mediation fails, the Neutral will issue a recommended decision. The Joint Board will adopt Findings of Fact and Decision consistent with the Neutral's recommendation and supported by the

administrative record developed by the City and Joint Board. The Neutral shall base the recommended decision on the City and Joint Board administrative record, any applicable provision of the Orderly Annexation Agreement and legal principles which the Joint Board and City are required to follow in determining the matter at issue.

7. Development applications subject only to review and comment by the Joint Board shall be processed in the same manner as all other development applications except as follows:
 - a. The Joint Board shall meet before the Planning Commission completes its consideration of the application. Minutes of the Joint Board's discussion of the application shall be included in materials submitted to the Planning Commission. No public hearing need be conducted at the Joint Board meeting;
 - b. The Township Board representatives on the Joint Board shall be ex officio members of the City Planning Commission when any development application subject to the Joint Board's review and comment is being considered, and shall be provided with all staff reports and other documentation provided to City Planning Commission members.

D. "Official controls" means ordinances, regulations and policies which control the physical development of the city and use of land, or any detail thereof and implement the general objectives of the comprehensive plan, including ordinances establishing zoning, subdivision controls, site plan regulations and official maps.

E. The Joint Board will not be responsible for any staff time, consultant expenses or other costs incurred by the City and Township in connection with the processing and review of any matter which requires approval by the Joint Board. The Township and City will be responsible for paying their own employees, consultants and Joint Board members. Any expenditure incurred by the Joint Board, including the appointment of a Neutral to conduct ADR proceedings, if necessary, shall be apportioned seventy-five percent (75%) to the City

and twenty-five percent (25%) to the Township.

- F. This Joint Powers Agreement shall terminate concurrently with the Orderly Annexation Agreement on January- 1, 2020, except as follows: As to the matters set forth in Section 8.04 (b), (c) and (d) herein, the Joint Powers Agreement shall remain in effect so long as there are any Phase IV properties that are still entitled to the protection of Sections Six and Seven herein, pursuant to Section 16.01 herein.
- G. Concurrent with the City's adoption of this Joint Resolution, the City shall amend, subject to the second reading required by City Charter, its zoning ordinance to provide that property is zoned agricultural upon its initial inclusion into the City upon annexation. The owner of any property proposed to be annexed pursuant to Section 4.09 which has an existing non-agricultural use shall agree to terminate the use as a condition of annexation. Nothing herein precludes the City, subject to Joint Board approval, from rezoning the property to another use at the time of or subsequent to its annexation.

SECTION NINE PERFORMANCE STANDARDS

- A. The City agrees to develop Performance Standards for developers who work within the Orderly Annexation Area. The standards will measure developer performance in the areas of financial responsibility, protection of the environment during construction, construction traffic management, compliance with established time tables and responsiveness to citizen complaints. Each developer will be reviewed annually for compliance with these standards and the City will develop a system to sanction developers who fail to meet standards.

SECTION TEN INCLUSION OF JOINT TASK FORCE RECOMMENDATIONS

- A. To the extent feasible and permitted by law, the City agrees to include the recommendations of the Joint City/Township Planning Task Force within the ordinances and policies of the City. These recommendations

are adopted and made a part of this, Agreement as Exhibit “F”.

**SECTION ELEVEN
ENVIRONMENTAL AND OPEN SPACE PRESERVATION**

- A. The City agrees that environmental assessment worksheets will be required at each critical stage of any development review process as required by the Rules of the Minnesota Environmental Quality Board. Further, the recommendations developed by the City Area Open Space Committee will be implemented when feasible and the guidelines for protection of open space and the environment within the Orderly Annexation Area will be followed when feasible or when permitted by law.

**SECTION TWELVE
INFRASTRUCTURE INSTALLATION WITHIN THE TOWNSHIP**

- A. When sewer and water trunk facilities will be extended through Township area in order to serve phases of the Orderly Annexation Area that are ready for urban development’ the City agrees to notify the Township Board of the development plans. The City will copy the Township Board on any correspondence with Township property owners relating to easements or right-of-way acquisitions.

**SECTION THIRTEEN
MAINTENANCE OF EXISTING INFRASTRUCTURE WITHIN
TOWNSHIP**

- A. The Township will continue to maintain streets and other public improvements in the Annexation Area so long as they remain in the Township. If improvements are required in this area which are not necessitated by growth in the City Annexation Areas, the City will pay to the Township a portion of the cost of the improvement which extends the useful life of the improvement beyond the time at which the street or other improvements is projected to be annexed into the City.

The City's portion of the cost will be prorated based upon the following formula:

$$\text{Cost of Improvement} \times \frac{\text{Useful Life After Projected Annexation Date}}{\text{Total Useful Life}} = \text{City's Share}$$

- B. If public improvements are required in the Orderly Annexation Area that remain in the Township and are necessitated by the growth occurring in an area annexed pursuant to this Agreement, the City shall pay the cost of the improvements, except for an amount approximating the cost of maintaining (e.g; patching, sealcoating, and overlays) the street to a Township rural standard under the policy in effect prior to the annexation of Phase One based upon average daily traffic that existed prior to Phase One. This amount will be the Township's responsibility.
- C. Road maintenance costs for the Orderly Annexation Area remaining in the Township will be shared based upon the City assuming road maintenance cost increases over the base year 1995. The amount of maintenance costs equal to the base year 1995, annually adjusted by the appropriate construction cost index, will continue to be the responsibility of the Township.

SECTION FOURTEEN MODIFICATION

- A. This Agreement may be modified at any time by written agreement approved by both the City and the Township, provided that the Resolution approving the modification be approved by 4/5ths vote of both the City and the Township.

SECTION FIFTEEN GENERAL PROVISIONS

- A. The words “shall” or “will” are mandatory. The word “may” is permissive.
- B. If any provision of this agreement is declared invalid, for any reason, by a court of competent jurisdiction, the validity of the remaining terms and provisions shall not be effected and the agreement shall be construed and enforced as if the agreement did not contain the particular term or provision held to be invalid.

**SECTION SIXTEEN
TERMINATION**

- A. This Agreement will terminate on January 1, 2020 in all respects, except that any Phase IV properties annexed subsequent to January 1, 2015, shall be entitled to the protection of the provisions of Sections Six and Seven for a period of five (5) years after the year of annexation.

General Subdivision Standards

This ordinance is adapted from the Rockville, Minnesota Subdivision Ordinance

A community's subdivision ordinance includes a number of provisions outlining when and how the subdividing of lots is allowed. The subdivision ordinance identifies the threshold size where the subdivision regulations are applicable, the information required to be compiled by the applicant for review by the local government, site plan review procedures, and other requirements. This ordinance does not provide language for an entire subdivision ordinance (for examples of complete subdivision ordinances, see the Resources section at the end of the chapter). The following language does, however, address several aspects of sustainable development that can be added to standard subdivision language, including the following:

- *Setting of performance standards for converting agricultural land to housing;*
- *Requiring a determination of the subdivision's fiscal impact on the existing community;*
- *Explicit compliance with floodplain, shoreland, and environmental area ordinances.*

Section C. includes floodplain, storm water, and soil consideration. For a description of floodplain ordinance issues, and references for a model floodplain ordinance, see the Infrastructure chapter. For a model stormwater ordinance, including references for stormwater design manuals, see the Infrastructure chapter.

The location of subdivisions also affects other regional public infrastructure, such as arterial and regional highways. Land uses around regional highways, for instance, should not change the type of use for which the highway was designed. Such changes should be allowed only if the community or the state is committed to capital investments that reflect a change in demand or use.

Section XX of Model Community Subdivision Ordinance

- A. All Subdivisions Shall Conform to Planning and Zoning Regulations.** It shall be the responsibility of the subdivider to assure that the subdivision is in compliance with the Model Community Zoning Ordinance.
- B. County Regulations.** All subdivisions shall comply with all County regulations now, or hereafter adopted. If there is County and Township regulation of the same issue or subject, the most restrictive regulation governs.
- C. Land Suitability**
1. **Flood Plain Areas.** No land shall be subdivided in designated flood plain areas or areas that may be subject to flooding unless the proposed subdivision complies with the Model Community Floodplain Ordinance.
 2. **Storm Water Drainage.** The Planning Commission shall not recommend for approval any plat that does not make adequate provisions for storm water runoff. When necessary the subdivider shall submit adequate design computations, consistent with the Model Community Stormwater Ordinance, to establish adequate stormwater infiltration and control.
 3. **Soil Conditions.** Each lot shall have soil characteristics suitable for its intended use.
- D. Water Supply.** Each lot shall be provided with a supply of potable water by a central water system or a public water supply. A test well shall be installed and be precedent to final plat approval. A nitrate nitrogen intervention level greater than 5 ppm shall be considered as an unsuitable water supply. The water well records together with the nitrate test results from the test well shall be attached, by separate document, to the final plat. The test for nitrate nitrogen shall be done by a Minnesota licensed and certified laboratory. The sample shall be collected at the well by the laboratory that is conducting the test. Lots in a conservation subdivision may have a central water system.
- E. Sewage Disposal.** Each lot shall be of sufficient size and character to

Section F. requires the community council to consider the economic effects of development on the entire community. The Community Impact Assessment Worksheet referenced in Section F. is attached. The worksheet is one example of a fiscal impact analysis estimating the costs or benefits that a specific development brings to the existing community. Other examples of fiscal impact methodologies that may require different kinds of inputs and more complex accounting are found in zoning ordinances, development fee ordinances, and cost-of-growth studies. The community must, in choosing the complexity of fiscal impact analysis, balance between acquiring good information and maintaining a reasonable regulatory burden on the developer.

Section G. provides performance standards allowing or restricting development in areas with productive soils for agriculture. The community can enact similar standards for other natural resource industries (such as productive forestry).

meet the standards for sewage disposal as established by the Model Community ISTS Ordinance. Lots in a conservation subdivision may use a community sewage disposal system.

F. Economic Considerations. The Model Community Council may refuse to approve a plat that could result in the following:

1. An excessive expenditure of public funds for the furnishing and maintenance of access roads.
2. Excessive transportation costs to schools due to remote or scattered development.
3. A loss of economic and tax base due to conflicting and incompatible land uses.

All subdivision applications shall include a completed Community Impact Assessment Worksheet.

G. Agricultural and Forestry Considerations

1. Subdivision applications for parcels within the Agriculture and Forest Protection District must comply with the subdivision criteria stated in that ordinance and do not fall within the criteria of this section.
2. Subdivision applications for parcels within the Model Community Conservation Subdivision District must comply with the criteria stated in this section.
3. The Planning Commission shall consider the values of agriculturally important lands when making its recommendation on a plat. The Land Capability Classification System of the Natural Resource Conservation Service shall be used to determine agriculturally important land. Agriculturally important land shall include, but not be limited to, the following:
 - a. Class I soils that are or have been used for the production of food and fiber.
 - b. Class II soils that are or have been used for the production of food and fiber.
 - c. Class III soils that are or have been used for the production of food and fiber.

- d. Class IV soils that are or have been used for the production of food and fiber.
- 3. In making its recommendation, The Planning Commission must take into consideration, but need not be limited to, the following criteria or designated areas. The applicant must address each of these criteria.
 - a. Conformity with Land Use Plan.
 - b. Shoreland Areas: Plats in shoreland areas may be favorably considered, provided the provisions of the Model Community Sensitive Natural and Environmental Areas Ordinance and Floodplain Ordinance are met.
 - c. Man-Made or Physical Barriers: Plats may be favorably considered in areas where man-made or physical features act as barriers to an agricultural or forestry use.
 - d. Soils:
 - i. No parcel of land with twenty-five (25) percent or greater percentage of its soil classified as Class I or II soils should be approved for subdividing provided that the land is or has been cultivated.
 - ii. No parcel of land with a fifty (50) percent or greater percentage of its soils classified as Classes I, II, III, IV should be approved for subdivision provided that the land is or has been cultivated.
 - iii. A subdivision may contain Class I through IV soils when the configuration of the parcel makes it impractical for agricultural use.
- 3. In making its recommendation, the Planning Commission must take into consideration those parts of a plat that are currently, or have in the past, been cultivated or forested, such lands shall be avoided when possible.

H. Soil Suitability

The purpose and intent of this Section is to restrict residential development in those areas having limiting characteristics such as high

ground water, shallow depths to bedrock and unacceptable permeability rates. Development of areas having the above limiting characteristics can result in ground water pollution and unsatisfactory performance of septic tank absorption fields. The following areas are unsuitable for residential development:

1. Areas of High Ground Water. Soils that are characterized by high ground water tables are unsuitable for residential development. Soils with known ground water tables or mottled soils within six (6) feet of the surface are unsuitable for residential development. Lots within a plat may contain areas of these soil types. However, each lot shall contain at least fifteen thousand (15,000) sq. ft. of suitable area to facilitate building site development.
2. Area of Slow Permeability. Soils characterized by percolation rates over one hundred twenty (120) minutes per inch are unsuitable for residential development. Lots within a plat may contain areas of these soil types. However, each lot shall contain at least fifteen thousand (15,000) sq. ft. of suitable soil area to facilitate building site development.
3. Areas of Shallow Bedrock. Areas where the bedrock is within four (4) feet of the surface are unsuitable for residential development. Lots within a plat may contain areas of shallow bedrock. However, each lot shall contain at least fifteen thousand (15,000) sq. ft. of suitable area to facilitate building site development.

COMMUNITY IMPACT ASSESSMENT WORKSHEET

(For each new \$120,000 house on a five acre lot)

A. Tax Shortfall

Fiscal shortfall for added infrastructure costs
(University of Minnesota Extension Study) \$ _____
(\$2,423)

B. Diminished Food Availability

Each person in U.S. requires 1.8 acres to maintain
current food consumption levels, so a five-acre conversion _____
results in 2.7 people's food availability taken away. (2.7 people)

C. Congestion

A new household adds 10 car trips to the area each day. _____
(10 car trips)

D. Water Depletion

Each household uses 300 gallons of water each day. _____
(300 gallons)

E. Unhealthy Air

For a twenty mile car trip, known carcinogens of benzene,
formeldahyde, & butadiene are added to the local air _____
@ 477.62 milligrams (x 10 car trips = 4770.62 milligrams) (4770.62
Milligrams)

F. School Crowding

Each household adds an average of 1.8 children to the
school system. _____
(1.8 children)

G. Waste Increase

each household generates per day 10.5 pounds of solid waste for landfill disposal. _____
(10.5 pounds)

H. Loss of Native Species & Wild Spaces
(List species)

(acres)

I. Light Pollution

Each new High Intensity Discharge (HID) light adds between _____
50 & 1,000 watts to the night sky (watts)

J. Noise Pollution

Each new household adds noise from motors, dogs etc. _____
(decibels)

Resources

Urban Growth Boundaries

Daniels, Tom. *When City and Country Collide: Managing Growth in the Metropolitan Fringe*. 1999. Available from Island Press, 58440 Main Street, P.O. Box 7, Covelo, CA, 95428, Order Fulfillment, 1-800-828-1302. Other growth management issues addressed include PDR, TDR, and orderly annexation.

American Planning Association
Smart Growth Program
122 S. Michigan Ave., Suite 1600
Chicago, IL 60603
312-431-9100

Greenbelt Alliance
530 Bush Street, Suite 303
San Francisco, CA 94108
415-398-3730
<http://www.greenbelt.org>

Agriculture and Forest Protection Ordinances

American Farmland Trust. *Model agricultural district in Planning and Zoning for Farmland Protection: A Community Based Approach*. 1987.

Daniels, Tom; Deborah, Bowers. *Model Agricultural Zoning Ordinance in Holding Our Ground: Protecting America's Farms and Farmlands*. 1997.

Forest Stewardship Council's Principles and Criteria. Waterbury, VT. www.fscus.org. 1996

Minnesota Forest Resources Council. *Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines*. St. Paul, MN. 1999. www.frc.state.mn.us.

Sustainable Forest Initiative. American Forest and Paper Association. 1996. www.batnet.com/woodcom/ftf-04.html.

Conservation Subdivision Ordinances:

Arendt, Randall. *Rural by Design: Maintaining Small Town Character*. 1994. Chicago: American Planning Association. Available from Planners Book Service, APA, 122 S. Michigan Ave., Suite 1600, Chicago, IL 60603.

Open Space Design Development: A Guide for Local Governments

Washington County Planning and Administrative Services, Metropolitan Council, BRW, Inc.

Fall 1997

Available from:

Department of Land Management

Washington County Government Center

14949 6th Street North, P.O. Box 6

Stillwater, MN 55082-0006

651-430-6656

Minnesota Department of Natural Resources. *Natural Areas: Protecting a Vital Community Asset*. 1997. Available from Minnesota Department of Natural Resources, 500 Lafayette Road, St. Paul, MN, 55155-4007, 651-296-8319.

Farmland Preservation Report

900 La Grange Road

Street, MD 21154

410-692-2708

PDR and TDR:

American Farmland Trust. *Saving American Farmland: What Works*. 1997. Available from the American Farmland Trust, One Short Street, Northampton, MA, 01060, Publication Services, 1-800-370-4879.

Daniels, Tom and Deborah Bowers. *Holding Our Ground: Protecting America's Farms and Farmland*. 1997. Available from Island Press, 58440 Main Street, P.O. Box 7, Covelo, CA, 95428, Order Fulfillment, 1-800-828-1302.

Green Corridor Project. *Protecting Your Community's Natural Resources: A Land Protection Toolbox for Local Government*. 1998. Available from 1000 Friends of Minnesota, 370 Selby Ave., Suite 300, St. Paul, MN 55102, 651-312-1000.

American Farmland Trust
1920 N. Street, NW, Suite 400
Washington, D.C. 20036
202-659-5170
<http://www.farmland.org>

The Trust for Public Land
420 North 5th Street, #865
Minneapolis, MN 55401
612-338-8494

The Minnesota Land Trust
2356 University Ave. W, Suite 400
St. Paul, MN 55114
651-647-9590

1000 Friends of Minnesota/ Green Corridor Project
370 Selby Ave., Suite 300
St. Paul, MN 55102
651-312-1000

CLUSTER #2 - MANAGING COMMUNITY RESOURCES

The Minnesota Sustainable Development Initiative urges each community to identify its important community resources and consider prudent management or regulation of those resources to meet the needs of both current and future residents and businesses. Community resources include a wide range of natural, built and economic resources. Through the comprehensive planning process, the community can identify resources and priorities for conservation, management or protection. Sustainable development ordinances offer one tool to achieve the goals identified in the comprehensive plan.

Sustainable land use planning recognizes the value of natural, historic and economic assets in a community. Traditional downtown buildings help create a sense of place in the community's center. Natural resources, such as rivers, bluffs and park land in and around the community add substantial value to many land uses. Natural resource-based industries need protection of the resource base to ensure economic sustainability. The concept of sustainability suggests that natural, historic and economic assets be conserved and protected for use by both current and future generations. Land use planning activities should recognize community assets and the land uses that enhance, protect or gain value from the resource.

Two model ordinances are presented. The first is a Sensitive Natural Environmental Areas overlay district for protecting and conserving significant natural resources in the community. Defining sustainable uses of a community's natural resources will depend on several factors:

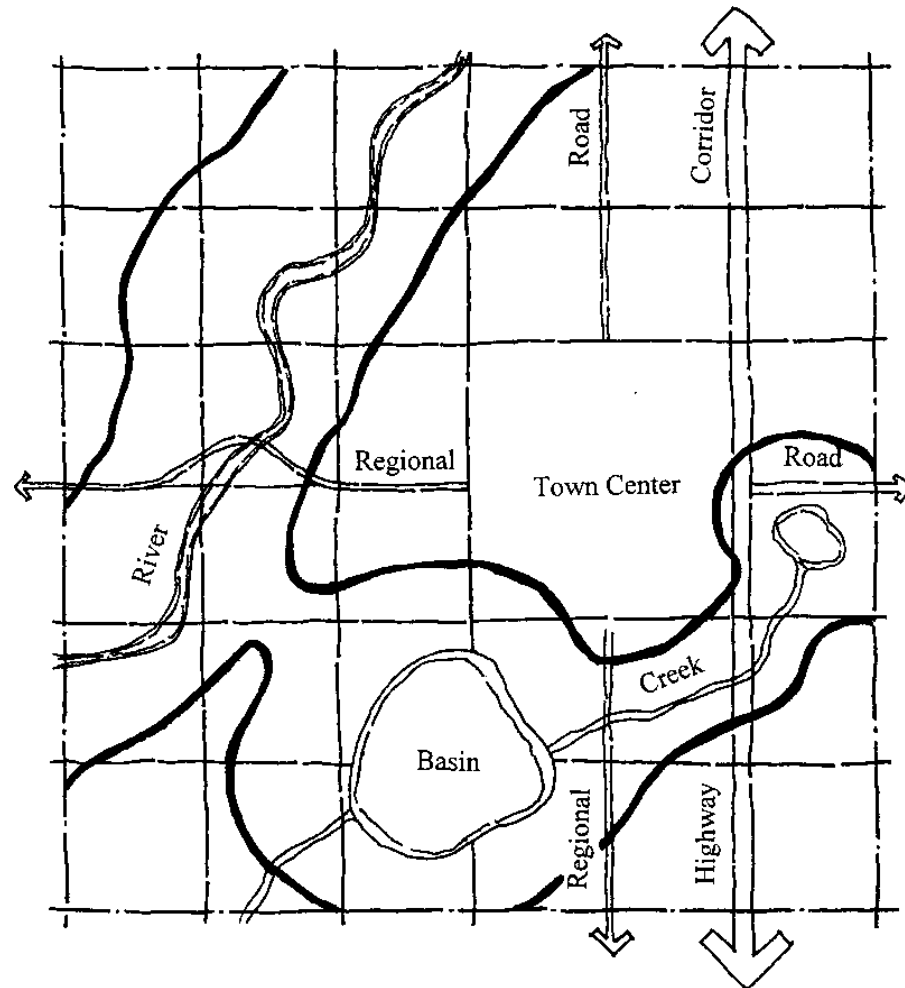
- Sensitivity of the natural resource to various uses and different kinds of development*
- Uniqueness of the resource in the community and in the region*
- Quality of the resource*
- Economic value of the resource*
- Natural resource priorities adopted by the community in its comprehensive plan*

The overlay district provides a dual framework for protecting or conserving important community resources. The overlay protects rare resources and areas highly sensitive to development. It also offers conservation methods for: natural resource areas with habitat value important to community character and quality of life; resource extraction using sustainable management practices; recreation and tourism; and development using conservation development standards.

The second ordinance provides a framework for water resource protection and conservation. Water is a crucial resource in every community, with uses ranging from recreation and wildlife habitat, to domestic drinking water, to providing the basic resource for many industrial and economic activities. Communities in some parts of the state, and in some rapidly developing areas, have little or no margin of error for sustainable use of their water source, whether it is surface water or ground water. In addition, cities are required under Minnesota Statutes to plan for water emergencies. The water resource protection ordinance provides language for meeting water planning requirements and addressing long-term sustainability of water resources.

Other chapters also provide model language for protecting or sustainably managing community resources, including the following resource issues:

- Surface water and sensitive area protection through the model Stormwater ordinance in the Infrastructure Chapter;
- Ground and surface water protection in the model septic (ISTS) ordinance in the Infrastructure Chapter;
- Conserving or protecting natural resources for sustaining the local economy, including prime agricultural land and managed forest land, in the Growth Management chapter;
- Historic or community design elements of buildings, in the Neighborhood Design chapter.
- Protecting air and water quality through industrial performance standards in the Economic Development chapter.
- Conserving energy and building materials resources in the Resource Efficient Building chapter.



Natural Corridors, Resource Buffer Areas

Significant Natural Environmental Areas Overlay District

Overlay District – An overlay district is one way to address natural resource management in a community. Some important natural resource issues and functions may not be appropriately addressed in an overlay district; for example protection or conservation of resources that are pervasive, like groundwater or the urban forest, is not addressed by specially mapped areas. An overlay district also does not assure long term protection. The community can accomplish long term or permanent protection using measures such as conservation easements on critical sites.

Depending on the type of community, natural resources can mean everything from an individual tree along a right of way to a native plant community tucked inside a park or conservation area, to forest land managed for timber resources. An overlay district puts the initial burden of natural resource management on the local government. The developer, however, is not free of the inventory process. The developer is still responsible for addressing site specific inventories of all the features mentioned in an overlay district and the ordinance should be flexible to add or remove mapped areas as the local government sees fit for protection, preservation, conservation, or restoration .

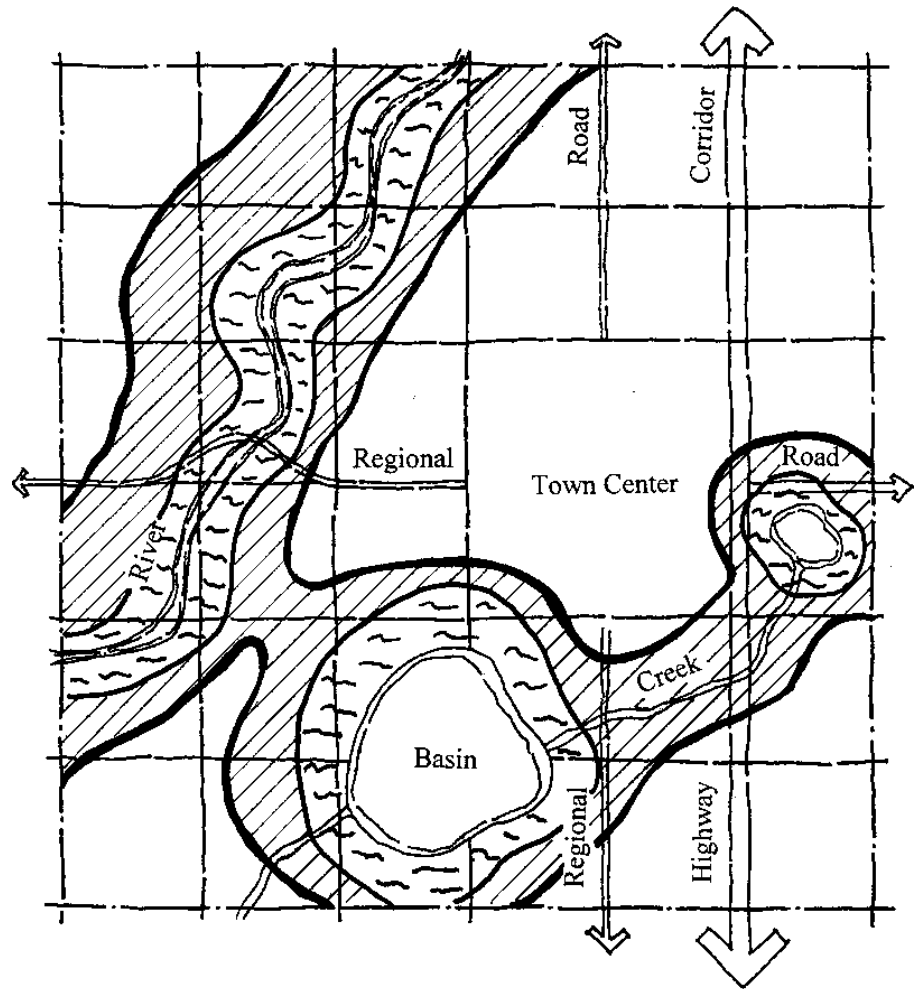
Part of the planning process that results in an overlay district includes the community defining its “green infrastructure.” Green infrastructure is a term that refers to the basic elements of the community’s natural systems. Green infrastructure (woodlands, wetlands, native plant communities, parks, open space, etc.) is distinguished from “gray” infrastructure (roads, buildings, and sewers, see Gary Mason of Wolfe/Mason Associates). Both gray and green infrastructure are crucial community investments. Gray infrastructure, however, depreciates over time and ultimately must be rebuilt, whereas green infrastructure can appreciate in value with proper management (including careful management of development to allow only uses that do not degrade the infrastructure). Communities should identify green infrastructure in and adjacent to their boundary in their comprehensive plans.

Green infrastructure has three basic components: land, water, and vegetation.

- The land component includes everything from agricultural areas, open space, and wetlands, to vacant lots and community gardens. Open spaces refer to more than parks, golf courses and cemeteries. They include such areas as utility corridors, wildlife habitats, greenways, vacant lots and even business parks.*
- The water component is wetlands, lakes, streams and rivers. They are often critical in a community’s green infrastructure because they drive the sustainability of the various habitats for wildlife and vegetation through water quantity and water quality. Water components of green infrastructure also provide recreational opportunities.*
- The vegetation component includes forested areas, woodlots, native remnant populations, prairies, meadows, wetlands, etc. Particularly in urban areas, the vegetation component of green infrastructure should include street trees, park trees, and private property*

greenery.

Rural communities, particularly counties, with forest lands managed for timber production should consider using the Agriculture and Forest protection District model ordinance (in the Growth Management chapter) rather than the SNEA overlay to protect forests from development and assure the ongoing sustainable management and contribution to the local economy. In either case, however, the community should create a management plan identifying landscape-based sustainable forest management practices, and should consider third-party certification of its forest products.



SNEA Protection and Conservation Zones (NRPZ, NRCZ)

XX.01 Statutory Authorization, Intent, and Purpose

Cities, townships, and counties each have different statutory authorization. A community adopting a model ordinance will need to refer to the appropriate statutes.

A. **Statutory Authorization.** This ordinance is adopted pursuant to the authorization and policies contained in Minnesota Statutes Chapters and Minnesota Rules Chapters _____.

B. **Intent.** Environmental zones protect resources and functional values that have been identified by Model Community as providing benefits to the sustainability of their community. This ordinance is intended to protect and rehabilitate the “green infrastructure” identified on the series of overlay district maps of areas that contain native vegetation and natural features and/or natural resources that contribute to the health, welfare, and quality of life of the people of Model Community. Model Community has a right and responsibility to protect and conserve these areas for a variety of reasons including:

1. Natural communities and the wildlife habitat they provide;
2. Contribution to the community’s health and safety (i.e. flood control, purification of stormwater runoff, etc.);
3. Contribution to the community’s historic and symbolic needs;
4. Recreational purposes;
5. Aesthetic and quality of life contributions;
6. Protection and conservation of natural resources within and adjacent to the natural area for the community’s long-term environmental and economic benefit.
7. Provision of educational, scientific, and artistic resources.

C. **Purpose.** To achieve the policies described in the Comprehensive Plan and State and Federal policies and statutes, Model Community intends to determine, control and guide future development within and surrounding those land areas which are contiguous to Significant Natural Environment Areas (SNEAs) as herein defined and regulated. Specifically, this ordinance purports to:

1. Identify and prioritize areas of SNEAs. These areas include natural areas that are (1) preserved and minimally managed and (2) those needing more

management to maintain and enhance their natural integrity and resource value;

2. Control natural environment areas of ecological value to preserve and/or restore ecological functions to the maximum extent possible;
3. Regulate the use and subdivision of land within as it relates to the criteria necessary to provide for the long term sustainability of areas of SNEAs;
4. Promote innovative development techniques such as cluster development and open space subdivisions that will measurably reduce the amount of impervious cover;
5. Aid developers in the creation of their development plans;
6. Aid Model Community staff, the Planning Commission, and Council in their assessment of development plans in areas of “natural environmental significance”;
7. Foster the protection and creation of natural resource corridor connections between SNEAs as well as trail connections between significant community destinations. In many situations natural resource corridors and trails can work together to provide habitat and foster the movement of wildlife and people;
8. Encourage cost effective site development through open space design practices that efficiently use land and resources. Cost effective development reduces infrastructure engineering and construction costs because of improved lot configurations, shortened and narrower streets, and reduced utility runs. Long term public cost savings can also be realized by lowering public maintenance costs.

Sections XX.02A. and B. reference a separate document, a Natural Resource Inventory, to identify and rate local natural resources. The inventory could be completed as part of the Comprehensive Planning process (which typically includes conducting background research on land uses, economic trends, and natural resources), or as a separate planning process around natural resources. Communities that have not completed a Natural Resource Inventory may use research and designations by various natural resources agencies, including watershed organizations, county land departments, the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, the Board of Water and Soil Resources, and various forms of joint powers organizations that regulate or recommend land use and development practices along rivers or watersheds.

XX.02 General Provisions

A. Identification of Significant Natural Environment Areas (SNEAs).

SNEAs contain native vegetation and natural features and/or natural resources defined and prioritized by Model Community according to the natural resource function(s) they provide, including vegetation diversity, wildlife habitat, economic value, community greenspace, water quality, flood protection, aesthetics, recreation. SNEAs contain natural communities whose existence and extent are determined by factors such as soil composition, hydrology, climate, solar conditions, geology, and a site’s unique history.

SNEAs may contain rare, threatened or endangered species and/or protect natural resources of concern. Further fragmentation, disturbance, and development will adversely affect and may destroy the natural processes operating within SNEAs, as well as the composition, structure and function of the natural communities they contain.

SNEAs include areas that are significant in spite of alteration by human impact. These areas may need management to maintain, enhance, and/or restore its natural resource value to the community, including but not limited to exotic species control, fire management, stormwater pond construction for water quality enhancement.

SNEAs are identified by Model Community to:

1. Protect, conserve and enhance Model Community's natural resources including Model Community's inventoried and identified native prairies, forests, woodlands, sensitive geological and hydrological features, wetlands, riparian (river and stream) corridors, wildlife corridors, and other sensitive natural features;
2. Develop a system that defines the different levels and/or types of management and protection for different types of natural resources;
3. Promote open space, including an interconnected systems of trails for people and corridors for wildlife where appropriate and feasible;
4. Provide for the orderly growth and development of Model Community including commercial, industrial, and residential areas;
5. Promote flexible site planning;
6. Allow for a mix of housing types;
7. Protect steep slopes and sensitive soils;
8. Encourage coordination between local government, county, state, and federal agencies concerned with natural resources;
9. Encourage cooperation through joint planning and development with neighboring communities to protect, preserve, and enhance our shared natural environment;
10. Encourage early cooperative planning between landowners/developers, Model Community and individuals with scientific expertise in natural

Section B on the following page lists general SNEA characteristics that may or may not be consistent with another community's natural resource inventory.

communities and resources.

Natural Resource Protection Zone - *The community may substitute other kinds of designations (other than those shown in subsection 1. here) that match the communities sources of information or specific resources. The primary goal of NPRZs is to define protection zones for natural resource areas that are extremely sensitive to development, and that have been prioritized as important to the community. Areas protected from development or natural resource use by State or Federal environmental also qualify as NRPZs.*

Natural Resource Conservation Zones - *NRCZs are intended to protect natural resources while allowing some land uses that are allowed in the underlying zoning. Natural resources may be defined to include natural resources that have been established by humans, such as orchards, timber plantations, or managed forestland. Such a designation should include a management plan with appropriate silvicultural practices assuring ongoing health and sustainability of the managed forest. The criteria listed under subsection 2. assume that the community has completed its natural resource inventory and has information that can support the reasonableness of the above designations. The criteria should be designed to meet the community's unique natural resource base, and the community's priorities for protection, conservation, and resource use as stated in the Comprehensive Plan.*

Some development patterns are demonstrably better for addressing risk to natural resources. Housing development that may be compatible with NRCZs includes open space design

B. Criteria for Designating SNEAs. Significant Natural Environmental Areas are regulated as either Natural Resource Protection Zones or Natural Resource Conservation Zones.

1. **Natural Resources Protection Zone Characteristics.** In order to develop zones for natural resource protection, Model Community has inventoried its environment and designated Natural Resource Protection Zones (NRPZs) as having one or more of the following characteristics:
 - a. Contains a high degree of native biodiversity and few exotics;
 - b. The area has been altered by the encroachment of exotics, draining, filling, etc, and yet it contains some native biodiversity, is connected or adjacent to other SNEAs, and has a strong potential for restoration;
 - c. Is of adequate size, cohesiveness, and shape (low edge to interior ratio) to be biologically sustainable either as an isolated body or by a continued connection to an existing resource;
 - d. Is a remaining example of a pre-European settlement natural community for Minnesota;
 - e. Is considered significant because it is rare in Model Community;
 - f. Contains or is adjacent to a rare species site, and is critical in preserving the rare plant species or in conserving the rare animal species present, consistent with MN Statute 84.0895, Protection of Threatened and Endangered Species;
 - g. Contains sensitive geological and hydrological features.
2. **Natural Resource Conservation Zone Characteristics.** In order to develop zones for natural resource protection, Model Community has inventoried its environment and designated Natural Resource Conservation Zones (NRCZs) as having one or more of the following characteristics:
 - a. Contains or is adjacent to a wetland, river, or stream and is critical in maintaining water quality, rare species habitat, or flood control.
 - b. Contributes significantly to biological or hydro-geological functions such as wildlife habitat, air purification, wellhead protection, sediment and erosion control, flood control, etc. and acts as a buffer between development and NRPZs.

and management, generally called conservation clusters or conservation subdivision. Such development offers economic and natural resource advantages over conventional layouts:

- 1) *Expedited development submittal review: The development review process is likely to proceed more smoothly because site designers have anticipated and taken into account many of natural resource concerns or risks.*
- 2) *Lower Costs: Open space design includes reduced infrastructure engineering and construction costs. Lot sizes are reduced and street and utility runs shortened.*
- 3) *Marketing and Sales Advantage: Developers and realtors can capitalize on amenities that have been preserved or provided within the development.*
- 4) *Value Appreciation: Homes adjacent to open spaces or natural amenities tend to appreciate faster than those in conventional subdivisions.*
- 5) *Reduced Demand for New Public Parks: The natural areas preserved and the recreational amenities that are provided in such developments reduce the demand for public open space.*

A model conservation subdivision ordinance is provided as part of the Growth Management ordinance in this model.

Where land has been zoned industrial/commercial, open space design concepts can still be used. Open space can be preserved using building setbacks, infiltration design methods for parking lot runoff, shared parking, and/or native landscaping.

Part C.1.b. identifies land uses compatible with NRCZs. The community can designate a number of specific allowed or conditional uses in the NRCZ, depending on the type of resource identified and the community preferences for preservation, conservation, or development articulated in the Comprehensive Plan. Examples of allowed land uses within NRCZs include trails, passive parks, active parks, clustered or more dispersed development, and natural resource extraction consistent with designated management standards (wood and pulp resources, sand and gravel resources, agriculture, etc.).

- c. The area has been altered by the encroachment of exotics, draining, filling, etc, and yet it contains area significant to the maintenance and preservation of NRPZs and has potential for restoration.
- d. Is of adequate size and cohesiveness to be biologically sustainable either as an isolated body or by a continued connection to an existing resource.
- e. Contains valuable natural resources that can, if sustainability managed, enhance local economic vitality and economic diversity, but that may be threatened by development or other uses.
- f. Offers high quality opportunities for recreation or development of tourism amenities, that would be degraded by other forms of development.

C. Establishment of SNEAs

1. Preliminary SNEA determination. Preliminary determination of the location of the various SNEA overlays will be made by Model Community. Each of the SNEAs described in 3 – 11 below will be inventoried and mapped. All of the SNEAs will then be categorized as either a Natural Resource Protection Zone (NRPZ) or a Natural Resource Conservation Zone (NRCZ).
 - a. The Natural Resource Protection Zone (NRPZ) provides the highest level of protection to the most important resources and functional values. Development will be approved in the NRPZ only in rare and unusual circumstances.
 - b. The Natural Resource Conservation Zone (NRCZ) conserves and manages significant natural resources and functional values and identifies the type and nature of environmentally sensitive use that may be compatible with resources in a designated NRCZ.
2. Relationship to Other Environmental Regulations. These additional regulations for the areas in 3 through 11 below either supplement or supersede the regulations of Model Community’s zoning ordinance. This chapter contains only Model Community’s natural resource regulations. Activities that Model Community regulates may also be regulated by other

Ideally, the SNEAs discussed in Sections C. 3-11 will have individual ordinances defining the natural resource (i.e. wetlands, shoreland, floodplain, upland plant community, forest/woodland, etc.) that incorporates a functional value analysis, management protection plan, and monitoring plan for the resource.

Consistency with sustainable development principles suggests that the community restrict development that puts at risk or degrades resources, while simultaneously allowing the community to sustain itself. The following areas (3 through 11) include some categories that may be irrelevant in some communities, and some that may need to be redefined according to the community's natural resource base and Comprehensive Plan protection goals. A suburban city in a metropolitan area may choose to rigorously identify and protect undeveloped areas with moderate environmental sensitivity, while a township or county in Greater Minnesota may choose to allow greater disturbance to similar resources.

For Section 3., stream degradation occurs at relatively low percentages of imperviousness (i.e. 10-20 percent, Schueler, 1995). The level of impervious cover in a development, rather than population density, is the best predictor of whether development will affect the quality of water resources.

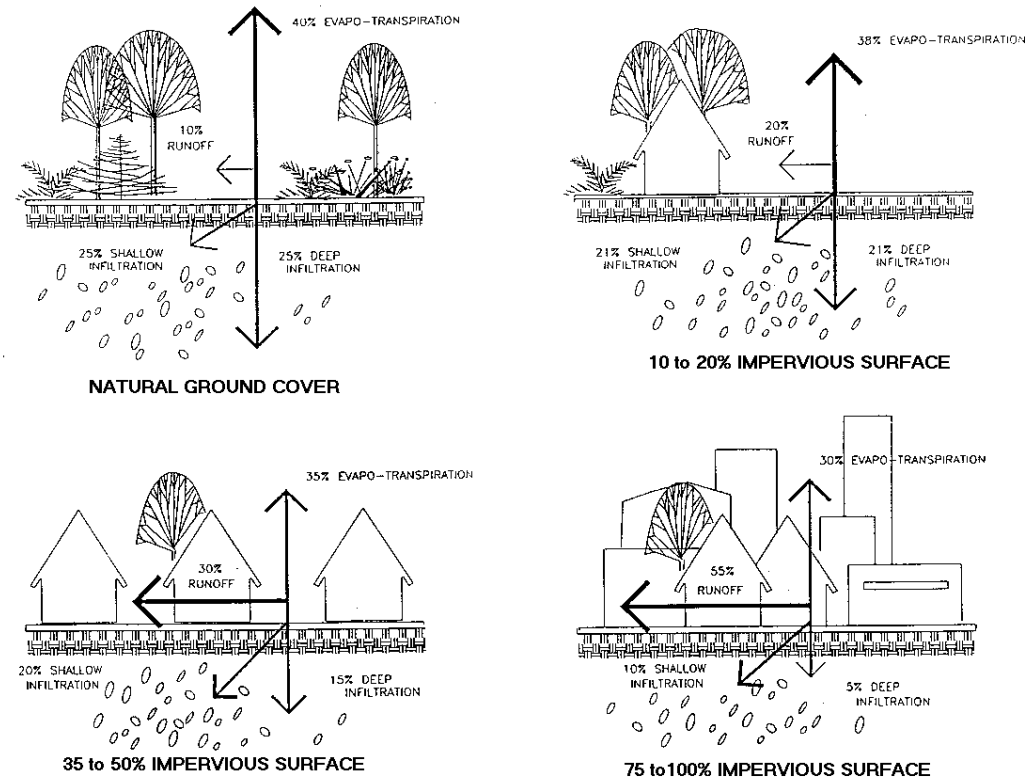
Zoning land by watershed will help with development review because the community will know the proper management protocol for imperviousness for that particular sub-watershed.

Transferable development rights could also be used as an incentive-based system to protect green space in sensitive sub-watersheds. A model TDR ordinance is provided in the Growth Management model ordinance.

Each community must determine how best to protect these resources on a watershed level. It may be necessary to further subdivide a watershed in order to protect a small drainage areas within it or to use forms of best management practices for

agencies. In cases of overlapping City, Regional, State, or Federal regulations, the more stringent regulations will control. Model Community's approval does not imply approval by other agencies.

3. Subwatersheds and Imperviousness



Water cycle changes associated with urbanization (after Tourbier and Westmacott, 1981).
Source - NEMO Project Fact Sheet 3, Connecticut Cooperative Extension

Water cycle changes associated with urbanization (after Tourbier and Westmacott, 1981)

Source: NEMO Project Fact Sheet 3, Connecticut Cooperative Extension

stormwater to protect the resource.

For Part C.4., areas with rare or endangered species should be designated NRPZ rather than NRCZ. Appropriate management and protection guidelines are available from state and federal agencies. A printout of rare species and native plant communities can be obtained by submitting a data request form to the Natural Heritage and Nongame Research Program at the Minnesota Department of Natural Resources.

Part 5. identifies significant woodland and forest areas. Each community will need to define its valued woodland or forest areas. The definitions can include types by resource use priority, by forest landscape or eco-system, and by other biological criteria. Resource use priorities can include forest managed for natural resource harvest, for recreation, for habitat, and for other uses. Landscape or ecosystem designations can include managed and unmanaged landscapes, sub-landscapes, and landscape quality.

Counties and townships in Greater Minnesota will likely make considerably different choices in regard to resource use, conservation, and protection than a city or a county on the fringe of a metropolitan area. Additional ordinance tools such as conservation easements, conservation subdivisions, and tree preservation standards in subdivision, site plan, or platting regulations are crucial to urban, suburban, and exurban areas to sustain the “green infrastructure” in more urban communities.

For Subsections 5 and 6, each community will need to define its criteria for forest or plant community NRCZs. The criteria should be consistent with the protection or conservation goals in the Comprehensive Plan.

Part 7. sets criteria for wetlands. Wetlands provide functions and qualities including:

4. Rare, Threatened, and Endangered Species. Model Community finds that within Model Community there are areas containing rare, threatened and/or endangered plant and/or animal species. These areas are specified as NRPZ because of their sensitivity to development of any kind.

These areas are denoted in the following sources:

- a) Model Community’s Natural Resource Inventory(s)
- b) Minnesota County Biological Survey Map and/or other sources.

5. Woodland/Forest Areas of Significance. Model Community finds that within Model Community there are several categories of forest and woodland areas.

Forests of rare or high quality, relatively undisturbed plant communities shall be designated as NRPZs. Other forest lands meeting the NRCZ criteria for forest are designated and managed as NRCZs. These areas are denoted below.

- a. Model Community’s tree and/or plant community inventory(s);
- b. Minnesota County Biological Survey map;
- c. Other sources of woodland/forested or other plant community maps for the community.

6. Plant Communities of Significance. Model Community finds that within Model Community there are a number of significant plant communities. Plant communities of rare or high quality, relatively undisturbed plant communities shall be designated as NRPZs. Other plant community areas meeting the NRCZ criteria for plant communities are designated and managed as NRCZs. These areas are denoted below;
- a. Model Community’s Plant Community(s) maps.
- b. Minnesota County Biological Survey map;
- c. Other sources of maps for the community.

1. *Wildlife and fishery habitat, floristic diversity and integrity;*
2. *Flood and stormwater attenuation, water quality protection, and groundwater interaction;*
3. *Recreation, education, and scientific opportunities;*
4. *Shoreline protection;*
5. *Commercial uses.*

Wetland inventories generally use direct measures or indicators of a particular wetland function to assign a value of the worth, quality, or importance for that wetland function. Here “value” refers to the relative importance given to a wetland function by the community assessing the resource. Wetland assessment methods assess wetland functions relative to the natural and human ecosystems within the watershed or subwatershed in which it is located. Wetland assessment does not identify site-specific impacts to wetlands or delineate wetland boundaries.

Local regulation of wetlands cannot be less restrictive than state and federal regulations, with some exceptions based on the amount of pre-settlement wetlands in the community. Examples of local wetland ordinances that could serve as models are listed noted in the resources section at the end of this chapter.

Part 8. describes lakes, protected waters, trout streams, and/or designated shorelands in the community. These areas should be designated as NRPZs for a minimum impact zone of 200 feet from the ordinary high water level, as established by the MDNR Division of Waters. Clearcutting is discouraged anywhere in a NRPZ, however, vegetation removal within a designated distance may be done to control disease/insects and invasive species to achieve forest health and/or to restore a native plant community. Management standards are resource specific and are discussed further in the next section.

The community should set NRCZ criteria consistent with Comprehensive Plan goals. Vegetative removal/cutting in NRCZs should be done in accordance with a management plan approved by the community.

7. Wetlands. Model Community finds that within Model Community there are a number of wetland types. Wetlands of rare or high quality, relatively undisturbed wetlands shall be designated as NRPZs. Other wetlands meeting NRCZ criteria are designated and managed as NRCZs. These areas are denoted below:

- a. Model Community’s Wetland Inventory(s)
- b. Other sources of wetland maps for the community (i.e. National Wetland Inventory).

8. Water Bodies/Shoreland. Model Community finds that within Model Community there are several types of water resources and shoreland. Water Bodies/Shorelands of rare or high quality, relatively undisturbed ecosystems shall be designated as NRPZs.

Other water bodies/shorelands meeting NRCZ criteria are designated and managed as NRCZs. These areas are denoted below:

- a. Model Community’s lake inventory
- b. Model Community’s shoreland inventory
- c. Model Community’s stream inventory
- d. Other sources of maps (i.e. MDNR protected waters, etc.)

9. Floodplains. The entire extent of an area identified as within the floodplain shall be mapped as NRPZs or NRCZs in accordance with the requirements of Model Community’s floodplain ordinance. Where the floodplain has not been delineated, a study shall prepared by a registered engineer or expert in the preparation of hydrological studies to delineate the floodplain in such area(s) proposed for alteration. Such hydrological studies shall be subject to the review and approval of the governing body on the recommendation of supporting engineering staff. These areas are denoted in a and b below.
 - a. Model Community’s floodplain maps.
 - b. Other maps (i.e. individual hydrologic studies, etc.)

Part 9. (previous page) addresses floodplains. Under state law (see MN Statutes 103F.101 - 103F.165 and MN Rules 6120.5000 - 6120.6200), the floodplain is considered to be the land adjoining lakes and rivers that is covered by the "100-year" or "regional" flood, or the flood that has a one percent chance of occurring in any one year.

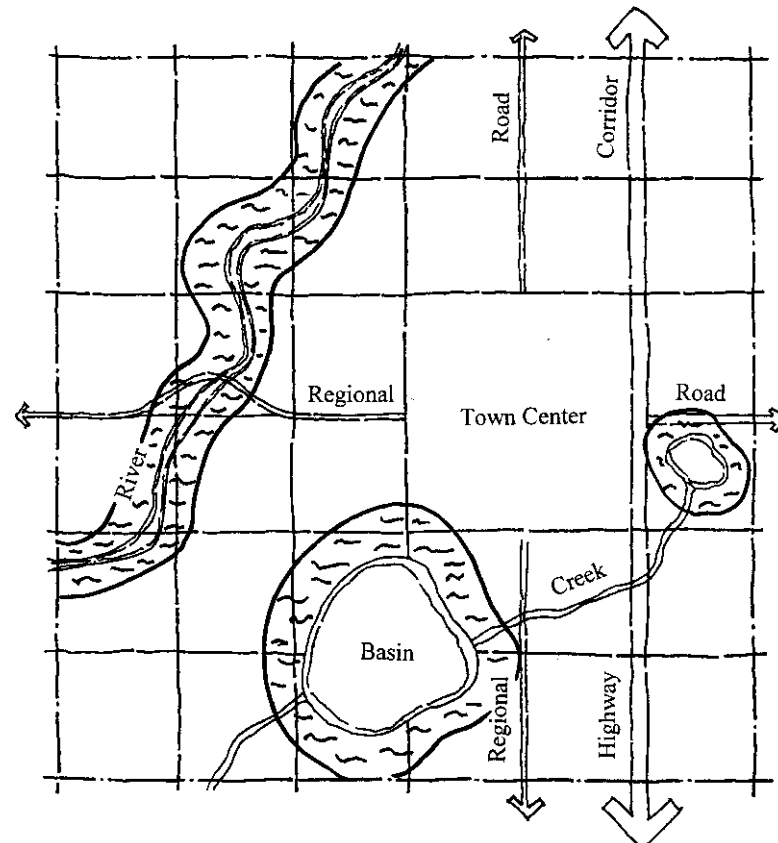
For Part 10. the community should plan to minimize fragmentation or constriction of natural resource corridors or greenways prior to major alteration of the vegetation on the property or prior to development. Each natural community is different and individual wildlife species have unique ecosystem requirements. Examples of widths for different types of natural resource corridors are listed below (Peterson, S., Kimball, K., 1995):

- a. Twenty five to 200 feet to protect water quality, prevent erosion and sedimentation runoff, provide streambank stability, assimilate pollutants, and shade the stream to reduce water temperature and light levels.
- b. One hundred to 600 feet to provide adequate buffer needed by plants and wildlife. The wide range accommodates numerous wildlife species and plant communities. Examples are given below:
 - most stream side flora occur within 100' of the water interface zone
 - reptiles/amphibians – 100' to 200'
 - small mammals – 0' to 200'
 - larger mammals and raptors – 0' to 400'
- c. Twenty five to 800 feet to meet local aesthetic objectives. The corridor width varies with the vegetation type, degree of understory and whether the management objective is visual or noise control.
- d. For rivers with outstanding recreational resource values, corridor buffer widths of 500 feet to one quarter mile are recommended.

Other sources of information pertaining habitat areas are noted in the Resource Section at the end of this chapter.

10. Natural Resource Corridors (Greenways). Model Community finds that within Model Community there are several categories of natural corridors, as defined in the Natural Resources Inventory. Corridors of rare or high quality, relatively undisturbed areas and those protecting sensitive species shall be designated as NRPZs. Other corridor areas meeting NRCZ criteria are designated and managed as NRCZs. These areas are denoted below.

- a. Model Community's Corridor Designation Map
- b. Other sources of maps for the community.



Significant Plant and Animal Areas

11. Steep Slopes and Bluffs. Bluffs are defined as a natural topographic feature such as a hill, cliff, or embankment having the following characteristics:
 - a. The slope rises at least twenty-five feet above the toe of the bluff; and;
 - b. The grade of the slope from the toe of the bluff to a point twenty – five feet or more above the toe of the bluff averages thirty percent or greater, and;
 - c. An area with an average slope of less than eighteen percent over a distance for fifty feet or more shall not be considered part of the bluff.

Steep slopes are defined as land where agricultural activity or development is either not recommended or described as poorly suited due to slope steepness and the site’s soil characteristics as mapped and described in available county soil surveys or other technical reports. Where specific information is not available, steep slopes are lands having average slopes over twelve percent, as measured over horizontal distances fifty feet or more, than are not bluffs.

Model Community finds that within Model Community there are several categories of steep slopes and bluff lands, as assessed in the Natural Resources Inventory. All bluff areas and steep slopes shall be designated as NRPZs. These areas are denoted below:

- a. Model Community’s Steep Slope and Bluff Inventory(s);
- b. Other sources of maps for the community (i.e. County Soil Survey).

12. Geologic Features. Model Community finds that within Model Community there are significant geologic and hydrologic areas, as identified in the Natural Resources Inventory. Significant geologic /hydrogeologic areas shall be designated as NRPZs. These areas are denoted below:

- a. Model Community’s geologic/hydrogeologic map

In order to steward the hydrological and geological functions of geologic features (Part 12.), an impact zone of at least 100 feet (or a greater distance) from the outcrop is recommended. Unique plant communities are specially adapted to survive with little soil may contain chemicals produced by the bedrock substrate, great fluctuations in temperature, and extreme drought conditions. Furthermore, areas of groundwater recharge vital to the protection of the aquifer and/or a water supply source should be denoted as an NRPZ

Part 13. notes other possible designations. One example of another designation is for historic or natural “landscapes.” A landscape is an array of interacting ecosystems and in planning is typically a larger geographic area. Historic landscapes are defined by visual, ecological, and settlement systems that grant an area unique ecological and cultural history. Historic landscapes are of interest because of their unique combination of natural and historical evolution. Both present day and ancient landscapes and land forms are important areas to preserve. The landscapes provide information on human and ecological history, unique aesthetic qualities, and provide for the maintenance of regional biodiversity. The Minnesota State Historic Preservation Office (SHPO) has more information on historic landscapes.

For Section A.3. a plant list can be included that defines specific species for protection or those that can be removed. A management plan would describe the circumstances under which vegetation can be removed.

b. Other sources of maps for the community

13. Other Designations. Model Community finds that within Model Community there are historic, aesthetic, and other notable areas that should be designated NRPZs or NRCZs since they are significant to the community. These areas are denoted below:

- a. Model Community’s Other Designation Map(s).
- b. Other sources of maps for the community.

XX.03 Application of Natural Resource Protection Standards for SNEAs

A. When These Regulations Apply. Unless specific exemptions are denoted by Model Community the regulations of this chapter apply to the following:

- 1. Development;
- 2. All land divisions;
- 3. Removing, cutting, mowing, clearing, burning, or poisoning native vegetation unless recommended by an approved management plan for NRCZs;
- 4. Changing topography, grading, excavating, and filling;
- 5. Resource enhancement; and
- 6. Dedication and expansions of rights-of-way.

The NRPZ and NRCZ overlay districts shall be applied or superimposed upon all zoning districts as contained herein as existing or amended by the text and/or map(s) of this ordinance. The regulations and requirements imposed by the natural resource overlay districts shall be in addition to those established for districts that jointly apply. Under the joint application of the districts, the more restrictive requirements shall apply.

B. Items Exempt From These Regulations. The following items are exempt from the regulations of this chapter:

- 1. Temporary emergency procedures necessary for the protection of life, health, safety, or property;
- 2. Change of ownership;

Section B.3. exempts utility maintenance from the ordinance. Utility maintenance that requires tree trimming or trenching as well as construction of utilities of all sorts can be quite destructive. Utility maintenance is, furthermore, often governed through the franchise agreement between the utility company and the community. The community should be sure to reference this ordinance in its franchise agreement.

3. Existing development, operations, and improvements, including the following activities: Maintenance, repair, and replacements of existing structures, exterior improvements, roads, and utilities. Replacement is not exempt whenever coverage or utility size is increased.
4. Continued maintenance of existing gardens, pastures, lawns, and landscape perimeters; including the installation of new irrigation and drainage facilities and new erosion control features when it is part of an approved site management plan.
5. Change of crop type or farming technique on land currently in agricultural use when it is part of an approved site management plan.
6. Alterations of buildings that do not increase building coverage and do not require adjustments of the base zone standards.
7. Operation, maintenance, and repair of the following existing systems: irrigation systems; drainage facilities and conveyance channels; stormwater detention areas; pumping stations; erosion control and soil stabilization features; and pollution reduction facilities. Maintenance of drainage facilities includes the dredging and channel cleaning of existing drainage facilities and vegetative maintenance within the minimum floodway cross section of drainageways. This exemption applies only if all spoils are placed outside NRPZs and NRCZs.
8. Development over existing paved surfaces that are over 50 feet from any identified wetland or water body; and
9. Land division and partitions of developed properties where no additional building sites are created and no additional development is proposed.
10. The following new development and improvements;
 - a. Planting of native vegetation when planted with hand held equipment;
 - b. Public street and sidewalk improvements meeting all of the following:
 - i. Improvements must be within an existing public right-of-way used by truck or automobile traffic;
 - ii. Local service streets must not exceed the minimum curb-to-curb widths (described in Model Community's standards);
 - iii. Appropriate tree protection practices must be undertaken during construction.

- c. Water quality monitoring stations and groundwater monitoring wells constructed according to state regulations and where access is by foot only;
- d. Utility transmission lines, railroads, roads, stormwater management facilities, storm drainage improvements, and recreational non-motorized trails provided that the project location in the NRPZ is essential for access or continuity and no reasonable alternatives exist, the project is designed to minimize disturbance, clearing and grading, an approved sediment and erosion control plan is implemented, the NRPZ habitat areas are fully protected.
- e. Boundary and topographic surveys leaving no cut scars greater than three inches in diameter on live parts of native plants, and no untreated cuts to oak trees during April through June.
- f. Soil tests performed with hand-held equipment, provided that excavations do not exceed a depth of five feet, combined diameters do not exceed five feet, and all excavations are refilled with native soil.
- g. Trails meeting all of the following:
 - i. Trails confined to a single residential ownership;
 - ii. Trails with widths not exceeding 30 inches and trail grade not exceeding 20 percent;
 - iii. Trail construction leaving no scars greater than three inches in diameter on live parts of native plants, no untreated cuts to oak trees during April through June; and
 - iv. Trails not placed between the tops of banks of water bodies.
 - v. Natural resource habitat is fully protected.
- h. All land divisions with tentative plans, final plans, and recorded plans showing all of the following for every lot created or adjusted:
 - i. Building sites at least fifty feet from all resource areas;
 - ii. Public and private utilities (including water lines, sewer lines or drain fields, and stormwater disposal facilities) where none of these utilities are in a resource area; and
 - iii. Street, driveways, and parking areas where all pavement is at least ten feet from a resource area.

C. Development Standards

1. Purpose. These provisions are intended to preserve SNEAs and protect and enhance the character of the community and its neighborhoods. No permit shall be issued unless Model Community finds and determines that the proposed development complies with the following standards:
 - a. Encourages sensitive development while minimizing impact on resources;
 - b. Provides clear limitations on disturbance within resource areas;
 - c. Ensures that new development and alterations to existing development are compatible with and preserve the resources and functional values protected by the NRPZs and the NRCZs.
 - d. Reduces the cost of construction and maintenance of public facilities and infrastructure through alternative development designs;
 - e. Provides tree protection, planting, and soil erosion control measurements within the natural resource zones;
 - f. Buffers the NRPZs, where there is no adjacent NRCZ, from noise, fumes, lights, and motion of vehicular traffic associated with industrial, commercial, and multi-dwelling residential uses; and
 - g. Limits the impact on resources and functional values resulting from construction of certain types of utilities.
 - h. Does not cause extreme fluctuations of water levels or unnatural changes in water temperature or changes in water currents or movements that may have significant impact on endangered or unique species of the NRPZ.
 - i. Does not detrimentally affect the existing water quality including the chemical, biological, and turbidity characteristics of any water body or water course.
 - j. Public access to NRPZs should be controlled and limited so as to minimize the intrusion and impact upon the resources.
 - l. No uses likely to generate air pollution that are toxic to plants or animals or otherwise detrimental to the resource shall be allowed.

The community should note their specific permit applications for any type of new development.

2. Procedures. Compliance with these standards is determined as part of the building permit or new development permit application process. Modification of any of these standards requires approval through environmental review described in _____
3. Boundary Delineation
 - a. General - NRPZs and NRCZs shall be subject to the requirements established herein, as well as restrictions and requirements established by other applicable city ordinances and regulations. These natural resource overlay district(s) shall not be construed to allow anything otherwise prohibited in the zoning district where the overlay district applies.
 - b. Boundaries; maps – The NRPZs and NRCZs include land that is generally defined in this chapter and in the Natural Resource Inventories and maps as designated above. Boundaries as established by officially adopted city maps shall be prima facie evidence of the location and type of natural resource zone. The official maps shall be developed and maintained by the _____. The applicant shall provide appropriate technical information, discussed in Permit Application Requirements below, for the city to determine the exact natural resource zone boundary. The zoning officer shall make a determination to maintain the officially designated natural resource boundary or if the boundaries need to be corrected on city plans and maps based upon the data that is supplied. Data for natural resource zone delineations shall be generated and provided by a qualified professional specializing in a profession related to the natural resource(s) of concern, environmental science, or natural resource management. The applicant may appeal the planning director’s determination of the natural resource zone boundary and type to the Council.
 - c. The boundaries of the natural resource district established by this chapter are delineated on the zoning map; the map and all notations, references, and date shown thereon are hereby adopted and made part of this chapter and will be on permanent file for public inspection at Model Community Hall.

4. Permit Application Requirements. A building or development permit application that is reviewed for compliance with the standards of this chapter requires more information than a permit not affected by these provisions. The information below must be submitted with permit application plans.
 - a. A natural resources inventory and existing conditions map drawn to scale, including:
 - i. Location of all environmental zones (NRPZs and NRCZs) on the site;
 - ii. Outline of any existing disturbance area, including existing utility locations, structures, fences or stone walls, roads, tracks and/or trails;
 - iii. Location of any significant natural environment areas (SNEAs) listed in II.C. 3-11 above within 50 feet of the site.
 - iv. Location of additional SNEAs not including on the overlay district maps as listed in II.C. 3-11 above within 50 feet of the site.
 - v. Within 50 feet of the disturbance area, all trees that are more than 6 inches in diameter must be indicated by size and species. Trees outside of the disturbance area must be shown as crown cover with an indication of species composition. Disturbance area shall include all areas where grading and construction will take place and grading and construction-related equipment and materials will be allowed.
 - vi. Topography shown by contour lines at 2-foot vertical contours in areas of slopes less than 10 percent and at 5-foot vertical contours in areas of slopes 10 percent or greater.
 - vii. Watershed divides and drainageways
 - viii. Calculations which indicate the area of the site with natural resources and the area of natural resources that would be disturbed or encroached upon.
 - ix. Building envelope – The area of a lot that has no development restrictions. The building envelope shall not include the area of any required setbacks, buffers, natural features with 100 percent protection standard and the protection of those natural

features that may not be developed or intruded upon as specified in this ordinance. The purpose of identifying a building envelope is to provide sufficient area for the general location of the building, driveway, patio, other improvements, and site alterations, including construction and grading equipment maneuvering and materials storage, while meeting natural resources protection standards and minimum setback requirements.

- x. Photographs of the site.
- b. A proposed development plan including:
 - i. Outline of the proposed disturbance area, including all areas of proposed utility work;
 - ii. Erosion and sediment control plan with location and description of all proposed best management practices;
 - iii. Stormwater management plan; and
 - iv. Landscape plan indicating the size, species, and location of all vegetation to be planted in the NRCZ.

D. Development Performance Standards in NRPZs. The standards below apply to all development in the NRPZ and NRCZ except NRPZ is applied wherever Model Community determines that exceptional and/or highly significant resources and functional values are present. Undisturbed open space shall comprise 100% of the area located within the NRPZ. The City established boundary maps for the NRPZ and the data provided by the applicant will be used to determine the boundary.

1. Rare, Threatened and Endangered Species – These areas should only be in designated NRPZs. The edge of the NRPZ should include enough buffer to protect the particular species of interest from degradation.
2. All structures shall be setback a minimum of 50 feet from the NRPZ. No disturbance of the site shall occur within the first 20 feet of such setback.
3. All work takes place outside the NRPZ and the NRPZ is protected by an approved best management practices plan.
4. There is no disturbance of any kind to the NRPZ (i.e. no sedimentation or erosion, excavation, fill, topography alteration, etc.).
5. No native vegetation is removed, except as outlined in an approved

management plan or in the event of an emergency.

6. No structures are proposed.

E. Performance Standards in NRCZs. In order to protect the features defined in section II.C.3-13, development within the NRCZs shall meet the following criteria:

1. Lots shall have a minimum setback of at least 5 feet from the NRPZ when specific buffers for that NRPZ area are not required.
2. Development in designated sensitive watersheds (NRCZ) shall minimize the amount of impervious surface to less than 10% of the subwatershed.
3. Slopes with an average slope exceeding 25% shall be preserved in their natural state and maintained as permanent open space. Areas with average slopes greater than 10% and less than 25% shall not have an impervious surface coverage of greater than 25%. Impervious coverage areas where average slopes are less than 10% shall be governed by the underlying zoning district. Buffer setbacks from steep slopes adjacent to water bodies shall meet the requirements set forth in the stormwater management ordinance, wetland ordinance, shoreland ordinance, floodplain ordinance, or other applicable ordinance.
4. No woodlands located in an NRPZ or NRCZ greater than ____ acres shall be altered, regraded, cleared, or built upon, nor be used for wetland mitigation areas, except as specifically provided in the approved management plan.
5. Water bodies/Floodplains/Shoreland– The entire extent of such areas shall not be altered, regraded, compacted, or built upon, except where design approval is obtained under an approved local stormwater management ordinance, floodplain ordinance, and/or shoreland ordinance. Proposed development along designated water bodies/floodplains/shoreland must be set back from the NRCZ or NRPZ in accordance with Model Community’s stormwater management ordinance, floodplain ordinance, and/or shoreland ordinance.
6. Wetlands – The entire extent of such areas shall not be altered, regarded, filled, piped, diverted, or built upon except where local, state, and/or federal permits have been obtained. Consistent with the Model Community Wetland Ordinance, development must be set back a minimum of 50 feet

Subsection E.2 discusses reducing the amount of impervious surface. Impervious surface can be reduced by clustering development, using common access drives and utility corridors and minimizing building footprint size. Additional discussion of reducing impervious surface is found in the Stormwater Ordinance, and street section diagrams and alternatives to curb and gutter systems can be found in the Neighborhood Design Chapter.

Subsection 4. sets a threshold for clearing or altering woodlands covered by the SNEA overlay. Rural communities and counties may have substantially different thresholds than urban or suburban communities. The management plan can provide the local government some flexibility in the application of the ordinance.

As referenced in Subsection 7, most cities and some counties should establish a tree replacement ordinance (managed forests and replanting following harvest should not be addressed under this section, but should be addressed through a specific management plan). The ordinance should preserve the neighborhood canopy in residential development. The ordinance should also mitigate the visual and heat island effects from commercial development due to large stretches of impervious parking lot and building surfaces. A number of models for an urban tree ordinances exist:

- 1) How to Write a Municipal Tree Ordinance, Tree City USA Bulletin No. 9, National Arbor Day Foundation, 1993;*
- 2) Tree Protection Ordinances, Tree City USA Bulletin No. 31, National Arbor Day Foundation, 1997.*

County or township governments may not have a tree replacement ordinance other than NRPZ/NRCZ designations, conservation subdivision ordinances, and design standards or landscaping standards contained elsewhere in ordinances.

The model ordinance does not include language for administrative regulations. General language can be easily added by the community in accordance with their general administrative regulations and enforcement procedures.

Example ordinances with general language for these sections include the following:

- St. Cloud, MN, *Environmentally Sensitive Areas Ordinance*, 1998.
- Bucks County, Pennsylvania, *Performance Zoning Model Ordinance*, 1996, <http://www.sustainable.doe.gov/codes/bucks.htm>
- Chanhassen, MN, *Bluff Creek Overlay District-Ordinance No. 286*, 1998.

from the delineated edge of any wetland. The lowest floor elevation of any building, however, must meet the requirements set forth in Model Community's stormwater ordinance.

7. Trees – Trees cut shall be replaced in accordance with the Model Community Tree Replacement Ordinance, unless otherwise provided in the approved management plan.
8. As allowed under the Model Community Conservation Subdivision Ordinance, density may be transferred from NRPZ or NRCZ portions of the subdivision to areas outside the NRPZ/NRCZ, or within an NRCZ if allowed under NRCZ standards.
9. Natural Habitat Preservation – Where possible, any disturbances of natural habitat areas shall be avoided. Any alterations to the natural habitat shall adhere to the best management practices described in (Source).
10. Natural Habitat Restoration Plan – If natural habitat areas located within the NRCZ will be disturbed during any stage of development the applicant shall submit a detailed plan identifying the resources that will be disturbed and a corresponding restoration and/or mitigation plan. Such restoration might include wetland mitigation and replanting of habitat significant to endangered, rare, or threatened species.

XX.04 Administrative Regulations

Administration

Appeals

Amendments to the SNEA

Violation – Penal Offense

Interpretation

Severability

XX.05 Management Plans

Management Plans

Any area designated as a SNEA should have a management plan. The management plan is to be approved or accepted by a designed authority following processes laid out in the ordinance. The purpose of the management plan is to establish the processes and responsible parties to assure the ongoing health and vitality of any SNEA. The management plan also lays out what kinds of resource management (e.g. vegetation removal, tree cutting, replanting, prescribed burning, use of pesticides, etc) are permitted and under what circumstances. The level and types of management may differ between a NRPZ and a NRCZ, typically with more active management being warranted on a NRCZ.

A management plan should include the following elements:

- *Statement of purpose;*
- *Description of properties, or types of SNEAs to which it applies;*
- *Management goals and objectives. For example, whether management has a specific objective for protection of any particular rare species or species of concern, whether exotic species are to be removed, whether harvesting needs to meet landscape management standards, or whether management must meet specific goals for desired plant or animal diversity;*
- *Action plan specifying timeline and responsible parties for management practices and goals. The action plan should also note the allowed management practices to meet different objectives, such as the following: practices for maintenance, control of exotic species, cutting or removal of vegetation, harvest methods and sustainable harvest thresholds, insect and disease control, use of herbicides or pesticides, replanting, prescribed burning, erosion control, and disaster response;*
- *Monitoring plan to help managers measure the effectiveness of management techniques and evaluate the health of natural communities and natural processes. The plan should specifically mention how the monitoring will result in changes in management practices if management processes fail to meet objectives;*
- *Provisions for adapting or changing management practices;*
- *Budget.*

An additional management step for forest land managed for timber production is to certify the management practices under one of several certification programs. The most prominent certification programs in the United States are the Forest Stewardship Council (FSC) approved programs and the Sustainable Forest Initiative (SFI) approved programs run by the American Paper & Pulp Association. FSC requires extensive third party documentation and a long-term management plan describing how the managed forest will fit into the forest landscape. The SFI program has similar principals and goals but allows either self-certification or third party certification.

Sources for Best Management Practices in Natural Resource Areas:

- *Natural Areas: Protecting a Vital Community Asset*, 1997, MnDNR.
- *St. Cloud, MN, Environmentally Sensitive Areas Ordinance*, 1998.
- *Green, Janet C., Birds and Forests: A Management and Conservation Guide*, Minnesota Department of Natural Resources, 1995.
- *Schueler, Tom, Site Planning for Urban Stream Protection*, 1995.
- *Lake Elmo, MN, Comprehensive Plan Amendment Open Space Development*, 1996.
- *Portland, OR, Portland Environmental Handbook*, 1997.
- *Forest Stewardship Council, PO Box 10, Waterbury, VT 05676, 802-244-6257, www.fscus.org.*

Water Supply Planning

The Water Supply Planning model ordinance provides the logical structure for an ordinance to address the issues of water supply protection and conservation. The ordinance is not comprehensive, but will help communities understand the issues and needs surrounding water supply resources.

The principles and goals of the Sustainable Development Initiative suggest that communities attend to conserving valuable water resources. Some areas of Minnesota are facing significant problems with both the quality of water supply and the quantity, or adequacy, of water supplies. Rapidly growing communities on the edge of the metropolitan region must attend to the adequacy of aquifers, as do some communities in the south and west areas of the state. Communities can reduce costs of water and wastewater systems by implementing an effective water conservation program.

Water users are required (MN Rules 6115.0770) to employ the best available means and practices to promote the efficient use of water. The Metropolitan Council and MDNR provide water planning guidelines to communities in the metropolitan area and greater Minnesota. See the Resources section at the end of this chapter for more information.

Shown below is Minnesota Statute 103G.291 Subd. 3. Emergency plans; demand reduction.

(a) Every public water supplier serving more than 1,000 people must submit an emergency and conservation plan to the commissioner for approval by January 1, 1996. The plan must address supply and demand reduction measures and allocation priorities and must identify alternative sources of water for use in an emergency. Public water suppliers must update the plan and submit it to the commissioner for approval every ten years.

(b) Public water suppliers serving more than 1,000 people must employ water use demand reduction measures before requesting approval from the commissioner of health under section 144.383, paragraph (a), to construct a public water supply well or requesting an increase in the authorized volume of appropriation. Demand reduction measures must include evaluation of conservation rate structures and a public education program that may include a toilet and showerhead retrofit program.

The statutory authority to adopt rules for Wellhead Protection is Minnesota Statutes, section 103I.101, subdivision 5. The Minnesota Rules governing wellhead protection is part 4717.7000 and parts 4720.5100 to 4720.5590.

The statutory authorization will vary according to the type and size of community, as discussed in the introduction to this ordinance (previous page).

The purpose of the ordinance (Section B.) will vary with the kind of community. Centralized water supply systems are located almost exclusively in cities. Much of the model ordinance language therefore addresses municipal systems and municipal planning issues. The concept of water supply planning also, however, affects township and undeveloped county jurisdictions. While townships and county water supply is typically via individual wells rather than a constructed distribution system, the local government should still be concerned with protecting the quality and adequacy of the resource. Similar to the septic regulation referenced earlier in this chapter, counties and townships should consider protecting the quality of the water supply and the adequacy of the resource to supply current residents and future generations of residents.

Additional model ordinance language may be found at City of Richfield, Water Contingency and Conservation Plan, 1995.

Section A.2. notes the importance of keeping a regional perspective. Both aquifer and surface water sources extend beyond the boundaries of any single local government's authority. Local governments should coordinate efforts with other governments to ensure adequate and high quality supply for both current and future generations of residents and businesses. Like watershed planning, water supply protection often requires intergovernmental cooperation to protect water resources for future resident use and business expansion.

Water users are required (MN Rules 6115.0770) to employ the best available means and practices to promote the efficient use of water. A document titled, Metropolitan Area Community Water Supply Plan Content Guidelines by the Metropolitan

XX.01 Statutory Authorization and Purpose

A. Statutory Authorization

B. Purpose. The residents of Model Community depend on *groundwater and/or surface water* for a safe drinking water supply. Certain practices and activities can seriously threaten or degrade the quality of the water supply. The purpose of this ordinance is to institute regulations and restrictions to protect the community's municipal water supply and to promote the public health, safety, and general welfare of the residents of the community.

XX.02 PLANNING AND OVERALL APPROACH

Water conservation plans are intended to reduce demand for water, improve the efficiency in use and reduce losses and waste of water. Plans should address the following elements:

- A. Regional Awareness.** Promote the regional awareness and planning that is essential to water supply resources management in Model Community. Plans should promote the following planning elements:
1. Incorporating the goal of sustainable growth through a long range water resource planning process ;
 2. Including other city, county, township, and tribal governments and water users in the planning process;
 3. Addressing water quality and quantity issues as well as conservation.
- B. Voluntary Water Conservation.** Encourage voluntary water conservation for existing single family residences while requiring conservation for other properties.
- C. Public Facility Water Conservation.** Apply more stringent requirements to public facilities to set an example within the community.
- D. Partnership.** Set an example for sustainable resource use through water conservation and strive to involve other communities and water users in the conservation effort.

Council and MDNR, January 1994 is available for communities. The guidelines are intended to offer assistance to communities in the metropolitan area (it is also relevant to communities in greater Minnesota) with municipal water supply systems in the preparation of their water supply plans. For further information on this document and model ordinance language contact the Metropolitan Council at 651-291-6359 or the MDNR Division of Waters at 651-296-4800.

Additional model ordinance language may be found at City of Richfield, Water Contingency and Conservation Plan, 1995.

Section XX.03 A. requires that the community set measurable goals to reduce water use. Reduction goals can be per capita, summer outdoor use, year-round indoor use, peak day, and/or parcel specific goals pertinent to the locality.

Section C addresses the water utility's rate structure. The utility is generally owned or controlled by a public entity. Other models of ownership do exist, including private utilities, co-operatives, and rural water authorities. Any ordinance directed to how rates affect sustainability is limited to publically owned water systems. Water systems that are owned by a co-operative or water authority have boards and rate structures that are not governed by a single local government.

Rates should encourage conservation, particularly at the time of peak use on the water system. Developing such rate structures may, however, require investment in sophisticated metering systems or other systems by the water utility. Where rate initiatives are not easily implemented, the communities should concentrate on water conservation programs and regulations.

Section D. 1. assumes that the building code is enforced. Some communities do not enforce the building code. The community can set voluntary design or equipment standards to encourage sustainability, or can offer incentives for private development to meet water conservation goals.

- E. **Aquifer Sustainability.** Determine the best use of _____(aquifer) water and reuse of effluent to reduce aquifer depletion.
- F. **Land Use and Zoning Laws.** Evaluate existing land use planning and zoning laws affecting water use and revise them to be consistent with the conservation strategy.

XX.03 REDUCTION GOALS

A. Specific Goals

- B. **Monitor.** Measure and evaluate the effectiveness of the elements of the water conservation strategy on an on-going basis: revise the strategy annually, as necessary, to reflect and enhance the effectiveness of its various elements.
- C. **Rates.** Model Community shall implement the following measures related to rates:
- D. **Residential Use/Plumbing.** Model Community shall implement the following measures to reduce interior/plumbing uses.
 1. Enforce building code standards that require low-volume plumbing fixtures for new or remodeled buildings.
 2. Initiate a voluntary residential fixture retrofit program to install water-saving retrofit devices in existing residential development, without charge to customers.
 3. Implement economic incentives to encourage customers to install low-volume appliances.
 4. Encourage the use of low-volume appliances whenever a building permit is obtained.
 5. Encourage plumbing fixture wholesalers and retailers to supply low-flow plumbing fixtures and educate customers on water conservation issues.
- E. **Landscaping/Water Waste.** Model Community finds that sprinkling lawns during times of peak demand on the water system is wasteful and harmful for the following reasons:
 - Most of the water is evaporated when the sun is shining and temperatures are high.

Sections D. (Residential Use/Plumbing) and E. (Landscaping/Water Waste) are just examples of water conservation methods and ideas. The MnDNR has other specifications relating to non-essential uses of water, irrigation systems regulations, commercial business (i.e. car washes, golf courses, etc.) enforcement, etc. that could direct language to meet the community's specific water supply issues.

- Sprinkling lawns during the middle of the day contributes to lawn disease.
 - Water use during peak periods of electricity demand results in higher electric costs for the community's water pumps.
 - Continued high demands on the community's water supply in mid-day diminishes the ability to recover water levels in storage tanks.
1. **Sprinkling Limitations.** To encourage sustainable water use, the following restrictions shall apply to all residential or business water use for landscaping:
 - a. The use of lawn hoses is permitted at all hours of the day, but in case of fire in any area served by the water system, all lawn hoses must be shut off and all other unnecessary use of water must be stopped.
 - b. Whenever Model Community shall determine that a shortage of water supply threatens the community, it may, by published notice, limit the times and hours during which water may be used from the community water system for lawn or garden sprinkling, irrigation, car washing, swimming pools, air conditioning or other uses.
 - c. To conserve water resources and prevent the wasteful and harmful effects of sprinkling during mid-day hours, no person, firm, corporation, or association may use water from the community water supply or a private well to sprinkle or irrigate lawns, sod, seeded areas, gardens, shrubs, or other vegetation in the community from 11:00 a.m. to 5:00 p.m. during the period of May 1 through September 30 of any year. (This does not apply to the use of water from a hose which a person holds by hand.)
 2. **Waste of Water Prohibitions.** Water furnished by the community shall be conserved. Waste of water includes, but is not limited to, the following:
 - a. Permitting water to escape down a gutter, ditch, or other surface drain.
 - b. Failure to repair a controllable leak of water.
 - c. Failure to put to reasonable beneficial use any water withdrawn from the community's system.

XX.05 EDUCATION/PUBLIC AWARENESS

Model Community will initiate or investigate the following programs or regulations:

- A. Establish a citizens Water Conservation Advisory Committee
- B. Establish a water conservation marketing and awareness program and provide adequate funding to effectively inform the public of the need for water conservation and the ways that they can conserve.
- C. The community water utility shall include a bar chart of the previous month's usage and the current month's usage on the monthly bill, in addition to conservation tips and information.
- D. Work cooperatively with the public school district(s) to plan and fund a program for water conservation and related environmental issues in our schools.
- E. Collaborate with existing community organizations to promote water conservation.

Chapter XX.06 refers to the emergency spill response planning required under state law. A plan should be written to address the emergency response and actions that would be taken in the event of a spill that threatens or impacts a community water supply system.

For Chapter XX.07, the Minnesota Department of Health has the authority under MN Statutes 103I, subdivision 5 to promulgate and enforce wellhead protection rules (MN Rule 4717.7000 and parts 4720.5100 to 4720.5590). Contact the Minnesota Department of Health – Special Services Unit – Drinking Water Protection Section for model ordinance language (phone unit receptionist: 612-215-0800).

An example of ordinance language may be found at City of Hudson, Wisconsin Municipal Code 17.33, Wellhead Protection.

XX.06 EMERGENCY SPILL RESPONSE

XX.07 WELLHEAD PROTECTION

Wellhead protection is a method of preventing contamination of the public water supply by effectively managing potential contaminant sources. Wellhead protection provides public water supply managers with another tool to ensure a safe drinking water supply to their customers. The long-term goals of wellhead protection are to; 1) reduce the use of costly treatment facilities, 2) avoid drilling new wells, and 3) avoid cleaning up contaminated groundwater.

Resources

Significant Environmental Areas Overlay

St. Cloud, Minnesota. *St. Cloud Environmentally Sensitive Areas Ordinance No. 1871*. 1998.

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The Nature Conservancy. *Site Conservation Planning Process*. Contact your local Nature Conservancy Office.

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Portland, Oregon. *Portland Environmental Handbook*. 1997. Bureau of Planning. Portland, Oregon.

Bucks County, Pennsylvania. *Performance Zoning Model Ordinance*. 1996. <http://www.sustainable.doe.gov/codes/bucks.htm>.

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Terrene Institute. *Local Ordinances – A Users Guide*. 1995. 1717 K Street, NW, Suite 801, Washington, DC 20006. Phone: 202-833-8317.

Minnesota Board of Water and Soil Resources. *Model Form of Ordinance for Implementation of Local Comprehensive Wetland Protection and Management Plan*. 1999.

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Plymouth, Minnesota. *Standards for the Protection of Wetlands Ordinance No. 95-2*. 1995.

Eden Prairie, Minnesota. *Wetland Ordinance*. 1999.

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Mason, Gary. *Growing Greener Communities*. Proceedings of the Sixth national Urban Forest Conference, 1993, Minneapolis, MN.

Mason, Gary. *An Ecosystem Approach to Urban and Community Forestry - A Resource Guide*. USDA, Northeastern Area - State and Private Forestry. June, 1993.

Allmann, Laurie. *Natural Areas: Protecting A Vital Community Asset*. 1997. Minnesota Department of Natural Resources – Natural Heritage and Nongame Research Program.

State Historic Preservation Office. Minnesota Historical Society. *Managing a Working Landscape: A Protection Strategy for the Nansen Agricultural Historic District, Goodhue County, Minnesota*. Prepared by BRW, Inc.. 1999.

SHPO. *Preserving Minnesota: Inventorying, Managing and Preserving Agricultural Historic Landscapes in Minnesota*. Prepared by BRW, Inc. 1999

United States Environmental Protection Agency, *Model Ordinances To Protect Local Resources* (website), Office of Water, 1999. <http://epa.gov/owow/NPS/ordinance/>.

Water Supply

Hudson, Wisconsin. 1998. *Wisconsin Municipal Code 17.33, Wellhead Protection Ordinance*. City of Hudson Planning/Zoning Administrator, City Hall, 5050 Third Street, Hudson, WI 54016-1694. Phone: 715-386-4776.

Orr, Schelen, Mayeron, & Associates, Inc. 1995. *Water Contingency and Conservation Plan*. Project No. 5553.00. Richfield, MN.

Albuquerque, New Mexico. 1995. *Long-Range Water conservation Strategy Resolution*. <http://www.cabq.gov/resources/resolute.html>.

Arizona Department of Water Resources. *Overview of Arizona's Groundwater Management Code*. <http://www.adwr.state.az.us/AZWaterInfo/groundwater/code.html>

Minnesota Department of Natural Resources – Division of Waters. *Examples of Water and Conservation Plans and Ordinances*. Phone: 651-296-4800.

CLUSTER #3 – NEIGHBORHOOD DESIGN

Older communities typically reflected particular design standards that are now called “traditional neighborhood design.” Such design included orienting household gathering spaces (porches, entryways) toward the front of the home, streets and sidewalks that accommodated pedestrians first and automobiles second, neighborhood-oriented commercial development, and other design that emphasized a unique sense of place. Neighborhood design includes a mix of land uses, both apartment and second-story residential in traditional downtown area of small cities, and neighborhood gathering places such as small diners, stores, and coffee shops. Emphasizing neighborhood design practices in subdivision and zoning ordinances enhances sustainability and preserves existing neighborhoods with elements of traditional neighborhood design.

It is helpful to envision the many model ordinance provisions as if they applied -- like any zoning ordinance -- to a real place. This following model ordinances are based on a prototypical Minnesota community, containing the following areas, or districts:

- a small- to mid-size town center, or downtown (Village Center district)*
- one or more older residential neighborhoods surrounding the town center*
- a highway corridor, which may cross the edge of the town -- or run through the middle as its Main Street*

Around the community is a potential growth area, or “urban fringe,” planned for service by municipal utilities (water, sewer, roads). The potential growth area may already include newer housing subdivisions or existing large lots (that are difficult to resubdivide later).

Outside the growth area are rural areas that may include the following features:

- prime agricultural land*
- significant natural features such as a river corridor, bluffs, lakes, forests, etc.*
- other rural areas that may be suitable for development*

Some aspects of this ordinance may also be applicable to neighborhoods within larger urban areas, such as a neighborhood commercial district that serves a similar purpose to a town center. The ordinance would then require adjustments to reflect urban neighborhood characteristics.

The following districts are presented here, covering most of the urban, urban fringe and rural areas of Model Community:

- Town Center District: Applies to the central business district, or traditional downtown, and provides for a mix of uses similar to or intensifying the existing pedestrian-oriented pattern.*
- Neighborhood Residential District: Intended to encourage compatible infill development in residential neighborhoods around the town center. Neighborhoods with local or regional historic significance may also fit the profile of this district.*
- Town Extension or Urban Expansion District: Applies to the potential expansion area around the city or village, which may be part of another jurisdiction but where utility extensions (public water and sewer systems) are planned. The ordinance provides for an efficient urban pattern that is strongly connected to the existing town or village, and shares certain design elements with it. The TE can be used as an alternative to the typical Planned Unit Development (PUD), that many zoning ordinances contain.*
- Traditional Neighborhood Development District: Intended to allow for development of large tracts of land in a manner consistent with traditional town and*

village character. Unlike the Town Extension, it is intended to apply to free-standing rural areas that may have been identified as suitable for development. The TND can also be used as an alternative to the PUD.

The following standards are also included, as separate ordinance sections with widespread applicability to several districts:

- *Street Standards: the standards can be applied to any of the districts above or to local streets in general.*
- *Site Design Guidelines: a process for design review of development plans, including landscaping and parking lot layout.*

Definitions

The following definitions apply to the terms used in the Model Ordinance sections that may not be found -- or may be defined differently -- in conventional zoning ordinances. This section does not define all terms used in the typical zoning ordinance.

ADT -Average daily traffic volumes on a road.

Build-to Line - A line within a lot parallel to the street curb line along which at least 50% of a building's outside wall must be built. Lots fronting on more than one street shall contain a build-to line along each of the streets on which the lot fronts.

Building Footprint - The ground floor area of any building, excluding residential garages and accessory sheds, measured from the outside of the exterior walls.

Center Square - A tract of land devoted to municipal, civic, or public purpose that serves as a central focus for surrounding properties. The Center Square may consist of a wide intersection of streets, an open space surrounded by streets, a plaza or forecourt of a public building, the site of a municipal or civic building, or an area adjacent to a through street which is devoted to similar purposes. The term "center square" does not imply that the tract is located in the geographic center of the addition, but rather is located in relation to the existing community extension. Center Squares may consist entirely of public road right-of-ways, landscaped green areas within the right-of-way, properties occupied by municipal or civic buildings or structures, or adjacent open space bounded by public streets on two or more sides.

Cornice Line - On a sloped-roof building, where the roof slope meets the wall at its lowest point. In the case of a flat roofed building, the top of the parapet wall.

Pedestrian Way - A right-of-way, publicly or privately owned, intended for human movement by walking.

Secondary Dwelling Unit - An additional dwelling unit located within the principal dwelling on the lot, in a freestanding building or above a residential garage.

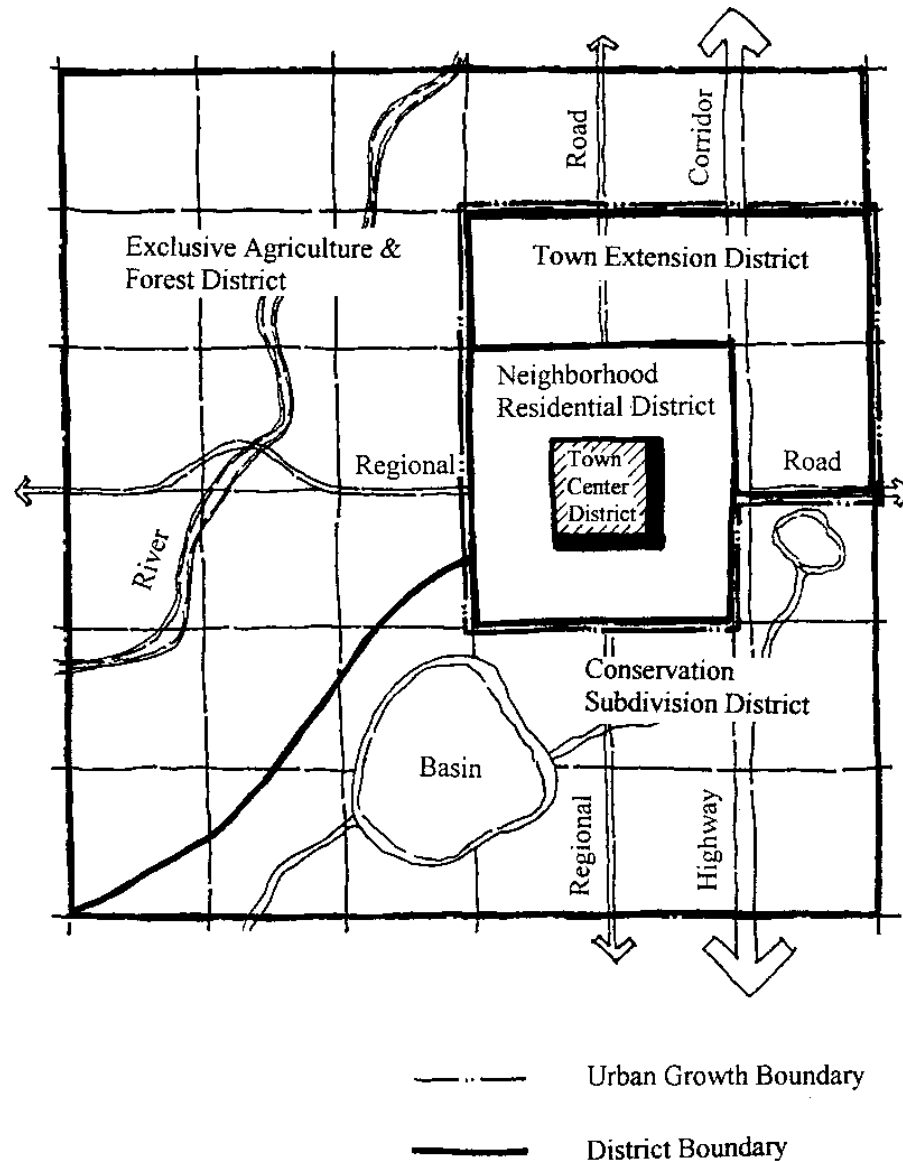
Street - A strip of land, including the entire right-of-way, publicly or privately owned, serving primarily as a means of vehicular and pedestrian travel, and furnishing access to abutting properties, which may also be used to provide space for sewers, public utilities, shade trees, and sidewalks.

Streetscape - The sum of the man-made and planted features that create the character of a public space. Streetscape features may be located within and adjacent to the right-of-way. Streetscape features include street trees and plantings; street furniture such as benches, street lights, signs, kiosks, gazebos, trash receptacles, bicycle racks, railings and fences, fountains, planters, memorials, public telephones, and bollards; sidewalks; median strips and islands; public art; banners and flags; signs and awnings; and similar publicly visible features.

TC Town Center District

The traditional town or village center is a compact central area where the pedestrian function and interaction of people and businesses should be fostered and maintained. The purpose of this district is to recognize the existing center, strengthen it, and allow it to intensify and expand where appropriate. Note that the standards for compatibility with existing buildings may also be appropriate in areas in or around historic districts. See also the publication "Good for Business" in the list of resources.

The Town Center District language is adapted from a model ordinance from the Lancaster County Planning Commission. The Livable Communities Handbook, 1994. The model ordinance was originally developed by Kise, Franks and Straw, Inc., Philadelphia.



XX.010 Purpose.

The purposes of the TC District are:

- A. To recognize and affirm the function of the existing traditional town/village center as the central focus of commercial and civic activities within the community.
- B. To allow the existing town/village center to flourish, intensify and expand where appropriate in a manner consistent with its traditional character.
- C. To provide a local retail, service and civic center for the community.

Chapter XX.020 shows permitted uses. The list of permitted uses is not exhaustive but represents small-scale retail and civic town center uses. A size cap may be appropriate. Similar uses not listed can be permitted as Conditional Uses.

Section C. includes home occupations as a permitted use. Most cities have existing standards and definitions for home occupations.

Section M. identifies a threshold size for retail stores and shops. Retail size limitations should be guided by the existing size of retail businesses. The primary point of guidance is to ensure that the downtown areas has diversity; no one business or development project should dominate the center.

The conditional uses noted in XX.040 represents a sample of land uses that may need the greater degree of scrutiny afforded by a Conditional Use process. Communities can develop specific standards for particular conditional land uses as necessary.

XX.020 Permitted uses

The following are permitted uses in the Town Center District:

- A. Bed-and-breakfast establishments
- B. Day care centers
- C. Customary home occupations
- D. Libraries, museums and galleries
- E. Municipal buildings and related uses
- F. Music, dance or exercise studios
- G. Offices, including professional and medical offices
- H. Parks, playgrounds, trails, greenways, outdoor recreational facilities and natural areas
- I. Passenger depots and transit shelters
- J. Places of worship, churches and related uses
- K. Public and private schools and other educational facilities
- L. Restaurants, cafes and coffee shops (bars, taverns optional), not including drive-through or franchise architecture.
- M. Retail stores and shops, with a building footprint not exceeding 10,000 square feet
- N. Service businesses such as barber, air, dry cleaning or similar business
- O. Studios and shops of artists and artisans

- P. Residential units located on upper floors above commercial uses or to the rear of storefronts.
- Q. Multifamily residential buildings

XX.030 Accessory uses.

The following are permitted accessory uses in the Town Center District:

- A. Commercial or business buildings and structures for a use accessory to the principal use but shall not exceed thirty percent of the gross floor area of the principal use;
- B. Off-street parking as regulated by Chapter ____ of this Ordinance but not including semi-trailer trucks;
- C. Off-street loading as regulated by Chapter ____ of this Ordinance;
- D. Fencing, screening and landscaping as permitted and regulated by Chapter ____ of this Ordinance
- F. Signs as regulated by Chapter ____ of this Ordinance
- G. Essential services.

The design standards discussed in XX.050 are fairly general, relying on terms like compatibility “with traditional buildings” and with the “concept of the town center.” Each town has its own architectural character, and it is certainly desirable to develop more specific guidelines, using photos or sketches. A number of Minnesota communities have created design guidelines based on the existing scale of businesses and historic building design.

The community may wish to establish a threshold for applicability, so that minor repairs would be exempt.

The design standards discussed in XX.050 require that the community designate staff or a community review board to evaluate designs. Design review can be carried out by the Planning Commission or by a separate Architectural Review Board. In either case, it is desirable to have one or more architects or other design professionals on the board.

XX.040 Conditional uses.

The following uses are permitted as conditional uses subject to demonstrated compliance with Site Design Guidelines and compatibility with surrounding land uses and with the purpose of the Town Center District.

- A. Open and outdoor storage, sales, service and rental as an accessory use;
- B. Other commercial, civic or entertainment uses considered similar in character and intensity to permitted uses.

XX.050 Design Standards.

All structures in this zoning district must meet the following minimum structural and architectural design standards. The standards apply to new buildings and to remodelings or expansions of existing buildings.

- A. Architectural Features and Details. Exterior facades, including eaves,

Requirements for the applicant may include submission of architectural renderings and color/material samples.

columns, pilasters, cornices, windows and window surrounds, canopies, fascia and roofs, shall be proportionate with the building and compatible with surrounding traditional buildings. The scale of new construction, including the arrangement of windows, doors and other openings within the building facade, shall be compatible with surrounding traditional buildings.

- B. Permitted Materials. New buildings erected within the TC Town Center District shall be of masonry construction, an equivalent, or better. Exterior surfaces of all buildings shall be faced with face brick, stone, glass, architectural concrete or precast concrete units, provided that surfaces are molded, serrated examples or treated with a textured material in order to give the wall surface a three-dimensional character. Decorative block may be acceptable if incorporated in a building design that is compatible with other development throughout the district.
- C. Colors. Colors used for exterior surfaces shall be harmonious with surrounding development and shall visually reflect the traditional concept of the town center. Examples of incompatible colors include metallics, neons, and/or primary colors, which shall be limited to accents. Masonry walls shall not be painted; color shall be integral to the masonry materials.
- D. Prohibited Materials. No buildings shall be constructed of sheet aluminum, asbestos, iron, steel, corrugated metal, plastic or fiberglass siding. Face materials which rapidly deteriorate or become unsightly such as galvanized metal or unfinished structural clay tile are not permitted.
- E. Mechanical Equipment and Utilities. All mechanical equipment such as furnaces, air conditioners, elevators, transformers, and utility equipment, whether on roof or mounted on the ground shall be completely screened from contiguous properties and adjacent streets to be compatible with the architectural treatment of the principal structure.
- F. Accessory Structures. All accessory structures, screen walls, and exposed areas of retaining walls shall be of a similar type, quality, and appearance as the principal structure.
- G. Loading and Service Areas. Loading and service areas must be completely screened, except at access points, from the ground level view from contiguous property and adjacent streets.

- H. Outdoor Storage. There shall be no outdoor storage of either materials or products except through the issuance of a conditional use permit.
- I. Trash Handling and Recycling. All trash handling and related equipment, and all areas for holding materials for recycling, shall be completely enclosed and screened to be compatible with the architectural treatment of the principal structure.

Section XX.060 sets area and bulk thresholds for this district. Maximum standards -- build-to and build-up lines -- as well as minimum ones are used to ensure new buildings are compatible with an existing village or town center character.

Section A. sets minimum and maximum standards. Some ordinances do not require a minimum lot size, allowing existing lot sizes to set the standard. The maximum is intended to discourage out-of-scale buildings, although they can be integrated under a conditional use or special permit process.

Chapter XX.070 sets the TC district parking requirements. Preferably, a TC district should include central, common parking facilities which, in combination with on-street parking, should be enough to serve the district. Where off-street parking is needed, requirements should be flexible to encourage shared and off-site parking, all of which promote pedestrian activity and help to create vital downtowns.

This ordinance provides alternate Sections A. and B. for required parking (Chapter XX.070). The alternate language incorporates an off-street parking requirement.

XX.060 Area and bulk regulations.

- A. Lot area: minimum of 2,500 square feet and a maximum of 25,000 square feet
- B. Lot width at front yard setback line: minimum of 25 feet and a maximum of 80 feet
- C. Minimum lot depth: 100 feet
- D. Yard dimensions:
 - 1. Build-to line: zero feet, may be increased to 15 feet if additional space is landscaped as a garden or outdoor seating or dining area. Entries may be recessed up to 10 feet.
 - 2. Side yard (each side): minimum of zero feet if attached to an adjacent building, or a minimum of five feet if not attached to an adjacent building; maximum of 20 feet
 - 3. Rear yard: minimum of 55 feet (one row of parking)
- E. Build-up line: Two stories, first finished floor level must be level with sidewalk grade.
 - 1. Maximum building height: 45 feet
- F. Maximum floor area ratio: 3

XX.070 Required parking.

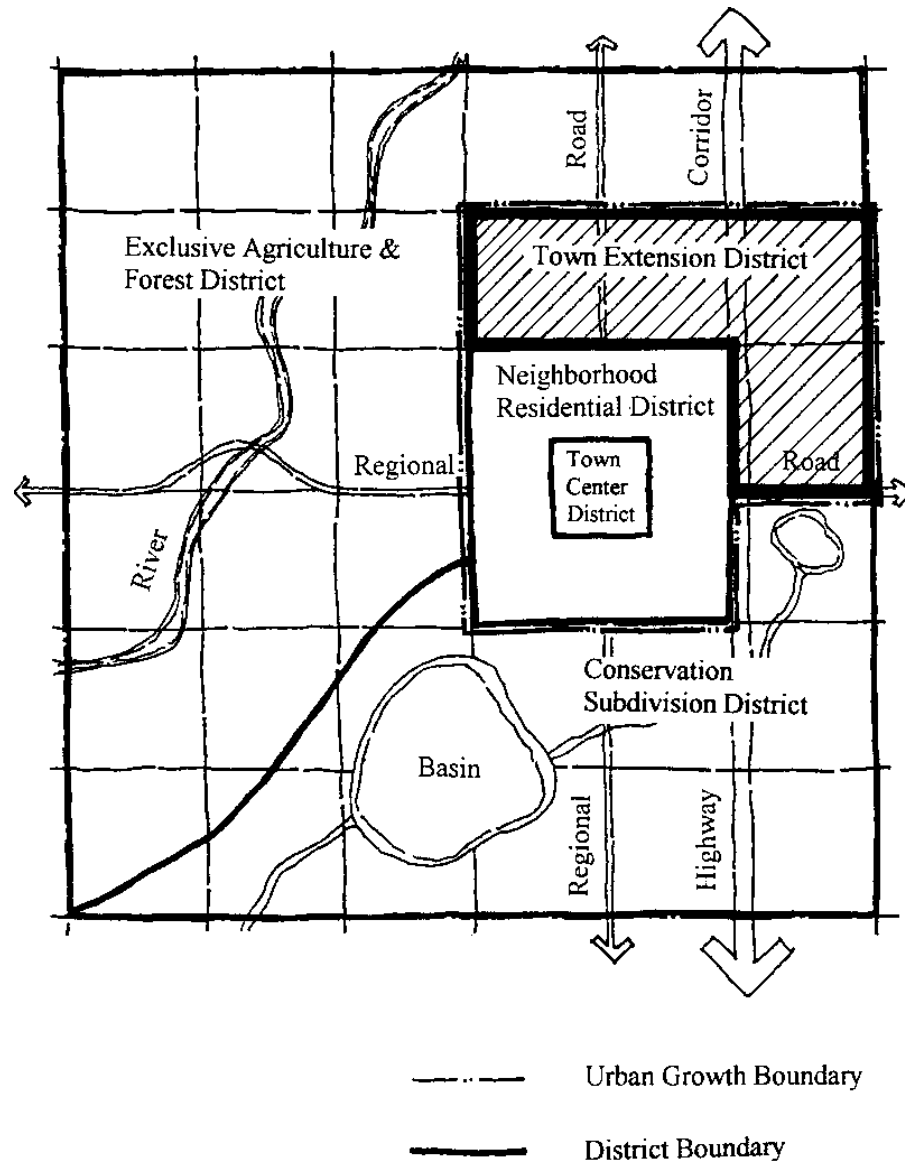
- A. On-street parking, either diagonal (angled) or parallel) shall be provided along all public streets.
- B. Plans for off-street parking and loading facilities within the Town Center District shall be reviewed by the Planning Commission. **In general, no off-**

street parking shall be required for any permitted use within the district. However, the Planning Commission may require such off-street parking and loading spaces as deemed appropriate for the proposed use. Upon review, the Planning Commission shall make a recommendation to the City Council for final review and approval.

- A. The Planning Commission may recommend and the City Council may require a contribution toward community parking facilities in lieu of off-street parking facilities.
- B. Required off-street parking shall not be located within any front yard setback or in front of the principal building. Parking areas shall be landscaped in accordance with Section XX.xx

Town Extension or Urban Expansion District

The Town Extension district ordinance can serve as a means to allow expansion or extension of a small city that maintains its urban character, or as a Planned Unit Development that follows neighborhood design characteristics. The Town Extension district is most appropriate for small cities and cities outside of the larger urban areas in Minnesota. Urban areas that are redeveloping parcels within older neighborhoods, such as older industrial space or brownfields that are being redeveloped, should also consider using the Town Extension model to build cohesiveness between the old neighborhood and the new.



Language adapted from the model ordinance in The Livable Communities Handbook. 1994, and City of Wayzata Design Guidelines, 1998.

XX.010 Purpose

The purpose of the Town Extension standards is to borrow from the traditional form of existing small town or village centers and permit these centers to expand in a manner that:

- A. Retains existing buildings that constitute historical or character-defining features.
- B. Replicates the size, scale and mass of existing buildings and structures.
- C. Provides for a mix of uses, including civic uses that address the needs of all community residents.
- D. Extends the existing street system into the new extension, using a system of interconnected streets, and provides for the extension of those streets through further extensions in the future.

XX.020 General Requirements

A Town Extension shall provide for the contiguous expansion of the existing town center with similar land forms and street patterns, meeting the following standards:

- A. A Town Extension shall include interconnected streets, the development of a public square, and lotting patterns which, in general, are deeper than wide.
- B. Town Extensions shall only occur as additions to an existing town, and shall limit future expansions of the community so as to protect adjoining agricultural or forest land.
- C. Town Extensions shall be developed only where public sewer and water service are available.
- D. A Town Extension shall consist of the following categories of land:
 - 1. Residential Lots - Properties intended for the placement of dwellings fronting on public streets, which connect to or are extensions of existing streets. Residential lots shall be arranged in the same general lotting pattern as exists in the original town.
 - 2. Non-Residential Lots - Properties developed principally for commercial, office, workplace or civic purposes, which are considered an integral part of the new district. Non-residential lots shall be sited as extensions

- of established commercial areas within the existing town, or shall be located on a central square or shall be limited to corner lots.
- 3. Mixed-Use Properties - Properties designed to accommodate any combination of commercial, civic or residential uses. Mixed-use lots shall generally front on a central square or occupy other prominent central locations.
- 4. Civic Space - Land located on a central square which is reserved for civic uses. Civic uses include uses that serve public or community needs, such as churches, public and private schools, municipal buildings, post offices, community facilities, libraries, fire stations, day care facilities, transportation terminals and similar uses.
- 5. Open Space - Land which provides for the open space and recreational needs of both district and community residents. Open space may be owned and maintained as part of a municipal park system or by a homeowners association established for that purpose.

Section E. sets a minimum area for a development in the Town Extension area. A range of 15 to 30 acres is probably a reasonable minimum to ensure some “critical mass” for the district. Smaller projects are better accommodated under the Neighborhood Residential district described in this chapter

E. The minimum area required for a Town Extension is 25 acres

Section XX.030 sets a master planning requirement for the TE district. Like a PUD, a TE district should be an integrated development based upon a single Master Plan. Development could occur in phases or incrementally, on a parcel-by-parcel basis, if consistent with the master plan.

XX.030 Master Development Plan

Any development proposed within the TE district shall be based on a Master Plan. The master plan may be prepared and submitted by a developer or prepared by [City] staff, but in either case must be approved by the Planning Commission and adopted by the Council.

- A. The Master Plan shall include: the block layout and block types proposed; street classification, open space and landscaping plans, and a general plan for land use.
- B. Development may occur in phases, with more detailed plans required for each phase.

Section B. allows the development to occur in phases. The community’s ordinance should include more specific language regarding plans that are required for each phase.

XX.040 Permitted Uses

The following are permitted in the TE District:

- A. Single-family detached dwellings

- B. Single-family attached dwellings, including duplexes, zero lot-line single-family dwellings, provided that a reciprocal access easement is recorded for both lots, and townhouses or other attached dwellings provided that all dwellings have pedestrian access to the rear yard through means other than the principal structure.
- C. Bed-and-breakfast establishments
- D. Civic uses such as municipal offices, fire stations and post offices
- E. Day care centers
- F. Customary home occupations [most cities have existing standards for home occupations]
- G. Libraries, museums and galleries
- H. Music, dance or exercise studios
- I. Offices, including professional and medical offices
- J. Parks, playgrounds, trails, greenway, outdoor recreational facilities and natural areas
- K. Passenger depots and transit shelters
- L. Places of worship, churches and related uses
- M. Public and private schools and other educational facilities
- N. Restaurants, cafes and coffee shops (bars, taverns optional), not including drive-through or franchise architecture
- O. Retail stores and shops, with a building footprint not exceeding 5,000 square feet
- P. Service businesses such as barber, air, dry cleaning or similar business
- Q. Studios and shops of artists and artisans

Section O. sets a threshold size for retail stores and shops in the district. The minimum should be consistent with existing businesses. Smaller cities may wish to eliminate any commercial use, unless the commercial use is adjacent to or strongly linked to the existing town center business district.

Section XX.050 lists conditional uses and sets requirements for particular conditional uses. These are a sample of potential uses that may need a greater degree of scrutiny afforded by a Conditional Use process. Additional specific standards may be developed for individual uses.

XX.050 Conditional Uses

The following uses are permitted as conditional uses subject to demonstrated compliance with Site Design Guidelines and compatibility with surrounding land uses and with the purpose of the Town Extension.

- A. Secondary dwelling units may be placed on a single-family detached residential lot within the principal building or an accessory building provided that:
 1. The secondary dwelling unit shall not exceed 800 square feet
 2. Total building coverage for all principal and accessory uses shall not

- exceed the maximum prescribed in Section XX.080.
3. One additional off-street parking space with unrestricted ingress and egress shall be provided for the secondary unit
 4. If located within a separate building or an addition to the principal building, the secondary dwelling unit shall be installed, located, or constructed only in the rear yard and shall meet all side yard setback requirements for principal uses.
- B. Multi-family dwelling units
- C. Small hotels or inns, provided that:
1. They occupy an existing residential dwelling or the upper floors of a new or existing commercial structure
 2. One off-street parking space per room shall be provided within 200 feet of the establishment.
- D. Retail or other commercial uses exceeding the minimum building footprint of 5,000 square feet, provided that:
1. Facades of larger buildings are articulated to appear as multiple buildings
 2. Entrances are placed on all facades fronting public streets, parking areas or walkways
- E. Parking lots for shared or community use
- F. Private outdoor recreation facilities
- G. Taverns, provided that:
1. The proposed use shall not constitute a nuisance to the neighborhood due to hours of operation, noise or loitering
 2. The tavern is intended to serve primarily the surrounding neighborhood
 3. Trash storage areas and recycling areas shall be screened from public view and adjoining buildings
- H. Farmers' Markets, provided that:
1. A market building shall be located on or shall directly face a public square
 2. A permitted encroachment zone shall extend 8 feet from the build-to line around the perimeter of the building, and such area may be

temporarily occupied by vehicles loading or unloading

XX.060 Mix of Uses

The mix of land for all uses within a Town Extension, except for commercial uses, shall generally reflect the mix of land uses and dwelling types within the existing town center, as determined by an inventory of the existing community which shall be submitted as part of the Master Plan for the TE. Changes from this mix of land uses and dwelling types may be permitted to meet other community goals as expressed in the Comprehensive Plan or the Master Plan. (For example, a TE could provide senior housing opportunities or civic uses not found within the existing town.)

- A. To prevent relocation of a significant portion of the town's existing central business district, and to ensure that new commercial development is primarily neighborhood-oriented, a maximum of 20 percent of the total land area of a TE shall be used for commercial purposes.
- B. Population density and development intensity within a Town Extension shall generally not exceed that found within the existing town, except as determined by the Master Plan or community's Comprehensive Plan.

XX.070 Specific Requirements

- A. Each Town Extension shall include at least one center square.
 - 1. The square may be used as an entry to the Extension or may be internally located.
 - 2. The location of the square should be incorporated into the street and block pattern to achieve visual prominence and to provide a central focus for the district.
 - 3. Civic and commercial uses should be located facing the center square.
- B. Civic space must be provided within every TE District, within or adjacent to the center square or otherwise integrated into the street and block pattern to provide continuity with the existing town center. Civic space shall provide places for cultural, social, municipal, human service or religious functions.

Civic space must be set aside for at least one of the following uses:

1. Library, museum, gallery
2. Municipal buildings
3. Postal facility
4. Theater
5. Day care center
6. Meeting hall
7. Schools, public or private
8. Social services
9. Playgrounds, trails, greenways, outdoor recreation facilities, or natural areas
10. Transit center or depot
11. Fire station
12. Places of worship

The type and quantity of civic space provided shall depend on the size and scale of the TE District and the location and availability of existing facilities, as determined in the Master Plan. In general, at least 5 percent of the total land area of the TE District shall be designated for civic space.

C. **Open Space.** Open space shall be provided within every TE District to meet residents' recreational needs, reinforce the identity, form and character of the existing village, and conserve significant natural resources (including native plant communities, riparian corridors, etc.). Open space may consist of two or more of the following:

1. Squares (including the center square)
2. Community gardens
3. Pedestrian trails
4. Parks, playgrounds
5. Natural areas

All open space shall be accessible to all community residents. The location of open space within the extension shall be coordinated with and, if appropriate, shall connect with or expand adjacent open space, recreational or natural areas.

The lot dimensions in XX.080 are examples; actual dimensions should be based on lot sizes of the existing town and the Master Plan.

XX.080 Lot Dimensions

- A. Residential lots shall meet the following requirements:
1. Single-family detached
 - a. Lot area: Minimum - 5,000 square feet
Maximum - 15,000 square feet
 - b. Lot width: Minimum - 40 feet
 - c. Front yard setback: Minimum - 20 feet
Maximum - 40 feet
 - d. Side yard setback: Minimum - 5 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 45 percent or 60 percent with secondary dwelling
 2. Duplex
 - a. Lot area: Minimum - 4,000 square feet per unit
Maximum - 10,000 square feet per unit
 - b. Lot width: Minimum - 30 feet per unit
 - c. Front yard setback: Minimum - 20 feet
Maximum - 40 feet
 - d. Side yard setback: Minimum - 10 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 50 percent
 3. Single-family attached
 - a. Lot area: Minimum - 3,000 square feet per unit
Maximum - 10,000 square feet per unit
 - b. Lot width: Minimum - 30 feet per unit
 - c. Front yard setback: Minimum - 20 feet
Maximum - 40 feet
 - d. Side yard setback: Minimum - 10 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 60 percent
 4. Non-residential, civic or mixed use

The height thresholds in Part 5. may be modified allow exceptions. Typical exceptions to building height are found in most zoning ordinances.

- a. Lot area: Minimum - 5,000 square feet
Maximum - none
 - b. Lot width: Minimum - 40 feet
 - c. Front yard setback: Minimum - none
Maximum - 20 feet
 - d. Side yard setback: Minimum - 10 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 65 percent
5. Building Height: Maximum of 35 feet or 2 ½ stories

XX.090 Street system and parking

The circulation system shall be organized to interconnect the Town Extension with the existing village.

- A. The street system shall act as a functional and visual link between neighborhoods, open space, civic and commercial uses.
- B. The circulation system shall include streets, sidewalks, bicycle paths and routes, and pedestrian paths.
- C. The street system shall substantially follow the street layout and character of the existing town center.
- D. The street and parking systems shall meet the standards specified the Street Standards Section of this Ordinance.

XX.100 Architectural Standards

- A. Guidelines for Existing Structures
 - 1. Existing structures within the Town Extension are encouraged to be retained as part of the new development and may be adapted to appropriate uses.
 - 2. Existing structures, if determined to be historic or architecturally significant, shall be protected from demolition or encroachment by incompatible structures or landscape development.
 - 3. The Secretary of the Interior's Standards for Rehabilitation of Historic Buildings shall be used as the criteria for renovating historic or

architecturally significant structures.

B. Guidelines for New Structures

1. Size, Scale and Mass

- a. New structures within a Town Extension shall be similar in size, scale and mass to existing structures within the adjacent town center.
- b. New structures may be constructed in any architectural style. However, if such structures are built using elements of Victorian, Craftsman or Bungalow, Prairie School or colonial revival stylistic details, such elements shall be based upon an architectural inventory of the existing town center.
- c. Stylistic details characteristic of other regions of the United States are discouraged.

2. Architectural Style. The architectural style of a building shall be continued in all of its major features on all sides visible from a public street.

3. Entries and Facades

- a. The front facade of the principal building on any lot in a Town Extension shall face onto a public street.
- b. The front facade shall not be oriented to face directly toward a parking lot.
- c. Porches, pent roofs, roof overhangs, hooded front doors or other strong architectural elements shall define the front entrance to all residences.
- d. For commercial buildings, a minimum of 30 percent of the front facade on the ground floor shall be transparent, consisting of window or door openings allowing views into and out of the interior.

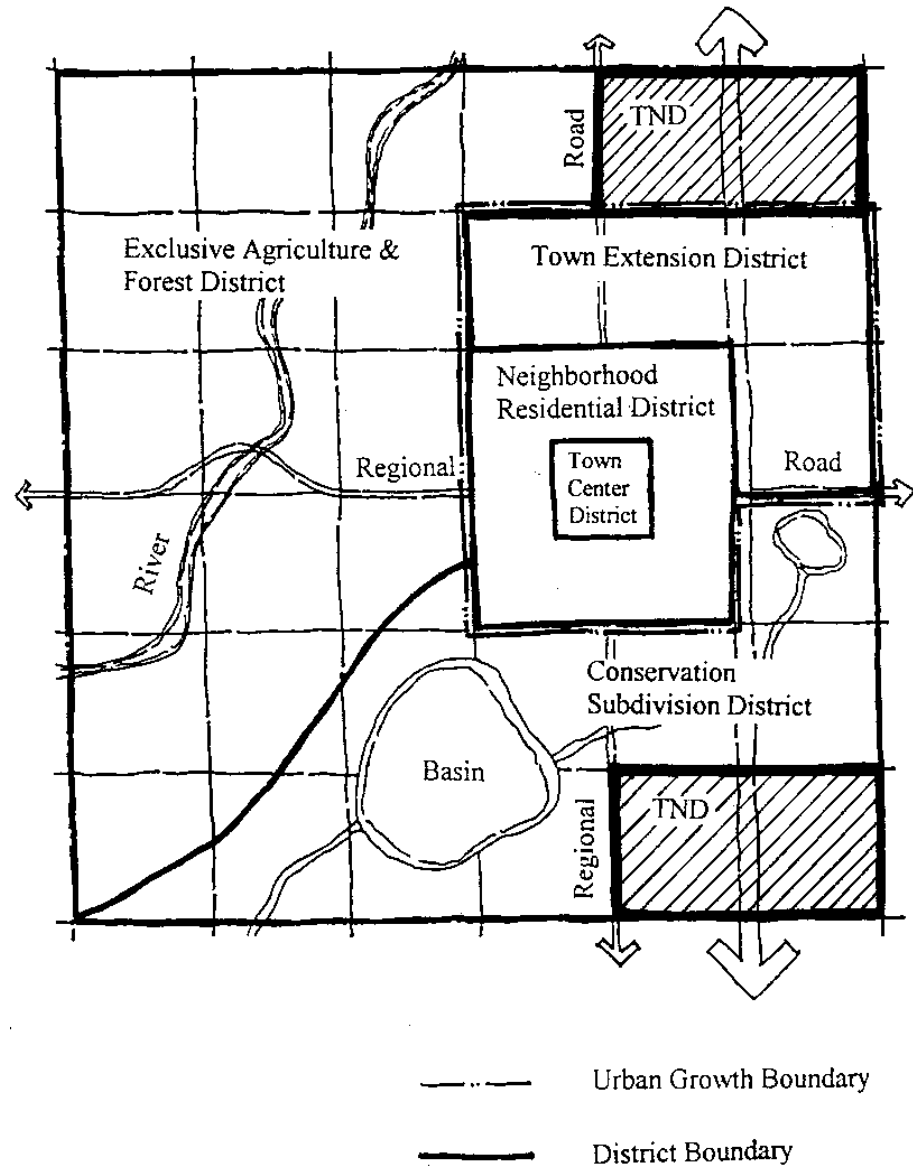
Traditional Neighborhood Development District

The TND district, like the Village Extension, is intended as an alternative to the typical PUD ordinance. Both are designed to allow for development of large tracts of land in a manner consistent with traditional town and village character. The TND however, is not directly adjacent to an existing village or town center, and is therefore designed as more of a free-standing settlement. It should not, however, replicate or directly compete with the central business district, where one exists. Therefore, commercial and civic uses are intentionally limited in this model.

Smaller cities may not want to include a TND district, in order to avoid creating commercial districts that will compete with the town center business district. TND districts are more appropriate for larger cities or counties in or near metropolitan areas. For smaller cities, many of the same traditional neighborhood design elements can be achieved using the town extension or neighborhood residential districts, as described elsewhere in this chapter.

Districts or areas where this option is appropriate will vary by community.

Traditional Neighborhood Development Overlay District Examples of Possible TND Rezoning



The language for this model is adapted from model ordinances in The Livable Communities Handbook, 1994, and from the City of Wayzata Design Guidelines, 1998.

XX.020 allows the application of a TND district as part of a Planned Unit Development. Many communities have a PUD District, in their Zoning Ordinance. The PUD ordinance offers an existing regulatory procedure that can apply to the TND as well.

XX.010 Purpose.

The purpose of the TND District is to permit new development to occur in a manner that is consistent with the historic character and development pattern of the existing community, while providing an alternative to typical suburban-style development patterns.

XX.020 Designation of TND District.

The TND District may be applied as an overlay district on any lands designated as suitable for this option in the Comprehensive Plan or found suitable by the Council based on its location, natural amenities and availability of services.

In general, such areas shall be:

- A. Supplied with public utilities, or planned for such utilities.
- B. Served by a collector or arterial street or a street that can be improved to such a standard.

The Council may approve a rezoning of land to the new village district in accordance with the process for a Planned Unit Development, as outlined in Section XX of this Ordinance.

XX.030 General Requirements

A TND shall be characterized by a compact settlement pattern, with a center and an edge, a mix of residential housing types, distributed on a connected street system, and enhanced by deliberately defined open space areas.

- A. A TND shall consist of the following categories of land:
 - 1. Residential lots - Properties intended for the placement of dwellings, fronting on public streets arranged in a traditional neighborhood setting. Residential lots may be occupied by more than one dwelling but, other than home occupations, shall be utilized exclusively for residential purposes.

2. Commercial lots - Properties located in the neighborhood center intended for commercial and office development that supports, and is related to, the surrounding residential community. Commercial lots may be occupied by mixed use buildings with offices or residential apartments on upper floors.
3. Civic Use Area - Land that is centrally located and reserved for civic uses. Civic uses include uses that serve public or community needs, such as churches, public and private schools, municipal buildings, post offices, community facilities, libraries, fire stations, day care facilities, transportation terminals and similar uses.
4. Open Space - Land located on the periphery or interior of the TND that is dedicated to uses such as parks and recreation, pedestrian trails, environmental protection or similar purposes. Open space may be publicly owned as part of a public park system or a street right-of-way, or owned and maintained by a homeowners' association or conservancy.
5. Streetscape - A streetscape is the sum of the man-made and planted features within and adjacent to the street right-of-way that create the character of the public space. The streetscape often includes sidewalks, street trees and plantings, street furniture such as benches, street lights, signs, trash receptacles, railings and fences, fountains, planters, banners and flags, public art and similar publicly visible features.

B. The minimum size area for a TND shall be 35 acres.

XX.040 Master Development Plan

Any development proposed within the TND district shall be based on a Master Plan, submitted by the developer.

- A. The Master Plan shall include: the block layout and block types proposed; street classification, open space and landscaping plans, and a general plan for land use.
- B. Development may occur in phases, with more detailed plans required for

Section B. sets a minimum size of a TND development. Due to the minimum size of the development, and the wide mix of land uses and open space requirements in a TND ordinance, smaller cities may not want to include a TND zone in their ordinances. To ensure that new neighborhoods are kept in scale of the existing neighborhoods, smaller cities should consider using the Town Extension ordinance or the Neighborhood Residential ordinance model to meet their goals of sustainable neighborhood design.

Chapter XX.040 requires that a TND development propose a master plan. Like a PUD, a TND district should be an integrated development based upon a single Master Plan. Development could occur in phases or incrementally, on a parcel-by-parcel basis, if consistent with the master plan.

The phased development discussed in Section B. is typical for subdivisions or land development.

each phase.

XX.050 Permitted Uses

The following uses are permitted in a TND District:

- A. Single-family detached dwellings
- B. Single-family attached dwellings, including duplexes, zero lot-line single-family dwellings, provided that a reciprocal access easement is recorded for both lots, and townhouses or other attached dwellings provided that all dwellings have pedestrian access to the rear yard through means other than the principal structure.
- C. Multifamily dwellings
- D. Secondary dwelling units on a single lot, not exceeding 800 square feet in size and limited to one unit per lot, to be located only within the rear yard.
- E. Secondary dwelling units located above ground floor retail or office uses
- F. Banks and financial institutions
- G. Bed-and-breakfast establishments
- H. Day care centers
- I. Civic uses such as municipal offices, fire stations and post offices
- J. Customary home occupations
- K. Libraries, museums and galleries
- L. Music, dance or exercise studios
- M. Offices, including professional and medical offices
- N. Parks, playgrounds and outdoor recreational facilities
- O. Passenger depots and transit shelters
- P. Places of worship, churches and related uses
- Q. Public and private schools and other educational facilities
- R. Restaurants, cafes and coffee shops (bars, taverns optional), not including drive-through or franchise architecture
- S. Retail stores and shops, with a building footprint not exceeding 5,000 square feet
- T. Service businesses such as barber, air, dry cleaning or similar business
- U. Studios and shops of artists and artisans

Section J. allows home occupations. Most cities have existing standards for home occupations.

Section S. sets a maximum building footprint for retail stores and shops. Minimum or maximum square footage should be consistent with existing businesses, and be limited to avoid significant competition with the Town Center business district. Some communities have adopted maximum store sizes to encourage small locally-owned stores instead of national chains, where design and inventory requirements are managed from outside the community. The City of Westford (Massachusetts), the City of Wilford (Connecticut), City of Palm Beach (Florida), and the Village of Lake Placid have all adopted ordinances that restrict the size of new retail stores or new retail developments. Depending on the scale of the surrounding businesses and the zone of the proposed developments, the maximum size ranges from 2,000 square feet to 45,000 square feet. The larger commercial allowances might, for instance, be appropriate in a suburban TND development where a historic town center may not exist. The smaller sizes might be appropriate for development in a mid-sized Greater Minnesota city with a town center business district.

XX.060 Residential Use Standards

- A. A mix of at least two of the permitted residential housing types shall be provided. The different types shall be integrated with each other on the same block, opposite sides of a block (across rear lot lines or alley) or adjacent blocks, rather than in separate sectors of the TND.
- B. No more than 60 percent of the total number of dwelling units shall be of the same type.

XX.070 Neighborhood Center Standards

The TND shall be designed with a neighborhood center that contains commercial, civic and mixed-use buildings and open space. The center shall be designed to serve as the focal point for the neighborhood and for the interaction of the residents. The center shall be adjacent to and contiguous with the central open spaces of the development. Access to the center shall be directly from a collector or arterial street.

- A. The center shall be composed of two or more of the following land uses, and shall be bordered on at least two sides by public streets:
 - 1. First floor commercial uses in conjunction with second floor residential or professional office uses.
 - 2. First floor professional office uses in conjunction with second floor residential uses.
 - 3. Civic uses.
- B. Existing buildings located in the vicinity of the neighborhood center shall be retained and adaptively reused, whenever possible.
- C. Commercial or civic uses located adjacent to each other shall share driveways and/or parking facilities.
- D. Parking lots or structures shall be located to the rear and sides of all buildings. Only on-street (parallel or angled) parking shall be permitted in front of commercial uses.
- E. Pedestrian access shall be provided from the residential portions of the TND to the neighborhood center, minimizing at-grade street crossings.

XX.080 Public Space Standards

- A. The design of every TND shall be based on a survey of the existing natural, cultural and scenic features of the site. The design shall preserve important features of the site, identified through the survey, by inclusion of public space as a design element.
- B. Public space includes open space, including parks, trails, greenways and natural areas, street rights-of-way, and lots reserved for civic uses.
- C. The ratio of private space to public space shall not exceed 3 : 1.
- D. Public space shall be used to define the character of the community, and shall be visually and physically linked throughout the community.

XX.090 Civic Space Standards

- A. Civic space shall be included within the neighborhood center, and shall be incorporated into the street and block pattern to achieve visual prominence.
- B. Civic space shall be visually and physically tied to other public space within the community.
- C. Civic space within the neighborhood center must provide for at least two of the following uses:
 - 1. Libraries
 - 2. Fountains, statues or other public art
 - 3. Museums / galleries
 - 4. Theaters
 - 5. Municipal buildings
 - 6. Post office
 - 7. Service organization facilities
 - 8. Day care facilities
 - 9. Transit center
 - 10. Meeting hall
 - 11. Public or private schools
 - 12. Places of worship
- D. The type of civic space provided shall be dependent on the scale of the TND and the location and availability of existing facilities
- E. Civic space shall be located to be accessible to all community residents.

- F. Development of the civic space shall be completed upon the sale of 75 percent of the lots within the TND.

XX.100 Open Space Standards

Open space shall be provided within every TND to meet residents' recreational needs and reinforce the identity, form and character of the settlement. Open space may consist of two or more of the following:

- A. Squares
- B. Community gardens
- C. Pedestrian trails
- D. Parks, playgrounds
- E. Natural areas

All open space shall be accessible to all community residents. The location of open space within the TND shall be coordinated with and, if appropriate, shall connect with or expand adjacent open space or recreational areas.

XX.110 Dimensional Standards

- A. Residential lots shall meet the following requirements:
 - 1. Single-family detached
 - a. Lot area: Minimum - 8,000 square feet
Maximum - 20,000 square feet
 - b. Lot width: Minimum - 60 feet
 - c. Front yard setback: Minimum - 20 feet
Maximum - 40 feet
 - d. Side yard setback: Minimum - 10 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 45 percent or 60 percent with secondary dwelling
 - 2. Duplex
 - a. Lot area: Minimum - 6,000 square feet per unit
Maximum - 10,000 square feet per unit

- b. Lot width: Minimum - 40 feet per unit
 - c. Front yard setback: Minimum - 20 feet
Maximum - 40 feet
 - d. Side yard setback: Minimum - 10 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 50 percent
3. Single-family attached
- a. Lot area: Minimum - 3,000 square feet per unit
Maximum - 10,000 square feet per unit
 - b. Lot width: Minimum - 25 feet per unit
 - c. Front yard setback: Minimum - 20 feet
Maximum - 40 feet
 - d. Side yard setback: Minimum - 10 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 60 percent
4. Multifamily buildings
- a. Lot area: Minimum - 2,500 square feet per unit
Maximum - 6,000 square feet per unit
 - b. Lot width: Minimum - 60 feet per building
 - c. Front yard setback: Minimum - 20 feet
Maximum - 40 feet
 - d. Side yard setback: Minimum - 20 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum - 60 percent
5. Non-residential, civic or mixed use
- a. Lot area: no minimum or maximum requirement
 - b. Lot width: Minimum - 40 feet
 - c. Front yard setback: Minimum - none
Maximum - 20 feet
 - d. Side yard setback: Minimum - 10 feet
 - e. Rear yard setback: Minimum - 25 feet
 - f. Lot coverage: Maximum impervious coverage (buildings, parking) -
75 percent

Section 6. sets a maximum building height. Most communities have additional language that outlines exceptions to the height restrictions.

6. Building Height: Maximum of 35 feet or 2 ½ stories

XX.120 Street system and parking

The traffic circulation system shall be organized to interconnect the TND with the existing town center and other sectors of the community.

- A. The street system shall act as a functional and visual link between neighborhoods, open space, civic and commercial uses.
- B. The street and parking systems shall meet the standards specified in the Street Standards Section of this Ordinance.

XX.130 Transit

- A. Transit facilities shall be provided if the site is located within a transit corridor.
- B. Covered stops with adequate pedestrian access shall be located along through streets or adjacent to arterial or collector streets. Turnouts shall be provided for transit vehicles so that passenger loading and unloading may occur outside of the traffic way.

XX.140 Architectural Standards

- A. Standards for New Buildings
 1. The main entrances of all structures, other than secondary dwelling units, second-floor dwelling units or accessory structures, shall open to the street.
 2. The front entrance to all structures shall be defined by architectural elements, which may include porches, pent roofs, hooded pediments, transom windows, or similar features. Front porches and pent roofs are encouraged on structures facing local residential streets. If covered porches are utilized, they must be at least 4 feet wide, and may not be enclosed, but may encroach into the front setback area.
 3. New structures may be constructed in any architectural style.

However, if such structures are built using elements of Victorian, Craftsman or Bungalow, Prairie School or colonial revival stylistic details, such elements shall be based upon an architectural inventory of the existing town center. Stylistic details characteristic of other regions of the United States are discouraged.

4. A human scale should be achieved near ground level on all buildings and along street facades and entries through the use of such scale elements as windows, doors, columns, porches, pent roofs, cornices, and similar details.
5. Buildings should be designed so that wall surfaces dominate over roof projections such as cantilevered canopies, long cantilevers that are unsupported by doorway openings, or non-traditional geometric roof planes.
6. Long, monotonous, uninterrupted walls or roof planes shall be avoided. Buildings of 40 or more feet in width should be visually divided into smaller increments using any of the following techniques:
 - a. Divisions or breaks in materials (although materials should be drawn from a common palette)
 - b. Window bays
 - c. Separate entrances and entry treatments, porticoes
 - d. Variation in roof lines
 - e. Awnings
 - f. Building setbacks
7. All dwellings other than zero lot-line dwellings separated from any other dwelling by a distance greater than 12 feet shall have at least one window opening, measuring at least 2 feet by 3 feet in size, on every wall. Dwellings on corner lots shall have window openings on each habitable level of the structure on both sides facing the streets. Windows may be part of doorway openings.
8. Fire escapes shall be located to the rear of buildings.
9. Trash collection and storage areas shall be located to the rear or side of buildings and screened from adjoining properties and public streets.

B. Guidelines for Existing Structures

1. Existing structures within the TND site are encouraged to be retained

as part of the new development and may be adapted to appropriate uses.

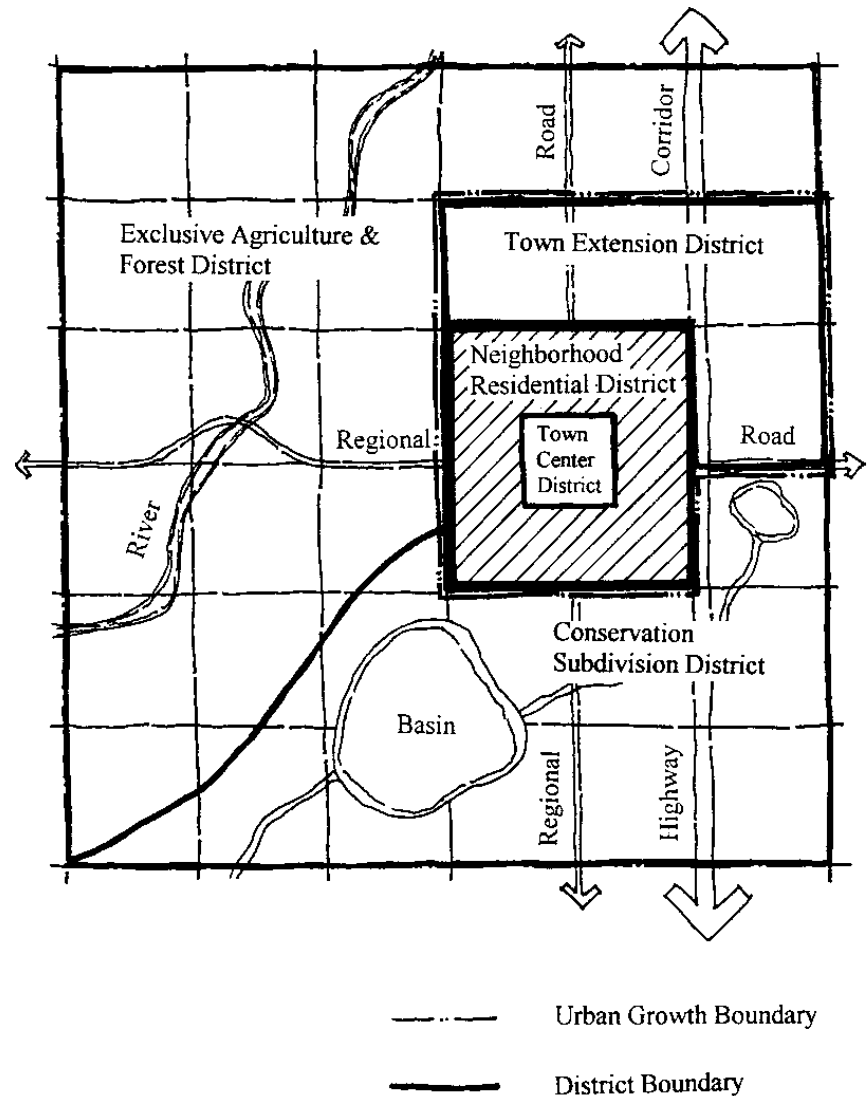
2. Existing structures, if determined to be historic or architecturally significant, shall be protected from demolition or encroachment by incompatible structures or landscape development.
3. The Secretary of the Interior's Standards for Rehabilitation of Historic Buildings shall be used as the criteria for renovating historic or architecturally significant structures.

NR Neighborhood Residential District

The Neighborhood Residential District is intended to encourage compatible infill development in residential neighborhoods around the town center. This district encourages preservation or restoration of existing residential architecture, design, and density. Nearly all commercial development is excluded, unless the neighborhood is far enough from the town center (or other existing commercial center) to warrant neighborhood-sized commercial investment.

For neighborhoods with local or regional historic significance, this district can be modified to meet the specific historic elements of the neighborhood to ensure that infill or redevelopment complements the neighborhood's historic value.

Neighborhood Residential District language is adapted from the model ordinance in *The Livable Communities Handbook*, 1994.



XX.010 Purpose.

The purpose of the NR Neighborhood Residential District is to provide for single-family residential housing on an infill basis, on lots of a typical size in an existing residential neighborhood.

XX.020 Permitted uses

The following are permitted uses in a Neighborhood Residential District:

- A. Single-family detached dwellings
- B. Duplex (two-family dwelling)
- C. Day Care home
- D. Residential care facility (up to 6 residents)
- E. Public parks and playgrounds;

Section B. allows duplexes. The duplex use may also be a conditional use, depending on existing mix of housing.

Section C. explicitly allows home day care facilities. Home day care may also be treated as a customary home occupation

XX.030 Accessory uses.

The following are permitted accessory uses in a Neighborhood Residential District:

- A. Secondary dwelling units may be placed on a single-family detached residential lot within the principal building or an accessory building provided that:
 - 1. The secondary dwelling unit shall not exceed 800 square feet
 - 2. Total building coverage for all principal and accessory uses shall not exceed the maximum prescribed in Section __.
 - 3. One additional off-street parking spaces with unrestricted ingress and egress shall be provided for the secondary unit
 - 4. If located within a separate building or an addition to the principal building, the secondary dwelling unit shall be installed, located, or constructed only in the rear yard and shall meet all side yard setback requirements for principal uses.
- B. Private garages, parking spaces and car port. Such garage shall not be used for the storage of more than one commercial vehicle owned or operated by a resident per dwelling unit;

- C. Recreational vehicles and equipment;
- D. Customary home occupations
- E. Noncommercial greenhouses and conservatories;
- F. Swimming pool, tennis courts and other recreational facilities which are operated for the enjoyment and convenience of the residents of the principal use and their guests;
- G. Tool houses, sheds and similar buildings for storage of domestic supplies and noncommercial recreational equipment;
- H. Boarding or renting of rooms to not more than one person;
- I. Essential services;
- J. Fencing, screening and landscaping as permitted and regulated by Chapter XX of this title;
- K. Boat houses, piers and docks;
- L. Signs in compliance with Chapter XX of this Ordinance.

XX.040 Conditional uses.

The following uses are permitted as conditional uses subject to demonstrated compliance with Site Design Guidelines and compatibility with surrounding land uses and with the purpose of the Neighborhood Residential District.

- A. Public or semi-public recreational buildings and neighborhood or community centers; public and private educational institutions, limited to elementary, junior high and senior high schools; and religious institutions such as churches, chapels, temples and synagogues;
- B. Governmental and public utility buildings and structures necessary for the health, safety and general welfare of the community;

XX.050 Yard, Area and Building Size requirements.

The following are yard, area and building size regulations for permitted single-family detached dwellings in the Neighborhood Residential District. For most dimensions, minimums shall be based on average dimensions on the block in question.

Averages are to be calculated by measuring the dimension for similar uses on the block and dividing by the number of uses. If any one structure or group of structures comprising less than 10 percent of the block has a setback greater than 2 ½ times that of other buildings, the excessive setback shall be ignored in the calculation.

- A. Lot area: Residential lots shall be sized to retain the character of similar uses in the block. The average lot size for similar uses in the block shall be calculated, and used as the minimum lot size for infill residential uses.
 - 1. Undersized lots may be developed under a Conditional Use Permit, if the planning commission finds that the proposed lot is consistent with adjoining properties and will contain sufficient area to permit building construction otherwise conforming to law.
- B. Lot width at front yard setback line: The average lot width for similar uses in the block shall be calculated and used as the minimum lot width for infill residential uses.
- C. Minimum lot depth: 100 feet
- D. Yard dimensions:
 - 1. Front yard: average for block
 - 2. Side yard (each side): minimum of 6 feet, maximum of 20 feet
 - 3. Rear yard: average for block
- E. Build-up line: Average height for block
 - 1. Maximum building height: 35 feet
- F. Maximum building coverage: 40 percent
- G. Minimum non-impervious area: 50 percent

XX.060 Architectural Standards

- A. New buildings shall conform to the same general architectural types found within buildings on the same block or, in the case of a vacant block, those buildings within the surrounding two blocks. The same general types of building materials used in the original construction of these existing buildings

shall be used to construct the exterior portions of new buildings.

- B. Residential building size as viewed from the street, including building front facade area and building height, shall not exceed the average front facade area and height of buildings on the block by more than 50 percent, except by conditional use permit. Such conditional use may be granted based on the determination that the new building is of a size and scale compatible with surrounding buildings.
- C. Larger buildings, such as institutional uses (see Conditional Uses under Section XX.030), where permitted, shall be designed to reflect the same architectural massing and style as other buildings within a two-block area. If no other single, large buildings are present in the area, then the facade of the new building shall be designed to reflect the form, mass and shape of several contiguous smaller buildings within the two block area.

XX.070 Off-street Parking and Loading.

For permitted single-family dwellings, two (2) off-street parking and loading spaces shall be provided and maintained. No off-street parking spaces shall be located within the front yard. The front facades of all attached or detached garages shall be recessed behind the facade of the principal building by a minimum of 10 feet.

Adapted from ordinance language in Faribault, Minnesota, Unified Development Code (draft). 1999, and Minneapolis, Title 20. Zoning Code.

Section A. makes explicit where the site design guidelines will be applied. Each community will need to evaluate which districts or zones it will apply site design guidelines. The community can choose to apply the guidelines community-wide.

Section C. exempts single-family detached dwellings from the site design guidelines. Single-family or residential uses may be required to meet design standards in some cases, especially in districts where infill is emphasized, such as the NR District or any district with historic significance to the community.

Site Design Guidelines/ Site Plan Review

XX.010 Purpose

Site design guidelines are established to promote development that is compatible with nearby properties, neighborhood character and natural features, to minimize pedestrian and vehicular conflict, to promote street life and activity, to reinforce public spaces, to promote public safety, and to visually enhance development.

XX.020 Procedures

Site design guidelines will be applied through the site plan review process. Site plan review shall apply to all new construction, remodeling or expansion of the following uses:

- A. All civic or institutional uses within the following districts:
- B. All commercial and office uses within the _____ districts, with the following exceptions:
 - 1. The use is in an existing storefront building
 - 2. The use is established in an existing building that has received site plan approval, and the establishment of the use does not alter the approved site plan for the property
 - 3. Modifications, additions or enlargements to a building which do not increase the gross floor area by more than 500 square feet or 10 percent, whichever is less, and which do not require a variance from the provisions of this Ordinance.
 - 4. Grading or site preparation that results in minor modifications to the existing site, as approved by the [Community] Engineer.
- C. All residential uses with the exception of single-family detached dwellings

XX.030 Site Plan Requirements

Except as specified in Section XX.020, site plan approval is required prior to issuance of a building permit for any proposed construction or issuance of a

XX.030 describes site plan review processes. Site plan review may be conducted administratively, or by the Planning Commission, or split between minor (administrative) and major (Planning Commission).

The authority for waiving information requirements may be assigned to the City Planner or other community official.

zoning certificate for any proposed use. When a site plan is required in support of a request for a conditional use permit or variance approval, such plan shall also be subject to site plan review requirements.

- A. Required information. All site plans shall be drawn to scale and contain the following information, unless otherwise specifically waived by the Zoning Administrator:
1. A vicinity map, to include locations of any public streets, railroads, major streams or rivers and other major features within 500 feet of the site.
 2. Boundaries and dimensions shown graphically, along with a written legal description of the property.
 3. Present and proposed topography of the site and adjacent areas within 50 feet by contour lines at intervals of no more than five feet, and directional arrows showing proposed flow of stormwater runoff from the site.
 4. The location of existing and proposed structures, with height and gross floor area noted.
 5. Elevation views of all proposed buildings and structures, with building materials and proposed colors noted.
 6. Phasing plans, where applicable.
 7. Location and dimensions of existing and proposed curb cuts, aisles, off-street parking and loading spaces, and walkways.
 8. Location, height and material for screening walls and fences.
 9. Location of all existing and proposed water and sewer facilities and storm drainage systems.
 10. Existing and proposed public streets or rights-of-way, easements, or other reservations of land on the site.
 11. Location and method of screening of outdoor trash storage areas.
 12. Location and size of all proposed signage.
 13. Location and height of proposed lighting facilities
 14. Elevation views of all proposed buildings and structures, with building materials and proposed colors noted.
 15. Location, size and identification of all existing trees, shrubs and other vegetation on the site, indicating which will remain and which will be

- removed, and methods for protection of vegetation to remain.
16. Location, common name, size and quantity of all proposed landscape materials.
 17. Proposed seeding or sodding plans for all disturbed areas, including the type of ground cover and method of application.

XX.040 Building and Site Design Guidelines

The guidelines established in this section are for the purpose of promoting quality development that is attractive, convenient and compatible with surrounding uses. These guidelines are intended to be general in nature and not to restrict creativity, variety or innovation. However, unless site characteristics or conditions dictate otherwise, the community's expectation is that these guidelines be adhered to. In cases where building and site design standards are specific to zoning districts, those standards are noted within the zoning district chapters.

- A. Building placement - Nonresidential uses. At least 50 percent of the front facade of any building shall be located as close to the front lot line as allowed by the zoning ordinance. The placement of buildings shall reinforce the street wall, maximize natural surveillance and visibility, enhance the character of the surrounding area and facilitate pedestrian access and circulation. Parking areas shall be located to the side or rear of the principal building or use served. The Planning Commission may approve alternatives to this requirement, provided that any adverse effects shall be mitigated by a masonry wall, decorative fence or planted materials that reinforce the street wall.
- B. Building placement - Residential uses. Buildings shall be located so that the front doors of the building or individual units face the public street rather than the interior of the site. Parking areas and garages shall be located to the rear or interior of the site, or underground. The Planning Commission may approve alternatives to this requirement when one or more of the following occurs:
 1. The proposed development is located along an arterial street
 2. Commercial or industrial properties are located across the street from the proposed development

3. Unusual or unique site conditions make the requirement impractical.
- C. Building height and scale. The height and scale of new buildings shall be related to the prevailing scale of surrounding development and shall be compatible with surrounding buildings in roof form and pitch. The Planning Commission may approve alternatives to this requirement if a larger building is proposed, to reduce its apparent size by dividing the building mass into smaller sections, including:
 1. Stepping back or extending a portion of the building facade
 2. Emphasizing architectural elements, including windows and entries,
 3. Emphasizing architectural elements of the roof, including dormers, chimneys and gables
 - D. Building facades. Building facades shall provide architectural detail and shall contain windows at the ground level in order to create visual interest and maximize outdoor surveillance and visibility. Exterior materials and appearance shall be compatible with surrounding buildings. The exterior materials and appearance of the rear and side walls of any building shall be similar to and compatible with the front of the building. The use of plain face concrete block as an exterior material shall be prohibited where visible from a public street or right-of-way or any residential district.
 - E. Entries. Primary entries to residential buildings shall be emphasized through the use of architectural features such as porches and roofs, recessions into the facade, or other details that express the importance of the entrance. At least 20 percent of the first floor facade that faces a public street or sidewalk shall consist of windows and doors. Windows shall be distributed in a more or less even manner.
 - F. Primary entries to nonresidential buildings shall be emphasized through the use of architectural features such as roofs, recessions into the facade, or other details that express the importance of the entrance. At least 30 percent of the first floor facade that faces a public street or sidewalk shall be windows or doors of clear or lightly-tinted glass that allow views into and out of the building. The windows shall be distributed in a more or less even manner.
 - G. Architectural variety. The use of a variety of architectural features and

building materials is encouraged to give each building or group of buildings a distinct character. When accent colors are proposed, the number of colors should be limited to prevent a gaudy appearance.

- H. Signage. Signage should be integrated as an architectural element, with attention given to the color, scale and orientation of all proposed signs in relation to the overall design of the building.

XX.050 Site layout guidelines

- A. Site design shall incorporate existing topography and natural features, such as hillsides, wooded areas and greenways. Important vistas and viewpoints, both from the site and into the site, should be protected and enhanced.
- B. Building arrangement. When multiple buildings are proposed for a site, care should be taken to provide maximum street exposure for all buildings.
- C. Service and docking facilities. Loading, delivery and service bays should be oriented away from existing residences and public streets. When this is impractical, service and docking areas shall be screened from view through the provision of walls, fencing or landscaping.
- D. Drive-through facilities, where permitted, shall be designed with safe and easily understood traffic patterns and shall provide sufficient stacking space, based on requirements of Section __ [parking standards] Drive-through windows should not face public streets; and loudspeakers should not create nuisances for adjacent properties.
- E. Stormwater management. Site design should utilize best management practices to minimize off-site stormwater runoff, increase on-site filtration, and minimize the discharge of pollutants to ground and surface water as described in Model Community's Stormwater Ordinance. Natural topography and existing land cover should be incorporated into stormwater management systems to the maximum extent practicable.
- F. Shadowing. Where possible, buildings shall be located so that they minimize shadowing on adjacent properties. A sun and shadow study may be required for any building that is more than 2 ½ stories or 35 feet in height.

Section E. discusses stormwater management standards. A detailed model Stormwater Ordinance is provided in the Infrastructure Chapter.

XX.060 Access and Circulation Guidelines

- A. Pedestrian access and circulation. Convenient and pleasant pedestrian access shall be provided through all development sites that consist of more than one building, and shall connect all buildings to public sidewalks. Where feasible, any existing pedestrian routes through the site shall be preserved and enhanced.
1. Residential uses: Clear and well-lighted walkways, a minimum of 5 feet in width, shall connect entrances into multifamily dwellings to the adjacent public sidewalk and to any parking areas on the site.
 2. Nonresidential uses: Clear and well-lighted walkways shall connect building entrances to the adjacent public sidewalk and to any parking areas located on the site. Such walkways shall be a minimum of 6 feet in width, and shall be landscaped where feasible with trees, shrubs and other plant material, meeting the requirements of Section __.
 3. Transit access: Where transit service is available or planned, site plans shall provide pleasant and convenient access to transit stops. Where transit shelters are provided, they shall be placed in locations that promote security through natural surveillance and visibility, and shall be well-lighted and weather-protected.
- B. Vehicular access and circulation. Vehicular circulation shall be designed to minimize conflicts with pedestrian access and circulation and with surrounding residential uses.
1. Site design should maintain the existing street grid, where present, and restore any disrupted street grid where feasible.
 2. Access for service vehicles shall be provided that does not conflict with pedestrian use. Access points for such vehicles should provide as direct a route as possible to service and loading dock areas, while avoiding movement through parking areas.
 3. Snow storage and removal. Site design shall include areas for snow storage unless applicant provides an acceptable snow removal plan.
 4. Reduction of impervious surfaces through the use of interlocking pavers is strongly encouraged for areas that serve low-impact parking needs, such as remote parking lots, parking areas for periodic uses and parking in natural amenity areas.

XX.070 Landscaping and Screening

- A. Overall composition and location of landscaped areas shall complement the scale of the development and its surroundings. In general, larger, well-placed contiguous planting areas shall be preferred to smaller, disconnected areas.
- B. Street trees. A total of one tree per 40 feet of street frontage, or fraction thereof, shall be required. Trees should preferably be located between the sidewalk and the curb, within a grass strip (boulevard) or tree wells. If placement of street trees within the right-of-way will interfere with utility lines, trees may be planted within the front yard setback adjacent to the sidewalk. Where street trees already exist (for example, infill lots in an existing neighborhood) any gaps shall be filled.
- C. Lot interiors: On nonresidential, multifamily and single-family attached lots, a minimum of 20 percent of the site not occupied by buildings shall be landscaped, to include:
 - 1. A minimum of 1 tree per 5,000 square feet of lot covered by buildings, parking and other impervious surfaces. Trees used to landscape parking areas and required buffers may be applied toward this requirement.
 - 2. The remainder of the landscaped area shall be covered with turf grass, native grasses or other perennial flowering plants, vines, shrubs or trees.
- D. Landscaped yards. Where a landscaped yard is required by this Ordinance, the requirement may be satisfied by one of the following:
 - 1. A minimum of one tree for each 500 square feet and one shrub for each 100 square feet, or fraction thereof.
 - 2. Shrubs, consisting of a minimum of one shrub for each 50 square feet or fraction thereof
 - 3. Trees, consisting of a minimum of one tree for each 200 square feet.

Section D. sets standards for landscaping. Many ordinances specify landscaped yards or buffers between certain uses considered incompatible, such as some types of commercial uses and residential uses. This determination should be made by the individual municipality. Screens (see Section E.) can also be required around parking areas, etc.

The remainder of the landscaped yard shall be covered with turf grass, native grasses or other perennial flowering plants.

E. Required screening. Where screening is required by this Ordinance, it shall be 6 feet in height, unless otherwise specified, except in required front yards where such screening shall be 3 feet in height. Required screening shall be at least 50 percent opaque throughout the year. Required screening shall be satisfied by one of the following:

1. A decorative fence
2. A masonry wall
3. A hedge
4. A decorative fence not less than 50 percent opaque behind a continuous landscaped area.
5. A combination of the above standards

F. **Parking area landscaping and screening.**

1. All parking and loading areas (including drive-through facilities, pump island service areas and stacking spaces) fronting public streets or sidewalks, and all parking and loading areas abutting residential districts or uses, shall provide:
 - a. A landscaped yard at least 5 feet wide along the public street or sidewalk. If a parking area contains over 200 spaces, the minimum required yard shall be increased to 8 feet in width.
 - b. Screening consisting of either a masonry wall, fence, berm or hedge or combination that forms a screen 3 feet in height and not less than 50 percent opaque.
 - c. One tree shall be provided for each 25 linear feet of parking lot frontage.
2. All parking areas and driveways shall be defined by a continuous concrete curb or wheel stops positioned 2 feet from the boundary of the parking area. The 2 feet between the curb face and the parking area boundary shall not be landscaped with plant material, but instead shall be paved or covered with mulch or rock.
3. Interior landscaping. The corners of parking lots and all other areas not used for parking or vehicular circulation shall be landscaped with turf

Section G. describes landscape materials. Many ordinances include a list of recommended or required plant materials that have been determined to be suitable. Such a list would be specific to each community and its climate zone and site conditions. Use of native plant species is one element of sustainable design, since native species tend to be tolerant of weather conditions, less water-consumptive, and compatible with existing vegetation (as opposed to exotic species that may prove invasive). The University of Minnesota Extension has information on sustainable landscaping practices. For this and additional information sources on native plant species, and sustainable landscaping, see the Resource list at the end of this section.

grass, native grasses or other perennial flowering plants, vines, shrubs or trees. Such spaces may include architectural features such as benches, kiosks or bicycle parking.

4. In parking lots containing more than 200 spaces, an additional landscaped area of at least 150 square feet shall be provided for each 25 spaces or fraction thereof, containing one canopy tree. The remainder shall be covered with turf grass, native grasses or other perennial flowering plants, vines or shrubs.

G. Materials. All plant materials must meet the minimum standards set by the American Association of Nurserymen. Landscape species shall be indigenous or proven adaptable to the climate, but shall not be invasive on native species. Plant materials shall comply with the following standards:

1. Minimum plant size shall be as specified in the following table. For the purpose of determining tree trunk size, the diameter shall be measured 6 inches above ground level.

Minimum Plant Size for Landscape Materials

Plant Type	Minimum Size
Trees: Evergreen	6 feet in height
Deciduous	2 ½ inches in diameter
Deciduous ornamental	1 ½ inches in diameter
Shrubs: Evergreen or deciduous	18 - 24” in height 18 - 24” in height

2. Landscape materials shall be tolerant of specific site conditions, including but not limited to heat, drought and salt.
3. Existing healthy plant material may be utilized to satisfy landscaping requirements, provided it meets the minimum plant size specified in the table above.
4. Landscape materials that are used for screening shall be of a size that allows growth to the desired height and opacity within 2 years.

H. Installation and maintenance.

1. Areas to be landscaped shall be prepared and improved as specified by current Minnesota Department of Transportation standards for soil preparation and drainage.
2. All landscape materials shall be installed to current industry standards.
3. Maintenance and replacement of landscape materials shall be the responsibility of the property owner, including the maintenance of any trees planted in the public right-of-way. An adequate water supply shall be provided. Landscape maintenance should incorporate environmentally sound management practices, including:
 - a. The use of water- and energy-efficient systems such as drip irrigation.
 - b. Pruning primarily for plant health and replacing dead materials annually.
 - c. Anticipating and allowing plant community succession.

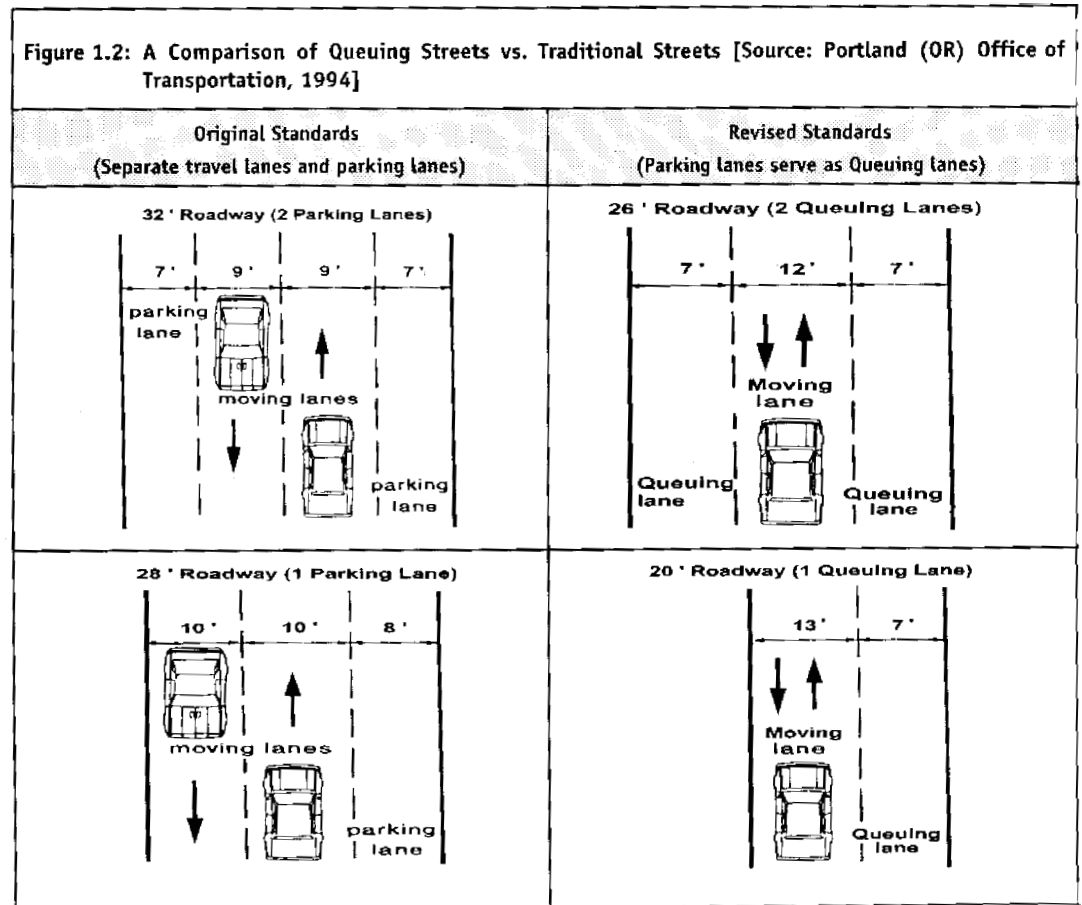
Street Standards

The proposed street standards provide a broader range of local residential street types and include more narrow street cross-sections than most Minnesota communities currently allow. The debate over the potential benefits of narrower streets are discussed at length in many recent publications, and will not be repeated here in any detail. (See the Institute of Transportation Engineers' 1997 publication, "Traditional Neighborhood Street Design Guidelines" for a thorough discussion of this topic.)

These sample standards are made available for use by local government units as: 1) an alternative to conventional street standards, for use in a "TND" District or in other specific districts that are designed for compact, mixed-use development; or 2) as a potential replacement for some or all of the community's local street standards.

A few points to consider: although Minnesota law currently forbids speed limits on state roads or state-aid roads below 30 mph, it is widely recognized that 30 mph is inappropriately fast for many residential streets, and that designing streets for a 30 mph speed produces speeds that are incompatible with residential character. The solution: design for appropriate speeds, using the following (or similar) street standards and additional traffic calming devices where needed.

Local street widths utilize a concept called "queueing" -- the use of one travel lane on local streets with parking (usually an intermittent parking pattern) on both sides. At low traffic volumes, with intermittent parking, cars traveling in opposite directions must occasionally use the parking lane as a travel lane or wait for another car to pass.



XX.010 Purpose and Function of Circulation System

- A. The circulation system shall be used to organize and define the community, acting as functional and visual links between neighborhoods, the town center, civic and commercial areas and open space.
- B. The circulation system shall be based on a defined, interconnected network to provide adequate traffic capacity, provide connected pedestrian and bicycle routes, control through traffic, limit lot access to streets of lower traffic volumes, and promote safe and efficient mobility through the community. Each street will be designated as a “collector” street, a neighborhood or “local” street, or a service street or “alley.”

XX.020 General street design principles

The following principles should be followed in street layout and design:

- A. Local street lengths should be short.
- B. Streets should be designed with gentle curves and changes in grade to break the sight line of the road into smaller visual elements and cause drivers to slow down.
- C. Traffic calming features such as curb extensions, traffic circles, and medians may be used to encourage slow traffic speeds.

XX.030 Orientation of Streets

- A. The orientation of streets and pedestrian access should enhance open spaces and prominent buildings and provide for the maximum number of lots with southern exposure.
- B. All streets shall terminate at other streets or at public land, except as specified below:
 - 1. Access lanes that terminate in cul-de-sacs may be permitted only when topography prevents the use of loop streets.
 - 2. Local streets may terminate in stub streets when such streets act as connections to future phases of the development.

XX.040 Street layout

- A. No lot shall be more than 1,000 feet from a street intersection. Local streets shall be designed to limit and slow through traffic by narrower roadways, short lengths and other geometric configurations.
- B. Low volume streets should be aligned to form three-way intersections when possible. Three-way intersections create an inherent right-of-way assignment (the through street receives precedence) which significantly reduces accidents without the use of traffic controls.
- C. A low volume street that intersects a higher-order street, such as a collector, should be aligned with another street to form a four-way intersection, which can easily be regulated by a stop sign or other traffic control device.
- D. Right angle intersections shall be used whenever possible. No street shall intersect another at an angle of less than 75 degrees.
- E. The roadway edge at street intersections shall be rounded by a tangential arc with a minimum radius of 20 feet for local streets and 30 feet for intersections involving collector or arterial streets.
 - 1. Where the intersection of local streets will be controlled by the placement of stop signs, the radius may be reduced to 15 feet.
 - 2. The intersection of a local street and an access lane or alley shall be rounded by a tangential arc with a minimum radius of 10 feet.
- F. Curb cuts for driveways to individual residential lots shall be prohibited along arterial streets. Curb cuts shall be limited to intersections with other streets or access drives to parking areas for commercial, civic or multifamily uses. Clear sight triangles shall be maintained at intersections, unless controlled by traffic signal devices.
 - 1. For collector streets intersecting local streets the minimum required clear sight distance shall be 120 feet.
 - 2. For collector street intersecting collector streets the minimum required clear sight distance shall be 130 feet.
 - 3. For collector street intersecting arterial streets the minimum required clear sight distance shall be 150 feet.

Section A. of Chapter XX.050 includes a requirement for curb and gutter systems to manage stormwater. A number of alternatives to traditional curb and gutter systems are available. In rural areas or conservation subdivision, stormwater systems that use grass swales (with distinct design standards from roadside ditches), natural retention, constructed wetlands, and other options are possible. Some existing examples of non-curb-and-gutter stormwater systems in urban density neighborhoods demonstrate that alternative systems can work even in traditional urban neighborhoods.

In addition to the code language on street design in XX.050, some elevations are provided to illustrate how applications of the ordinance language might appear. The examples are from the Eugene, Oregon Street Code, as presented in Smart Development Code Handbook, Oregon Department of Transportation, 1997

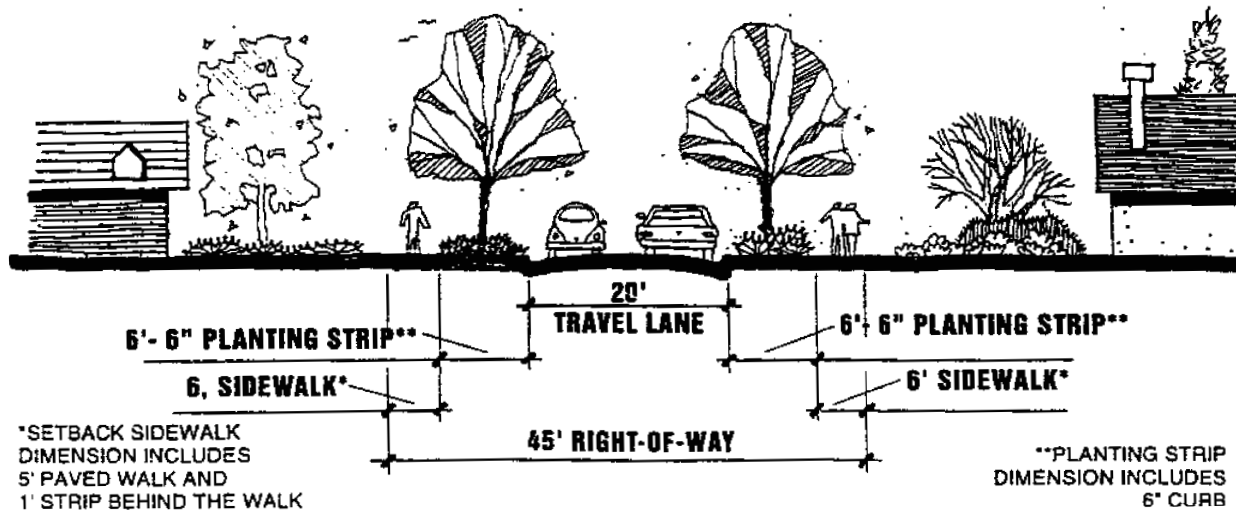
4. For local streets intersecting local or collector streets the minimum required clear sight distance shall be 15 feet.

XX.050 Street classification standards

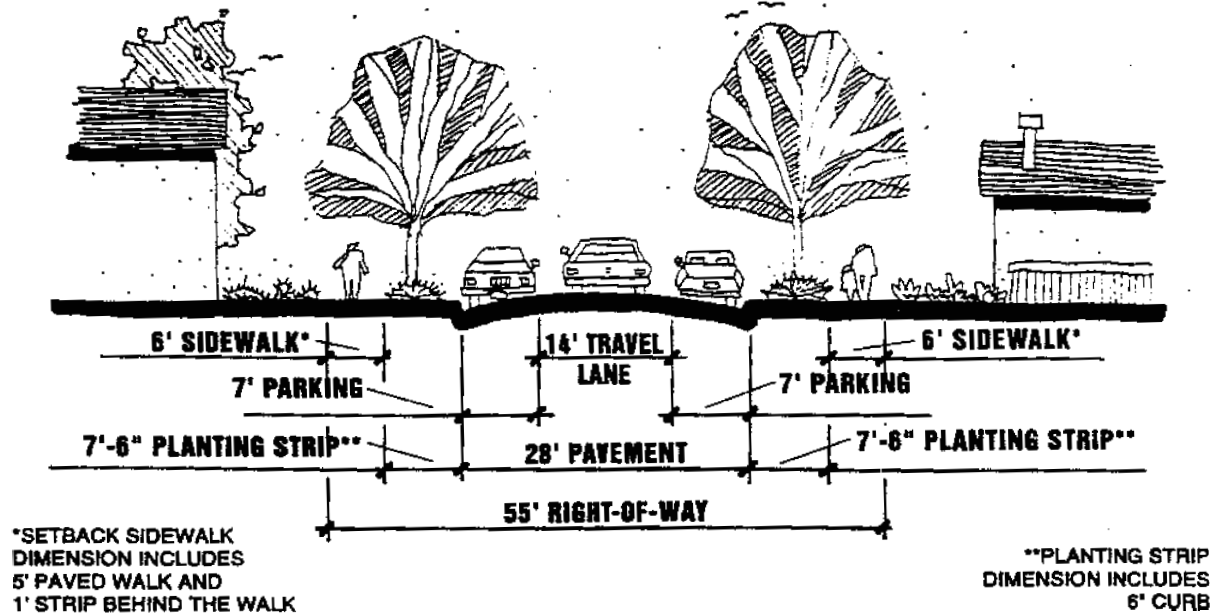
A. **Low-Volume Residential Street.** This street is designed for primary access to individual residential properties as well as access to adjacent streets. Traffic volumes are relatively low, with a design speed of 20 mph.

Average Daily Traffic:	250 - 750 ADT
Right-of-way width:	45' - 55'
Pavement width:	20' - 28'
Travel lanes:	two 10' lanes or one 14' lane (queuing)
Parking:	none, one side or both sides
Sidewalks:	both sides, 5' - 6'
Curb and gutter:	required

**20' LOW-VOLUME RESIDENTIAL STREET
SECTION - NO SCALE**



28' LOW-VOLUME RESIDENTIAL STREET

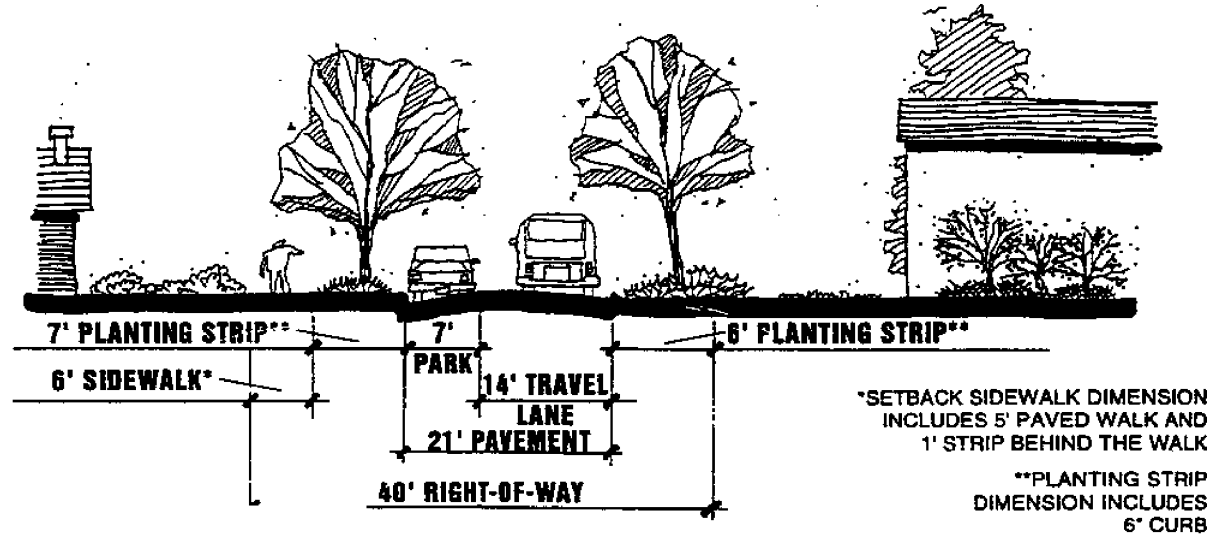


- B. **Residential Access Lane.** This street is designed for primary access to a limited number of residential properties. With minimal traffic volumes, traffic is completely subservient to the residential environment. Access lanes can be constructed as cul-de-sacs, loop street, or short connecting streets, and generally serve 25 or fewer homes.

Average Daily Traffic:	less than 250 ADT
Right-of-way width:	40' - 55'
Pavement width:	21' - 28'
Travel lanes:	one 14' travel lane (queueing street)
Parking:	one side or both sides
Sidewalks:	one side (21' street) or both sides (28')
Curb and gutter:	required; inverted curb permitted under certain conditions.
Connectivity:	provide bicycle/ped connections from cul-de-sac bulbs

The curb and gutter requirement can be altered to allow alternatives to curb and gutter, as described above.

**21' ACCESS LANE
SECTION - NO SCALE**



Eugene Local Street Plan

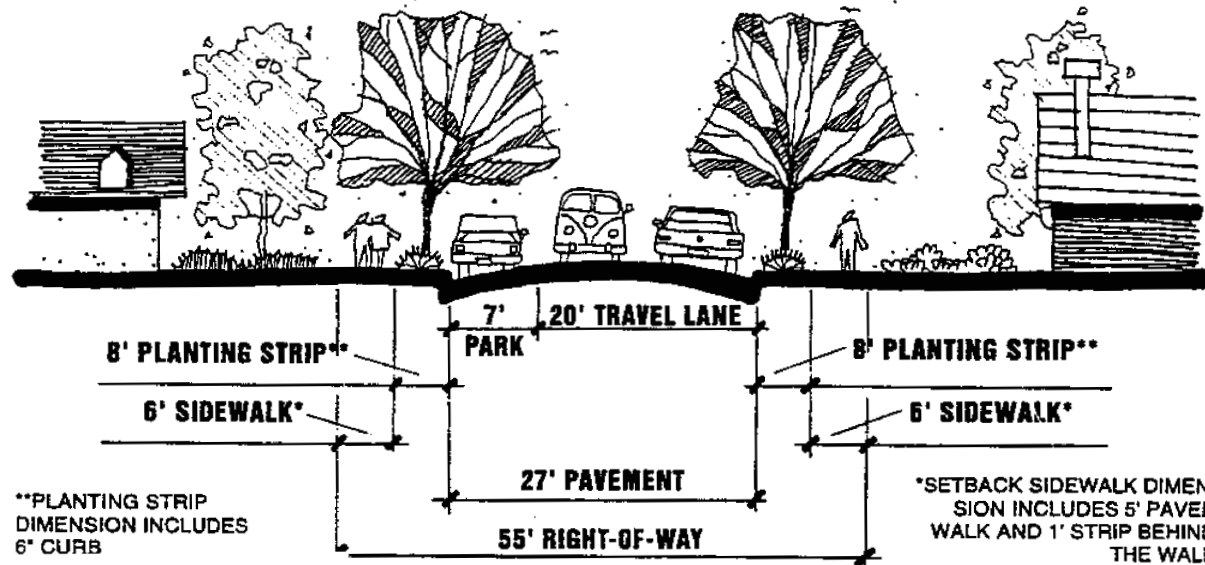
C. **Public Alley.** These streets provide secondary access to residential properties where street frontages are narrow; where the street is designed with a narrow width to provide limited on-street parking, or where alley access development is desired to increase residential densities. Alleys may also be used to provide delivery access or alternate parking access to commercial properties.

Average Daily Traffic:	not applicable
Right-of-way width:	20'
Pavement width:	16' for two-way traffic, 12' for one-way traffic
Parking:	none (access to individual driveways and garages outside r.o.w.)
Sidewalks:	none
Curb and gutter:	inverted curb for asphalt; none required for concrete

D. **Medium-Volume Residential Street (or Subcollector).** This street is designed for primary access to individual residential properties, to connect streets of lower and higher function, and to access the major street network. Design speed is 25 mph.

Average Daily Traffic:	750 -1,500 ADT
Right-of-way width:	50' -60'
Pavement width:	20' - 34'
Travel lanes:	two 10' lanes or
Parking:	none, one side or both sides
Sidewalks:	both sides, 5' - 6'
Curb and gutter:	required

**27' MEDIUM-VOLUME RESIDENTIAL STREET
SECTION - NO SCALE**



**PLANTING STRIP DIMENSION INCLUDES 6" CURB

*SETBACK SIDEWALK DIMENSION INCLUDES 5' PAVED WALK AND 1' STRIP BEHIND THE WALK

Eugene Street Plan

E. **Medium-Volume Commercial Street.** This street is designed for a mixed-use town center or neighborhood commercial center. The primary function is access to commercial or mixed-use buildings, but it is also part of the major street network. On-street parking, whether diagonal or parallel, helps to slow traffic and facilitate pedestrian traffic. Additional parking is provided in lots to the side or rear of buildings. Alleys may be used for deliveries and alternate access.

Average Daily Traffic:	750 ADT or more
Right-of-way width:	70' or more
Pavement width:	40' or more (depends on no. of travel lanes and parking configuration)
Travel lanes:	two or three 12' lanes
Parking:	both sides, parallel or diagonal
Sidewalks:	both sides, 6' - 10'
Curb and gutter:	required

XX.060 Pedestrian Circulation Required

Pedestrian sidewalks, paths and walkways shall be provided within the community and shall constitute an integral element of the overall site design. They shall provide safe, convenient and attractive connections to, from and among community focal points, including residential neighborhoods, town and neighborhood centers, transit stops, schools, parks and recreation areas, municipal buildings, and other public facilities.

- A. Sidewalks shall be provided along both sides of all streets, except for residential access lanes, which may have sidewalks on one side.
- B. Pedestrian paths shall be landscaped to provide scale, enclosure and shade.
- C. Intersections of pedestrian paths with streets shall be designed with clearly defined edges. Crosswalks shall be well-lit and defined with contrasting paving materials or striping.
- D. All sidewalks and pedestrian paths shall be handicapped accessible.
- E. Sidewalks and paths shall be a minimum of 5 feet in width in residential areas, and 10 feet within town center and civic areas where practicable. Where less space is available, use the maximum practicable width.

Resources

Town Center

Lancaster County Planning Commission. *The Livable Communities Handbook*. 1994. Model ordinance originally developed by Kise, Franks and Straw, Inc., Philadelphia.

Biko Associates. City of North Branch Draft Zoning Ordinance (not adopted), n.d. 1996.

References for further research

Hinshaw, Mark L. *Design Review*. PAS Report No. 454, American Planning Association, 1995.

Jakubovich, Paul and Les Vollmert. *Good for Business: A Guide to Rehabilitating the Exteriors of Older Commercial Buildings*. City of Milwaukee, Wisconsin, 1995. Available from Historic Preservation Planning, P.O. Box 324, Milwaukee, WI 53201-0324, 414-286-5705.

Nelessen, Anton C. *Visions for a New American Dream: Process, Principles and an Ordinance to Plan and Design Small Communities*. APA Planners Press, 1994.

Town Extension District

Lancaster County Planning Commission. *The Livable Communities Handbook*. 1994. Model ordinance originally developed by Kise, Franks and Straw, Inc., Philadelphia.

City of Wayzata. *Wayzata Design Guidelines*. 1998.

References for further research

Nelessen, Anton C. *Visions for a New American Dream: Process, Principles and an Ordinance to Plan and Design Small Communities*. APA Planners Press, 1994.

Traditional Neighborhood District

Lancaster County Planning Commission. *The Livable Communities Handbook*. 1994. Model ordinance originally developed by Kise, Franks and Straw, Inc., Philadelphia.

City of Wayzata. *Wayzata Design Guidelines*. 1998.

References for further research

Nelessen, Anton C. *Visions for a New American Dream: Process, Principles and an Ordinance to Plan and Design Small Communities*. APA Planners Press, 1994.

Many other TND ordinances with a more specifically New Urbanist graphically-oriented format are available through Internet sources. Examples include ordinances of Austin, Texas, at www.ci.austin.tx.us or that of Belmont, North Carolina, at www.ci.belmont.nc

Neighborhood Residential District

Lancaster County Planning Commission. *The Livable Communities Handbook*. 1994. Model ordinance originally developed by Kise, Franks and Straw, Inc., Philadelphia.

References for further research

Jakubovich, Paul. *Living With History: A Guide to Preservation Standards for Historic Houses in Milwaukee*. City of Milwaukee, Wisconsin, 1997. Available from Historic Preservation Planning, P.O. Box 324, Milwaukee, WI 53201-0324, 414-286-5705.

Nelessen, Anton C. *Visions for a New American Dream: Process, Principles and an Ordinance to Plan and Design Small Communities*. APA Planners Press, 1994.

Site Design

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CLUSTER #4 - INFRASTRUCTURE PLANNING

The building and maintaining of public infrastructure (roads, sewers, water systems, public buildings such as schools) absorbs a substantial amount of our community public resources. A community's choices in prioritizing where to build or maintain infrastructure affects the economic health, the environmental quality, and social equity of the community. Investment in new schools should reflect the needs of the entire community, not a single growing subdivision. Maintenance of existing road capacity should similarly not be sacrificed to accommodate new road infrastructure. Ordinances covering undeveloped areas should encourage long-term viability of septic and well systems. Septic failure can result not only in water quality problems, but can drive unnecessary extension of urban services to otherwise undeveloped areas.

This Chapter includes four sample ordinances providing language reflecting principles of sustainability in infrastructure planning, investment, maintenance.

- 1) Adequate Public Facilities Ordinance*
- 2) Travel Demand Management Performance Standard*
- 3) Individual Sewage Treatment Systems Ordinance*
- 4) Stormwater Management Ordinance*

- 1. The Adequate Public Facilities Ordinance (APFO) addresses the link between land use planning, capital improvements planning, and zoning. By requiring new development to locate where public facilities and infrastructure have capacity, local governments avoid wasteful duplication, reduce infrastructure maintenance costs, and protect natural resources for future generations.*
- 2. Setting a Travel Demand Management (TDM) performance standard recognizes the inefficiency and unsustainability of the historic build and bust cycle of road and parking capacity. Ensuring the use of under-utilized transit and non-motorized vehicle capacity reduces congestion, improves the livability of our downtowns and central cities, and reduces the air quality problems from our reliance on automobiles.*
- 3. Ensuring the proper construction and maintenance of septic systems protects natural resources and facilitates staged growth around urban areas. Local governments in rural Minnesota, and those in unincorporated areas near cities, rely on individual sewage treatment systems (usually septic systems) instead of centralized facilities to treat wastewater. Septic systems frequently fail, lowering the quality of local natural resources (lakes, wetlands, ground water). Septic failure also drives the extension of urban services into otherwise undeveloped areas, altering growth patterns, opening up prime farmland for development, and ultimately increasing demand on other infrastructure (roads, schools, water systems).*
- 4. One of the primary sources of non-point pollution in Minnesota's lakes and rivers is poorly managed stormwater runoff. Enacting a thorough stormwater ordinance controls storm water volumes, prevents pollutants from lowering water quality in rivers and lakes, and encourages the creation of new green space and wetland areas.*

A number of other infrastructure issues and infrastructure/growth management tools are available for community's to sustainably manage infrastructure and growth. Some, such as urban growth boundaries, performance standards, and various kinds of design guidelines are described in other chapters. Others, such as development fees tied to the specific impacts on public infrastructure, are not discussed here, but are available in other documents (for a model ordinance on sliding development fees, see the City of Lancaster CA, Urban Structure Program Ordinance. Chapter 15.64, Sections .010 through .230, 1993).

Adequate Public Facilities Ordinance

A primary tenant of sustainability is that development must be commensurate with capacity. In terms of infrastructure, development should be directed to areas with existing infrastructure capacity, including roads, schools, waste water and drinking water systems, fire protection, parks, and recreation facilities.

Communities have several tools at their disposal to match development with infrastructure capacity, including the following:

- *Zoning that restricts development within the infrastructure capacity of a given area,*
- *Development fees linked to infrastructure costs associated with each development,*
- *Performance standards that require low levels of demand on public facilities,*
- *Ordinances that overlay the zoning code or direct the rezoning and variance procedures to ensure that adequate investment in public facilities is made prior to development.*

The following ordinance language reflects the last of these options; an Adequate Public Facilities Ordinance, also known as a Concurrency Ordinance.

Creating an Adequate Public Facilities Ordinance involves several steps, some of which are outside the realm of ordinances or codes. First, the community needs to identify in its comprehensive plan a land use plan that reflects where adequate facilities exist, and where facilities will be added at a later date to allow for growth. Second, the community must adopt (through its Comprehensive Plan, or through a separate document such as a Capital Improvement Plan) a plan for staging infrastructure growth to accommodate growth in the community. The staging of infrastructure investment should be tied to specific “level of service” measurements - each type of infrastructure should have a threshold level of service that the community has committed to maintain. Finally, the zoning ordinance should reflect the comprehensive plan policies, allowing development only where the comprehensive plan indicates adequate facilities exist or are scheduled for construction in the near future.

The ordinance below addresses the adequacy of “grey,” or built, infrastructure (roads, sewers, schools, etc). Adequacy of infrastructure could also pertain to “green,” or natural infrastructure (streams and rivers, wildlife areas, green corridors, wetlands, etc.). Level of service is equivalent to the carrying capacity of the green infrastructure. Adequacy standards for green infrastructure rarely find their way into local ordinances, but are certainly consistent with the precepts of sustainability as discussed below.

The model ordinance was adapted from Douglas County, Colorado, Concurrency Management Ordinance, Section 25 (Rezoning) of the Land Management Code, as reproduced in the American Planning Association Planning Advisory Service Report 465, White, S. Mark. Adequate Public Facilities Ordinances and Transportation Management, 1996.

Most concurrency ordinances, including the one used in this model, are directed to residential development. A community could apply the concepts of adequate public facilities to commercial and industrial development as well. An adequate public facilities ordinance can, for instance, direct appropriate commercial development into the downtown area of a community rather than to greenfield sites along the highway outside of town. Similarly, industrial development may tax a community's sewer, water, or transportation system – concurrency would demand that capacity be added or otherwise managed in such a way as to maintain existing levels of service, reserve margins, and natural resource protection.

The concept of developing within the carrying capacity of infrastructure can be applied to natural resource “infrastructure” in much the same way as built infrastructure. The economics of sustainability discuss the issue of managing natural systems whose capacity cannot be manufactured (air, water, and non-renewable natural resources) as infrastructure. The concept of concurrency is applied to the carrying capacity of the atmosphere to absorb emissions (local air quality authorities), capacity of lakes, rivers, or wetlands to absorb discharges (watershed districts and watershed planning), and the capacity of ecological systems to sustain the harvest of renewable resources (forest landscape management).

XX.01. Purpose and Intent

- A. To ensure that public facilities needed to support new development meet or exceed the adopted level of service standards established by the Model Community Comprehensive Plan and this ordinance.
- B. To ensure that no rezonings are approved that would cause a reduction in the levels of service for any public facilities below the adopted level of service established in the Model Community Comprehensive Plan;
- C. To ensure that adequate public facilities needed to support new development are available concurrent with the impacts of such development;
- D. To establish uniform procedures for the review of rezoning applications subject to the concurrency management standards and requirements;
- E. To facilitate implementation of goals and policies set forth in the Model Community Comprehensive Plan relating to adequacy of public facilities, level of service standards and concurrency; and;
- F. To ensure that all applicable legal standards and criteria are properly incorporated in these procedures and requirements.

XX.02. Applicability

- A. This Section shall not apply to any use, development, project, structure, fence, sign, or activity which does not result in a new residential dwelling unit.
- B. The provisions of this Section shall apply to all applications for development approval requesting a residential use, or those portions of applications for development approval requesting a residential use, within the unincorporated area of Model Community. No Development Order shall be granted, approved, or issued unless accompanied by a Concurrency Data Form that has received a positive concurrency determination or a positive concurrency determination subject to conditions.
- C. No application for development approval shall be approved unless it has received a positive concurrency determination as set out in Section XX.07.A., or a positive concurrency determination subject to conditions, as set out in Section XX.07.C.

D. Vested Rights

1. Nothing in this ordinance shall limit or modify the rights of an applicant to complete any development authorized by an approved Site Specific Development Plan for a period extending three (3) years following the approval thereof or the expiration date set forth in the Site Specific Development Plan.
2. If a developer has, by his actions in reliance on prior regulations, obtained vested rights that by law would have prevented Model Community from changing those regulations in a manner adverse to his interests, nothing in this ordinance authorizes Model Community or any official thereof to abridge those rights.

E. The determination of concurrency shall not affect the otherwise operable and applicable provisions of the Model Community Zoning Code or the Model Community Subdivision Ordinance all of which shall be operative and remain in full force and effect without limitation.

F. A Concurrency Data Form shall not be required for proposed residential development in municipalities in Model County unless the municipality and the County have mutually executed an intergovernmental agreement providing for the County to undertake this function on behalf of the municipality.

For county governments, the Section F. defers to the performance standards, zoning, or subdivision requirements of any municipality within the county.

XX.03. General Provisions-Monitoring

- A. **Concurrency Information Database.** Model Community Staff shall develop, maintain, and update a Concurrency Information Database that shall provide support to Model Community officials and departments responsible for concurrency review, monitoring, and planning for public facilities. At a minimum, the database shall contain the following information:
1. existing dwelling units and nonresidential development;
 2. committed development;
 3. the capacity of existing public facilities provided by Model Community, based on adopted level of service; and
 4. the capacity created by the completion of public facilities to be provided

by Model Community, and that are included in the capital improvements program.

- B. **Annual Review.** Model Community Staff shall, not less frequently than annually, prepare and submit to the Council an annual Concurrency Management Report. The report shall include:
 - 1. growth trends and projections;
 - 2. proposed changes to the boundaries of impact areas for any public facility,
 - 3. proposed changes to existing or adopted level of service standards;
 - 4. proposed changes in concurrency analysis methodologies;
 - 5. recommendations on amendments to the Adequate Public Facilities Ordinance if appropriate; and
 - 6. other data, analysis, or recommendations as the Director may deem appropriate, or as may be requested by the Council.
- C. **Effect of Annual Review.** The Annual Review may, in whole or in part, form the basis for recommendations to the Council or Council actions to repeal, amend, or modify this Section. Other data, reports, analyses, and documents relevant to such decisions as may be available may also be used.
- D. **Amendments.** Nothing herein precludes the Council or limits its discretion to amend this Section at such other times as may be deemed necessary or desirable

XX.04. **Procedures for the Processing of Concurrency Data Form**

- A. **Submittal Requirements.** All applications for development approval shall be accompanied by a Concurrency Data Form that includes sufficient information to allow Model Community to determine the impact of the proposed development on public facilities pursuant to the concurrency determination procedures. The Concurrency Data Form shall be a form prepared by the Department. The information required shall include, but shall not be limited to:

Section A defines the evidence, worksheets, or other information that must be submitted with other development documents for community approval. The community could adopt a concurrency ordinance addressing commercial or industrial development, or a concurrency requirement for the preservation

of natural resource “infrastructure” carrying capacity. In this case the submittal requirements must require information related to carrying capacities or levels or service appropriate to those commercial/industrial development, or natural resource management goals.

1. the total number, type of dwelling units, and gross density of proposed development;
2. the location of the proposed development;
3. an identification of the public facilities impacted by the proposed development; and
4. any other appropriate information as may be required by Model Community consistent with the provisions ... herein.

B. Fee for Review of Concurrency Data Form. Each application for development approval shall be accompanied by the required Concurrency review fees, as may be established by the Council.

XX.05. Procedures for Concurrency Review and Recommendation by Department

Chapter XX.05 describes the review process for concurrency determinations. The department in charge of review will vary depending on the unit of local government. Planning Department, Department of Public Works, and Department of the Environment, are all examples found in Minnesota that could lead review and recommendations.

- A. **Department Review.** The Department (acting by and through the staff planner) shall determine whether the Concurrency Data Form complies with the submittal requirements set forth in subsection XX.04.A. herein.... If the Concurrency Data Form is incomplete or the submittal requirements have not been complied with, the Department shall so notify the applicant, specifying the deficiencies. If the Concurrency Data Form is complete and the submittal requirements have been complied with, the Department shall evaluate the proposed development for compliance with the adopted levels of service and shall submit a Concurrency Recommendation pursuant to subsection XX.05 B.
- B. **Department Recommendation.** If the Department concludes that each public facility will be available concurrent with the impacts of the proposed development at the adopted levels of service, the Department shall make a positive Concurrency Recommendation in its staff report. If the Department determines that any public facility will not be available concurrent with the impacts of the proposed development at the adopted levels of service based upon existing public facilities, the Department shall make a negative Concurrency Recommendation in the staff report or a positive Concurrency Recommendation with appropriate conditions consistent with the criteria set forth in subsections XX.10.B. and XX.07.C.

of this Section. If the Department recommends that the application be conditionally approved, the staff report shall recommend conditions or stipulations that may address the density of the proposed development, the timing and phasing of the proposed development, the provision of public facilities by the applicant or any other reasonable conditions to ensure that all public facilities will be adequate and available concurrent with the impacts of the proposed development. The staff report shall, at a minimum, include the following, based upon staff and referral agency concurrency management recommendations:

1. The number of residential dwelling units proposed by the applicant, by type, and the resulting number of Equivalent Residential Units (ERU's) for each public facility;
2. the timing and phasing of the proposed development, if applicable;
3. the specific public facilities impacted by the proposed development;
4. the extent of the impact of the proposed development in the applicable impact areas;
5. the capacity of existing public facilities in the impact areas which will be impacted by the proposed development, based on adopted level of service;
6. the demand on existing public facilities in the impact areas from all existing and approved development;
7. the availability of existing capacity to accommodate the proposed development; and
8. if existing capacity is not available, planned capacity and the year in which such planned capacity is projected to be available to serve the proposed development.

XX.06. Withdrawal of Concurrency Data Form

The applicant may withdraw the Concurrency Data Form at any time by submitting a written request to the Department. Withdrawal may result in the forfeiture of some or all fees paid by the applicant for the processing of the Concurrency Data Form.

XX.07. Concurrency Determination by Council-Criteria

A proposed rezoning or special review that could result in a range of potential impacts shall be reviewed as if the greatest impact would result. The concurrency review shall compare the capacity of public facilities to the maximum projected demand that may result from the proposed rezoning or special review based upon the maximum potential density of the affected area pursuant to the rezoning or special review. Nothing herein shall authorize a rezoning or an allowance by special review that would otherwise be inconsistent with the Model Community Comprehensive Plan or the Model Community Land Use Map. Upon receipt of the staff report, and subject to compliance with all other applicable standards of approval for a Development Order, the Council may determine:

- A. A positive Concurrency Determination
- B. A negative Concurrency Determination
- C. A positive Concurrency Determination subject to one or more of the following conditions:
 - 1. Deferral of further Development Orders until all public facilities are available and adequate if public facilities in the impact area are not adequate to meet the adopted levels of service for the development proposal, consistent with the requirements of subsection XX.10.B. herein.
 - 2. Reduction of the density or intensity of the proposed development, including phasing of development, to a level consistent with the available capacity of public facilities.
 - 3. Provision by the applicant of the public facilities necessary to provide capacity to accommodate the proposed development at the adopted levels of service and at the time that the impact of the proposed development will occur.

XX.08. Expiration of Concurrency Determination

- A. A Concurrency Determination issued pursuant to subsection XX.07 of this Section shall be deemed to expire when the Development Order to which it

is attached expires, lapses, or is waived or revoked, or if the applicant has not complied with conditions attached to its issuance.

- B. If a Concurrency Determination attached to a rezoning expires, Model Community may initiate proceedings to rezone the property.

XX.09. **Effect of Positive Concurrency Determination**

- A. A Positive Concurrency Determination for a Development Order shall be deemed to indicate that public facilities are available as determined in Section XX.10.B. herein at the time of issuance of the Concurrency Determination.
- B. The Concurrency Determination shall expire and become null and void upon the expiration of the Development Order to which it is attached or the time frame for submitting a subsequent application for approval, unless an application for a subsequent Development Order is submitted within the time frames set forth in the Model Community Zoning Code. If no expiration date is provided in the Model Community Zoning Code in the conditions of the Concurrency Determination or in the conditions of permit approval, the Concurrency Determination shall expire within two (2) years after approval of the Development Order.
- C. A Concurrency Determination shall not be deemed as evidence supporting a request for a Model Community Comprehensive Plan amendment changing designated land use from one category to another, nor shall it affect the need for the applicant for a rezoning to meet all other requirements as set forth in this ordinance.
- D. **Advancement of Capacity.** No advancement of capacity for public facilities needed to avoid a deterioration in the adopted levels of service shall be accepted by the Council unless the proposed public facility is a planned capital improvement or appropriate conditions are included to ensure that the applicant will obtain all necessary approvals for such planned capital improvement from any governmental agency having jurisdiction over such planned capital improvement prior to or concurrent with the issuance of a final residential subdivision plat or, if subdivision approval is not required, a building permit. If such planned capital

Section D and its subsections use language that assumes a regular addition of capacity to the infrastructure for which concurrency is required. An alternative to developing new capacity is to offer developers the opportunity to manage existing demand on the current infrastructure. Electric utilities, for instance, meet new demand for electricity partially through offering energy efficiency programs to existing customers; existing customers use less, making existing capacity available for new development. Some larger cities in Minnesota require

new development to meet transportation infrastructure needs through “travel demand management” efforts, such as building bus shelters, bicycle racks, and showers with changing rooms (an example of a “TDM” requirement, is found later in this chapter).

The “demand-side” option the only real opportunity for managing the carrying capacity of natural resources. A local government cannot build new capacity for the atmosphere to absorb air emissions, or increase the capacity of a lake to prevent bio-accumulation of mercury in fish. The most meaningful action to address capacity is to lower existing discharges or make existing treatment facilities more efficient. Some approaches to natural systems take the demand-side management approach. The Minnesota Pollution Control Agency, for instance, created a model program in a portion of the Minnesota River watershed allowing industrial point-source emissions to increase only if the industry successfully lowered non-point source pollution within the same watershed.

Section A. of Chapter XX.10 establishes Level of Service (LOS) standards, a vital component of an Adequate Public Facilities Ordinance. LOS standards for many kinds of infrastructure, such as roads, are common in planning literature and practice. LOS standards for other infrastructure, such as schools, libraries, and municipal buildings may be found, but are less established in law and practice. LOS standards for natural resource infrastructure must be developed specific to local areas and accepted natural resource planning practices. Some LOS standards may require extensive research, measurement, and justification.

The standards in Sections B. through H. are directed toward residential development. Different standards may be necessary

improvement requires the approval of a governmental agency, such approval shall authorize the full capacity upon which the Concurrency Determination was rendered. The commitment to construction of public facilities prior to the issuance of a building permit shall be included as a condition of the Concurrency Determination and shall contain, at a minimum, the following:

1. For planned capital improvements, a finding that the planned capital improvement is included within the capital improvements program of the applicable service provider;
2. An estimate of the total funding needed to construct the planned capital improvement and a description of the cost participation associated therewith;
3. A schedule for commencement and completion, of construction of the planned capital improvement with specific target dates for multi phase or large-scale capital improvement projects;
4. A statement, based on analysis, that the planned capital improvement is consistent with the Model Community Comprehensive Plan; and
5. At the option of Model Community, and only if the planned capital improvement will provide capacity exceeding the demand generated by the proposed development, reimbursement to the applicant for the pro rata cost of the excess capacity.

XX.10 Methodology and Criteria for Determining Availability and Adequacy of Public Facilities

- A. **Level of Service Standards.** Compliance with level of service standards shall be measured in accordance with the standards set forth in Appendix A, as the same may be amended from time to time, and which are incorporated by reference as if set forth in its entirety herein.
- B. **Availability of Public Facilities.** Public facilities shall be deemed to be available within the applicable impact area if they meet the following standards:
 1. Water Facilities, Wastewater Facilities, and Fire Protection Facilities;
 2. The public facilities are currently in place or will be in place when the Development Order is granted; or

for commercial or industrial development.

Section C. treats schools as infrastructure with a concurrency requirement. Communities must recognize that the location of new schools can affect LOS standards for other infrastructure, such as roads.

Section D. discusses LOS for streets. Where proposed development will affect existing neighborhood streets, the LOS standards should be consistent with the community's neighborhood street design standards (an example of street design standards is offered in the Neighborhood Design Chapter). Neighborhood streets may be designed with a substantially lower traffic capacity in order to facilitate a LOS for pedestrians, bicycles, or other non-motorized traffic. LOS standards must acknowledge non-traffic performance goals of street design.

3. Provision of the public facilities are a condition of the Development Order and are guaranteed to be provided at or before the approval of a final plat or issuance of a building permit for proposed development on the subject property; or
4. The public facilities are under construction and will be available at the time that the impacts of the proposed development will occur; or
5. The public facilities are guaranteed by an enforceable development agreement ensuring that the public facilities will be in place at the time that the impacts of the proposed development will occur.

C. Regional Parks and Public Schools.

1. One of the criteria set forth in subsection XX.10.B.1. is met, or
2. The public facilities are the subject of a written agreement or an enforceable development agreement that provides for the commencement of construction of the required Regional Parks or Public Schools, or
3. The public facilities are planned capital improvements.

D. Streets

1. One of the criteria set forth in subsections XX.10.B. or XX.10.B.2., above, is met, or
2. Proposed development is located in a traffic impact area in which the streets or intersections needed to achieve the adopted level of service are included in the capital improvements program, and the Council makes the following specific findings:
 - a. the streets identified in this subsection are financially feasible; and
 - b. the capital improvements program provides for the construction of public facilities or improvements to streets within the traffic impact area that are necessary to maintain the adopted level of service standards; and
 - c. the capital improvements program contains a financially feasible funding system based on currently available revenue sources that are adequate to fund the streets required to serve the development authorized by the Development Order; and
 - d. the applicable provisions of the capital improvements program show

- (1) the estimated date of the commencement of construction and
- (2) the estimated date of project completion for needed streets; and
- e. the concurrency information database includes sufficient data to ensure that proposed developments approved subject to this subsection do not cause a reduction of the level of service below the adopted level of service.

E. Adequacy of Public Facilities. Public facilities shall be deemed to be adequate if it is demonstrated that they have available capacity to accommodate the demand generated by the proposed development in accordance with the following calculation methodology, unless otherwise indicated herein:

1. Calculate capacity for each public facility within an impact area by adding together:
 - a. the capacity of water facilities, wastewater facilities, and fire protection facilities consistent with subsection XX.10.B.1. herein;
 - b. the capacity of public schools and regional parks consistent with subsection XX.10.B.2. herein; and
 - c. the capacity of streets consistent with subsection XX.10.B.3. herein.

2. Calculate available capacity by subtracting from the capacity the sum of:
 - a. the existing demand for each public facility; and
 - b. the demand for each public facility created by the anticipated completion of committed development; and
 - c. the demand for each public facility created by the anticipated completion of the proposed development under consideration for concurrency determination.

F. Public Facilities Affecting Areas Outside of Model Community

General. Availability and adequacy of streets shall be determined only with respect to streets located within Model Community. If part of the applicable traffic impact area lies in an adjacent county or in a municipality within Model Community, absent an intergovernmental agreement with the

Section G. discusses intergovernmental agreements on shared infrastructure. Cities in a metropolitan area should consider forming Joint Powers Agreements to manage congestion-relief efforts and travel demand managements programs. All the cities along a major thoroughfare in the metropolitan area could, for instance, set uniform standards requiring new commercial development along a major highway to implement specific demand management efforts. The I-494 Corridor Advisory Commission agreement, for instance, includes a number of communities along I-494, and allows for joint funding of research and standardization of TDM requirements.

county or municipality, availability and adequacy may be determined only with respect **to that portion** of the streets located within Model Community.

- G. **Intergovernmental Agreement.** If Model Community has entered into an intergovernmental agreement with an adjacent county or with a municipality to evaluate public facilities in such areas, an applicant will be subject to the evaluation of the level of service standard for the facility as adopted by the adjacent county or municipality. Prior to the determination of concurrency, Model Community shall require that the adjacent county or municipality certify that issuance of a Development Order for the proposed development will not cause a reduction in the level of service standards in Model Community with respect to those public facilities lying within the adjacent county or the municipality.
- H. Available capacity for fire protection facilities, water facilities, wastewater facilities, and public schools shall include municipally based demand and municipally based facilities.

XX.11. **Administration**

- A. **Rules and Regulations.** The Council may adopt, by resolution, any necessary rules, regulations, administrative guidelines, forms, worksheets and processes to efficiently and fairly administer and implement this Section.
- B. **Fees.** The Council may establish, by resolution, a fee schedule for each of the procedures, determinations, approvals and certifications required by this ordinance.

XX.12. **Conflict**

To the extent of any conflict between other Model Community codes or regulations and this Section, the more restrictive is deemed to be controlling. This Section is not intended to amend or repeal any existing Model Community code or regulation.

XX.13 Severability

If any provision of this Section is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such provision shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining provisions of this Section.

Travel Demand Management Performance Standard

The Adequate Public Facilities Ordinance, discussed above, focuses on maintaining reasonable Levels of Service on roads and other infrastructure. A corollary ordinance is a Travel Demand Management (TDM) ordinance or Trip Reduction Ordinance (TRO). Larger cities in Minnesota have many investment and maintenance decisions to make in regard to transportation infrastructure. TDM or TROs mitigate the effects of new or expanding development along highway corridors or in downtown areas by mandating or encouraging management of the demand side of traffic growth. Rather than responding to increasing demand by building more road and parking infrastructure, or by restricting development until infrastructure is adequate, the community (or developer) can invest in infrastructure and programs that get people out of their cars.

The travel demand management plan is one method of beginning demand management. Whenever a new development or expansion of existing space is proposed, the community can require the developer to investigate and/or implement travel demand management efforts. A number of other regulatory methods of managing infrastructure investment in roads, parking, and other automobile-related infrastructure. Examples include ordinances that require businesses to invest in bicycle lockers and shower facilities to promote non-motorized travel modes, traffic calming measures to discourage use of local streets as arterials, minimizing the use of free parking to encourage alternative travel modes, and a variety of design initiatives around pedestrian sheds and transit facilities. See the Resources section at the end of this chapter for additional information.

Rural communities are less generally concerned with traffic capacity issues than urban and suburban communities. Rural communities must note, however, that some regional transportation routes were designed to accommodate only regional traffic. Local development along regional routes, without commensurate investment in design and capacity improvement to accommodate a shift in use from regional to local traffic, can result in significant degradations in quality of service.

The following ordinance is directed toward larger cities and, unlike the APFO, applies exclusively to commercial and industrial development. This ordinance was adapted from the Minneapolis Code of Ordinances, 549.170, 549.180.

XX. Travel Demand Management Plan

- A. All development that includes any of the following criteria shall conduct a travel demand management plan (TDM) that addresses the transportation impacts of the development on air quality, parking and roadway infrastructure:
1. Any development in the downtown zone or in the suburban office park zone needing 75 or more additional parking spaces under the Model Community site design standards;
 2. Any development in any zone containing one hundred thousand (100,000) square feet or more of new or additional gross floor area, or one hundred (100) or more new or additional parking spaces;
 3. Any new commercial or industrial concern that will employ 100 or more people at the new location.
- B. **Application for plan approval.** Any person having a legal or equitable interest in land which requires submission of a TDM may file an application for approval of such plan on a form approved by the zoning administrator.
- C. **Administrative review.** The planning director, in consultation with the city engineer, shall conduct the administrative review of the TDM. The planning director shall recommend to the zoning administrator any mitigating measures deemed reasonably necessary, who shall include such recommendation as a condition of the issuance of any building permit, zoning certificate or other approval required by this zoning ordinance or other applicable law. All findings and decisions of the planning director shall be final, subject to appeal to the planning commission, as specified in Chapter XX, Administration and Enforcement.
- D. **Content of plans.** Any TDM shall contain at least the following:
1. A description of the goals of the TDM and its relationship to applicable Model Community transportation policies and programs.

2. A description of the transportation impacts of the development, including but not limited to forecasts of overall and peak period employment, forecasts of trips generated and mode splits, parking demand and parking supply available, and transit demand and transit supply available.
3. A description of mitigating measures designed to minimize the transportation impacts of the development, including but not limited to on-site transit facilities, transit use incentives, preferential location of car pool and van pool parking, on-site bicycle facilities including secure storage areas and amenities, staggered starting times and telecommuting opportunities.

Subsection E.1. and parts thereafter set thresholds for when a TDM plan is required. The community will need to set a threshold standard for when the TDM requirement is effective. When development demand in a particular district is high, the community set the threshold low in order to capture not only new businesses but all existing businesses that expand. When development demand is not so great, the community may want to consider the effect that the threshold will have on existing businesses.

Parts E.1.b. and c. use a performance standards based on average vehicle ridership (AVR). A number of other performance standards can be used. A standard based on AVR or on reducing trip generation from a threshold requires that the community calculate an existing AVR or threshold for the community or for the target district.

E. Required Implementation of TDM Plan, and Performance Standards

1. Any new development or existing business expanding its operation, and requiring a conditional use permit, rezoning, or that is receiving tax or funding assistance from Model Community, shall implement a TDM plan. The plan shall meet the following performance standards:
 - a. Fifteen percent of employees on any given day should travel to the location using a mode other than single occupancy vehicle. Alternative modes include transit, bicycle, walking, car-pooling, and telecommuting.
 - b. The average vehicle ridership (AVR) for employees shall be 10% lower than the AVR for the entire Downtown District in Model Community.
 - c. The AVR shall decrease over the first five years of active use in the new or expanded development

Individual Sewage Treatment Systems

Proper system design and system management is the key to sustainable management of wastewater for any treatment alternative, from individual systems for single homes to clustered developments connected to a larger system, to centralized urban wastewater collection and treatment systems. Large areas of Minnesota are beyond the reach of urban wastewater infrastructure, or centralized wastewater treatment facilities. To ensure sustainable communities, local governments in Greater Minnesota must recognize the importance of proper siting, design, construction, use, and maintenance of decentralized wastewater treatment, or ISTS (Individual Sewage Treatment Systems). Current ISTS statutes, rules, and local ordinances typically provide for regulation only at the time of construction (bedroom additions or any building permit request in shoreland areas) and property transfer. Although standardized ISTS technologies have proven themselves over time in a multitude of locations and situations, proper performance is dependent upon both appropriate design for the current land use, and ongoing maintenance and upgrades over time.

The lack of ongoing maintenance, poor initial system design, and changing land uses without commensurate changes in the ISTS system have resulted in ground and surface water contamination and a perception that ISTS technologies are unreliable or prone to failure. Failing septic systems thus often drive otherwise unnecessary extension of urban services (central sewage treatment collection systems) into largely undeveloped or lightly-developed areas. Community-based decisions about the staging of development and preservation of open space and natural resources can be undercut by efforts to mitigate failed septic systems with sewer extensions. Local governments in rural or undeveloped areas of Minnesota can play a crucial role in setting meaningful septic management or technology standards, and ensuring appropriate maintenance of these systems.

Furthermore, development in areas with natural amenities (lakes, rivers, forests) often rely exclusively on ISTS for wastewater treatment. Local governments that regulate development near natural amenities (typically townships or counties) generally do not operate centralized sewage treatment facilities. ISTS is often the only cost-effective wastewater infrastructure available to these governments. By setting technology and management standards, local governments can protect public health and the value of natural areas for continued enjoyment of residents and visitors.

Local governments have a key responsibility in administering and enforcing ISTS ordinances and developing management/maintenance programs for sustainable and long-term system life. In addition to regulation of ISTS management, communities can consider alternatives to the traditional individually-owned and managed ISTS to alleviate risk of failure and subsequent contamination of surface or ground water. Community-owned or maintained septic systems, such as are frequently required in cluster developments, greatly increase the likelihood of regular maintenance and appropriate investment in upgrades. The conservation subdivision ordinances discussed in Chapter 2 provide language concerning community-septic systems. Other management alternatives, such as management or ownership by sanitary sewer districts, homeowner associations, cities, or water quality cooperatives (WQCs), are briefly discussed at the end of this section.

The wastewater industry is in a great state of change with funding and research a national priority. In Minnesota, options include standardized systems with proven technology (recognizing limitations of longevity and treatment), technologies not typically used in Minnesota but being tried subject to a monitoring component, technologies that use a warrantied system process, and technologies that may only be used with an operating permit.

This ordinance language provides guidelines for preparing ISTS ordinances in accordance with Minnesota Rules Chapter 7080 and Minnesota Statutes, Section 115.55. The ordinance is adapted from Carver County, Minnesota Septic Ordinance, the Sample On-Lot Septic System Ordinance (Lancaster, PA) in Daniels, 1999, suggested ordinance language created by the MPCA, and the 7080 rules on ISTS.

XX.01 Statutory Authorization and Purpose

All counties must adopt and enforce individual sewage treatment system ordinances that comply with MPCA rules unless all towns and cities in the county have adopted complying ordinances.

Section B. mentions the Conservation Subdivision ordinance. An example of community-wastewater requirements is found in the Conservation Subdivision section of the Growth Management chapter (p.23). More information on Residential Cluster Development and Alternative Wastewater Treatment Systems can be found on the web at <http://www.extension.umn.edu>.

If both the conservation subdivision and ISTS ordinance are adopted, the community should ensure that the provisions are internally consistent in regards to siting, design, management, and monitoring.

- A. **Statutory Authorization.** This ordinance is authorized under Minnesota Statutes Section 115.55, and Minnesota Chapter 145A. Under Minnesota Rule 7080, the Minnesota Pollution Control Agency (MPCA), provides the minimum standards and criteria for Individual Sewage Treatment Systems (ISTS) that are hereby incorporated by reference. The ordinance provides these standards to reasonably protect surface and ground waters of the state, and promote the public health, safety, and general welfare.
- B. **Purpose.** The improper design, location, installation, use and maintenance of individual sewage treatment systems (ISTS) adversely affect the public health, safety and general welfare by the discharge of inadequately treated sewage. Model Community does herein provide the minimum requirements for the design, location, installation, use and maintenance of individual sewage treatment systems.

This ordinance provides clear, reliable, and cost-effective technical standards and criteria; provides a framework for permitting and inspection programs to be administered at the local level; provides enforcement fee structures and routine management requirements; and describes the responsibilities, and enforcement requirements for individual sewage treatment system professionals.

The technical portions of this ordinance are based on sound research and practical field applications to achieve adequate sewage treatment. In conjunction with these minimum standards, Model Community encourages the use of advanced treatment methods and waste reduction to further reduce the discharge of contaminants. This ordinance is consistent with the ISTS provisions of the Model Community Conservation Subdivision ordinance.

Model Community, in adopting this ordinance, does not guarantee or warrant that compliance with the requirements herein will result in ISTSs that are fail safe, but considers that compliance with the requirements herein will result in ISTSs with a reasonable assurance of performance

when properly designed, constructed, and maintained.

XX.02 Definitions

The following words and phrases, when used in this ordinance, unless the context clearly indicates otherwise, shall have the meanings described to them in this section, in addition to those definitions contained in section 7080.0020 of Minnesota Rules Chapter 7080.

The definitions in Section XX.02 include those provided under Minnesota Rule 7080, and some other definitions that may be relevant to some communities. The community may have other definitions to add or remove.

Operating permits provide a management tool for system performance by evaluating system monitoring, operation and maintenance on a routine basis.

Failing System: An existing system that is a cesspool, seepage pit, drywell, leaching pits or other pits; or a tank that leaks below the designed operating depth; or a soil treatment system with inadequate vertical separation.

Compliant System: A system that meets the technical standards and criteria of Minnesota Rule Part 7080.0060.

ISTS: Individual Sewage Treatment System.

Operating Permit: a construction, sanitary, planning, zoning, or other such permit issued for new construction, replacement, repair, alteration, or extension of individual sewage treatment systems or collector system that includes time limitations, maintenance requirements, and other conditions as may be required by the local government to assure adequate system performance.

Responsible Management Entity (RME): an entity with the authority to manage ISTS. Management may include ISTS planning, financing, constructing, enforcing, operation and maintenance, and replacement.

XX.03 General Applicability

A. Compliance

1. No person shall design, locate, install, construct, alter, extend, repair, use, maintain or perform percolation tests and/or soil evaluation for any ISTS, except in full compliance with this ordinance and standards adopted herein, including but not limited to Minnesota Rules Chapter

Subsection A.3. addresses water conservation and waste-flow standards in new construction. The state building code includes water flow standards for some fixtures, although communities in Greater Minnesota are less likely to enforce a building code than those in developed (and sewerred) areas. The community can set specific standards for water conservation or waste-flow reduction according to the unique needs of the community, or exclude this section if water flow standards are irrelevant.

Section A. of Chapter XX.04 addresses design standards for ISTS. The MPCA rules set requirements for when and how particular ISTS technologies are installed, for those technologies that have proven themselves over time and locations. MPCA rules provide for performance-based standards. Home-owners and developers are not wedded to a technology, but are required to demonstrate that their system results in appropriate treatment and protection of ground and surface waters, and public health.

Section B. offers an optional adoption of performance standards. Regulation by performance standard addresses not only the initial installation of ISTS, but the ongoing performance of the system. Current technology standards are

7080, Minn. Stat. 115, Minn. Stat. 326, and the Code of Federal Regulations (CFR) Parts 144, 257, and 503.

2. No person shall allow effluent from any soil treatment system or any ISTS to be discharged to the ground surface, abandoned wells, or bodies of surface water, or into any rock or soil formation the structure of which is not conducive to purification of water by filtration, or into any well, agricultural tile, or other excavations in the ground not prescribed in this ordinance.
3. Model Community requires that inspection be undertaken and non-complying ISTS be brought into compliance at the time of property transfer.
4. All new construction that requires an ISTS shall provide for water conservation and waste-flow reduction through the use of water-saving devices and water conservation methods.
5. All community systems must meet performance, monitoring, and mitigation practices consistent with this ordinance.

B. Conditions. Violation of any condition imposed by the Model Community on a license, permit, or variance shall be deemed a violation for this ordinance and subject to the penalty provisions set forth in this ordinance.

C. False Information. Omission of any information may constitute grounds for the denial of the licensee's request, permit, or variance applied for, or the suspension or revocation of permit or variance.

XX.04 Standards for Health, Safety, and Environmental Preservation

A. Technical Standards and Criteria. Minnesota Rules Chapter 7080 and any subsequent changes are hereby adopted by reference with the following modifications and made part of this ordinance as if set down fully herein.

B. ISTS Performance Standards. The performance standards and related requirements of Minnesota Rules, part 7080.0179 are incorporated by reference and made part of this ordinance as if set down fully herein.

C. Proper Operation and Maintenance of Community ISTS. All persons

typically enforced only when the system is initially installed, when a bedroom addition permit is requested (for those jurisdictions that enforce a building code), and when the property changes ownership (under some ordinances). Performance standards require a responsible management entity to obtain an operating permit to manage the system. System owners are responsible for fulfilling the permitted monitoring plan requirements and the local government must verify compliance through an on-going operating permit.

Part C.1. discusses inspection intervals for community systems. The community can set specific intervals for inspection depending on the staffing of the department that enforces the ISTS ordinance, the sensitivity of the surrounding area to wastewater system failures (the interval may be more frequently when inside a Sensitive Natural Environmental Area, see Community Resources chapter), and the use of alternative wastewater treatment systems for a particular site.

Local governments could require an operating permit for all types of systems (community and individual). The operating permit would define inspection intervals and threshold performance standards, and corrective action (all consistent with 7080 rules).

Individual or community systems with an average design flow greater than 10,000 gallons per day must be designed and maintained by a person certified for such systems. No certification is required for persons maintaining system below that threshold. In developing operating permit standards, local governments should consider whether to require certification for maintenance of smaller (less than 10,000 gallon) systems.

Section E. discusses the land application of septage. Local governments should develop site standards and management standards for the pumper to follow. Local governments must provide staffing and resources to monitor the management plan.

who own a lot that is serviced by a community wastewater system shall ensure proper maintenance of the system. All community wastewater systems shall have an MPCA ISTS licensed business under contract at all times to maintain community waste water system and to conduct regular inspections and maintenance of the systems. Proper maintenance of community systems shall include, at a minimum, the following:

1. Regular inspection of the community system by the maintenance contractor and Model Community;
2. Septage or sludge must be disposed of in accordance with state, federal, or local requirements. If septage or sludge is disposed of into a municipal sewage treatment facility, a written agreement must be provided between the accepting facility and the septage disposal firm. Operation and maintenance shall be in accordance with the signed agreement, and monitoring and mitigation plans and operating permits and manufacturer specifications;
3. Maintenance of surface contouring and other measures to divert storm water from waste water treatment facilities;
4. Requiring that all users of the community sewage system discharge only domestic sanitary sewage into the system.

D. Proper Operation and Maintenance of ISTS. All persons who own or occupy a lot upon which an ISTS is installed shall properly use and maintain such system. Proper maintenance shall include the following:

1. Retention of a MPCA-licensed septage pumper to evaluate the system for tank integrity, surface discharge, and to pump as necessary at least once every three years;
2. Replacement of any components of the system when the evaluation reveals that the component has failed;
3. Maintenance of surface contouring and diversion of storm water away from treatment facilities and absorption areas.
4. Allowing only acceptable discharges, as defined in Minnesota Rule 7080.0065, into an ISTS.

E. Land Application of Septage. All land application of septage shall meet Model Community requirements and septage management plan. Land

Local governments could also approve each land application site and management could require all records be submitted. Currently, the federal Code of Federal Regulation 503 requires pumper record keeping to include application rates and lime use.

application requirements include site considerations and septage treatment and application. Model Community requires that site considerations include: maximum slope, setbacks, seasonally high groundwater, depth to bedrock, flooding potential, and leaching potential. Septage treatment and application includes: lime treatment, incorporation/injection, field accessibility, daily application rates, annual application rates and pre-screening. Records must be kept of all treatment and disposal activities.

Septage management plans include submittal of pumper's name, address, phone number; site name, location, and description; soil descriptions for land application based on soil survey information; applications rates per site; and random site inspections during application.

XX.05 Permits and Regulation

- A. **Permit Required.** No person, firm, or corporation shall install, construct, alter, repair, or extend an ISTS in Model Community without first obtaining a permit therefore from Model Community for each specific installation, construction, alteration, or extension. Such permits shall be valid for a period of 12 months from the date of issuance.
- B. **Permit Application Requirements.** The permit requirements of Minnesota Rule Part 7080.0310 and any subsequent changes are hereby adopted by reference and made a part of this ordinance as if set down fully herein.
- C. **Permit Fees.** All permit and permit renewal applications must be accompanied by the appropriate fee. The amount of each permit, permit renewal fee, late fees or such other fees as may be needed for the administration of this ordinance, plus the method and time of payment thereof shall be determined by resolution of Model Community.
- D. **Relation of Other Permits.** No building permit or variance in designated SNEA, as defined in Model Community's SNEA ordinance, or in areas covered by Model Community's shoreland ordinance, will be issued until the ISTS permit, when required, is approved and issued. No occupancy permit will be issued until the ISTS has had final inspection approval.
- E. **Permit Denied.** If an application for a permit or permit renewal is denied,

Section D. relates the issuance of an ISTS permit to building permits and variances. This language is consistent with the State Shoreland Ordinance. Communities can extend this relationship to other areas, such as designed Sensitive Natural Environmental Areas (SNEA) as defined in the Community Resources Cluster, watersheds for high quality lakes or rivers, or identifiable recharge areas for drinking water aquifers.

Design changes, as noted in Section F., must be completed by the system designer if distinct from the system installer. The local government must approve the design changes before approving the installation.

Section H., regarding failing ISTS systems, provides general language that should be modified to address particular local situations. Communities are required, under state law, to adopt ordinances that address ISTS noncompliance in designated shoreland areas, as shoreland areas are most at risk from failing ISTSs. State rules require that shoreland non-complying systems be brought into compliance as a condition of the issuance of any local permit or variance, addition of a bedroom, or property changes. Noncompliance should, for consistency, be addressed throughout the community, not just in shoreland areas. In most communities, existing systems outside of shoreland areas are typically examined for compliance only when the property changes ownership, is subdivided, or the owner is issued a permit to add a bedroom (see MPCA Chapter 7080.0305). Many failing systems are thus not repaired or replaced for years, increasing the risk of ground water, surface water, or well contamination.

This model ordinance does not provide language for sections I. through N. because of their necessary length.

notice of denial shall be served on the applicant by mail. The notice shall state the reasons for denial and inform the applicant of his or her right to request a hearing as provided in ____ (section of ordinance to direct concerning hearings).

- F. **Permittee Responsibilities.** The permittee shall notify Model Community Staff that the site is ready for inspection prior to 24 hours on the working day before the date of site inspection. The permittee shall provide Model Community Staff with free access to the property at reasonable time for the purpose of viewing construction. The licensed ISTS system installer shall provide all testing, modeling, or demonstration necessary to prove that the entire system is installed in strict accordance with the design as approved. If the system cannot be constructed as designed, it shall be the responsibility of the licensed installer to inform Model Community Staff and for the system designer to submit new or amended designs to Model Community Staff before completing construction. The permittee and licensee shall be responsible for the correction or elimination of all defects, and no system shall be placed or replaced in service until all defects have been corrected or eliminated and a Certificate of Compliance has been issued. No part of the system shall be covered until it has been viewed and/or approved by Model Community Staff.
- G. **Re-inspection Charge.** Violations of this ordinance that necessitate follow-up inspection will be subject to a re-inspection fee. This inspection charge shall be established by Model Community resolution. The re-inspection payment must be received by Model Community within ____ days following the re-inspection.
- H. **Non-Complying and Failing Systems.** All ISTS determined by Model Community to be non-compliant and in violation of this ordinance shall be made compliant. Failing systems shall be satisfactorily repaired or replaced within two years.
- I. **Responsible Management Entity and Maintenance Standards**
- J. **Abandonment** - All newly abandoned systems must be abandoned consistent with Minnesota Rules Part 7080.0176.

Section I. discusses different management alternatives and maintenance requirements. Maintenance requirements will vary according to local conditions, technologies, and responsible management entities. Maintenance is generally performed by private contractors. Communities have a public interest in ensuring ongoing proper operation, maintenance, and monitoring of ISTS infrastructure. Communities can set standards for maintenance of privately owned and managed ISTS, and set operating permit standards for responsible management entities that regulate, maintain, or own ISTS. Community-oriented management of wastewater infrastructure can be accomplished by various methods including Water, Sewer, or Water & Sewer Districts; Subordinate Service Districts; Sanitary Sewer Districts; Lake Improvement Districts; Watershed Districts; Water Quality Cooperatives, Homeowner's and Lake Associations; private vendors, utility cooperatives, property owners, or other such responsible management entities. More information on maintenance and different types of responsible management entities can be found at the end of this ordinance and at www.extension.umn.edu.

- K. Administration and Enforcement**
- L. Variances**
- M. Effective Date**
- N. Severability**

MANAGEMENT ALTERNATIVES FOR WASTEWATER INFRASTRUCTURE

Management entities that can ensure proper operation, maintenance, and monitoring of ISTS for entire political jurisdictions, watersheds, or other defined geographic areas can be valuable tools in meeting sustainable wastewater treatment goals. Management entities can protect the public interest in proper management of ISTS infrastructure, whether the entity actually provides services, regulates private ownership and management of systems, or actually owns and maintains systems. The entities must have the authority to implement projects, establish financing, and manage and maintain systems. Some entities have more authority than others with most described under law. See Minnesota Statutes §§ 115, 116, 375, 378, 429 and 471. Brief descriptions of ownership/management alternatives are noted below.

Subordinate Service Districts - Subordinate Service District [Environmental] - M.S. § 375B Subordinate Service District provides a structure for the local governmental unit and the residents that want wastewater and/or water services to work together to implement the project, pay for it, and then manage it together.

Similar to the County's 375B statute, a Township can use its powers and authorities under M.S. 365A to create a service district structure to operate, manage, and maintain either "in house" or contractually the wastewater treatment system(s). If the area covers more than one township and they are adjacent to each other, then each township can create the District management tool, and use joint powers under M.S. § 471.59 to manage the Districts as one.

Homeowner Associations - Usually done in platted subdivisions with bylaws and/or incorporation agreements. A number of different statutes come into play. While these groups begin with good intentions, there is not legal statutory ability to implement user charges and ordinances, secure financing for a project, implement construction, or insure collection of funds to provide for consistent management of multiple family wastewater treatment system(s) over a long period of years.

Lake Improvement Districts - Lake Improvement Districts - M.S. § 378.41-56. Can be created by the County or the Department of Natural Resources. They normally have the power to carry out planning just like a County. However, for financing, ordinances, and bonding powers, the District needs to get the approval of the County under M.S. § 444.075.

Lake Associations - These groups are local to their lake and perform numerous tasks including lake assessments, lake quality sampling, and educational meetings. They further encourage "best management practices" for those that live around and in the watershed of their lake. The associations have varying degrees of involvement ranging from a loosely organized group meeting once a year to those actively engaged in writing and implementing legislation to protect or enhance water quality. Some lake associations have worked with others to implement wastewater system repair and upgrades around their lake. Some groups facilitate the formation of homeowner associations, lake improvement districts (mentioned above). However, they are not usually an actual ongoing management entity to provide for ongoing maintenance.

Water Quality Cooperatives - In the 1997 Minnesota legislative session, Minnesota Statutes section § 115.58 was created to enable the establishment of WQCs and the issuance of permits by the Minnesota Pollution Control Agency to these cooperatives for the use of alternative discharging sewage systems (surface discharge systems) and to provide wastewater treatment services to their members. Water Quality Cooperatives use the existing regulatory process for permitting wastewater discharges currently used by cities for centralized sewage treatment systems. WQCs are conceived to obtain and hold NPDES area-wide permits for deploying many small, decentralized and on-site wastewater systems discharging under 10,000 gallons per day of treated wastewater. They must also provide other water based services in their service areas.

Communities using WQC as an alternative to ISTS management must adopt ordinance language distinct from this ISTS ordinance referencing subdivision 2 of Minnesota Statute 115.58, Section 94.

Watershed Districts - There are numerous watershed districts within the state. Their mission is to manage water and related land resources within their jurisdictions. Some districts have secured additional legislation to do multi-household wastewater treatment systems and manage those projects within their jurisdiction.

Sanitary Sewer District - M.S. § 115.50. Counties may, with their 444.075 powers, implement and administer a wastewater district within their jurisdiction. Such districts can provide a number of function in providing ISTS infrastructure, monitoring, and management.

Management Entities Created by Special Legislation - There have been a number of special legislatively created districts that can, among other tools, provide financing, management, and monitoring for ISTS and other types of wastewater systems. Established examples of such legislative entities include Chapter 478, Law of 1971 creating the Western Lake Superior Sanitary District, Chapter 869, Laws of 1971, creating the Lake Alexandria Sanitary District, Chapter 160, Laws of 1973, creating the Dover-Eyota-St. Charles Sanitary District, Chapter 400, Laws of 1974, creating the Moose Lake-Windemere Sanitary District, and M.S. 473.501 et. Seq., creating the Metropolitan (Seven County) Sanitary District.

Over the years, legislative changes to these districts and many other districts have been developed from these initial models. These Districts provide their services for large geographic areas and involve a number of local governmental jurisdictions. Because of this, such entities can be difficult and expensive to develop. A current listing of the Districts created under special legislation can be obtained from the Minnesota Pollution Control Agency.

Stormwater Management Ordinance

Adapted from Model Environmental Management Ordinance (BWSR, 1998), Draft Minimum Review Points/Guidance for Evaluating Urban Storm Water Pollution Control Ordinances. (MPCA, 1999), Draft Minneapolis Stormwater Ordinance (1999)

XX.01 Statutory Authorization and Purpose

- A. **Statutory Authorization.** This ordinance is adopted pursuant to the authorization and policies contained in Minnesota Statutes Chapters 103B, 105, 462, and 497, Minnesota Rules, Parts 6120.2500-6120.3900, and Minnesota Rules Chapters 8410 and 8420.
- B. **Purpose.** The purpose of this ordinance is to minimize negative impacts of stormwater runoff by establishing standards and specifications for the common elements relating to watershed management including:
1. Stormwater rates, volumes, and quality
 2. Design of stormwater facilities for quantity and quality
 3. Grading and filling
 4. Soil erosion and sedimentation
 5. Wetlands management
 6. Shoreland management
 7. Floodplain management
 8. Prohibition of non-stormwater discharges into storm sewers
 9. Other matters relating to water quality and quantity management
- C. **Benefits.** The proper management of stormwater runoff in quality and quantity, wetlands, and shoreland area will provide the following benefits:
1. Protect and improve water quality to support the designated beneficial water uses and to protect the functions and values of existing and newly established water resources, which include, but are not limited to:
 - a. Providing a vegetated corridor to separate protected water features from development;
 - b. Maintain or reduce stream temperatures;
 - c. Maintain natural stream corridors;
 - d. Minimize erosion, nutrient and pollutant loading into stormwater;
 - e. Provide filtration, infiltration and natural water purification; and
 - f. Stabilize slopes to prevent landslides contributing to sedimentation

of water features

The text in Section D. does not include definitions, due to the large number of terms that communities may wish to define. A compilation of definitions can be obtained from the following ordinances:

- Minnesota Pollution Control Agency. *DRAFT Minimum Review Points/Guidance fro Evaluating Urban Strom Water Pollution Control Ordinances*. 1999. St. Paul, Minnesota.
- Minneapolis, MN. *DRAFT Stormwater Management Ordinance*. 1999.
- Minnesota Board of Water and Soil Resources. *Model Environmental Management Ordinance*. 1998.
- Minnesota Department of Natural Resources. *Model Shoreland Ordinance*. 1996.
- Minnesota Department of Natural Resources. *General Floodplain Management Ordinance*. 1990.

Section A. references a Design Manual. Appropriate stormwater management design will vary from community to community. Suburban and exurban communities may choose to rely primarily on ponding and set thresholds for stormwater management facilities for development of 5 acres or more. Urban centers may require stormwater management for smaller developments, and may prefer less land-intensive techniquet that ponding.

Some Suggested Design Manuals include:

- *Low Impact Development Design Manual, 1997, Prince George’s County, Maryland, Department of Environmental Resources*
- *Stormwater BMP Design Supplement for Cold Climates, 1997, Center for Watershed Protection, Ellicott City, MD.*
- *Design of Stormwater Filtering Systems, 1996, Center for*

2. Protect floodplain areas which provide the following functions:
 - a. Protect life and property from dangers associated with flooding;
 - b. Flood storage, reduction of flood velocities, reduction of flood peak flows and reduction of wind and wave impacts;
 - c. Maintain water quality by reducing and sorting sediment loads, processing chemical and organic wastes and reducing nutrients;
 - d. Recharge, store, and discharge groundwater; and
 - e. Provide plant and animal habitat and support riparian ecosystems.

D. Definitions. Unless specifically defined below, words or phrases used in this Chapter shall be interpreted so as to give them the same meaning as they have in common usage and to give this Chapter its most reasonable application. For the purpose of this Chapter, the words “must” and “shall” are mandatory and not permissive. All distances, unless otherwise specified, shall be measured horizontally.

As used in this Chapter, the following words and terms shall have the meanings ascribed to them in this Section:

XX.02. STORMWATER MANAGEMENT

The following standards shall apply to all developments within Model Community.

- A. Stormwater Management Plan.** Every applicant for a building permit, subdivision approval, or a permit to allow land disturbing activities must submit a stormwater management plan to Model Community engineer. No building permit, subdivision approval, or permit to allow land disturbing activities shall be issued until approval of this plan.

Model Community Stormwater Management Design Manual (Design Manual) is the compilation of design, performance, and review criteria approved by Model Community and adopted by the Council for stormwater

- *Watershed Protection, Ellicott City, MD.*
- *Wet Extended Detention Pond Design, 1995, Center for Watershed Protection, Ellicott City, MD.*
- *Impervious Surface Reduction Study, 1995, Olympia, WA and Washington State Department of Ecology.*
- *Better Site Design: A Handbook for Changing Development Rules in Your Community, 1998, Center for Watershed Protection, Ellicott City, MD.*
- *Consensus Agreement on Model Development Principles to Protect Our Streams, Lakes, and Wetlands, 1998, Center for Watershed Protection, Ellicott City, MD.*
- *Draft Maryland Stormwater Design Manual, Volumes I and II, 1998, Maryland Department of the Environment. Baltimore, MD.*
- *Protection Water Quality in Urban Areas, 1989 and 1999 (draft version), Minnesota Pollution Control Agency.*
- *Site Planning for Urban Stream Protection, 1995, Center for Watershed Protection, Ellicott City, MD.*

management practices.

1. General Policy on Stormwater Runoff Rates

Site plans for new development of any kind will be assessed for stormwater quantity control and stormwater quality management.

When a site is designed for new or renewed development, the hydrologic regime can be altered by the following alterations:

- a. Increased runoff volume
- b. Increased imperviousness
- c. Increased flow frequency, duration, and peak runoff rate
- d. Reduce infiltration (groundwater recharge)
- e. Modification of the flow pattern
- f. Faster time to peak, due to shorter time of concentration through storm sewers
- g. Loss of storage

The general policy on stormwater runoff rates is to reduce these impacts of development by maintaining pre-development hydrological conditions.

2. Stormwater Management Plan Requirements

a. Identification and description

- i. Proposed name of development
- ii. Legal description
- iii. Names and Addresses of the record owner, subdivider, land surveyor, engineer, designer of the plat, and any agent having control of the land
- iv. Graphic scale not less than one inch to one hundred feet
- v. North arrow
- vi. Key map including area within one mile radius of plat
- vii. Date of preparation

b. Existing Conditions

- i. Boundary lines of proposed plan.
- ii. Existing zoning classifications for land within and abutting the

- development.
- iii. Acreage and lot dimensions.
- iv. Boundary, topography, location of roads, lots, etc. as required by the zoning authority.
- v. Wetland area.
- vi. Steep slopes where areas of 18% or more exist over a distance for 50 feet or more.
- vii. Bluff areas where the slope rises at least 25 feet above the toe of the bluff and the grade of the slope from the toe of the bluff to a point 25 feet or more above the toe of the bluff averages 30% or greater.
- viii. Wooded area and tree survey as defined by the zoning authority.
- ix. Agricultural Land preservation area(s).
- x. Map of soil types and infiltration rates.
- xi. Hydrologic calculations for volume runoff, velocities, and peak flow rates for the 2.0 inch rainfall event, 10-yr-24-hour storm event, and 100-yr 24-hour storm event.
- xii. Bankfull discharge rate (1.5 year recurrence interval) of creek or stream if there is a waterway on the site or if the site discharges directly to the waterway.

c. Proposed Conditions

- i. Layout of proposed streets showing the proposed names, the right-of-way widths, centerline gradients and typical cross sections.
- ii. Location and width of proposed pedestrian ways and utility easements .
- iii. Lot sizes, layout, numbers and preliminary dimensions of lots and blocks.
- iv. Minimum building setback lines as required by the zoning ordinance.
- v. Areas and size of areas other than streets, alleys, pedestrian

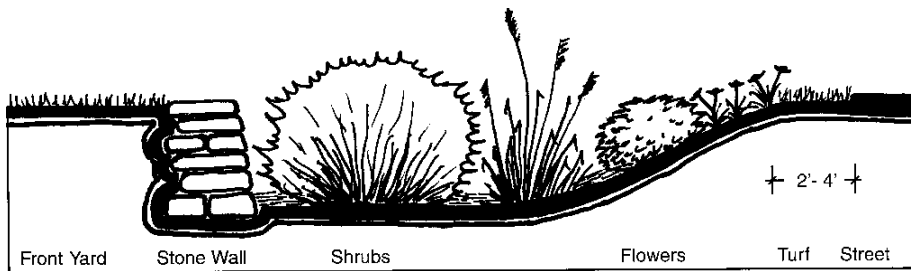
References for achieving the criteria in the subparts to Section A.2.c. include Chapter 2 of Applied River Morphology by Dave Rosgen (1996) and Maryland Stormwater Draft Design Manual by the Maryland Department of Environment (September 1998).

- ways and utility easements, intended to be dedicated or reserved for public use.
- vi. Location, size, and approximate grade of proposed public sewer and water mains.
 - vii. Hydrologic calculations for volume runoff, velocities, and peak flow rates for the 2.0 inch rainfall event, 10-yr-24-hour storm event, and 100-yr 24-hour storm event.
 - viii. Bankfull discharge rate (1.5 year recurrence interval) of creek or stream if there is a waterway on the site or if the site discharges directly to the waterway.
 - ix. Normal water level, high water level, and emergency overflow elevations for the site.
 - x. Temporary sedimentation basins are required for disturbed areas over one (1) acre.
 - xi. Stormwater treatment devices that remove oil and floatable material (e.g., basin outlets with submerged entrances) shall be part of BMP systems.
- d. Models/Methodologies/Computations. Hydrologic models and design methodologies used for the determining runoff characteristics and analyzing stormwater management structures shall be approved by Model Community engineer. Plans, specifications and computations for stormwater management facilities submitted for review shall be sealed and signed by a registered professional engineer. All computations shall appear on the plans submitted for review, unless otherwise approved by Model Community engineer.
- e. Review and Certification by Model Community Engineer. All proposed stormwater facilities shall be reviewed by Model Community Engineer and certified for compliance with Model Community's Surface Water Management Plan, the Minnesota Pollution Control Agency's publication entitled, "Protecting Water Quality in Urban Areas," dated October, 1989 as amended from time to time, and all applicable codes of Model Community. This certification shall include a statement that the facility provides the maximum practical infiltration of stormwater.

Part 3.c. discusses the use of natural topography for stormwater management. The sensitivity of a wetland to degradation varies with the type of vegetation. Sedge meadows, open bogs and swamps, coniferous bogs, calcareous fens, low prairies, lowland hardwood swamps, and seasonally flooded basins are highly sensitive to degradation, while flood plain forests, reed canary grass meadows shallow (reed canary grass, cattail, giant reed or purple loosestrife) marshes are only slightly sensitive to degradation. See the current version of the Minnesota Pollution Control Agency's publication "Storm-Water and Wetlands: Planning and Evaluation Guidelines for Addressing potential Impacts of Urban Storm-Water and Snow-Melt Runoff on Wetlands" for details.)

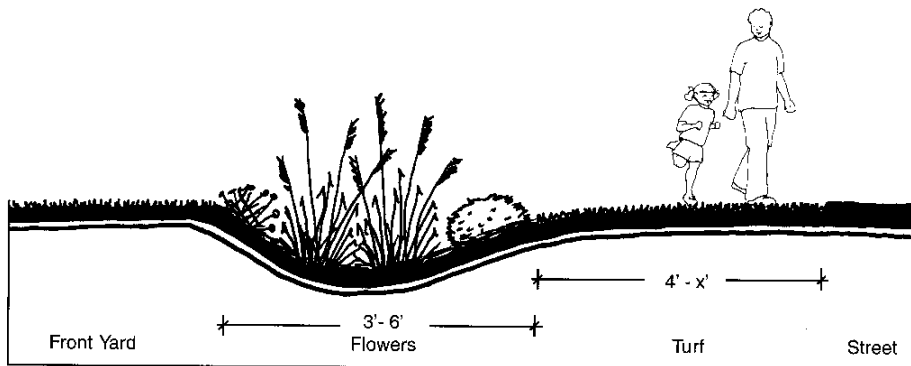
Part 3.d. uses a slope gradient of 12% to define steep slopes. State Shoreland rules use a grade of 12% to define highly erodible soils. Steep slopes outside of shoreland areas are sometime defined under different grade standards, but 12% should cover most situations with erodible soils.

3. Stormwater Management Plan Review Criteria. Below is a list of criteria standards to follow when reviewing site stormwater management plans.
 - a. The applicant shall install or construct, or pay Model Community fees for all stormwater management facilities necessary to maintain pre-development runoff rates as calculated for two-year, ten-year, and 100-year storm peak discharge rates existing before the proposed development.
 - b. As designated by Model Community under a stormwater utility fee, an applicant may be required to provide an in-kind or monetary contribution to the development and maintenance of community stormwater management facilities designed to serve multiple land disturbing and development activities undertaken by one or more persons, including the applicant.
 - c. The applicant shall consider reducing the need for stormwater management facilities by incorporating the use of natural topography and land cover such as natural swales and depressions as they exist before development to the degree that they can accommodate the additional flow of water without compromising the integrity or quality of the wetland or pond.
 - d. Minimize impact to significant natural features. Review the site for steep slopes (greater than 12%), wetlands, wooded areas of significance, rare and endangered species habitat, areas designated by the County Biological Survey, metro greenways, or County parks and open space. These areas should not be developed.
 - e. Impervious Surface Coverage. Impervious surface coverage of a site shall not exceed twenty five percent (25%) of the site area in a designated shoreland or wetland area unless stormwater is conveyed to an approved, on-site or regional stormwater ponding/retention facility designed to accommodate the increased runoff prior to discharge from the site into public waters or wetlands.



Asymmetrical high-volume swale with front yard defined by masonry wall.

Part 3.f. discusses alternative design standards for stormwater management. These and other alternative design standards that reduce impervious area may be found in *Better Site Design: A Handbook for Changing Development Rules in Your Community*, Center for Watershed Protection, August 1998. Part 3.g. discusses the use of infiltration. Each community must determine what best works for their local soil conditions. The following standards are for general reference only.



Narrow asymmetrical wetland herbaceous plant (no shrubs) swale with a wider turf band facing the street.

- f. Minimize impervious area. Development shall, to the greatest extent possible, reduce the impervious surface of the developed site by considering the following:
- Narrower street widths
 - Reducing parking lot space
 - Sidewalk locations
 - Shorting setbacks and driveways
 - Maximize open space while incorporating smaller lot sizes to conserve natural areas and reduce the amount of stormwater runoff generated at the site.
 - Bioretention – Use landscaping and soils to treat and infiltrate stormwater runoff. Eliminate curb and gutter where practicable.
 - Filter strips – Look for vegetated areas that can filter sheet flow, removing sediment and other pollutants, and increasing the time of concentration.
 - Disconnect impervious areas by allowing runoff from small impervious areas to be directed to a pervious areas where it can be infiltrated or filtered.
 - Increase buffers around streams, steep slopes, and wetlands to protect from flood damage and provide additional water quality treatment.

Narrow Swale and High Volume Swale illustrations source: *Bringing Garden Amenities into Your Neighborhood: Infrastructure for Ecological Quality, 1997*

Hydrologic Soil Group	Infiltration Rate	Soil Textures
A	0.5 in/hr	Sand, loamy sand, or sandy loam
B	0.25 in/hr	Silt loam or loam
C	0.10 in/hr	Sandy clay loam
D	0.03 in/hr	Clay loam, silty clay loam, sandy clay, silty clay, or clay

Source: *Urban Hydrology for Small Watersheds*, SCS, 1986.

Once all of the appropriate strategies have been applied to the site to take advantage of infiltration that would naturally occur on the land and storage opportunities in the watershed, there still may be a need for additional retention storage to maintain the curve number. This can be accomplished by providing additional storage as source control BMPs such as on-site swales and bioretention facilities where they can provide green space connection between existing wooded or natural areas. The book titled *Low-Impact Development Design Manual* by the Department of Environmental Resources Prince George's County, Maryland (November 1997) is an excellent resource. Where areas are noted as sensitive or highly sensitive to groundwater quality and stormwater runoff has potential for impacting the groundwater, pretreatment will be necessary.

The minimum requirements discussed in Part 3.h. should meet the criteria set in *Design Calculations for Wet Detention Ponds* (Walker, 1987a). Criteria for planning and design considerations are given in Chapter 4 of *Protecting Water Quality in Urban Areas* by the MPCA (1989). The Watershed Authority should also review the water quality ponding design found *Stormwater BMP Design Supplement for Cold Climates*, Center for Watershed Protection (December 1997).

- g. Encourage infiltration – To the greatest degree possible existing natural drainage ways, and vegetated soil surfaces shall be used to convey, store, filter, and retain stormwater runoff before discharge into public waters or a stormwater conveyance system. Infiltration volume shall be calculated using the appropriate Hydrologic Soil Group Classification and saturated infiltration rates from the following table unless specific rates are measured by a registered soil scientist. Permanent pool areas of wet ponds tend to lose infiltration capacity and should not be accepted as an infiltration practice.
- h. Minimum Water Quality Ponding Requirement.
 - i. All commercial and industrial developments and redevelopments affecting more than five (5) acres of land and all residential developments affecting more than twenty (20) acres of land shall be served by stormwater ponding facilities, on or off site, designed to:
 - (a) remove a minimum of ninety percent (90%) of total suspended solids resulting from the runoff from a one inch (1") rainfall event prior to discharge into a high priority wetland or water resource; or
 - (b) remove a minimum of seventy percent (70%) of total suspended solids resulting from the runoff from a one inch (1") rainfall event prior to discharge into a medium priority wetland or water resource; and
 - (c) remove a minimum of fifty percent (50%) of total suspended solids resulting from the runoff from a one inch (1") rainfall event prior to discharge into a to low priority wetland or water resource.
 - (d) The management priority of a wetland or other water resource is as defined in the approved and adopted local water management plan or the watershed management plan of the affected watershed management organization, if there is no approved and adopted local water management plan.

Part 3.h.i.(previous page) sets a threshold for requiring stormwater facilities. The minimum development sizes for a stormwater facility will vary in different communities. Central city or first tier suburban communities, and densely developed areas in smaller cities, should consider smaller developments. An alternative is to require performance-based standards for smaller developments (instead of ponding).

In Part j., the community should identify funding sources for pond maintenance (i.e. storm water utility fund).

- ii. All stormwater ponds shall be provided with a forebay area to provide for the settlement of fine sand sized particles. The forebay area shall contain a volume equal to twice the volume of fine sand sized particles expected to be discharged over a five year period after construction (It is assumed that the forebay will be cleaned out after construction is completed.). Smaller forebay volumes are allowed, however they must be sized at twice the volume of fine sand sized sediment expected during a specified planned maintenance period.
 - iii. If off-site ponding is provided for a development, provision must be made for the settlement of fine sands by use of settling chambers, sumps, dry ponds or other devices to provide for the capture of fine sands prior to discharge into Model Community's Stormwater trunk system.
-
- i. Pond Side Slopes – The side slopes shall not exceed 4 feet horizontal to 1 foot vertical (4:1) and should provide a bench just at the normal water level for safety considerations.
 - j. Maintenance and Access - All public and private owned stormwater management facilities shall provide an unobstructed access path (minimum of 20 feet) capable of supporting light truck traffic during normal weather for the purpose of conducting inspections of the facility and maintenance thereof. No private stormwater facility may be approved unless an easement is provided to the (community) allowing for access for maintenance and inspection. Maintenance agreements before, during, and after development are also required.
 - k. Storm Sewer Conveyance. At a minimum, the storm sewer conveyance system shall be designed for a 10-year, 24-hour storm event. It is important to ensure that the low areas have an acceptable overland drainage route with the proper transfer capacity when the storm event is exceeded.
 - l. Minimum Water Quantity Ponding Requirements. All development proposals greater than 1 acre in size shall not increase discharge rates above existing conditions except as provided for in

an approved, adopted local water management plan. At a minimum, development proposals shall submit calculations of pre and post development runoff for the critical storm event that occurs on recurrence intervals of 2, 10, and 100 years. Attenuation of flows may be accomplished by providing on-site or off site ponding, preferably wet detention ponds, at the concurrence of the developer and Model Community.

- m. **Water Quantity Ponds.** To provide proper protection for adjacent property within the first tier from the pond, the design storm interval for ponding area is a 100-year, 24-hour storm with correctly sized conveyances for 100-yr, 24-hour storm flows consistent with standards used by the cities, townships, counties, state, and federal agencies in planning for the flood protection of homes and public facilities. As an additional safety factor, the lowest exposed floor or opening elevation of a structure in a development should be at least three feet above the calculated high water level of the pond. The lowest exposed elevations of structures that are adjacent to ponds should be certified by the builder during basement construction to ensure adequate freeboard. An emergency overflow system must be established for the health and safety of the area. If the area is landlocked, the lowest exposed elevations of structures should be five feet above the calculated high water level. In consideration of the groundwater table, the lowest exposed elevations of structures should be four feet above the normal groundwater elevation. The table below gives the flood control and freeboard criteria required under the area encompassing this ordinance.

Condition	Water Bodies with Piped Outlets (<i>includes graded areas that will create ponded conditions during the 100-yr storm event</i>)	Landlocked Water Bodies	Flowing Channels Passing Through Roadways
New Road Construction (low point in roadway)	No lower than the 100-yr flood level	1 foot above the 100-yr flood level	No lower than the 50-yr flood level. Overflow swale for flows over the 50-yr flood level to protect downstream roadway embankment
Existing Roadways (low point in roadway)	No lower than 18 inches below 100-yr flood level	No lower than 10 inches below 100-yr flood level	No lower than 50-yr flood level
New construction – (low floor elevation and/or low opening of building)	Minimum of 3 feet above 100-yr, 24-hour storm event. <i>Be Advised for further refinement, the following recommendations:</i> <ol style="list-style-type: none"> 1. <i>At least 1 foot above the emergency overflow elevation.</i> 2. <i>At least 4 feet above normal groundwater elevation.</i> 3. <i>At least 2 feet above hydric or mottled soils elevation.</i> 	Minimum of 5 feet above 100-yr flood elevation.	N/A
Existing Structures - (low floor elevation and /or low opening of building)	Must be a minimum of 2 feet above the 100-yr, 24-hour storm event	Minimum of 5 feet above 100-yr flood elevation.	N/A

Part 3.o. discusses stream and creek consideration in the mitigation of stormwater flow. If the recurrence interval increases, the stream dimension, pattern, and bed features will be altered. Erosion and sedimentation will increase and the meander pattern will be altered. For more information, see Chapter 2 of Applied River Morphology by Dave Rosgen (1996).

To protect stream channels from erosion, the runoff shall be stored and released in such a gradual manner that the critical erosive velocities will seldom be exceeded in downstream channels. For design criteria see the Maryland Stormwater Draft Design Manual by the Maryland Department of the Environment (September 1998). The manual calls for a 24 hour extended detention of the 1-yr, 24-hour storm event.

Part 3.p. notes the conditions of protecting wetlands. As noted before, the sensitivity of a wetland to degradation varies with vegetation type. Sedge meadows, open bogs and swamps, coniferous bogs, calcareous fens, low prairies, lowland hardwood swamps, and seasonally flooded basins are highly sensitive to degradation, while flood plain forests, reed canary grass meadows shallow (reed canary grass, cattail, giant reed or purple loosestrife) marshes are only slightly sensitive to degradation.)

For 3.q, refer to Minnesota Rule 8420, Wetland Conservation Act 1991.

The intent of Subpart 3.r.i. is to encourage either stormwater infiltration or diversion, since urban trout streams are a unique resource.

- n. Floodplain Alteration. Floodplain filling shall not cause a net decrease in flood storage capacity below the projected 100-year flood elevation unless it is shown that the proposed filling, together with the filling of all other properties on the affected reach of the waterbody to the same degree of encroachment as proposed by the applicant, will not cause high water or aggravate flooding on other properties and will not unduly restrict flood flows. The allowable fill area shall be calculated by a professional engineer registered in the State of Minnesota.
- o. Creek/Stream Considerations. When reviewing plans that involve discharge to a nearby creek, have the engineer determine the bankfull stage and the corresponding flows for that stage. Bankfull discharge is associated with a momentary maximum flow which, on the average, has a recurrence interval of 1.5 years. According to Dunne and Leopold (1978), "The bankfull stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which moving sediment, forming or removing bars, forming or changing bends and meanders, and generally doing work that results in the average morphologic characteristics of channels."
- p. Runoff shall not be discharged directly into wetlands without appropriate quality and quantity runoff control, depending on the individual wetland's vegetation. See the current version of the Minnesota Pollution Control Agency's publication, "Storm-Water and Wetlands: Planning and Evaluation Guidelines for Addressing Potential Impacts of Urban Storm- Water and Snow-Melt Runoff on Wetlands" for guidance.
- q. Wetlands must not be drained or filled, wholly or partially, unless replaced by either restoring or creating wetland areas of at least equal public value.
- r. Special Trout Stream Watershed Requirements
 - i. There shall be no increase in either the volume or rate of stormwater runoff for any design storm with a statistical recurrence interval of less than ten (10) years (i.e., the two-(2) year, five-(5) year, etc. storm events), unless diversion is not

practical and/or the soil is not suitable for stormwater infiltration techniques.

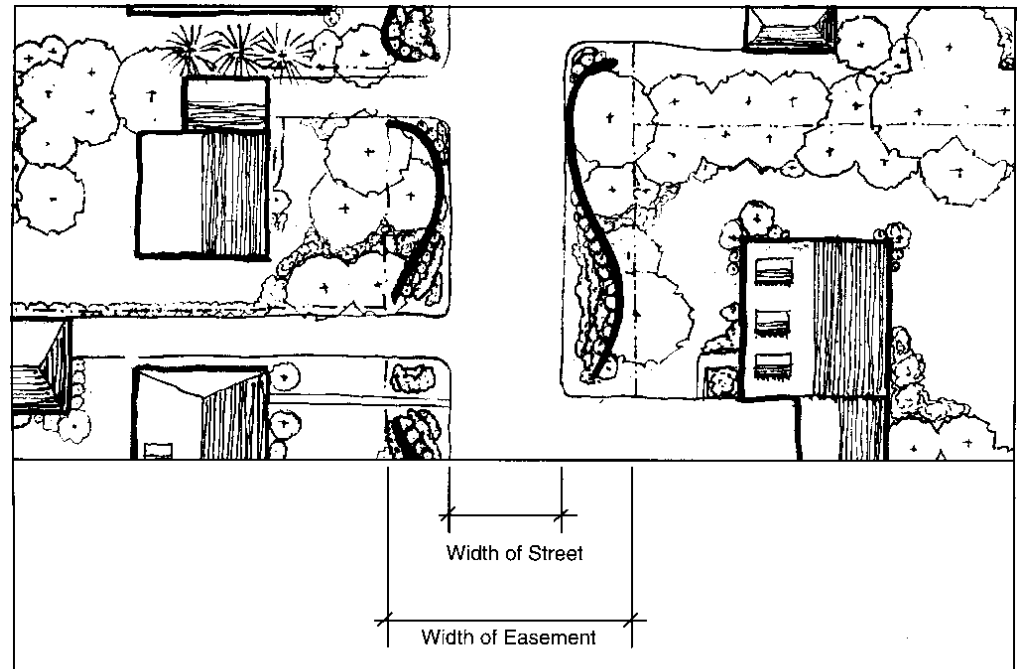
The phrase, “soil not suitable for stormwater infiltration techniques” means soils with permeability values less than Group C soils (less than 2.5 inches per hour) as defined by the Natural Resources Conservation Service.

- ii. If the proposed project site includes a trout stream tributary that currently experiences erosion and/or sedimentation problems, the applicant must work with Model Community to include channel modifications in the project that will also address the existing erosion and/or sedimentation problem.
 - iii. Preserve or install a stream bank native tree canopy within one hundred (100) feet of the top of the stream bank directly on a Minnesota Department of Natural Resources designated trout stream reach and all tributaries directly to a designated trout stream reach. The width of this buffer strip shall be increased by at least two (2) feet for one (1) percent of slope of the surrounding land.
 - iv. Preservation of or installation of a stream bank native tree canopy within fifty (50) feet of top of the stream bank for the reach upstream of a Minnesota Department of Natural Resources designated trout stream reach and for all tributaries upstream of the designated trout stream reach. The width of this buffer strip shall be increases by at least two (2) feet for one (1) percent of slope of the surrounding land.
 - v. Permanent buildings erected on sites that border directly on and all tributaries directly to a Minnesota Department of Natural Resources designated trout stream shall not be occupied until the permanent vegetative cover has been established. Such cover must meet this ordinance’s definition of “final stabilization”.
- s. Where feasible lightly used vehicle traffic areas such as overflow parking lots should use pervious surfaces such as concrete blocks

Subpart 3.r.iv.'s reference to “native” tree canopy is preferred, since some non-native trees can out compete native species and create a mono-culture of decreased environmental value.

- or cabled concrete blocks where feasible.
- t. To the maximum degree possible, runoff from roof gutter systems must be directed to discharge onto lawns and or other pervious surfaces to promote opportunities for increased infiltration.
- u. The applicant must consider methods for reducing the amount of impervious surface on the site. Suggestions include:
 - i. Reduce road widths.
 - ii. Eliminate paving in the center of cul de sacs.
 - iii. Reduce sidewalk widths.
 - iv. Allow and provide for shared parking.
 - v. Install semi-permeable/permeable or porous paving.
 - vi. Vegetated swales instead of curb and gutter.
 - vii. Filter strips

Easement Garden illustration source: Bringing Garden Amenities into Your Neighborhood: Infrastructure for Ecological Quality, 1997



Easement gardens complement neighborhood front yards but they are located within the city easement.

- v. Development shall be planned and conducted in a manner that will minimize the extent of disturbed areas, runoff velocities, erosion potential, and reduce and delay runoff volumes. Disturbed areas shall be stabilized and protected as soon as possible and facilities or methods used to retain sediment on the site.
- w. When development density, topographic features, and soil and vegetation conditions are not sufficient to adequately handle stormwater runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways, and ponds may be used. Preference shall be given to designs using surface drainage, vegetation, and infiltration rather than buried pipes and man-made materials and facilities.

B. Stormwater and Urban Runoff Pollution Control

- 1. **Illegal Disposal**
 - a. No person shall throw, deposit, place, leave, maintain, or keep or permit to be thrown, placed, left, maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles, or accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place, or upon any public or private plot of land in Model Community, so that the same might be or become a pollutant, except in containers, recycling bags, or other lawfully established waste disposal facility.
 - b. No person shall intentionally dispose of leaves, dirt, or other landscape debris into a street, road, alley, catch basin, culvert, curb, gutter, inlet, ditch, natural watercourse, flood control channel, canal, storm drain or any fabricated natural conveyance.
- 2. **Illicit Discharges and Connections**
 - a. No person shall cause any illicit discharge to enter the municipal storm water system unless such discharge: (1) consists of non-storm water that is authorized by an NPDES point source permit obtained from the MPCA; or (2) is associated with fire fighting

- activities; or (3) is otherwise in compliance with Model Community Chapter referral, if necessary).
- b. No person shall use any illicit connection to intentionally convey non-storm water to Model Community storm water system.
3. Good Housekeeping Provisions. Any owner or occupant of property within Model Community shall comply with the following food housekeeping requirements:
- a. No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste in an area where discharge to streets or storm drain system may occur. This section shall apply to both actual and potential discharges.
 - b. Runoff of water from residential property shall be minimized to the maximum extent practicable. Runoff of water from the washing down of paved areas in commercial or industrial property is prohibited unless necessary for health or safety purposes and not in violation of any other provisions in Model Community codes.
 - c. Storage of Materials, Machinery, and Equipment
 - i. Objects, such as motor vehicle parts, containing grease, oil or other hazardous substances, and unsealed receptacles containing hazardous materials, shall not be stored in areas susceptible to runoff.
 - ii. Any machinery or equipment which is to be repaired or maintained in areas susceptible to runoff shall be placed in a confined area to contain leaks, spills, or discharges.
4. Removal of Debris and Residue
- a. All motor vehicle parking lots located in areas susceptible to runoff shall be swept, at a minimum (set timeframe for _) to remove debris. Such debris shall be collected and properly disposed. However, lots are not required to be swept for one month following a day on which precipitation of one-half inch or more occurs.
 - b. Fuel and chemical residue or other types of potentially harmful material, such as animal waste, garbage or batteries, which is located in an area susceptible to runoff, shall be removed as soon

as possible and disposed of properly. Household hazardous waste may be disposed of through Model Community collection program or at any other appropriate disposal site and shall not be placed in a trash container.

- C. **Review.** Model Community engineer shall review the stormwater management plan. This review shall be completed within fourteen (14) days of receiving the plan from the developer.
1. **Permit Required.** If Model Community determines that the stormwater management plan meets the requirements of this ordinance, Model Community shall issue a permit valid for a specified period of time, that authorizes the land disturbance activity contingent on the implementation and completion of this plan.
 2. **Denial.** If Model Community determines that the stormwater management plan does not meet the requirements of this ordinance, Model Community shall not issue a permit for the land disturbance activity. This plan must be resubmitted for approval before the land disturbance activity begins. All land use and building permits shall be suspended until the developer has an approved stormwater management plan.
- D. **Modification of Plan.** An approved stormwater management plan may be modified on submission of an application for modification to Model Community, and after approval by Model Community engineer. In reviewing such an application, Model Community engineer may require additional reports and data.
- E. **Variance Requests.** Where in the judgment of a registered professional engineer, experienced in the field of stormwater and erosion and sediment control, site conditions warrant or where the practices or practice standards will be insufficient to control erosion and sedimentation for a land disturbance activity, Model Community engineer may grant a variance on a case-by-case basis. The content of a variance shall be specific, and shall not affect other approved provisions of a plan.
1. The variance request shall be in writing.
 2. The variance shall be in writing and include the reason for granting the variance.

F. Maintenance of Stormwater Facilities.

1. Private Stormwater Facilities. All private Stormwater facilities shall be maintained in proper condition consistent with the performance standards for which they were originally designed. All settled materials from ponds, sumps, grit chambers, and other devices, including settled solids, shall be removed and properly disposed of on a five (5) year interval. One to five (5) year waivers from this requirement may be granted by Model Community Engineer when the owner presents evidence that the facility has additional capacity to remove settled solids in accordance with the original design capacity. No private Stormwater facilities may be approved unless a maintenance plan is provided that defines who will conduct the maintenance, the type of maintenance and the maintenance intervals.
2. Maintenance of Publicly Owned Stormwater Facilities. Model Community Engineer shall annually perform the maintenance of the in place Stormwater facilities within Model Community as provided for in the local water management plan or watershed management plan of affected watershed management organizations if there is no approved local water management plan. Further, Model Community Engineer shall notify the owners of other publicly owned Stormwater facilities if scheduled maintenance is needed according to periodic site inspections or maintenance plans on file.
3. Inventory Of Stormwater Facilities. Upon adoption of this Chapter, Model Community Engineer shall inventory and maintain a data base for all private and public Stormwater facilities within Model Community requiring maintenance to assure compliance with this Section. Model Community Engineer is responsible to notify owners of public and private Stormwater facilities of the need for conducting maintenance at least every five years, starting in _____.

XX.03 Erosion and Sediment Control

A. General Criteria for Erosion and Sediment Control Plans. The erosion and sediment control plan shall include the following criteria:

1. Minimize, in area and duration, exposed soil and unstable soil conditions.

Section A.'s erosion and sediment control plan should comply with the most recent version of the Minnesota Construction Site Erosion and Sediment Control Planning Handbook – Chapter 2 by the MPCA.

2. Minimize disturbance of natural soil cover and vegetation.
3. Protect receiving water bodies, wetlands and storm sewer inlets.
4. Protect adjacent properties from sediment deposition.
5. Minimize off-site sediment transport on trucks and equipment.
6. Minimize work in and adjacent to water bodies and wetlands.
7. Maintain stable slopes.
8. Avoid steep slopes and the need for high cuts and fills.
9. Minimize disturbance to the surrounding soils, root systems and trunks of trees adjacent to site activity that are intended to be left standing.
10. Minimize the compaction of site soils.

B. Erosion and Sediment Control Plan Requirements. The erosion control plan shall include the following:

1. Site plans for existing and final proposed conditions. The site plan for existing and final proposes conditions drawn to appropriate scale shall contain the following:
 - a. The site location in relation to surrounding roads, steep slopes, other significant geographic features, buildings and other significant structures.
 - b. Contours sufficient to show drainage on and adjacent to the site.
 - c. Site property lines.
 - d. Identification and location of all on-site water features and facilities including any lake, stream or wetland; any natural or artificial water diversion or detention area; any surface or subsurface drainage facility or stormwater conveyance; and any storm sewer catch basin within 1,000 feet of the area to be disturbed.
 - e. Location of all trees and vegetation on site, with identification of that which is intended to be retained.
 - f. Proposed grading or other land-disturbing activity including areas of grubbing, clearing, tree removal, grading, excavation, fill and other disturbance; areas of soil or earth material storage; quantities of soil or earth material to be removed, placed, stored or otherwise moved on site; and delineated limits of disturbance.
 - g. Locations of proposed runoff control, erosion prevention, sediment control and temporary and permanent soil stabilization measures.

2. Erosion and Sediment Control Plan Specifications. Specifications for all proposed runoff control, erosion prevention, sediment control, and temporary and permanent soil stabilization measures shall include:
 - a. Plans and specifications shall conform to the provisions of the manual, "Protecting Water Quality in Urban Areas" (Minnesota Pollution Control Agency, reprinted 1994), as revised.
 - b. All erosion and sedimentation controls proposed for compliance with this rule will be in place before any land-disturbing activity commences.
 - c. Plans shall provide that stockpiles of soil or other materials subject to erosion by wind or water shall be covered, vegetated, enclosed, fenced on the downgradient side or otherwise effectively protected from erosion in accordance with the amount of time the material will be on site and the manner of its proposed use.
 - d. Plans shall include measures and procedures to reasonably minimize site soil compaction and shall provide that all compacted soil shall be broken up to a depth of at least six inches before revegetation.
 - e. Plans shall provide that all silt fence installed after January 1, 2000 shall be the color orange.
 - f. Plans shall provide that all fabric fences used for erosion and sedimentation control and all other temporary controls shall not be removed until Model Community has determined that the site has been permanently restabilized and shall be removed within 30 days thereafter.
 - g. Methods to prevent sediment damage to adjacent properties and sensitive environmental areas such as water bodies, plant communities, rare, threatened and/or endangered species habitat, wildlife corridors, greenways, etc.
 - h. Design and construction methods to stabilize steep slopes.
 - i. Measures to control the quality and quantity of stormwater leaving a site before, during, and after construction.
 - j. Stabilization of all waterways and outlets.
 - k. Protection of storm sewer infrastructure from sediment loading/

- plugging.
 - l. Precautions taken to contain sediment when working in or crossing water bodies.
 - m. Restabilizing utility construction areas as soon as possible.
 - n. Protection of outlying roads from sediment and mud from site construction activities.
 - o. Disposal of collected sediment and floating debris.
3. Schedule of Events. A detailed schedule indicating dates and sequence of land alteration activities; implementation, maintenance and removal of erosion and sedimentation control measures; and permanent site stabilization measures.
 4. Monitoring Schedule. A detailed description of how erosion control, sediment control and soil stabilization measures implemented pursuant to the plan will be monitored, maintained and removed.
 5. Other Information.
 - a. On the request of an applicant proposing to landscape an improved residential property and a finding that certain required information is not needed to assess the characteristics of the property and the adequacy of proposed control measures, Model Community may reduce the submittal requirements of this section.
 - b. On a determination that the condition of the soils is unknown or unclear and that additional information is required to find that an applicant's proposed activity will meet the standards and purposes of this rule, Model Community may require soil borings or other site investigation to be conducted and may require submission of a soils engineering or geology report. The report shall include the following as requested by Model Community.
 - i. Data and information obtained from the requested site investigation.
 - ii. A description of the types, composition, permeability, stability, erodibility and distribution of existing soils on site.
 - iii. A description of site geology.
 - iv. Conclusions and revisions, if any, to the proposed land-disturbing activity at the site or the erosion control plan, including revisions of plans and specifications.

- C. **Plan Review and Inspections.** These minimum control measures are required where bare soil is exposed. Due to the diversity of individual construction sites, each site will be individually evaluated. Where additional control measures are needed, they will be specified at the discretion of Model Community engineer. Model Community will determine what action is necessary to prevent excessive erosion from occurring on the site.
1. All grading plans and building site survey's shall be reviewed by Model Community for effectiveness of erosion control measures in the context of the site topography and drainage.
 2. Perimeter sediment control measures shall be properly installed by the builder before construction activity begins. Such structures may be adjusted during dry weather to accommodate short term activities, such as those that require very large vehicles. As soon as this activity is finished or before rainfall, the erosion and sediment control structures must be returned to the configuration specified by Model Community. A sediment control inspection must then be scheduled and passed before a footing inspection will be done.
 3. Diversion of channeled runoff around disturbed areas, if practical, or the protection of the channel.
 4. Easements. If a stormwater management plan involves directing some or all runoff from the site, the applicant shall obtain from adjacent property owners any necessary easements or other property interests concerning flowage of water.
 5. The scheduling of the site's activities to lessen their impact on erosion and sediment creation.
 6. Minimize amount of exposed soil.
 7. Control runoff as follows (a and b or a and c):
 - a. Unless precluded by snow cover, stabilize all exposed inactive disturbed soil areas that are within 100 feet of any water of the state, or any conveyance (curb, gutter, storm sewer inlet, drainage ditch, etc.) to a water of the state drainage with sod or seed with mulch. This shall be done if area in will not be worked for by the developer for seven (7) days on slopes greater than three feet horizontal to one foot vertical (3:1), fourteen (14) days on slopes

Section 7.b. sets a threshold consistent with MPCA rules. MPCA requires a National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) construction Stormwater permit for any project that disturbs five (5) acres or more of land.

- ranging from 3:1 to 10:1 and twenty-one (21) days for flatter slopes.
- b. For disturbed areas greater than five (5) acres construct temporary or permanent sedimentation basins. Sedimentation basins must have a minimum surface area equal to at least 1% of the area draining to basin, three (3) foot minimum depth, and constructed in accordance with accepted design specifications. Sedimentation basins must be maintained regularly, including sediment removal to maintain a (three 3) foot depth. Basin discharge rates must also be controlled to prevent erosion in the discharge channel.
 - c. For disturbed areas less than five (5) acres sedimentation basins are encouraged, but not required. The applicant shall install erosion and sediment controls at locations directed by Model Community. Minimum requirements include silt fences, rock check dams, or other equivalent control measures along slopes. Silt fences are required along channel edges to reduce sediment reaching channel. Silt fences, rock check dams, etc. must be regularly inspected and maintained.
8. Sediment basins related to impervious surface area. Where a project's ultimate development replaces surface vegetation with one or more acres of cumulative impervious surface, and all runoff has not been accounted for in a local unit of government's existing stormwater management plan or practice, the runoff shall be discharged to a wet sedimentation basin prior to entering waters of the state.
 9. Generally, sufficient silt fence will be required to hold all sheet flow runoff generated at an individual site, until it can either infiltrate or seep through silt fence's pores.
 10. Temporary stockpiling of fifty (50) or more cubic yards of excess soil on any lot or other vacant area will not be allowed without issuance of a grading permit for the earth moving activity in question.
 11. For soil stockpiles greater than ten (10) cubic yards the toe of the pile must be more than twenty-five (25) feet from a road, drainage channel or stormwater inlet. If left for more than seven (7) days, they must be stabilized with mulch, vegetation, tarps or other means. If left for less

than seven (7) days, erosion from stockpiles must be controlled with silt fences or rock check dams.

- a. If for any reason a soil stockpile is located closer than twenty-five (25) feet from a road, drainage channel or Stormwater inlet, and left for more than seven days, it must be covered with tarps or controlled in some other manner
12. Temporary rock construction entrances are required wherever vehicles enter and exit a site.
 13. Parking is prohibited on all bare lots and all temporary construction entrances, except where street parking is not available. Gravel entrances are to be used for deliveries only as per the development contract.
 14. Streets shall be cleaned and swept whenever tracking of sediments occurs and before sites are left idle for weekends and holidays. Establishment of a regular sweeping schedule is encouraged.
 15. Water, impacted by the construction activity, that is being removed from the site by pumping shall be treated by temporary sedimentation basins, geotextile filters, grit chambers, sand filters, up-flow chambers, hydro-cyclones, swirl concentrators or other appropriate controls as appropriate. Water may not be discharged in a manner that causes erosion or flooding of the site or receiving channels or a wetland.
 16. All storm drain inlets shall be protected during construction until control measures are in place with either silt fence or an equivalent barrier that meets accepted design criteria, standards and specifications contained in the latest version of the Minnesota Pollution Control Agency's publication, "Protecting Water Quality in Urban Areas."
 17. Catch basins. All newly installed and rehabilitated catch basins shall be provided with a sump area for collecting coarse-grained material. Such basins shall be cleaned when they are half filled with material.
 18. Roof drain leaders. All newly constructed and reconstructed buildings shall route roof drain leaders to pervious areas (not natural wetlands) where the runoff can infiltrate. The flow rate of water exiting the leaders shall be controlled so that no erosion occurs in the pervious areas.

19. Follow-up inspections shall be performed by Model Community on a regular basis to ensure that erosion and sediment control measures are properly installed and maintained. In all cases the inspectors will attempt to work with the builder or developer to maintain proper erosion and sediment control at all sites. In cases where cooperation is withheld, construction stop orders may be issued by Model Community, until erosion and sediment control measures meet specifications. A second erosion and sediment control/grading inspection must then be scheduled and passed before the final inspection will be done.
20. Inspection and maintenance. All erosion and sediment control facilities shall be designed to minimize the need of maintenance, to provide easy vehicle and personnel access for maintenance purposes and be structurally sound. These facilities shall have a plan of operation and maintenance that ensures continued effective removal of the pollutants carried in stormwater runoff. Model Community or its designated representative shall inspect all erosion and sediment control facilities during construction, during the first year of operation and at least once every five (5) years thereafter. Model Community will keep all inspection records on file for a period of six (6) years. It shall be the responsibility of the applicant to obtain any necessary easements or other property interests to allow access to the stormwater management facilities for inspection and maintenance purpose.

D. Financial Securities. The applicant shall provide security for the performance of the work described and delineated on the approved grading plan involving the stormwater pollution control plan and any stormwater and pollution control plan related remedial work in an amount of \$3,000 per gross acre (\$6,000 for work done in a trout stream's watershed) or \$1,000 for each single or twin family home, whichever is greater. The form of the securities shall be one or a combination of the following to be determined by Model Community:

1. The first \$3,000 of the financial security for erosion control shall be by cash deposit to Model Community.
2. Deposit, either with Model Community, a responsible escrow agent, or

trust company, at the option of Model Community, money, negotiable bonds of the kind approved for securing deposits of public money or other instruments of credit from one or more financial institutions, subject to regulation by the state and federal government wherein said financial institution pledges funds are on deposit and guaranteed for payment; or

3. Cash in U.S. currency.

E. **Maintaining the Financial Security.** If at anytime during the course of the work this amount falls below 50% of the required deposit, the developer shall make another deposit in the amount necessary to restore the cash deposit to the required amount.

1. If the developer does not bring the financial security back up to the required amount within seven (7) days after notification by Model Community that the amount has fallen below 50% of the required amount Model Community may:
2. Withhold the scheduling of inspections and/or the issuance of a Certificate of Occupancy.
3. Revoke any permit issued by Model Community to the applicant for the site in question or any other of the applicant's sites within Model Community's jurisdiction.

F. **Action Against the Financial Security.** Model Community may act against the financial security if any of the conditions listed below exist. Model Community shall use funds from this security to finance remedial work undertaken by Model Community or a private contractor under contract to Model Community and to reimburse Model Community for all direct cost incurred in the process of remedial work including, but not limited to, staff time and attorney's fees.

1. The developer ceases land disturbing activities and/or filling and abandons the work site prior to completion of the grading plan.
2. The developer fails to conform to the grading plan and/or the Stormwater pollution control plan as approved by Model Community.
3. The techniques utilized under the Stormwater pollution control plan fail

within one year of installation.

4. The developer fails to reimburse Model Community for corrective action taken under Section 5.

G. Returning the Financial Security. The security deposited with Model Community for faithful performance of the Stormwater pollution control plan and any Stormwater and pollution control plan related remedial work to finance necessary remedial work shall be released one full year after the completion of the installation of all Stormwater pollution control measures as shown on the grading and/or the Stormwater pollution control plan.

H. Notification of Failure of the Erosion and Sediment Control Plan.

Model Community shall notify the permit holder of the failure of the Stormwater pollution control plan's measures.

1. Notification by Model Community. The initial contact will be by phone to the parties listed on the application and/or the Stormwater pollution control plan. Forty-eight (48) hours after notification by Model Community or seventy-two (72) hours after the failure of erosion control measures, Model Community, at its discretion, may begin corrective work.
2. Erosion Off-Site. If erosion breaches the perimeter of the site, the applicant shall immediately develop a cleanup and restoration plan, obtain the right-of-entry from the adjoining property owner, and implement the cleanup and restoration plan within forty-eight (48) hours of obtaining the adjoining property owner's permission. In no case, unless written approval is received from Model Community, may more than seven (7) calendar days go by without corrective action being taken. If in the discretion of Model Community, the permit holder does not repair the damage caused by the erosion, Model Community may do the remedial work required.
3. Erosion into Streets, Wetlands or Water Bodies. If eroded soils (including tracked soils from construction activities) enter or appear likely to enter streets, wetlands, or other water bodies, cleanup and repair shall be immediate. The applicant shall provide all traffic control and flagging required to protect the traveling public during the cleanup operations.

The statute referenced in 4.c. is included below for the community's reference.

Within 30 days after the adoption of the assessment, any person aggrieved, who is not precluded by failure to object prior to or at the assessment hearing, or whose failure to so object is due to a reasonable cause, may appeal to the district court by serving a notice upon the mayor or clerk of the municipality. The notice shall be filed with the court administrator of the district court within ten days after its service. The municipal clerk shall furnish appellant a certified copy of objections filed in the assessment proceedings, the assessment roll or part complained of, and all papers necessary to present the appeal. The appeal shall be placed upon the calendar of the next general term commencing more than five days after the date of serving the notice and shall be tried as other appeals in such cases. The court shall either affirm the assessment or set it aside and order a reassessment as provided in section 429.071, subdivision 2. If appellant does not prevail upon the appeal, the costs incurred shall be taxed by the court and judgment entered therefor. All objections to the assessment shall be deemed waived unless presented on such appeal. This section provides the exclusive method of appeal from a special assessment levied pursuant to this chapter.

4. Failure to Do Corrective Work. When an applicant fails to conform to any provision of this policy within the time stipulated, Model Community may take the following actions.
 - a. Withhold the scheduling of inspections and/or the issuance of a Certificate of Occupancy.
 - b. Revoke any permit issued by Model Community to the applicant for the site in question or any other of the applicant's sites within Model Community's jurisdiction.
 - c. Direct the correction of the deficiency by Model Community forces or by a separate contract. The issuance of a permit constitutes a right-of-entry for Model Community or its contractor to enter upon the construction site for the purpose of correcting deficiencies in erosion control.
 - d. All costs incurred by Model Community in correcting stormwater pollution control deficiencies shall be reimbursed by the applicant. If payment is not made within thirty (30) days after costs are incurred by Model Community, payment will be made from the applicant's financial securities as described in Section XX above.
 - e. If there is an insufficient financial amount, in the applicant's financial securities as described in Section XX above, to cover the costs incurred by Model Community, then Model Community may assess the remaining amount against the property. As a condition of the permit, the owner shall waive notice of any assessment hearing to be conducted by Model Community, concur that the benefit to the property exceeds the amount of the proposed assessment, and waive all rights by virtue of Minnesota Statute 429.081 to challenge the amount or validity of assessment.

XX.04 Shoreland

Buffers along lakeshores are provided through the shoreland management act. The Minnesota Department of Natural Resources (MDNR) Statewide Standards affect all lakes greater than 25 acres (10 acres in municipalities) and rivers with a drainage area two square miles or greater. These standards set guidelines for the use and development of shoreland property including: a sanitary code, minimum lot size, minimum water frontage, building setbacks, building heights, and subdivision regulations. The Shoreland Management Act regulates all land within 1,000 feet of a lake and 300 feet of a river and the designated floodplain. Local units of government with priority shorelands are required to adopt these or stricter standards into their zoning ordinance.

The uncontrolled use of shorelands affects the public health, safety, and general welfare not only by contributing to pollution of public waters, but also by impairing the local tax base. Therefore, it is in the best interests of the public health, safety, and welfare to provide for the wise subdivision, use, and development of shorelands of public waters. The legislature of Minnesota has delegated responsibility to local governments of the state to regulate the subdivision, use, and development of the shorelands of public wates and thus preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of shorelands, and provide for the wise use of waters and related land resources.

The MDNR has created a model shoreland ordinance that is used by communities with local modifications all over the state. This ordinance language should be applied here. Below are some considerations for additions/changes to the model shoreland ordinance that would add to the protection of bluffs and vegetation diversity.

Review the bluff definition and consider replacing the defining area as the slope from the toe of the bluff to a point 25 feet or more above the OHW to language stating a vertical change of at least 15 feet over a 50 foot horizontal distance. A very steep slope - almost straight vertical drop - that rises only 21 - 22 feet and then flattens out at the top sometimes will not fall under the definition of a bluff (at 25 feet above the OHW the average slope is below 30%). A 50 foot distance is sometimes used within the bluff definition. The 15 foot rise is high enough to avoid including low retaining walls or other short, but steep, areas in the landscape. Each LGU should look at their local topography and soils and cities chose the best scenario for their situation.

Review the definition of “intensive vegetation removal” in the model shoreland ordinance.

Local governments could be more restrictive than the state guidelines and prohibit removal of, or cutting of, grasses in addition to the trees and shrubs. LGUs may also want to consider a permanent marker or monument at the edge of bluff and shore impact zones.

XX.05 Floodplain

The MDNR oversees the administration of the state Floodplain Management Program (see MN Statutes 103F.101 - 103F.165 and MN Rules 6120.5000 - 6120.6200) by promoting and ensuring sound land use development in floodplain areas in order to promote health and safety of the public, minimize loss of life, and reduce economic losses caused by flood damages. Federal floodplain management oversight has been delegated to the MDNR by the Federal Emergency Management Agency (FEMA), however FEMA still has a significant impact on local floodplain regulation through its role in publishing local floodplain maps and the National Flood Insurance Program (NFIP).

The natural floodplain is an important part of our water system. It affects storm runoff, water quality, vegetative diversity, wildlife habitat, and aesthetic qualities of our rivers and lakes. Any alteration of the floodplain should be carefully evaluated. The following information about floodplains and local zoning codes deals with restrictions on developing in or near floodplains. In any case, the least amount of alteration to the natural system is usually the most ecologically sound development decision.

Under state law, the floodplain is considered to be the land adjoining lakes and rivers that is covered by the “100-year” or “regional” flood, or the flood that has a one percent chance of occurring in any one year. Using sophisticated engineering and meteorological techniques, it is possible to calculate the magnitude of such a flood along those rivers where long-term flood records have been kept. Various government agencies conduct these studies, and as they become available, local communities are required by state and federal law to adopt floodplains zoning ordinances.

- **Floodway** is the land immediately adjoining the river channel that is the natural conduit for flood waters. The floodway must remain open in order to allow flood waters to pass. When the floodway is obstructed by buildings, structures, or debris, flood waters will be dammed up and will flood even greater areas upstream. Large portions of the floodplain store and later release flood waters, which reduce river flood stages. Development of these areas can result in increased flooding. Under the statewide floodplain management standards, local communities cannot allow development in the floodplain that would cumulatively cause more than a 2-foot increase in the height of the 100-year flood. Many communities have delineated the boundary of the floodway on zoning maps based on this 2-foot increase in flooding. Since this area must be left open to pass flood waters, only open space uses, such as farm land, residential yards or gardens, golf courses, parks, playgrounds, or parking areas, are normally allowed in the floodway.
- **Flood Fringe** is the remainder of the floodplain lying outside of the floodway. This area is generally covered by shallow, slow-moving flood waters. Development is normally allowed in the flood fringe provided that residential buildings are placed on fill so that the lowest floor, including the basement, is above the 100-year flood level. In communities that have not delineated separate floodway and flood fringe areas on their zoning map, a development application should provide certain engineering information before structure(s) can be placed in the floodplain. An engineer or surveyor will have to evaluate the proposed building site and furnish local officials with the necessary data to determine the property’s flood protection elevation and whether the proposed building is in the floodway.
- **Regional Flood Protection Elevation (RFPE)** refers to an elevation at least one foot above the 100-year flood. State regulations require that the elevation of the lowest floor of a dwelling (including basement) be at or above the flood protection level, however this plan requires local regulations to require a three foot separation between the lowest floor or opening of a dwelling. Local regulations will also require your access road elevation to be within two feet of the flood protection elevation, at a minimum.
- **Floodproofing** includes a variety of construction methods, such as watertight doors, windows, walls, and bulkheads, which can be used to prevent flood waters from entering a structure. This method of flood protection is not a sure deterrent to flooding and is used only in very special circumstances where it may not be possible to place your building or accessory structure on fill. Furthermore, the State Building Code requires all floodproofed structures to be

designed by a registered architect or engineer.

- *Flood Insurance is important when buying floodplain property. Property owners should be aware of the National Flood Insurance Program (NFIP), which provides flood insurance coverage for structures and their contents in communities participating in the NFIP. Under this program, federally insured or regulated institutions must require flood insurance policies on all new loans for structures in mapped floodplain areas recognized by the Federal Emergency Management Agency (FEMA). Property located in the floodplain is available from the local building or zoning official (“Flood Hazard Boundary Maps” or “Flood Insurance Rate Maps” furnished by FEMA). Property owners should also be aware that they can also buy flood insurance if they are not in a mapped floodplain on the FEMA maps, as long as their community is participating in the NFIP. In fact, a high percentage of the claims through the NFIP are for properties that are not within the mapped floodplain on the FEMA maps but that are affected by smaller basins or streams.*

Local governments should provide a floodplain overlay district to provide for the protection and preservation of water channels and those portions of the adjoining floodplains which are required to carry and discharge a regional flood and are subject to inundation by regional floods. It is the intent of the floodplain overlay district to be applied to those areas which if left unrestricted could result in loss of life and property, health and safety hazards, disruption of commerce, utilities and governmental services, extraordinary public expenditures for floodplain protection and relief and impairment of the tax base.

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CLUSTER #5 - RESOURCE EFFICIENT BUILDINGS

Efficient Buildings

Resource efficient building design can include several components, such as energy and water efficient design, minimization of construction waste, and use of renewable, recycled, or reused building materials. Local governments are somewhat restricted by the Minnesota Uniform Building Code in using local ordinances to require resource efficient buildings. The State Building Code, including the Energy Code, serves as both a minimum and maximum standard for virtually all structural and safety elements of buildings. The State Code does address some resource efficiency issues directly (energy use in particular), while being largely mute on other issues (such as use of renewable building materials). Regardless, local governments cannot, with very few exceptions, depart from the State Building Code. Consequently, local governments have three general non-building-code options to address building resource efficiency in local ordinances:

1. *Develop and promote voluntary design or performance standards. The standards can be recommended, but not mandated in the local ordinance. For those communities that enforce the State Building Code, voluntary standards can be created that exceed code requirements.*
2. *Create incentive programs for private developers to adopt design or performance standards. Examples of incentives are listed below:*
 - *fast-tracking building permit or other permitting processes,*
 - *waiving or reducing permit fees,*
 - *low-interest loan programs*
 - *resource efficiency or sustainable building certification programs, to allow builders to market the value-added benefit of sustainability and environmental stewardship*
3. *Adopt mandatory standards for municipal building construction. Local governments that do not enforce a building code can choose to meet or exceed the code in governmental buildings as a means of preserving resources, saving public dollars, and providing educational value to the community on the benefits of resource conservation. Local governments that do enforce the building code are not precluded from developing bid specifications for governmental buildings that exceed the requirements of the Uniform Code.*

The above-referenced three options are discussed below in the section titled Energy Efficiency Performance.

Construction and Demolition Resources

Building resource efficiency is not, however, limited to operating efficiencies – a substantial amount of resources are used in building, redeveloping, and demolishing buildings. While performance standards for building operating efficiency is largely controlled by the State Building Code, solid waste management is primarily the responsibility of county and city governments. Local government can influence the recycling and reuse of construction and demolition materials.

The ordinance and specification options available to local governments for minimizing wasted construction and demolition materials are discussed below in the section titled “Construction and Demolition Resources.” These options include voluntary standards, participation in County or State construction

materials recycling programs, and recycling specifications for municipal buildings.

Resource Acquisition

Finally, local governments can influence resource efficiency through the selection of resources used by the local government, and sometimes the resources used by the community at large, through setting preferences for recycled or renewable resources in purchasing. Some local governments have, for instance, set preferences in supply purchasing that explicitly value recycled content, renewable feedstocks and sustainable manufacturing processes (see Cincinnati ordinance on environmentally preferable supplies and construction, Chapter 321).

Energy services are perhaps the most significant community resource acquisition that local governments can influence. The local government is frequently one of the largest consumers of energy in the community, and is sometimes responsible (in the case of a municipal utility) for acquiring energy for the entire community. A number of states have, furthermore, deregulated the electric and gas retail market, allowing individuals to choose their energy service companies or power providers. Some states have included provisions for local governments to act as “aggregators” of local energy demand, in order to take advantage of economies of scale in negotiating power or energy contracts.

While Minnesota has not deregulated the retail market, local governments should prepare for the role they can play in promoting renewable sources of energy, and energy services that emphasize the use of local “efficiency resources” rather than distant coal, gas, or oil resources. The section titled Energy Acquisition includes a sample Request for Proposals for electricity and power from renewable energy resources.

Energy Efficiency Performance

Voluntary Design Standards

A number of possible standards already exist that could be adopted in whole or in part as voluntary standards. Communities can target particular kinds of energy efficiency investment that are nearly always cost-effective investments such as complying with the Commercial Lighting Code requirements of the Minnesota Building Code. Alternatively, communities could focus on heating system and building envelope improvements, or adopting a whole-building energy benchmarking tool, such as the EPA/DOE Energy Star Benchmarking. Finally, many community's are served by gas and electric utilities that offer design or financial assistance for adopting certain energy efficiency standards. The community could promote and recognize participation in the local utility's energy efficiency programs.

See the Resources section for references to voluntary design standards.

- *New York City's High Performance Building Guidelines*
- *Minnesota Energy Code or the Minnesota Lighting Code*
- *Energy components of LEED Green Building Rating System (U.S. Green Building Council)*
- *Green Builder Program - Austin, Texas*
- *Santa Barbara Green Stamps Program*

Section A. explicitly recognizes that voluntary standards cannot be used as a basis for approval or rejection at plan approval or at any point in the inspection process. To recognize those buildings that reflect Model Community's sustainability goals, the community can provide certification to

XX.01 Purpose

The purpose of this ordinance is to meet the following objectives:

- A. Encourage the use of energy efficient technologies and design in new and remodeled buildings in Model Community;
- B. Encourage environmental stewardship through reduction in non-renewable fuel use;
- C. Encourage local investment in efficiency as a substitute for out-of-state resources.

XX.02 Voluntary Energy Efficiency Performance Standards

The Model Community Energy Efficiency Performance Standards are hereby adopted by reference, and have the same force and effect as though fully set forth in the Model Community Code. The Performance Standards are the compilation of design and performance criteria developed by engineering and design professionals, and are consistent with standards developed by Minnesota Department of Administration, CABO, ASHRAE, EPA, DOE and adopted as voluntary standards by the City Council.

XX.03 Role of Voluntary Standards

All construction of new buildings in Model Community is encouraged, but not required, to follow the Energy Efficiency Performance Standards.

- A. No penalty or violation shall be assessed for failing to comply with the Standards, nor shall any Model Community official deny a permit or petition on the basis of compliance with the Standards.
- B. Any building constructed to meet the Energy Efficiency Performance Standards shall be certified by the Model Community Zoning Office as a Resource Efficient Building. Certification will be documented by filing documentation with the Zoning Office identifying the components of the Performance Standards that are met in the new building.

the builder/building. The certification can be based on self-reporting, such as a signed affidavit from the developer, certified by a Model Community inspector, or certified by a qualified third party, such as a registered architect or engineer.

Incentive Programs

Chapter XX.035 offers an alternative to the voluntary standards of Chapter XX.03. This Chapter sets up an incentive program for private developers to exceed Energy Code requirements and receive recognition, and the opportunity to capture value-added investment in the market price.

Chapter XX.06 requires the compliance of all public buildings to meet the model standards. Hennepin County, Minnesota has created a sustainable design manual and rating system to help public agencies with investing in sustainable building projects. The design manual is tailored to sustainable building design elements for Minnesota office and institutional buildings, and includes process recommendations and commissioning guidelines in addition to design guidelines. The manual and rating system encompass both energy and non-energy aspects of sustainable building design. The Hennepin County rating system and resource material recommendation will be complete in April, 2000. For more information see the Resources section at the end of this chapter.

A more complete ordinance setting up a community pilot project is described in the next section. The Hennepin County design manual and rating system, noted above, was also piloted in several Hennepin County building construction projects.

XX.035 Certification of Compliance with Model Community Sustainability Goals

To recognize the added value that energy efficiency brings to a building, any building that meets Model Community's Energy Efficiency Performance Standards shall be certified by the Model Community Zoning Office as a Resource Efficient Building. Certification will be documented by filing documentation with the Zoning Office identifying the energy performance of relevant building components, and thermal test results of the completed building, as needed to certify compliance with the Energy Efficiency Standards. The certification must be signed by a professional engineer or architect registered in the State of Minnesota.

XX.04 Energy Efficiency Performance Required as a Condition of Financial Partnership with Model Community

Notwithstanding Section XX.05, any construction project that benefits from a Model Community tax abatement, tax deferral or reduction, or other financial assistance from Model Community, and that exceeds \$25,000 in value (including construction and demolition costs) shall file with the Zoning Officer a study demonstrating compliance with the Energy Efficiency Performance Standards. The study shall be signed by a professional engineer or architect registered to practice in the State of Minnesota.

XX.06 Conformance of Government Buildings to the Energy Efficiency Performance Standards

All municipal construction projects commenced after January 1, 20XX, shall conform to the Model Community Energy Efficiency Performance Standards.

The Resource -Efficient Pilot Project language is adapted from the San Francisco Resource Efficiency Pilot Project Ordinance, Chapter 82, Section 82.8

This ordinance describes a process for setting up and administering resource efficiency pilot projects in governmental buildings. The language is most appropriate for larger units of government in the more populated areas of Minnesota (governments in the metro area, some counties in Greater Minnesota, and larger cities in Greater Minnesota).

Smaller units of government should consider an abbreviated ordinance. One alternative may be a simple stipulation that new governmental buildings must participate in the local energy utility's "commissioning" or efficient building design programs (where such programs are in existence).

Townships, cities, and counties have different government departmental stakeholders that should be invited to participate on a Resource Efficiency Design Task Force. The list in Section A. includes departments that will not exist in some communities. As the Task Force members will need to commit a significant amount of time at certain phases of a project, citizen involvement should be kept to a minimum.

Some local governments may already have a interdepartmental entity that can serve the function of the Resource Efficiency Design Task Force. Use caution, however, in assigning responsibility to existing entities – existing entities may not have adequate time or resources, or may not consider these pilot projects to be a priority.

Local governments for smaller or less populated areas, however, should consider drawing on direct citizen participation in the Task Force – projects are likely to be smaller, less complex, and governmental staff may not have the breadth of experience to shepherd a Resource Efficiency Pilot Project to completion.

Resource Efficient Building Pilot Project Ordinance

XX.065 Resource-Efficient Pilot Projects

- A. **Establishment and Purpose.** Model Community hereby establishes a pilot program for the design and construction of new Resource-Efficient Government Buildings. In order to carry out this program, there is hereby created an inter-agency Resource-Efficiency Design Task Force, which will consist of one representative from each of the following: (1) the Department of the Environment; (2) the Department of Public Works; (3) the Model Community Council; (4) the Solid Waste Management Program; (5) the Planning Board; (6) the Sustainable Development Advisory Committee, and (7) the Department of Building Inspection. In addition, up to three other departments with building projects being considered by the pilot program may each have a representative on the Task Force. The selection of these additional representatives shall be at the discretion of the Director.
- B. **Applicability.** The pilot program for design, construction, and commissioning of Resource-Efficient Pilot Projects ("Pilot Projects") shall apply to all projects approved by the Resource-Efficiency Design Task Force.
- C. **Commissioning Guidelines.** To ensure that Pilot Projects perform as designed and that building systems and equipment are installed and operate as specified, the Department of Public Works shall adopt Commissioning (as defined in section G., below) guidelines within 90 days of the effective date of this Chapter.
- D. **Pilot Project Identification.** If any construction projects are currently planned by Model Community departments, within 90 days of the effective date of this Chapter, such departments, assisted and advised by the Department of Public Works, shall identify one of those construction projects that the department plans to fund within the next two fiscal years commencing after the effective date of this ordinance that may be a suitable candidate for designation as a Pilot Project:

The lead agency in this ordinance is assumed to be the Department of Public Works

1. Airport;
2. Department of Public Health;
3. Department of Human Services;
4. Department Public Works;
5. Department Transportation;
6. Fire Department;
7. Model City Administrator's Office;
8. Police Department;
9. Recreation and Park Department;
10. Public Library;

E. Pilot Project Selection.

1. Within six months of the effective date of this Section, the Department of Public Works, in consultation with the Resource-Efficiency Design Task Force, shall select a minimum of one to three proposed Pilot Projects for the Pilot Program for Fiscal Year 20XX-20XX
2. By June 1, 20XX, the Department of Public Works, in consultation with the Resource-Efficiency Design Task Force, shall select additional projects for future Fiscal Years.
3. Pilot Projects shall be selected and designed in order to demonstrate innovative construction techniques, building materials, landscaping techniques, and/or other building systems addressing the following pilot demonstration goals:
 - a. Improved energy efficiency;
 - b. Consideration of energy generation by passive solar, wind energy, or other renewable source;
 - c. Improved water conservation;
 - d. Healthy indoor air quality;
 - e. Adequate storage and collection of recyclables;
 - f. Environmentally sensitive landscaping, including planting of drought-resistant native plants and design for landscape maintenance using integrated pest management;
 - g. Procurement of building materials with minimal impact on indoor air quality, maximized recycled product content, and future recycling potential;

- h. Reuse or recycling of demolition or construction materials;
- i. Building design features that discourage pest infestation, such as sloping ledges to discourage the roosting of pigeons and easy-to-clean floor surfaces to discourage dust mites and other insects;
- j. Stormwater management;
- k. Water pollution prevention; and
- l. Wastewater recycling.

The design documents shall be submitted to the Department of Public Works and shall include consideration and a description of the total environmental and economic costs and benefits associated with the Pilot Project.

F. Compliance with Resource-Efficiency Requirements. All Pilot Projects must comply with the Model Community Energy Efficiency Standards, Construction Waste Management Standards, Stormwater Management Standards, and be consistent with Model Community Sustainability Goals and land use policies in the Comprehensive Plan.

G. Commissioning.

1. “Commissioning” means the process of verification by a certified commissioning contractor that designated equipment and systems are installed properly and able to perform according to design specifications and operational needs. Commissioning shall not include routine inspections performed by the Department of Building Inspection.
2. Designers of systems covered under subsection 6. shall have responsibility to monitor performance of the designated systems for a period to coincide with the warranty of the equipment designated, or, for a system with multiple warranties for components, for the longest component warranty. The designer shall prepare a Commissioning Plan for evaluation and certification of the systems’ performance before and after occupancy based on guidelines established by the Department of Public Works.
3. The Model Community Project Engineer for each Pilot Project shall form a Commissioning Team consisting of representatives of the Department of Public Works, the design team, the general contractor

Section G. describes the commissioning process. Larger units of local government may have staff that are qualified to conduct the Commissioning process. Having an outside consultant may still be preferable, however, to ensure that the process does not create time or resource conflicts for government staff.

As noted earlier, an alternative to hiring a Commissioning consultant may be working with the local electric or gas utility. Several utilities in Minnesota have commissioning or recommissioning programs that address energy efficiency and other resource efficiency goals. These programs are often designed for the private sector, but may be available to units of local government.

An abbreviated Commissioning process (compared with the one described in this ordinance) may be more appropriate for smaller projects that are typical for smaller units of local government.

and subcontractors for systems to be Commissioned, the building owner, the building manager or operator, and the anticipated building user.

4. The Commissioning Team shall be responsible for oversight of the Commissioning process and preparation of the Commissioning Report based on guidelines established by the Department of Public Works.
5. Projects Subject to Commissioning. All departments responsible for executing contracts for Pilot Projects shall ensure that the applicable contract documents contain a Commissioning requirement in their budget and contract documents whenever the total construction costs of a Pilot Project, for any one system or combination of systems listed in subsection G.6., exceeds thirty thousand dollars (\$30,000.00). Pilot Projects at Model Community Leaseholds in which the leasehold does not include the entire building shall not be subject to the Commissioning requirements.
6. Systems Subject to Commissioning. The following systems shall be subject to the requirements of this section: mechanical systems (including (HVAC)); lighting systems; energy management systems; and renewable energy equipment.
7. Specifications Required in Contract. For any project subject to the requirements of this Section, the construction contract documents shall provide performance standards for resource efficiency as set forth in Model Community Energy Efficiency Standards, Construction Waste Management Standards, and other resource efficiency standards.
8. Commissioning Procedures and Standards. The Commissioning Team shall conduct Commissioning of the system(s) in accordance with regulations to be adopted by the Department of Public Works. Such regulations shall include, at a minimum:
 - a. HVAC Systems. A requirement that prior to certification, the Commissioning team determine that the project meets generally accepted industry standards including but not limited to ASHRAE Standard Guideline 1-1989, *Guideline for Commissioning HVAC Systems* or subsequent versions of that guideline.
 - b. Ventilation. A requirement that prior to certification, the Commissioning team determine that ventilation is sufficient for the occupant

and equipment load projected for the building and meets ASHRAE Standard 62-1989, *Ventilation for Acceptable Indoor Air Quality*, or subsequent versions of that standard.

- c. Lighting. A requirement that prior to certification, the Commissioning team determine that lighting systems meet Illuminating Engineering Society and Minnesota Commercial Lighting Code standards and meet performance as well as prescriptive standards.
- d. Other Systems. A requirement that prior to certification, the Commissioning team determine that other building systems, including elevators, plumbing, fire management systems, and telecommunications systems meet appropriate industry standards, to be determined by the Department of Public Works.
- e. Procedures for Commissioning. The Commissioning guidelines shall provide procedures for certification, which may include applying to the Department of Public Works for a certificate of compliance, within a given time-frame. The guidelines may also contain procedures for conducting a walk-through, obtaining a compliance statement, applying for a certificate of compliance, and obtaining issuance of a certificate of compliance from the Department of Public Works.

H. Pilot Project Funding.

1. Each revenue-generating department shall, to the extent possible, fund its Pilot Projects from its own revenue. The total costs of a Pilot Project shall be determined by the Department of Public Works, in conjunction with the Task Force, based upon the design documents submitted by the department to the Department of Public Works pursuant to Section E.
2. Departments that are attempting to obtain voter approval for the issuance of debt to finance a potential Pilot Project shall ensure that, to the extent allowed by law, all applicable bond documents allow the use of bond proceeds to finance the Pilot Project and, to the extent applicable, the Pilot Project Program as set forth in this subsection.
3. The Resource Efficiency Design Task Force shall identify additional public and private sector funding sources for Pilot Projects.

- I. Reports to Council.** Within three years of the effective date of this Chapter, the Department of Public Works, in consultation with the Resource-Efficiency Design Task Force and participating departments and with input from interested members of the public, shall submit to the Council a report on the effects of this Section, including but not limited to, the following:
1. An evaluation of the environmental, health and/or economic benefits of the Pilot Projects;
 2. A proposed system of criteria for evaluating the resource-efficiency of future government construction projects, including standardized methods for calculating the cost/benefits of resource-efficient design and construction techniques;
 3. Proposed new standards for resource-efficient design or construction of future government construction projects;
 4. An assessment of whether this Section has achieved its stated goals; and
 5. Recommended changes, if any, to this Section.

Construction and Demolition Resources

As with other issues, local governments can address reuse and recycling of construction or demolition materials in a variety of ways. The language provided here offers three alternatives that can be used individually or simultaneously; 1) adopting waste management standards as voluntary standards or the basis for educational efforts; 2) completing and implementing a construction and demolition materials management plan for project over a threshold size, and; 3) requiring municipal or governmental construction or demolition projects to file and implement a waste management plan.

Chapter XX.02 references a separate document setting waste management standards. The following list (complete citations are in the Resources section) identifies some current examples of waste management standards:

- *WasteSpec - Triangle J Council of Governments, NC*
- *Minnesota OEA Construction Materials Recycling Guidebook*
- *American Institute of Architects (AIA) Blue Book Specifications on Construction Materials Management*
- *Resource Efficient Building: Reducing Materials Use, Toxicity and Waste In Design and Construction*

XX Construction and Demolition Materials Management

XX.01 Purpose

The purpose of this ordinance is to meet the following objectives:

- A. Minimize the volume of demolition and construction waste generated in development and redevelopment projects in Model Community;
- B. Distinguish between useful or reuseable resources in demolition materials and waste materials from demolished buildings;
- C. Expand the market for recycled construction and demolition materials.

XX.02 Model Community Construction Waste Management Standards

The Model Community Construction Waste Management Standards are hereby adopted by reference, and has the same force and effect as though fully set forth in the Model Community Code. The Management standards are the compilation of design, performance, and review criteria approved the County Solid Waste Board and adopted by the City Council. The Management Standards are in conformance with Minnesota State Statutes and Minnesota Pollution Control Agency administrative rules governing construction and demolition waste, including Chapter 115A of the Minnesota Statutes and all applicable sections under MPCA rules (7035.0300) and any other rules or requirements governing the management, reuse, recycling, or disposal of construction or demolition waste. In the event of apparent non-conformance the statutory and rule requirements shall prevail.

The Model Community Construction Waste Management Standards are designed to be consistent with County waste management priorities.

XX.03 Requirement for Filing Construction/Demolition Waste Management Plan

- A. For any demolition or building project within Model Community where the total job cost (including both demolition and construction phases) exceeds \$25,000, the applicant for the building or demolition permit shall file with the Buildings and Inspections Department a construction/demolition waste

management plan. The plan shall demonstrate that certain materials used on the job site, or certain materials from the demolished structure, are separated, recycled, or reused in compliance with Model Community Construction Waste Management Standards.

- B. Consistent with the Model Community Construction Waste Management Standards, the construction/demolition waste management plan shall include the following information:
 - 1. Identify at least three (3) construction/demolition materials that are to be separated and reused or recycled.
 - a. Include estimates of volumes of each material that will be reused or recycled. At least 90% of the total volume of each of the three materials must be separated and reused or recycled;
 - b. Identify at least one type of material to be reused or recycled that is allowed to be disposed of at the construction/demolition landfill;
 - 2. If recycling or separation is to be done off the site, identify the hauler, materials recovery facility, or transfer station that will take responsibility for separation and reuse or recycling. Provide certification that the hauler, facility, or station will comply with the waste management plan;
 - 3. Identify the destinations of all materials;
 - a. Identify where non-separated materials will be landfilled;
 - b. Identify materials and estimated amounts to be reused by the contractor as part of the current construction project;
 - c. Identify materials and estimated amounts to be stored for future use by the contractor;
 - d. Identify materials and estimated amounts to be recycled or reused by entity other than the contractor. Identify the person, company, or other entity that will accept the materials to be recycled or reused.
- C. As an alternative to XX.03.01 A.1., the contractor may file a waste management plan consistent with Section 01505 Part 1.04 of the AIA/MN Blue Book.
- D. All municipal construction or demolition projects commenced after January 1, 2000, shall conform to the Construction Waste Management standards.

This specification is based on the Blue Book standards compiled by the American Institute of Architects of Minnesota and the Construction Industry Cooperative Committee of Minnesota, 1998.

Model Community Construction Waste Management Bid Specification

Based on Construction Specifications Institute (CSI) Format System

Section 01505

Part 1 - General

1.01 Requirements Included

- A. Waste management Goals
- B. Waste Management Plan
- C. Recycling
- D. Reuse
- E. Sorting
- F. Recycling Economics Worksheet
- G. List of Recycling Centers and Haulers

1.02 Related Requirements

- A. Section 01010 - Summary of Work
- B. Section 01500 - Construction Facilities and Temporary Control: Cleaning during construction
- C. Section 02050 - Building Demolition
- D. Section 02072 - Minor Demolition for Remodeling

1.03 Waste Management Goals

The Owner desires that as many materials as possible from this project (whether new construction, remodeling, or demolition) be salvaged, reused, or recycled in order to minimize the impact of construction waste in landfills and to minimize the expenditure of energy and cost in fabricating new materials.

To this end the Contractor shall develop with the assistance of the Owner and the Architect/Engineers, a Waste Management plan for this project. Outlined in Article 1.05A herein are examples of materials that can be recycled or reused, and recommendations for waste sorting methods.

1.04. Waste Management Plan. Within ten (10) days after receipt of Notice of Award of Bid, or prior to any waste removal the Contractor shall develop with the Owner and the Architect/Engineer a Waste Management Plan. The plan shall be structured as follows:

A. Cost/Benefit Analysis

1. Identify the estimated savings or cost of recycling using the attached Recycling Economics Worksheet.
2. Determine whether certain building materials can be salvaged for resale or reuse.

B. Assuming Owner's acceptance of the savings or cost of recycling, identify the following:

1. Types of materials for recycling, reuse, or sorting
2. Estimated quantities
3. Separation requirements
4. On-site storage
5. Transportation method
6. Destinations for materials
7. Plan manager (Contractor's representative)

1.05 Recycling. The following materials can be recycled in Model Community's solid waste management area (metropolitan region, county, multi-county Joint Powers Board solid waste management):

- A. Dimensional lumber and broken crates and pallets;
- B. Concrete and concrete masonry units;
- C. Asphaltic concrete pavement;
- D. Corrugated cardboard;
- E. Metals.

1.06 Reuse

- A. Contractor and Subcontractors are encouraged to reuse as many materials as possible. Reuse is a better waste management method than recycling because little or no reprocessing is necessary. Thus less pollution is created when items are reused in their original form.
- B. Reuse includes the following activities:

1. Salvaging reusable materials from remodeling projects (before the demolition stage) for resale, for reuse on the current project, or for storage for use on future projects;
2. Returning reusable items such as pallets or unused products to the vendors.

1.07 Materials Sorting. The following sorting methods are available:

- A. Employing haulers who make use of a materials recovery facility or a transfer station where recyclable materials are sorted from the waste and recycled before disposing of the remainder.
 1. If using a hauler or materials recovery facility, certify that the hauler or facility sorts all construction waste loads, including those that may be acceptable at the demolition landfill.
 2. To ensure that materials are being diverted from the demolition landfill, the hauler, material recovery facility, or transfer station must recycle at least three (3) types of material, including at least one material that is accepted at the demolition landfill.
- B. Sorting recyclable materials at the construction site and have them hauled to recycling markets directly from the site.

1.08 Recycling Economics Worksheet. Refer to Attachment A for a Recycling Economics Worksheet. The Worksheet is to be filled out with the assistance of the Owner and the Architect/Engineer as part of the Waste Management Plan.

1.09 List of Recycling Centers and Haulers. Refer to Attachment B for a list of construction waste recycling centers and waste haulers in the Model Community area.

Recycling Economics Worksheet Residential And Commercial Construction

Project _____

Prepared by _____ Date _____

The following worksheet is designed to help determine the cost effectiveness of recycling waste materials generated by a given construction project. Supplemental worksheets used for calculating certain items are provided on a separate sheet. The process allows you not only to calculate the actual costs and benefit of recycling, but to factor in (separately) the intangible benefits of a recycling program.

STEP ONE :Estimate Total Project Waste and Amounts of Recyclable Materials

1. Estimate the Total Project Waste in cubic yards(cy).....1 ____ cy
(Use information from previous projects, if comparable.)

Determine what materials can be recycled and estimate the amount of each. If you are uncertain of these amounts, multiply line 1 and the percentages provided (based on a survey of construction projects in the Minneapolis-St.Paul metropolitan area).

	TYPICAL RESIDENTIAL/COMMERCIAL	CURRENT PROJECT ESTIMATE
2a Wood waste (dimensional lumber, broken crates, and pallets - no manufactured wood products) (25%/18%)	2a _____	cy
2b Corrugated cardboard (10%/7.5%)	2b _____	cy
2c Concrete (4.5%/15%)	2c _____	cy
2d Metals (1%/4.5%)	2d _____	cy
2e Other recyclable material(s) : Identify _____	2e _____	cy

- 3 Total amount of recyclable material :
Add lines 2a-2e 3 _____ cy
- 4 Non-recyclable material :
Subtract line 3 from line 1 4 _____ cy

STEP TWO: Estimate the Cost Effectiveness of Recycling

There are two basic ways to recycle construction waste:

Method 1: Hire a recycling hauler, that is, a hauler who will collect all waste, sort out at least three types of recyclable materials and transport them to appropriate buyers, and transport the remaining waste to a landfill. The recycling hauler receives the revenues for the recycled materials. If the recycling hauler takes materials to a materials recovery facility, make sure the facility will recycle at least three types of material and process all loads, including clean demo loads. Use the following formula to determine the costs/benefits of recycling under Method 1:

- 5 Cost per cy for hauling by a non-recycling hauler 5 \$ _____
- 6 Cost per cy for hauling by a recycling hauler 6 \$ _____
- 7 Net benefit (or cost, if less than zero) per cy:
Subtract line 6 from line 5 7 \$ _____
- 8 Total net benefit (or cost, if less than zero) of recycling:
Multiply lines 7 and 1 8 \$ _____

Method 2: Builder separates recyclable materials from waste and for their transportation to buyers. Use the following formula to determine the costs/benefits of recycling under Method 2:

- 9a Transportation costs (from worksheet A) 9a \$ _____
- 9b Sorting costs (from worksheet B) 9b \$ _____
- 9c Administrative costs (from worksheet C) 9c \$ _____
- 10 Total costs: Add lines 9a, 9b, 9c 10 \$ _____

11a Reduction in disposal costs: Multiply lines 3 and 5 11a \$ _____
 11b Scrap revenues (from worksheet D) 11b \$ _____
 12 Total benefits: Add lines 11a and 11b 12 \$ _____
 13 Net benefit(or cost, if less than zero) of recycling: Subtract line 10
 From line 12 (line 12 - line 10)..... 13 \$ _____

If either line 8 or line 13 is greater than zero, recycling is cost effective for this project. If both lines are greater than zero, the higher represents the more cost effective recycling method. If both lines are less than zero, the higher represents the less costly method.

STEP THREE: Estimate the Intangible Benefits of Recycling

Does your client respond to environmental concerns and values? Will recycling improve your companies public image or improve relations with the community? Will the implementation of a recycling program give you the edge over a competitor bidding at a similar price? Does recycling contribute to your company by giving employees a sense of satisfaction? Estimate the intangible benefits of recycling below:

14a Public relations value of recycling 14a \$ _____
 14b Value of recycling to your company 14b \$ _____
 15 Total intangible benefits: Add lines 14a and 14b 15 \$ _____
 16 Insert total from 8 or line 13 (whichever is higher) 16 \$ _____
 17 Total benefit (or cost, if less than zero) of recycling:
 Add lines 15 and 16 17 \$ _____

If line 17 is greater than zero, the intangible benefits of recycling make it effective overall. If line 17 is less than zero, it shows the total cost of recycling for the project including intangible benefits.

SUPPLEMENTAL WORKSHEETS

For Use with the Recycling Economics Worksheet Residential & Commercial Construction

WORKSHEET A: TRANSPORTATION COSTS, SELF-SORTED MATERIALS (FOR LINE 9a)

Option 1: Outside Hauler

For each material, determine container capacity and the per load container and hauling costs. Handling costs are not included because it is assumed materials have been sorted directly into containers. The cost of sorting is estimated in Worksheet B.

Wood: Divide amount on line 2a ____cy by container capacity (e.g. 20 or 30 cy), round off result to nearest whole number _____,
and multiply by container/hauling cost \$_____\$_____

Cardboard: Divide amount on line 2b ____cy by container capacity, round off result to nearest whole number _____,
and multiply by container/hauling cost \$_____\$_____

Concrete: Divide amount on line 2c ____cy by container capacity, round off result to nearest whole number _____,
and multiply by container/hauling cost\$_____\$_____

Metals: Divide amount on line 2d ____cy by container capacity, round off result to nearest whole number _____,
and multiply by container/hauling cost\$_____\$_____

Total cost of Option 1, using outside hauler: add above amounts\$_____

Option 2: Self-Haul

For each material, determine cy per load, hours per trip, and labor and trucking costs per hour.

Wood: Divide amount on line 2a _____cy by per load capacity _____cy, round off to nearest whole number _____, and multiply by hours per trip _____ and per hour labor and trucking costs \$_____\$_____

Cardboard: Divide amount on line 2b_____cy per load capacity_____cy, round off to nearest whole number _____. And multiply by hours per trip_____ and per hour labor and trucking costs\$_____\$_____

Concrete: divide amount on a line 2c_____cy by per load capacity_____cy, round off to the nearest number _____and multiply by hours per trip_____ and per hour labor and trucking costs \$_____\$_____

Metals: divide amount on line 2d_____cy by per load capacity_____cy, round off to the nearest whole number_____, and multiply by hours per trip_____ and per hour labor and trucking costs \$_____\$_____

Total cost of Option to, self-whole: add above amounts\$_____

insert total amount of option one or option two(whichever is less) on line 9a .

WORKSHEET B SORTING COSTS (FOR LINE 9B)

Estimate the number of hours needed to sort a cubic yard of construction wastehrs

Determine per hour costs of labor (include benefit and over head costs , if appropriate) \$_____/hr

Insert amount from line one (total project waste) cy

Total sorting costs : multiply above amount and insert total on line 9b\$_____

WORKSHEET C: ADMINISTRATIVE COSTS (FROM LINE 9c)

Arranging and carrying out recycling activities may require the involvement of the project manager, Super intendant, and /or the administrative support staff.

Project manager:
 Multiply estimated number of hours _____ and cost per hour \$_____ \$_____

Support staff:
 Multiply estimated number of hours _____ and cost per hour \$_____ \$_____

Total administrative costs: Add above amounts and insert total on line 9c \$_____

WORKSHEET D: SCRAP REVENUES (FOR LINE 11b)

If you are hauling a recyclable material to market yourself, obtain an estimate of its market price. Because market prices fluctuate widely, don't rely on old figures. Materials that had little market value in the recent past may have increased in value. Conversely, some materials may have little or no market value.

Wood: Multiply market price \$_____ (per cy) and amount
 from line 2a \$_____

Corrugated cardboard: Multiply market price \$_____ (per cy) and
 amount from line 2b \$_____

Concrete: Multiply market price \$_____ (per cy) and amount
 from line 2c \$_____

Metals: multiply market price \$_____ (per cy) and amount
 from line 2d \$_____

Total scrap revenues: Add above amounts and insert total on line 11b. ... \$_____

Model Resolution on Adopting Construction Waste Management Standards

Adapted from the Model Resolution created in the Wake County, North Carolina Green Building Policies Workshop. The Workshop was initiated and financed by the Wake County Solid Waste Management Division and the Wake County Environmental Services Department, and coordinated by the Triangle J Council of Governments.

WHEREAS, Model Community in 20xx adopted guidelines for design and construction of energy efficient public facilities;

WHEREAS, population growth and technological achievements have resulted in increased natural resource use and may lead to significant problematic environmental impacts;

WHEREAS, it is estimated that 40% of the earth's energy and other natural resources are consumed by the construction, demolition, and operation of buildings;

WHEREAS, Model Community's design and building decisions have a significant impact on the prudent use of the local area's energy and natural resources, the cost of remediating hazardous materials conditions, the health and productivity of its employees, transportation choices of local citizens, and the rate at which local landfill capacity is depleted;

WHEREAS, sustainable development is development which meets the needs of the present generation without sacrificing the needs of future generations;

WHEREAS, it is the desire of Model Community to assert its commitment to sustainable development practices by providing leadership and guidance in promoting, facilitating, and instituting such practices in the community;

WHEREAS, planning and design decisions made by the Model Community in the construction and remodeling of its facilities and leaseholds can result in significant cost savings over the life of such facilities and leaseholds;

WHEREAS, sustainable development design pilot projects have demonstrated that sustainable development principles can be implemented on a substantial scale without significantly increasing initial costs, let alone life cycle costs;

WHEREAS, a building that uses sustainable development principles for indoor air

quality, thermal comfort, natural lighting, and other ambience factors can increase the health, well-being and productivity of its users;

WHEREAS, Minnesota is fortunate to have a great deal of local expertise in sustainable development and is the home of nationally-recognized leaders in this field;

NOW, THEREFORE, BE IT RESOLVED that Model Community intends to incorporate the principles of sustainable site planning, energy efficiency, materials conservation, indoor environment quality, and water conservation in all of its planning, construction, remodeling, and demolition projects; and Model Community hereby directs staff to develop, coordinate, and implement a sustainable development guideline.

Resource Acquisition

Through energy service contracts, local governments may have additional opportunities to improve sustainability. By investing in renewable energy capacity and untapped local energy efficiency instead of distant non-renewable energy sources, local governments can improve the local economy, enhance environmental stewardship, and promote the use of Minnesota-based energy resources. Three general situations may allow local governments to obtain meet renewable energy or energy efficiency goals through energy service contracts:

- 1. Governments served by municipal utilities or co-operatives currently (or at the time of contractual renegotiation) have opportunities to select the mix of energy services provided by the local utility.*
- 2. Governments served by investor-owned utility companies usually have a franchise agreement with the utility. The franchise allows the utility access to government controlled right-of-ways, specifies conditions and requirements for maintaining right-of-ways (i.e. digging up and repaving streets), and often for providing electric or gas-related services to the local government (street lights, traffic lights, municipal buildings. At the time of renegotiation of the franchise agreement, the local government has some ability to include energy services or programs directed to meeting sustainability goals. Energy efficiency programs already being administered by the utility can be a starting point for obtaining services to lower energy costs, improving indoor building environments, and meeting sustainable energy goals.*
- 3. If the electric utility industry is deregulated in Minnesota, as it has been in a number of states on the east and west coasts, all local governments would be in a position to select sustainable energy options. The following example of a Request for Proposals assumes that the retail energy market has been de-regulated and allows a local government to specify energy from renewable energy sources in the mix of energy provided by the utility.*

Each state that has de-regulated the retail electric or gas market uses somewhat different standards. Different states have different de-regulation processes, different forms of re-regulation, and allowed for different roles for local governments to act on behalf of its constituents. Generally, however, in a deregulated environment local governments could serve several roles in shaping local energy choices:

- 1. Ensuring that public buildings and governmental energy use maximizes efficiency opportunities and uses renewable sources of energy to the maximum extent allowed under operational and economic constraints;*
- 2. Educating local businesses and households on the full range of energy service options, including efficiency and renewable energy services;*
- 3. Serving as an “aggregator” of demand from local businesses and households, and coordinate bids from energy service companies on behalf of households and businesses.*

The following RFP example is for acquisition of renewable energy for governmental end uses (government buildings, traffic lights, street lights)

Request for Proposals To Provide Renewable Electricity Services to Model Community

The following definitions may need to be changed to address specifics of Minnesota law; the following definitions address needs and circumstances of California's deregulation law. Definitions may also need to be specific to the circumstances of the local community, or preferences for types of power or energy to be delivered.

Definitions Used in the RFP

Aggregator: Any marketer, broker, public agency, City, county, or special district, that combines the loads of multiple end-use customers in facilitating the sale and purchase of electric energy, transmission, and other services on behalf of these customers.

Agreement: Used interchangeably with Contract throughout RFP.

Ancillary services: A series of services self provided by the Scheduling Coordinators or procured by the ISO that support the transmission of energy from the generation sources to the loads while maintaining reliable operations of the ISO controlled grid. The services consist of:

- Regulation - A mechanism to keep generation within certain levels,
- Spinning reserve - See below,
- Non spinning reserve - See below,
- Replacement reserve - The ability to replace used spinning reserve,
- Voltage support – A service required by generating units to maintain required grid voltage criteria.
- Black start - The ability to supply power from a generator that does not require using electricity from the system to start.

Minnesota Public Utilities Commission (CPUC): An administrative agency established to regulate privately owned utilities and to secure adequate service to the public at rates which are just and reasonable both to customers and shareholders of the utilities.

Competitive Transition Charge (CTC): A nonbypassable charge on each customer of the distribution utility, including those who are served under contracts with nonutility suppliers, for recovery of the utility's transition costs.

Contract: Used interchangeably with Agreement throughout RFP.

Demand: The rate at which energy is delivered to loads and scheduling points by generation, transmission or distribution facilities. It is the product of voltage and the in phase component of alternating current measured in units of watts or standard multipliers thereof, e.g., 1,000W=1kW etc.

Direct Access (DA): A service election which allows customers to purchase competitive energy services from non-utility entities known as ESPs.

Direct Access Service Request (DASR): A service request form submitted to the UDC by the customer's authorized ESP requesting participation in Direct Access.

Electric Service Provider (ESP): An entity which provides electric service to a retail or end-use customer, but which does not fall within the definition of an electrical corporation under Public Utilities Code Section 218. An ESP that has a contract with Model Community may also be referred to as a Contractor.

Independent System Operator (ISO): The ISO is responsible for the operation and control of the statewide transmission grid.

Independent Third-Party Verification Agent (IVA): A company that obtains the customer's oral confirmation regarding any desired changes to obtain energy services from a different electric utility.

In State Renewable Generation: Those renewable generation sources described herein that are generated within the State of Minnesota.

In State Renewable Supplier: A supplier of in state renewable generation that is registered with the Minnesota Public Utilities Commission.

Kilowatt (kW): Often referred to as electric demand, kW is the amount of energy drawn by a customer at a specific time.

Kilowatt-hour (kWh): Electric energy expressed in kilowatt-hours is measured by multiplying the amount of electric power delivered (measured in watts) by the amount of time over which the energy was consumed (measured in hours). Kilowatts equal one thousand watt-hours. Megawatts equal a million watt-hours or one thousand kilowatt-hours.

Load Profiling: The process of graphing a customer's demand for energy over a period of time, typically a day, season or year.

Marketer: Any entity that buys electric energy, transmission, and other services from traditional utilities and other suppliers, and then resells those services at wholesale or to an end-use customer.

Non-spinning reserve: Reserve capacity of those generating units that are off line that can come online within one day.

Provide, as related to equipment, systems or other physical items: To pay for, supply, install and connect complete and ready for safe and regular operation unless specifically noted otherwise.

Provide, as related to information: To collect pay for, and deliver in the required format.

Public Goods Charge (PGC): A nonbypassable surcharge imposed on all retail sales to fund public goods research, development and demonstration, and energy efficiency activities, and possibly to support low income assistance programs.

Renewable Generation: Generation from renewable resources is defined here as meaning biomass, solar thermal, photovoltaic, wind, geothermal, small hydropower of 30 megawatts or less, digester gas, landfill gas and municipal solid waste generation technologies.

Scheduling Coordinators (SCs): Entities certified by the Federal Regulatory Commission that act as a go-between with the ISO on behalf of generators, supply aggregators (wholesale marketers), retailers, and customers to schedule the distribution of electricity.

Spinning reserve: The percentage of an online generating unit's electric generating capacity which is immediately available to meet changes in demand and is available for a minimum of two hours. This is one component of ancillary services as defined by the ISO.

Utility Distribution Companies (UDCs): The entities which will continue to

provide regulated services for the distribution of electricity to customers and serve customers who do not choose direct access.

Vendor teams: Two or more potential service providers who plan to combine to provide electricity and related services in response to a Request for Proposal.

Request for Proposals

I. Introduction and Objectives. Model Community is seeking proposals from qualified Energy Service Providers (ESP) to reliably meet the electric power needs of its municipal facilities, traffic signals and street lights. Model Community is seeking to reduce emissions and alleviate other negative environmental impacts of its energy consumption. Therefore, Model Community is seeking to buy renewable electricity for all of its governmental uses at a price that is equal to, or below, the current total price paid to Model Community's electric utility.

Each proposal is expected to offer unique solutions to various electrical power supply issues. Therefore, a contract award may not be made based solely on price.

This solicitation is one of numerous steps Model Community is taking in its effort towards sustainable living practices. Municipal electricity consumption is about 2% of electricity use in Model Community. In the future, Model Community may promote generalized use of renewable electricity to dramatically reduce the effects of Model Community's electricity consumption on climate change.

II. Invitation. Qualified ESPs are invited to submit proposals for switching Model Community's energy service provider through Direct Access. If a proposal is presented that appears consistent with Model Community's goals, staff will present it to the Model Community Council for approval.

This solicitation is seeking to serve the electricity needs of Model Community's municipal facilities with 100% renewable power. The most attractive proposals

will generally be those that are closest to offering 100% renewable power for all public facilities at prices equal to or lower than what Model Community now pays.

Generation from renewable resources is defined as follows: biomass, solar thermal, photovoltaic, wind, geothermal, small hydropower of 30 megawatts or less, digester gas, landfill gas and municipal solid waste generation technologies.

Renewable power shall be certified and provided by generators that are registered with the Minnesota Public Utilities Commission. It is not necessary for an ESP to have renewable certification at the time the proposal is submitted. An ESP that Model Community invites to negotiate an agreement will have up to 20 working days to become certified. If certification is not achieved within the timeframe, on time Model Community reserves the right to terminate negotiations.

III. Description of Loads. Model Community’s electricity consumption is approximately ____ MWh per year, costing approximately \$ ____ thousand per year. The following table illustrates Model Community’s approximate consumption for municipal facilities, traffic signals, and street lights for the calendar year 20xx. This load is comprised of approximately 36 meters.

Most of the street light portion of Model Community’s load is not metered, but based on average consumption estimates. Actual consumption will vary.

TABLE 1 – Approximate Model Community 1998 Electricity Consumption & Costs

Tariff	Number of Accounts	Annual kWh	Annual Spending
Streetlighting	1		
General	20		
Commercial			
Industrial	10		
Other	5		
Total	36		

Information in Table 1 is based on data provided by the existing utility for the calendar year 20xx or later. This data may not be totally complete or accurate. Actual consumption during the contract period will be different. Minimum consumption quantities are not guaranteed due to potential variations in facility operations.

Customer specific data from is available in electronic format upon request.

IV. Scope of Services. This RFP requests qualified firms to submit proposals for electricity supply that will meet Model Community’s needs for all municipal facilities. Model Community expects to obtain these services under the direct access provisions of State of Minnesota regulations. Model Community expects prices will be equal or below the existing utility’s prices overall. Proposals shall contain full ESP services as described in this RFP.

ESPs are advised to review the definitions included at the end of this RFP prior to reviewing this section. Electricity shall be delivered to Model Community via the Utility Distribution Company (UDC) as the needs of Model Community may require unless the contract specifically provides otherwise.

- A. **Renewable Power.** Model Community is interested in buying certified renewable power for all of its electric consumption. The power shall be provided in a manner consistent with State of Minnesota requirements regarding direct access.
- B. **Power Supply and Delivery.** Model Community is interested in encouraging development of new renewable generation sources. Proposals that provide such an opportunity will be scored accordingly.

ESPs must be prepared to absorb all financial risks or penalties associated with non-performance, including any penalties levied by the Independent System Operator (ISO).

The ESP shall provide all Ancillary Services in accordance with regulatory requirements.

C. Contract Periods

1. Initial Contract Period. Model Community is interested in entering into a power purchase contract with a renewable energy power supplier for one year.
2. Contract Extensions. Model Community is also interested in the opportunity to extend the contract for two one-year renewals.

D. Direct Access Service Requests (DASRs) Submittal. The ESP shall administer the process of submitting DASRs.

E. Metering. The ESP shall provide meters and data communication infrastructure as necessary to comply with applicable regulatory requirements.

Model Community does not expect to replace existing meters for small accounts (<50 kW) unless they reduce Model Community's net costs. ESPs have the option to propose other approaches to meter small accounts.

F. Meter Reading/Data Management. The ESP shall provide meter reading and data management services as necessary to meet applicable regulatory requirements and contractual commitments. These services may be provided directly by the ESP or through a subcontract with a Meter Data Management Agent (MDMA) or another organization that is certified to provide such services, such as the UDC.

G. Renewable Power Marketing to the Public . Model Community is interested in advocating the use of renewable power by private sector consumers in the Model Community. Therefore, ESPs are encouraged to offer services that increase the actual numbers of Model Community households and small businesses that purchase renewable energy. Proposals that offer credible approaches will be scored accordingly.

Model Community is interested in low-cost and no-cost marketing. The proposal should not require the use of Model Community staff. Examples of activities include targeted mailings, opening an office in Model Community, and advertising.

Proposals shall remain consistent with applicable regulatory requirements and

refrain from including endorsements by public officials.

- H. **Other Value Added Services (optional).** ESPs have the option to offer energy-related, value-added services that are not described elsewhere in this solicitation. ESPs should be prepared to include the proposed value-added services in an agreement with Model Community. However, these services shall be presented as options to Model Community, that may be accepted or declined independently of the other elements of the proposal. Examples of services that might add value to Model Community are:
1. Implementation of new and emerging energy technologies to reduce Model Community's reliance on non-renewable energy sources. These distributed generation technologies include, but are not limited to photovoltaics, solar thermal electric, fuel cells and small wind turbines.
 2. Strategies to solicit and use funds collected through the Public Goods Charge to be used in Model Community.
 3. Services or products offered that would use or take advantage of other renewable funding sources.

V. Solicitation Process and Schedule

- A. **Pre-proposal Conference.** A pre-proposal conference is scheduled for 9:00 a.m. The pre-proposal conference will provide an open forum to review and clarify the following:
- B. **Questions**
1. Related to the Scope of Services. Questions on the scope of services, e.g. contract language, must be submitted in writing, by e-mail, or at the pre-proposal conference. Written questions should be addressed to:

Model Community
Public Works Agency, Municipal Buildings Division
 2. Other Questions. If your firm needs answers to load characteristics, contract administration or contract compliance related questions before or after the pre-proposal conference please contact the Model Commu-

nity staff.

C. Proposals are Public Records.

1. All proposals become public records as defined by State and local laws and are disclosable to any member of the general public upon request. With limited exceptions, ESPs may identify information that is confidential or proprietary in accordance with applicable regulatory requirements.
2. The ESP shall clearly identify and segregate any confidential or proprietary information. If the proprietary nature or confidentiality of the ESPs information is challenged, the ESP shall solely be responsible for defending such challenges without assistance from Model Community.
3. Financial information from an ESP that executes a contract with Model Community which may be regarded as confidential or proprietary prior to executing a contract, will become public record once the contract is executed.
4. Financial information from ESPs that do not execute a contract with Model Community will be regarded as confidential or proprietary and remain undisclosed.

- D. Submitting Proposal.** All proposals shall be submitted in a sealed envelope delivered as instructed prior to the time set for proposal opening. Late proposals will be time stamped and returned to the ESP unopened. Proposals and submittal materials will not be returned after the RFP process.

The following requirements must be fulfilled:

1. Proposals must be received by 2:00 p.m. They will be time stamped upon receipt by Contract Administration staff. **Proposals received late will not be accepted and will be returned unopened.**
2. Each submittal must contain five copies of the proposal.
3. All items must be printed double-sided on recycled paper where practical, except one single-sided original. Avoid the use of plastic covers or dividers.

4. Submit the following:
 - a. A transmittal letter with information described below.
 - b. All items listed in the Required Proposal Information section of this RFP.
 - c. Proposal Forms. ESPs shall complete and submit all relevant forms included in this RFP with their proposal. All information required on the forms must be typewritten or written in ink. Make no erasures or interlineations on the forms as this may invalidate the proposal. If mistakes are made, obtain additional copies of the forms. Any writing on the proposal forms other than that specifically required may invalidate the proposal. If you want to include additional information, you may do so with attachments.

VI. Required Proposal Information. ESPs shall include responses to each of the following items in their proposals. Statements shall be as complete and accurate as possible and in the form requested. Omission, inaccuracy or misstatement may be cause for a less favorable evaluation or rejection of a proposal.

None of the services described in the Scope of Services section shall be omitted. However, ESPs may offer to exclude services in a section titled “Proposed Exclusions.” Model Community shall not be obligated to discuss or accept any proposed exclusions with the ESP.

A. Business

1. Legal Name of Firm
2. Street Address, City , State Zip Code
3. Mailing Address with City, State and Zip Code for Correspondence
4. Main telephone number.
5. Fax number
6. World Wide Web address (if any)
7. Type of Organization (Corporation, Sole Proprietorship, Partnership, etc.)
8. Parent Company (if any)
9. Date established under current name
10. List affiliated energy-related companies, with addresses, phone numbers and contacts

11. Business license information
12. Federal Taxpayer ID number
13. Name & Title of Principal Contact
14. Direct Phone Number of Contact
15. Principal Contact E-mail Address
16. Federal Security and Exchange Commission (SEC) registration number
17. List any proposed subcontractors, their phone numbers, addresses and contacts. Describe their area of responsibility.
18. Provide three current references (preferably Minnesota retail or wholesale customers) for which you have provided services similar to those requested by Model Community. Include company name, contact person, type and length of service provided, phone number and authority to contact individual. If using subcontractors, submit one additional reference for each subcontractor.
19. Verify your firm's operating authority to do business in the State of Minnesota. Provide the following, including identification numbers:
 - a. Possession of appropriate Federal Energy Regulatory Commission (FERC) authorizations.
 - b. Registrations with the Minnesota Public Utilities Commission as an ESP or possession of a contractual relationship with such, unless your firm is a UDC.
 - c. Identification number and date of Executed Scheduling Coordinator Agreement with the ISO.
 - d. Authority to act as an MSP or MDMA or contractual relationship with such an organization, unless your firm is a UDC.
 - e. Authority as a Scheduling Coordinator or possession of a contractual relationship with such an organization.

B. Qualifications. In this section of the proposal, ESPs shall outline their qualifications for providing electrical services to Model Community as follows:

1. Financial Strength
 - a. Provide information verifying your firm's ability to obtain a faithful performance bond.
 - b. Provide other examples of your firm's financial strength.

C. **Experience and Management.** ESPs shall provide descriptions of the following:

1. Past and present performance in the energy industry, including any information describing current direct access customers receiving competitive services from your firm. Include in this description the number of customers receiving power from renewable resources and the percentage and type of renewable resources those customers are receiving.
2. Presence of well developed power supply/planning/operating guidelines.
3. Established relationships with reliable power suppliers including those from renewable resources.
4. Corporate ownership and clear long term business plan (5 year if possible).
5. Describe the proposed organization, including a diagram, with subcontractors and key company personnel. Identify responsibilities of key personnel.
6. State your team's experience as a billing agent.

D. **Power Supply and Delivery**

1. What year did your company begin selling electricity to the:
2. What were your total electric sales in dollars and energy units for 1995 and 1996?
3. What were your electric sales in dollars and energy units for 1995 and 1996?
4. State the types and quantities of Renewable Generation (as defined by this RFP) that you generated during the last twelve months.
5. Describe how extensively Model Community's payments will be used to develop new renewable generation resources.

E. **Contract Periods.** Model Community is interested in entering into a power purchase contract for:

1. A initial Contract Period of one year, followed by;
2. A optional one-year contract extension
3. A second optional one-year contract extension.

State your firm's interest in providing services according to the above sched-

ule.

- F. **Pricing.** Provide comprehensive pricing information including all proposed pricing terms and conditions. Model Community will review the proposals determine which proposal one appears most favorable to Model Community.

Some proposals may offer prices that are lower for some tariffs or accounts and higher for others. Prices in each tariff category shall be readily comparable to the existing utility's tariffs.

Each proposal shall include the following:

1. A thorough explanation of the pricing structure in lay terms.
2. An executive summary worksheet shall be included summarizing the proposal by tariff. Calculations of prices must include all components included in UDC tariffs.

If pricing is provided for individual accounts, the ESP's spreadsheet must include:

- Facility name
- Facility address
- Utility account number
- Existing Utility tariff
- Consumption information as necessary for reviewing each calculation.

3. A breakdown showing each component of the proposed price separately, including electricity supply, bonding, billing, metering, UDC charges, and each optional item separately. Create subtotals of cost for required elements. Create a separate subtotal of costs for optional items such as value-added services, public outreach and distributed generation as individual elements of the calculations, then calculate the total.

Model Community will compare proposals based on the information

contained in the electronic spreadsheets.

4. Separate pricing for each Contract Period. Clearly identify which period of the agreement applies to each proposed price (Base Year, Extension Year Number One, Extension Year Number Two).

ESPs may elect to adjust pricing in future years if the contract is extended. If an adjustment is proposed, adjustment factors shall be specified along with a supporting argument for using the factor or use of a particular index. ESPs shall reduce pricing in optional future years to reflect the reduced cost of metering infrastructure.

5. Proposed ways that pricing during each contract year would be adjusted include adjustments to compensate for changes to electricity rates once the utility rate freeze ends.
6. A clear description showing how and why your estimate may vary from Model Community's actual cost.
7. Attachments describing all assumptions made in determining the pricing proposal.
8. Any limitations the ESP will place on how much Model Community's actual consumption will be allowed to vary from the estimate without affecting price. ESPs shall provide complete information to address how pricing will change if the actual consumption falls outside the ESP's stated boundaries.

G. **Scheduling Coordination.** Note whether your company will serve as the Scheduling Coordinator (SC) or contract with a certified schedule coordinator. Provide information verifying the SC's certification and provide information demonstrating the SC's qualifications.

H. **Billing.** Billing shall consolidate ESP and UDC charges on each statement and invoice.

1. Describe your strategy for:
 - a. Billing management
 - b. Account settlement
 - c. Payment collection
2. State and describe whether the proposed billing method is UDC consolidated billing or ESP consolidated billing.

3. State your plan for providing comprehensive billing services including:
 - a. Providing paper billing each month including cost and load data matching information now provided by the existing utility. Model Community shall have the option to group most of the accounts into aggregated, consolidated bills with groups ranging from approximately 5 to 50 accounts. Model Community shall determine which accounts are grouped together.
 - b. Providing an electronic file each month with information matching the paper billing. The file shall be suitable for importing into either Microsoft Excel, or Microsoft Access. The formatting of the information shall be coordinated with Model Community.
 - c. Providing load profile information when requested by Model Community. The level of detail for load profile information need not exceed the minimum regulatory requirements for metering.

I. **Direct Access Service Requests (DASRs) Submittal.** Describe the process, in particular the responsibility of Model Community, and estimated time involved for submitting DASRs to the utility. State the number of business days required for DASR submittal after receiving Notice to Proceed from Model Community.

J. **Metering.**

1. State your plan to provide meters and data communication infrastructure as described under “Metering” in the Scope of Services section. State whether your proposal anticipates one-time payment for metering and data communication infrastructure, or amortizes these costs over the first contract period. Include details for individual service accounts not eligible for load profiling.
2. State your plans regarding metering equipment for small accounts (<50 kW). If your firm requires meters for accounts less than 50 kW, please explain the rationale for doing so.
3. Proposals shall define and describe your authority to act as a meter service provider (MSP) or any relationship with an organization that is certified to provide such services.

- K. **Meter Reading/Data Management.** Describe your firm’s strategy for required meter reading of individual service accounts, for metered accounts and load profile accounts. Firms shall declare any relationship with an organization that is certified to provide metering services.

State your proposal for providing load profile data to Model Community.

- L. **Outreach and Renewable Power Advocacy to the Public.** Provide a detailed plan describing any activities your firm proposes for reaching out to Model Community’s private electric consumers to significantly increase the amount of renewable power used in Model Community.
- M. **Distributed Generation.** Describe your proposal relating to distributed generation technologies. Show prices related to distributed generation separately from mandatory components of the proposal. Include a cost/benefit analysis for this portion of the proposal.
- N. **Other Value Added Services (optional).** Describe and provide pricing information for services that add value to Model Community. Show and calculate pricing of value-added services separately from all other components.
- O. **Options to Reduce Cost or Exclude Services.** ESPs may propose options to reduce Model Community’s cost that are not included elsewhere. These options may include revising pricing structures or the scope of services. Such options must be kept completely separate from the other components of the proposal.

ESPs may offer to exclude services in a section titled “Proposed Exclusions”. Model Community shall not be obligated to discuss or accept any proposed exclusions with the ESP.

- P. **Taxes.** Electricity used by Model Community in the performance of a governmental function is exempt from taxation by the United States government. Model Community will furnish tax exemption certificates and any affidavits and documents that may be necessary to establish such an exemption. Model Community, however, is subject to State and local taxes.

Describe how your firm will facilitate the collection and remittance of all fees and taxes related to their scope of services.

Sections VII. through XXI. are more general in nature, and communities frequently have RFP language that is tailored to their standards.

VII. Rejection of Proposals

VIII. Evaluation Process

IX. Contract Negotiations and Award

X. Regulatory Requirements

XI. Insurance

XII. Bonding

XIII. Equal Employment Practices

XV. Collusion

XIX. Infringement on Patent Rights, Copyrights or Trademarks

XX. Escrow

XXI. Assignment

Resources

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CLUSTER #6 - ECONOMIC DEVELOPMENT

Local governments are frequently active in recruiting new businesses and facilitating economic development in the community. Commercial and industrial businesses provide jobs to sustain the local economy, generate tax base to support a wide variety of government and community services, and offer services and goods to improve the quality of life in the community. The principles adopted by the Sustainable Development Initiative recognize the importance of a vibrant local economy in sustaining the community. The SDI's goals and strategies relating to sustainable economic growth emphasize the use of local resources to meet local needs, entrepreneurship as a means of maximizing the return to the local economy, and environmental stewardship to keep businesses resource efficient and profitable.

Many local governments create public agencies or public/private authorities (EDAs) to manage economic development activities. Economic development activities include the following:

- *Creating and filling industrial parks;*
- *Redeveloping individual parcels or assembly of parcels for redevelopment;*
- *Marketing of the community's businesses;*
- *Recruiting businesses to locate in the community;*
- *Providing financial or technical assistance to existing community businesses;*
- *Administering financial programs for economic development, including local, state, or federally-financed programs.*

EDAs are normally guided by job creation or tax base creation goals. Sustainability goals include job and tax base creation, but are also shaped by other economic, environmental, and equity considerations. The local government should clearly link economic development assistance, and EDA staff activities, to specific sustainability goals.

The following chapter provides two examples of how local governments can address sustainability in economic development. The first example is for the governing language that a community adopts when creating an EDA, including specific sustainable development goals. This model is directed at smaller cities or counties that have a breadth of sustainable development issues, but not large number of one type of issue. Larger local governments can also include these elements, although a more practical approach may be to create several authorities to address specific elements of sustainable economic development (eco-industrial parks, brownfield redevelopment authorities, and redevelopment authorities to manage single large redevelopment projects).

The second example uses industrial performance standards that, when coupled with other regulatory actions (such as zoning changes or conditional use permits), require industry to investigate or implement pollution prevention alternatives. Companies that are good environmental stewards provide two distinct benefits to the community:

- *The companies are better neighbors to surrounding businesses and residents;*
- *The companies are more economically stable due to improved efficiency and productivity, and lower regulatory risk associated with waste products.*

Consistent with the standards stated earlier in this guidebook, communities can create industrial or commercial performance standards to meet sustainable development goals at three distinct levels; encouraging behavior, providing incentives for behavior, and regulating behavior. A performance standard is

generally considered a regulatory threshold - the performance either meet the standard or it does not. A more general approach, used in this model ordinance, includes thresholds for identifying potential efficiencies in addition to thresholds for achieving efficiencies. Performance standards thus meet the three levels in the following way:

- 1) Requiring compliance with existing state regulatory standards for emissions or waste management, but setting higher voluntary standards;*
- 2) Requiring clear identification of all cost-effective pollution prevention measures as a condition of a rezoning, conditional use permit, or other local permitting process;*
- 3) Requiring implementation of cost-effective pollution prevention, or meeting a higher threshold than the state-mandated threshold, when the community is a financial partner in an industrial development, through tax benefits, grants, or other financial assistance.*

Other types of ordinances not included here can direct sustainable economic development efforts. A number of communities have, for instance, enacted zoning, subdivision, or site plan review ordinances that discourage (within specific zones or districts) the development of franchise retail businesses, and encourage local entrepreneurs. The ordinances regulated the allowed size of retail stores (chains and franchises usually demand larger spaces) or the kind of services or goods allowed within a particular district (prohibiting “formula” menus mandated by contract with a non-local company). Locally owned businesses improve the multiplier effect of dollars spent in the business, are generally more responsive to community concerns, and are less likely to go out of business when the return on capital drops below market rates.

Resolution Enabling The Creation of an Economic Development Authority In Model Community

Adapted from Economic Development Authorities Handbook, Minnesota Department of Trade and Economic Development, Business and Community Development Division.

The EDA resolution is designed to guide the creation and management of the EDA. EDA governing language should include the following elements:

- *guidance for EDA staff and officials on how to balance job and tax base creation with the community's comprehensive plan, growth management policies, and sustainable development goals;*
- *guidance to the local government Council for evaluating EDA actions, recognizing the economic development value of actions that may not overtly result in tax base or job creation.*

The resolution includes explicit setting of priorities for the EDA. EDA priorities can take a number of forms, including traditional job and tax base creation goals and sustainable development goals. Sustainable development principles generally lead to the following priorities:

- *Create or expand locally-owned companies before recruiting non-local companies;*
- *Target underused local resources in economic development initiatives;*
- *Favor non-polluting businesses or technologies, or businesses that perform better than the minimum PCA or EPA pollution standards.*
- *Favor redevelopment or development in areas with existing infrastructure over greenfield development;*
- *Attend to water (aquifer) resource limitations, sewer treatment and discharge carrying capacity limitations, and air quality limitations (primarily larger metropolitan areas).*

A number of the above priorities should be directed by background work conducted previous to the construction of this ordinance, such as background studies for the Comprehensive Plan, a Natural Resource Inventory, Sustainable Development Principles or Goals, or other guiding documentation. The EDA must rely on and adhere to economic development efforts that follow carrying capacity limitations, priority sites for redevelopment (and priority sites for protection or staged development), and natural resource development and protection priorities.

The list included here shows a mix of sustainable development priorities and traditional economic development priorities. The appropriate priorities for each community should link directly with the Comprehensive Plan or Sustainable Development Goals of the community.

An alternative to including the sustainable development priorities directly in EDA enabling language is to instead reference these priorities and include them in another ordinance. These priorities could be adopted as performance standards in the zoning code, in the subdivision ordinance, or as part of the site plan review process. An example of including sustainable development priorities in an industrial performance standard is provided separately in this chapter.

Examples of sustainable development regulation in zoning, subdivision, and site plan review are found in the Growth Management and Neighborhood Design chapters.

Be it resolved by the Council of Model Community as follows:

- 1.01 Model Community is authorized by Minnesota Statutes, Chapter 469 (the Act) and specifically Section 469.091, to establish an Economic Development Authority (EDA) to coordinate and administer economic development and redevelopment plans and programs of Model Community.
- 1.02 It is found and determined by the Council that the encouragement and financial support of economic development and redevelopment in Model Community is vital to the orderly development and financing of Model Community and in the best interests of the health, safety, prosperity and general welfare of the citizens of Model Community.
- 1.03 It is further found and determined that the economic development and redevelopment of Model Community can best be accomplished by the establishment of an EDA as authorized by the Act.
- 1.04 The Council has in accordance with the Act and Section 469.093 provided public notice and conducted a public hearing on _____, concerning the establishing of an Economic Development Authority at which hearing all person desiring to express their views were heard.

Section 1.04 notes compliance with public notice and hearing requirements. Consistent with sustainability principles, the creation of an EDA should include a public participation process to inform the goals, methods, and structure of the EDA. Public hearings are required by law, but the community should actively engage stakeholders and community members. Public participation processes are discussed in Chapter One.

Section 2. Enabling Resolution.

- 2.01 The Economic Development Authority of Model Community (EDA) is hereby established. The EDA is a Public body corporate and politic and a political subdivision of the State of Minnesota.
- 2.02 The EDA shall have all the powers, duties and responsibilities set forth in Sections 469.029 to 469.108 of the Act and as said Act may be amended from time to time and all other applicable laws, except as limited by this Resolution.
- 2.03 The EDA shall consist of a governing body of _____ Commissioners. _____ of the Commissioners shall be members of the Council. All commissioners shall be appointed by the Mayor with the approval of the Council. Those initially appointed shall be appointed for terms of two, three, and four year terms. A vacancy is created in the membership of the commission when a Council member who is also an Authority Commissioner ends Council membership.

Section 3. Limits of Powers

- 3.01 The following limits shall apply to the Economic Development Authority of Model Community and its operation:
- A. The sale of all bonds or other obligations issued by the EDA shall be first approved by the Council.
 - B. The EDA shall follow the budget process for Model Community Departments in accordance with City policies, ordinances and resolutions.
 - C. Development and redevelopment plans of the EDA must conform to Model Community Comprehensive Plan, official controls implementing the Comprehensive Plan, and other growth management policies set by the Council.
 - D. Development and redevelopment plans of the EDA must conform to any applicable performance standard in the Model Community Code, including those standards triggered by financial participation by Model Community in the development.
 - E. The Council shall, from time to time, set general priorities for development and redevelopment activities of the EDA. The priorities must be consistent with the Comprehensive Plan and other growth management policies of Model Community. The current priorities of the EDA shall be as follows:
 - 1. Stabilize the existing job and tax base by promoting existing business and business centers in the community;
 - 2. Redevelop underutilized or vacant parcels in areas identified in the Comprehensive Plan as commercial districts or industrial parks, including recruitment of new businesses appropriate for a given area, redirecting proposed greenfield development to appropriate existing commercial or industrial areas, assembly of parcels to facilitate redevelopment, and assembly of financing;
 - 3. Create tax base and jobs through technical and financial assistance programs for entrepreneurs;
 - 4. Assist local businesses to comply with state and federal air and water emission requirements, and hazardous and solid waste management and reduction efforts;
 - 5. Assist local businesses in improving resource productivity through

Subsection E.1. sets a development priority on assisting existing businesses. Particularly for smaller communities, community residents should realize the added value of supporting existing local businesses. Such promotion can include forming business coalitions to coordinate joint marketing and promotion such as a Main Street Program, “Buy Local” campaigns, local currency discounts (Model Community Dollars), and other EDA-led efforts.

Subsection E.2. prioritizes the existing business nodes for redevelopment. The Comprehensive Plan and zoning ordinance should distinguish between the type of retail to be directed into the downtown or “Main Street” area, businesses appropriate for neighborhood or mixed use commercial areas, and those that may be more appropriate for highway retail or commercial business centers. Industrial development and redevelopment should similarly be consistent with Comprehensive Plan priorities.

Subsection E.3. emphasizes promotion of entrepreneurs. A typical under-used local resource is the community’s human resource. Locally-owned businesses are generally more responsive to community issues, less likely to leave when returns on investment decline, and more efficient within the local economy by retaining more dollars in the community.

Small businesses are particularly vulnerable to unexpected investment in control or reduction technology associated with pollution prevention or pollution control. Subsection E. 4. prioritizes proactive assistance with pollution or hazardous waste regulation and investment. Such assistance is vital to retaining existing small businesses (also noted in E.1.).

Subsection E.6. links economic development activities with other sustainable development goals in the community. Business owners are experts in their markets or their production technologies. They may not, however, have expertise in techniques for improving resource efficiency or productivity, and may not be aware of technical and financial assistance programs. Assisting local businesses to improve productivity in energy use or processes that generate waste is another economic development priority.

The term “cost effective” can be defined by the EDA in its regulations, by the Council in ordinance, or by the business receiving the assistance as long as the definition is reasonable and explicit. Some voluntary efficiency programs, such as the EPA Green Buildings/Green Lights programs have cost-effectiveness criteria that can serve as an example.

Subsection 6.d. refers to a living wage threshold for the creation of new jobs. A variety of existing “living wage” requirements may be found in Minnesota. The above example is a greatly simplified version of existing living wage requirements.

Section E.7. recognizes that priorities may turn out to be inappropriate as conditions evolve in the community. The Council should allow the EDA to recommend priority changes and additions.

greater energy efficiency and reduction of wastes;

6. Provide financial assistance to companies locating or expanding in Model Community. Conditions of any financial assistance provided by the EDA to companies locating or expanding in Model Community include the following:
 - a. Industrial businesses (SIC 20-39) and any business subject to Minnesota PCA emission regulations shall participate in a pollution prevention audit or survey, and shall agree to implement all cost-effective pollution prevention measures. Documentation of a study completed by a third party (such as the Minnesota Technical Assistance Program (MnTAP) or completion of a pollution prevention plan consistent with Minnesota Statute 115D.07) shall satisfy participation requirement.
 - b. The new facility or expansion shall conduct an approved energy survey or audit, and shall agree to implement all cost-effective efficiency recommendations. Model Community EDA will accept as evidence a study completed by a third party, including the local utility’s or energy service provider’s efficiency program, if a audit is available, or a consultant’s building commissioning study consistent with the commissioning standards in Model Community’s Resource Efficient Building ordinances.
 - c. The new facility or expansion’s location and land use must be consistent with Model Community’s Comprehensive Plan and any other Model Community growth management policies.
 - d. The new facility or expansion must result in a net creation of jobs in Model Community. Fifty percent of new jobs created must be capable of supporting a typical-sized Model Community family at a level that will not qualify the family for Medicaid, Food Stamps, or other State or Federal assistance program based on Federal Poverty Standards.
7. Recommend new priorities to the Council.

Section F. explicitly sets the review criteria upon which the Council will evaluate EDA activities. After setting priorities that exceed simple job creation or tax base goals, the Council should consistently evaluate EDA activities on the full range of priorities. Sustainable development job or tax base creation is more difficult than unencumbered job or tax-base creation. EDA staff should get credit for non-job or tax-base economic development successes.

A number of other evaluation criteria can be included or substituted for those noted above. The criteria should reflect the full range of development priorities and sustainability goals described in the community's comprehensive plan.

- F. The Council shall, from time to time, evaluate the activities of the EDA. Evaluation shall include the following criteria:
 - 1. Consistency of development and redevelopment efforts with the Comprehensive Plan and other growth management policies of Model Community.
 - 2. Improved levels of compliance with State pollution standards.
 - 3. Number of businesses developing and implementing pollution prevention plans, energy efficiency or building commissioning efforts, or substituting local goods or resources for imported goods or resources.
 - 4. Net change in number of jobs and annual wages in existing businesses;
 - 5. Net change in amount of value-added processing, retail sales, or other measure of economic activity.

- G. The EDA shall obtain approval, consistent with City planning procedures and law, of its proposed plans for development and redevelopment from the Model Community Council.

Section 4. Implementation

- 4.02 This Enabling Resolution may be modified to make any changes as authorized by the Act.
- 4.03 As provided in the Act it is the intention of the Council that nothing in this Resolution nor any activities of the EDA shall be construed to impair the obligations of Model Community under any of its contracts or to affect in any detrimental manner the rights and privileges of a holder of a bond or other obligation heretofore issued by Model Community. The Council shall not modify any limit in effect at the time any bonds or obligations are issued or contracts executed to the detriment of the holder of the bonds or obligations or any contracting party.

PASSED and duly adopted by Council of Model Community this _____ day of _____.

PERFORMANCE STANDARDS

Adapted from Model Land Development Code for Florida Cities and Counties, Coffey D, Easley G., Florida Department of Community Affairs, 1989. A complete copy of the this model ordinance may be found in Industrial Performance Standards For A New Century, Schwab J., Planning Advisory Service Report No. 44, American Planning Association, 1993.

Industrial performance standards are mandatory or minimum thresholds for particular activities that mitigate for specific nuisances associated with industry. Examples of such nuisances include noise, vibration, air pollution, and releases of toxic substances. Performance standards generally allow industry to choose the most economic and most appropriate method of compliance. Technology standards, in contrast, mandate that particular compliance methods be used.

In Minnesota many kinds of industrial performance standards are set by the state, usually under Pollution Control Agency rules (some of which are referenced in the text below). Some PCA standards are minimums that local governments can choose to regulate more stringently. Other PCA standards are, however, both minimums and maximums – the community cannot set standards that are either more or less stringent than the Minnesota standard.

The Performance Standard section provides model language for a number of industrial performance standards, including a standard for pollution prevention practices. For any standard, however, the community must identify the specific options available to local governments to regulate the activity or exceed state-mandated thresholds. The intent of the following model language is to provide reasonable regulatory language and a logical structure for performance standards.

The local government should decide which, if any, of the operations described in Section A. will be regulated through this Code. The purpose and intent statement should be modified accordingly.

The local jurisdiction should specify the appropriate devices and instruments to be used for testing compliance with the standards required in this section. This section should also specify the agency or association responsible for standardizing the instruments.

References should be appropriate for the standards being set by the local government. These will include relevant portions of the Code of Federal Regulation (CFR), Minnesota Pollution Control Agency Rules, and any local design standards that offer guidance on reducing or buffering non-compatible land uses. The references should also include relevant professional guidance standards or documents, such as those from the American National Standards Institute (ANSI), American Society of Testing and Materials (ASTM), National Fire Protection Association codes, International Standards Organization (ISO 14000), and others.

The local jurisdiction should specify the appropriate devices and instruments to be used for testing compliance with the noise standards required in this section. This section should also specify the agency or association responsible for standardizing the instruments. For example, noise may be measured with a sound level meter meeting the standards of the American National Standards Institute, with measurements conducted in accordance with the American Standard Method for the Physical Measurement of Sound. Any appropriate instrumentation and methodology may be cited in this section.

The table in Chapter XX.01 B.1. is provided for demonstration purposes. Actual standards will differ.

The community can choose to set noise performance standards

XX.00 Generally

- A. **Purpose and Intent.** This section provides appropriate standards relating to the operation of certain activities throughout Model Community. Such operations may create or maintain such excessive noise, vibration, air pollution, odor, electromagnetic interference, or hazardous substances as to be a deterrent to the public health, comfort, convenience, safety, and welfare. These standards are therefore provided to protect the public interest, and promote the public health and welfare.
- B. **Applicability.** These standards shall apply to all lands within Model Community's jurisdiction.
 - 1. **Devices and Instruments.** The following devices and instruments shall be used:
 - 2. **References.** The following references are cited in this Article:

XX.01 Noise

Unless otherwise defined herein, all terminology shall be in conformance with applicable applications of the American National Standards, Incorporated (ANSI) or its successor body, and the Minnesota Pollution Control Agency noise standards, 7030.0040.

A. Instrumentation

Instrumentation used in making sound level measurements shall meet the following requirements:

B. Maximum Permissible Sound Levels by Receiving Land Use

- 1. **Maximum Sustained Sound.** No person shall operate or cause to be operated any source of sound in such a manner as to create a sound level which exceeds the limits set forth for the receiving land-use category in the table below.

that exceed PCA performance standards, or subject otherwise exempt uses to the standard, when the community is a financial partner in the development. For instance, the above table could include a higher standard for projects on which the community provides a grant, a tax incentive, or agrees to provide infrastructure. Some land uses, such as county and state highways, are exempt from noise standards at either the state or local level. Efforts to reduce noise from exempt land uses must be, under current state rules, programmatic (encouraging or providing incentives) rather than regulatory.

Section C. makes exemptions from the noise performance standard. Each community must identify activities or sources that are exempt. As stated above, some activities are exempt under state law.

Chapter XX.02 A. specifies the methods of measuring vibration for performance standards compliance. The local government should specify the equipment and procedures used to determine compliance with standards of this section.

Sound Levels by Receiving Land Use

<u>Receiving Land- Use Category</u>	<u>Sound-level Limit</u>	
	<u>Time</u>	<u>dBa</u>
Residential	7a.m.-10p.m.	60
	10 p.m.-7 a.m.	55
Commercial	7 a.m.-10 p.m.	65
	10 p.m.-7 a.m.	60
Manufacturing, Industrial, or Agricultural	At all times	75

- C. **Exemptions.** The following activities or sources are exempt from these noise standards:
- D. **Notice of Violation.** Except where a person is acting in good faith to comply with an abatement order, violation of any provision of this Code shall be cause for a notice of violation to be issued by Model Community Staff.
- E. **Pre-Existing Uses Not in Conformance.** Where an industry or commercial business has established its use away from other incompatible uses and subsequently, through the encroachment of development, now finds itself adjoining a receiving land category that would require a reduction in noise generation, said industry or commercial business shall not emit a noise that exceeds the maximum noise limitation for the receiving land-use category by more than ten decibels.

XX.02 Vibration

- A. Method of Measurement
- B. Standards
 - 1. Industrial. In industrial districts, impact vibrations from any use, at any point beyond district boundaries, shall not exceed the levels set forth in Paragraph C below.
 - 2. All Other Districts. In all other districts, impact vibrations from any other use shall not exceed, at any point beyond the property lines of the

use, the levels set forth in Paragraph C below.

Section C. sets the vibration standards. Appropriate local standards should be designated. As noted previously, the community can set different standards for when the community is a financial partner in the project and when the community is merely providing regulatory oversight.

C. Maximum Permissible Vibration

XX.03 Air Pollution

A. **Standard**

1. To protect and enhance the air quality of Model Community all sources of air pollution shall comply with the rules set forth by the Environmental Protection Agency (Code of Federal Regulations, Title 40) and the Minnesota Pollution Control Agency (Minnesota Administrative Code 7001 - 7027). No person shall operate a regulated source of air pollution without a valid operation permit issued by the Pollution Control Agency.
2. To enhance the sustainability of industrial facilities in Model Community any new facility or existing facility undergoing expansion or retooling, which requires an air emission permit from the Pollution Control Agency, and which receives financial assistance in the form of tax benefits, grants, below-market loans, or other form of assistance, shall demonstrate that emissions exceed (greater level of control and lower emissions) PCA performance standards by 10%. If the facility cannot demonstrate compliance with such a standard, the facility shall submit to Model Community a plan, and shall implement the plan, to continually reduce emissions regardless the facility's compliance with PCA standards.

- B. **Testing.** Air pollution shall be tested and results reported in accordance with techniques and methods adopted by the Minnesota Pollution Control Agency and submitted to the state. These tests shall be carried out under the supervision of the State and at the expense of the person responsible for the source of pollution.

If the local jurisdiction intends to regulate odor through this Code, appropriate measurement devices, procedures, and standards should be specified in this section. Odors from some industrial agriculture, such as feedlots, is regulated by the Minnesota PCA and local governments cannot exceed the PCA standards (unless the community is a financial participant in the project). Local governments can use other land use tools, such as buffer requirements, that mitigate odor problems.

In Section 5. the community can list specific unrestricted liquids as needed. The community should engage both local industrial interests and state regulators in determining lists such as referenced in this statute, as well as other standards included in a fire and explosive hazards performance standard.

XX.04 Odor

XX.05 Fire and Explosive Hazards

- A. **Standards.** In all districts in which the storage, use, or manufacture of flammable or explosive materials is permitted the following standards shall apply:
1. Storage and utilization of solid materials or products which are incombustible, or which in themselves support combustion and are consumed slowly as they burn, is permitted.
 2. Storage, utilization, or manufacture of solid materials or products including free burning and intense burning is permitted provided that said materials or products shall be stored, utilized, or manufactured within completely enclosed buildings have noncombustible walls and protected throughout by an automatic fire-extinguishing system. The requirements for an automatic fire-extinguishing system may be waived in those cases where the introduction of water to a burning substance would cause additional hazard.
 3. Outdoor storage of coal and other solid fuels is permitted provided storage is in conformance with the *Fire Protection Handbook*, most recent Edition, printed by the National Fire Protection Association.
 4. Storage, utilization, or manufacture of flammable and combustible liquids, or materials that produce flammable or explosive vapors or gases shall be permitted in accordance with National Fire Code #30, exclusive of storage of finished products in original sealed container which shall be unrestricted.
 5. The following classifications of liquids are unrestricted, provided that storage, handling, and use shall be in accordance with National Fire Protection Association, “Flammable and Combustible Liquids” Code #30.

New or expanded industrial facilities frequently have a lifetime measured in decades. The rate of technological change in pollution prevention design and technology, however, far exceeds the projected lifespan of most industrial facilities. To this end, the community has an sustainable economic development opportunity to set pollution prevention performance standards that take full advantage of

Pollution prevention is defined in Minnesota Statutes to mean the elimination or reduction, at the source, of the use, generation, or release of toxic pollutants, hazardous substances, and hazardous waste. (115D.03, Subd. 8) Pollution prevention is defined in Industrial Performance Standards for a New Century (Schwab, APA, 1993) as “a regulatory or corporate compliance strategy that emphasizes reduction of all forms of pollution without regard to compliance with existing standards.” Sustainability recognizes pollution prevention strategies to be inherently economically beneficial. The industry, and the community, prospers when industrial processes produce more goods and less waste; an expense becomes a source of income.

Section B.1. identifies technical assistance programs for pollution prevention. Other technical assistance programs may be available to help businesses evaluate cost-effective pollution prevention. Both EPA and MnPCA have self-audit programs for certifying pollution prevention in excess of regulatory thresholds. The community should consider these and all other technical assistance options to assist businesses with pollution prevention.

XX.06. Electromagnetic Interference

In all districts, no use, activity, or process shall be conducted that produces electric and/or magnetic fields that adversely affect public health, safety, and welfare including but not limited to interference with normal radio, telephone, or television reception from off the premises where the activity is conducted.

XX.07 Pollution Prevention.

- A. Any site, business, or activity that is required to file a toxic pollution prevention plan under Minnesota Statute 115D.07 Subdivision 1 must demonstrate compliance with said statute to the appropriate Model Community department.
- B. Any new facility or existing facility that is expanding, and that is required to complete a toxic chemical release form, as defined under United States Code, title 42, section 11023, or section 299K.08, subdivision 3, and that requires a conditional use permit or a rezoning, must conduct a pollution prevention audit. The audit must, at a minimum, meet the following standards:
 - 1. The audit must be conducted by a third-party person, and must be certified by a licensed engineer. Pollution prevention plans completed to satisfy Minnesota Statute 115.D.07, audits conducted under PCA or EPA voluntary pollution prevention compliance programs, including the XL program or any other program authorized under Minnesota Statute 114C, and audits conducted by MnTAP, will be judged sufficient to meet the requirements of this ordinance;
 - 2. The audit must include an assessment of technically and economically justified options available to eliminate or reduce the generation or release of toxic pollutants at the facility, including options such as changing raw material used as inputs, operating techniques, equipment and technology, personnel training, and other practices used at the

Section C.2. identifies the circumstances when the company must implement cost-effective recommendations. The community can adopt a number of different definitions of “cost-effective,” including linking the payback to the tenure of the economic assistance program, using the definitions in existing local, state, or federal pollution prevention programs, and letting the company define and defend its own explicit cost-effectiveness criteria.

Section C.2. defines cost effectiveness. A number of alternative definitions of cost-effective can be used, such as:

- *a simple payback of the initial investment of 2 years;*
- *an investment that produces an internal rate of return equivalent to other investments by the business;*
- *a payback on investment that includes a quantification of non-business benefits.*

facility. The assessment must include a cost/benefit analysis of the available options;

3. The audit must include a listing of options that were considered not to be economically or technically feasible.
- C. Any new facility or existing facility that is expanding, and that is required to complete a toxic chemical release form, as defined under United States Code, title 42, section 11023, or section 299K.08, subdivision 3, and that is the beneficiary of any grant, tax abatement or deferral, or other financial assistance administered by Model Community or the Model Community Economic Development Agency, must meet the following pollution prevention performance standards:
1. Conduct a pollution prevention audit meeting the standards in XX.07 B. 1-3;
 2. Implement all cost-effective measures identified in the pollution prevention audit. Cost-effective is defined to mean any group of measures that reduces costs to the facility sufficient to recoup any marginal design, equipment, or personnel costs necessary to implement the recommendations within five years.

Definitions

The community can adopt a number of different definitions of “cost-effective,” including linking the payback to the tenure of the economic assistance program, using the definitions in existing local, state, or federal pollution prevention programs, and letting the company define and defend its own explicit cost-effectiveness criteria.

The enabling statute for a community’s comprehensive plan will differ depending on the type of local government, and whether or not the government used a community-based planning process. The community-based process for counties referenced above is consistent with the public participation and stakeholder involvement provisions of the Minnesota Sustainable Development Initiative’s Sustainable Development Principles. Minnesota Statutes 462.352 subdivisions 5 and 6 define “comprehensive municipal plan” and “land use plan” respectively.

Pollution Prevention: Pollution prevention has the meaning given in Minnesota Statutes 115D.03, or, the elimination or reduction of, at the source, the use generation, or release of toxic pollutants, hazardous substances, and hazardous wastes.

Cost-Effective: Investments made by a commercial or industrial business in equipment, processes, or training that lower costs to the business by an amount sufficient to recover the costs of the initial investment, plus a reasonable return on the investment, within the life of the equipment, process, or training.

Economic Development Authority: The authority designated by the Model Community Council to coordinate and administer economic development and redevelopment plans, as allowed under Minnesota Statute 469.091.

Comprehensive Plan: The document containing policies and land use plans formally adopted by Model Community after a community-based planning process as defined in Minnesota Statutes 394.232.

Productivity: The ratio of units of feedstock, labor, or other input in an industrial or commercial business that results in adding value to a product, service, or good offered by the business for sale, to the units of output of product, service, or goods. Improving productivity is defined to mean reducing the units of feedstock, labor, or other input while holding all other elements of the process, including the units of output, constant.

Pollution Prevention Audit: An assessment of toxic pollutants, hazardous substances, and hazardous wastes produced at a commercial or industrial business, including an identification of each pollutant, substance, and waste by type of material and path of emission, and recommendations for reducing, at the source, the use, generation, or release of said pollutants, hazardous substances, and hazardous wastes.

Commissioning: The process of verification that designated equipment and

systems are installed properly and able to perform according to design specifications and operational needs as installed. Recommissioning is defined as the verification that existing equipment and systems in a given building are being used, operated, and maintained, in the most efficient manner possible given design specifications and operational needs.

Cost/Benefit Analysis: The analysis required, including all data gathering, cost estimation, modeling, benefit valuation, and verification, to determine the cost-effectiveness of resource efficiency or pollution prevention investments.

Minnesota Technical Assistance Program (MnTAP): A technical assistance program administered by the Minnesota Pollution Control Agency and the University of Minnesota to assist businesses with pollution prevention and solid waste reduction efforts.

Resources

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U.S. EPA. *A Sustainable Brownfields Model Framework: Sustainable Redevelopment - Linking the Community and Business for a Brighter Future*. Office of Solid Waste and Emergency Response. 1999. www.epa.gov/swerosps/bf/pdf/Susmodel.pdf.

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Solvang, CA. Village Area Formula Restaurant Ban Ordinance. Ordinance No. 94-151. 1994. Listed, along with other similar ordinances, at www.ilsr.org.

Skaneateles, NY. Shopping Center Development Criteria. Ordinance 148-26(M). Listed, along with other similar ordinances, at www.ilsr.org.

