
Chapter 3:
Shoreland Management Standards



CHAPTER 3: SHORELAND MANAGEMENT STANDARDS

3.1 PURPOSE

Through Minnesota Rule 6120.2800, Subpart 1a, the North Shore Management Plan provides minimum standards and criteria for the subdivision, use, and development of the shoreland of Lake Superior. Local units of government are required to adopt standards that are as restrictive or more restrictive than those contained in the NSMP. Standards are provided for five areas: Zoning, Planned Unit Development, Wastewater Systems, Shoreland Alterations, and Erosion Hazard Areas. In the following chapter, the specific minimum standards are in bold.

All the shoreland management standards apply to lots created after the approval of the NSMP Update. Local units of governments are encouraged to look at innovative policies for dealing with lots that are non-conforming but have been “grandfathered” in since the initial NSMP was completed.

Listed below are a number of definitions that are critical to the interpretation of the North Shore Management Standards.

- Definitions: Riparian – Lots that have shoreline frontage

Non-riparian – Lots within the NSM Planning Area that do not have shoreline frontage

Area Plan – A community-based comprehensive plan for a designated unincorporated area.

Impervious Surface – A constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include: rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads.

Vegetation Line – Measurements taken from the point where terrestrial vegetation begins. (This is commonly where a sod layer has developed).

Land Disturbance – Any change in the land surface including removing vegetative cover, excavating, filling, grading, and the construction of any structure.



Dwelling -- means any building or portion thereof designed or used primarily for residential occupancy, including single-family dwellings, duplexes, triplexes, fourplexes, and multifamily dwellings, but not including hotels or motels.

Dwelling unit -- means any building or portion thereof that contains separate living facilities for not more than one family. Separate living facilities shall constitute provisions for sleeping, eating, kitchen facilities (including at least an oven range or cooking device and a permanently installed sink), and bathroom facilities. "Dwelling unit" does not include motel, tourist court, boardinghouse, or tourist home units.

Transient Unit-- A unit in a bed and breakfast inn, inn, hotel, motel, motor hotel, hotel-motel complex, condominium, time share complex or so-called interval ownership complex designed for and offering one or more lodging units to travelers and transient guests for temporary lodging and sleeping purposes.

3.2 ZONING

3.2.3 Introduction

In order to have a discussion on the zoning standards, staff reviewed all ten ordinances along the North Shore. In addition, the state shoreland standards were reviewed for comparison purposes. During this review, there were a number of areas where change was suggested.

Shorewide applicability is one of the major issues when discussing changes to the minimum standards. Since Lake Superior is different than other lakes in Minnesota, it poses unique questions. There are four cities that have sizable incorporated areas within the shoreland management zone. As part of the discussion in the planning process, it was determined that the NSMP update should encourage development in these areas and other development nodes. The original NSMP seemed to also support this conclusion by stating that commercial-urban areas as defined in that plan were exempted from the density and dimensional standards in the Planned Unit Development Guidelines.

In the state shoreland standards, there is a provision for local units of government to adopt different standards if they can demonstrate they meet the defined criteria. Two examples of the criteria are: 1) cases in which shorelands have been developed with urban uses for many years and much of the development does not meet the standards and 2) cases where the central business district is within shorelands.



This plan does not propose that incorporated areas be exempted from the standards of the plan, but it does provide, as mentioned above, some flexibility for incorporated areas and other established development nodes to develop at different densities than more sensitive, undeveloped areas.

In addition to PUD density, “implementation flexibility” is built into the North Shore Management Plan through the fact that lots created prior to the adoption of the plan need not be consistent with the plan. While this solution does not penalize landowners for having substandard lots under the new plan, it creates many new non-conforming lots or lots that are “grandfathered” in under the old standards. In the future, further work by the NSMB in looking at different ways to deal with non-conforming lots would be useful

This section of the Shoreland Management Standards provides standards for the following areas:

- 3.2.4** Lot Area and Lot Width
- 3.2.5** Structure Setbacks
- 3.2.6** Highway Access Control
- 3.2.7** Building Height
- 3.2.8** Lot Coverage
- 3.2.9** Subdivision of Property
- 3.2.10** Adoption of shoreland zoning standards into local

3.2.4 Lot Area and Lot Width Standards

During the plan revision process, the main point of discussion regarding both lot area and lot width standards was the notion of computing density on a scale of dwelling units per acre rather than the current standards, which control density through minimum lot area and lot width.

Changing to an allocated density allows for lot area to be flexible when new plats are proposed. This can lead to a more flexible design that takes into account the natural features of the land instead of imposing rigid lot width and size standards. Secondly, allocated density is useful if planning tools such as Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR) are utilized in the future.

As discussed earlier, the NSMP has a general theme of encouraging development in existing areas and discouraging development in undeveloped areas. With this in mind, the density proposed for unsewered areas is 0.5 units per acre, which corresponds to a two-acre lot size for single-lot developments.

In order to facilitate more open space and less individual septic systems, local units of government could consider bonus densities if a development is proposed that provides some form of a managed wastewater system for the development, dedicated open space, and a comprehensive stormwater management plan, among other items. These types of developments, sometimes called cluster developments, open space development, or conservation subdivisions, are beginning to occur elsewhere in Minnesota. In particular, this technique could be useful as



subdivision pressure increases along the ridgeline and in other non-shoreland properties near Lake Superior. Certainly market factors come into play regarding the feasibility of these developments, but it still would be beneficial to have the ordinances in place to accommodate new development techniques. Planned Unit Development ordinances remain in place to address higher-density hotel and/or mixed use developments. Some entities on the North Shore already allow or are considering these types of developments in their own ordinances.

Lot Area Standards:

- **Density in unsewered areas shall be 0.5 units per acre (2-acre minimum lot size).**
- **Density in incorporated areas served by a public sewer system shall be a maximum of eight units per acre.**
- **Density in unincorporated areas served by a public sewer system or decentralized system and designated as development nodes in a County Comprehensive Plan or County-approved Area Plan shall be a maximum of four (4) units per acre.**

Lot Width Standards

- **All riparian lots must be a minimum of 200 feet in width.**
- **Unsewered non-riparian lots in developments of four or less lots must be a minimum of 200 feet in width.**
- **No minimum lot width shall be established for new platted development of five lots and two acres or more in area located in:**
 - a) **non-riparian areas**
 - b) **incorporated areas**
 - c) **unincorporated areas served by a public sewer system and designated as development nodes in a County Comprehensive Plan or County-approved Area Plan**

3.2.5 Structure Setback Standards

The structure setback is one area where the NSMP differs substantially from the statewide shoreland regulations. For example, inland General Development lakes require a setback of 75 feet from the ordinary high water line (OHWL) for new construction, while the NSMP requires a structure setback of 40 feet from the permanent vegetation line of Lake Superior. At the time the NSMP was adopted, the OHWL for Lake Superior was defined as a water surface elevation of 601.5 (mean sea level elevation) which corresponded, more or less, to the water's edge, depending on the lake level.

Due to the topography of the Lake Superior shoreline, implementing this standard would have resulted structures placed 75 feet back from that OHWL were still within the active beach area of the lake. To alleviate this problem, the DNR, by policy, defined the OHWL on Lake Superior as the permanent vegetation line. Also, in the development of the NSMP, the structure setback was set at 40 feet. The reasoning was that a structure set 40 feet back from the vegetation line is always inland of the active beach, which protects both the structure and the beach. Overall, 40



feet from the vegetation line plus the average distance of the vegetation line from the water reasonably matches, or even exceeds, a setback of 75 feet from the water in most cases.

The NSMP update better defines the differences between the vegetation line and the average water level. This two-step process will ensure that all new development is at least 75 feet from the average water level, regardless of the location of the permanent vegetation line.

Much like non-conforming lots, existing structures in the setback would be “grandfathered” in. However, there was discussion on the idea of mitigation for construction in the setback areas. An action step later in the plan will address this issue.

Riparian Structure Setback Standards

- **40 feet horizontal distance from the permanent vegetation line of Lake Superior or 75 feet horizontal distance from the average water level, which is an elevation of 601.5 feet above sea level, whichever is greater.**
- **75 feet from the ordinary high water level of streams**

Road Setback Standards

- **35 feet from the right-of-way line on Trunk Highway 61, except where municipal ordinances specify otherwise**

3.2.6 Highway Access Control Standards

Access management is a critical issue facing the NSMB. Proper access management supports the notion that transportation and land use are linked. This is true in any situation but is more important in an area where there is essentially one major route. With few reliever routes available, land use decisions in one area could potentially affect traffic flow farther up and down the route. MNDOT is strongly emphasizing access management with new guidelines being devised and steps taken to improve coordination with local units of government.

The designation of CSAH 61 and TH 61 as an All-American Road should also weigh into access management decisions. The scenic qualities of the route may create situations where flexibility is needed in determining access standards.

The steps in this section are meant to formalize the notification procedures between MNDOT and local units of government.

Some of these steps may be taken informally already by some jurisdictions, but a unified shorewide standard will provide consistency to MNDOT. In the long-term, the NSMB could participate in access management planning in the TH 61 corridor.



Highway Access Control Standards

- **It shall be the goal to minimize access points to County State Aid Highway 61 and Trunk Highway 61. Accordingly, shared driveways shall be encouraged wherever possible. All proposed subdivisions shall be reviewed by appropriate authorities.**
- **A letter from MNDOT shall be required stating plans have been submitted to MNDOT prior to any LUG accepting an application for a plat, conditional use, change of use, or building permit that includes a new access point on TH 61.**
- **An access permit from MNDOT shall be received prior to the approval of any proposal.**

3.2.7 Building Height Limitations

Building Height and Elevation Standards:

- **Maximum building height for all structures is 35 feet from top of building to average natural grade line. The top of the building is defined as the peak of the roof.**
- **No structure, except decks, piers and docks, shall be placed at an elevation such that the lowest floor, including basement floors, is less than three feet above the highest known water level. In those instances where sufficient data on known water levels are not available, the elevation of the line of permanent shoreland vegetation shall be used as the estimated high water elevation.**

3.2.8 Lot Coverage

In some jurisdictions, the threshold for a stormwater management plan is 10%. Further work by the NSMB in discussing impervious surfaces on a watershed level could lead to adjustment to this standard in the future.

Lot Coverage Standards

- **In all management areas, lot coverage by impervious surfaces shall not exceed 25% unless a surface water runoff plan certified by a registered professional engineer is submitted and approved by the local zoning office. However, in no case shall lot coverage by impervious surfaces exceed 50% of the total lot area. The surface water runoff plan shall contain, at a minimum, provisions for sediment entrapment and erosion control in order to minimize impacts on the receiving waters.**

3.2.9 Subdivision of Property

Surveys will ensure that non-conforming lots are not created in addition to providing a record for local units of government.



Subdivision of Property Standards

- A registered survey shall be submitted upon the subdivision of any parcel into two or more parcels.

3.2.10 Incorporation of zoning standards for areas within the North Shore Management Zone

Adoption of Zoning Standards in local Ordinance

- The members of the North Shore Management Board shall comply with the zoning standards of the North Shore Management Plan through one of the following methods:
 - Adoption of text from the NSMP into their zoning ordinance
 - Creation of an overlay zoning district along Lake Superior that contains standards equal to or more restrictive than those contained in this chapter.

3.3 PLANNED UNIT DEVELOPMENT

3.3.1 Introduction

This section outlines guidelines intended to provide uniform criteria for the local units of government to review and approve Planned Unit Developments (PUD). This section starts with explaining the purpose of these guidelines, followed by the definition of minimum size of a PUD. It further discusses design criteria, sewage disposal and a plan approval process.

3.3.2 Purpose, Goal, Definition

Purpose:

The purpose of these guidelines is to provide uniform criteria for the local approval of planned unit developments within the North Shore Management Planning Area. The criteria allow for development densities greater than those provided for in this plan. These provisions apply to new planned unit developments, both commercial and residential, on undeveloped land, redevelopment of previously built sites, or conversions of existing buildings and land.

Planned unit developments must be designed and operated to be compatible and harmonized with their surroundings and located in compliance with the North Shore Management Plan. It is the intent of these guidelines to provide the North Shore units of government with the flexibility to review, modify and approve planned unit developments that follow the rules of common sense and practicality. The end result should be development that optimizes the use of building sites and protects and enhances the natural amenities of those sites.



Goal:

It is the goal of these guidelines to provide uniform standards to local officials and potential developers for the optimization of development opportunities and maximum environmental protection on any given planned unit development site.

Definition:

Minimum Area for Planned Unit Development:

- **Area Served by public sewer system:** 1 acre
- **Area served by decentralized system or individual sewage treatment system:** 10 acres

Minimum number of Units:

- **The minimum number of dwelling or transient units for a Planned Unit Development shall be five (5) while meeting other criteria contained in this document such as impervious surface, setbacks and wastewater needs.**

3.3.3 Planned Unit Development Design Criteria

The purpose of the following criteria is to provide guidance to citizens, local officials, and developers in evaluating, reviewing and designing planned unit developments. Many free local resources and services are available to assist in meeting these criteria. These include city and county zoning administrators, health officials, county extension, and soil and water conservation district personnel.

Many state and federal resources are also available. These include the Minnesota Department of Natural Resources, Pollution Control Agency, University of Minnesota Sea Grant Extension, Department of Transportation, Natural Resources Conservation Service, and the U.S. Army Corps of Engineers.

1) Maximum Density:

- **Unsewered Areas:** 0.5 units per acre
- **Area served by decentralized waste water system:** 0.5 units per acre
- **Incorporated Areas** Density standards do not apply
- **Bonus densities may be allowed in unsewered areas up to a maximum of one unit per acre based on criteria established by local units of government except for Lake Superior riparian areas outside incorporated areas and while considering habitat, pollution, view from the lake, accommodation for greater density at development nodes and shoreland alteration.**



- 2) **Structures, parking areas, and other facilities must be designed and placed to reduce visibility as viewed from Lake Superior, roads and adjacent shorelands by vegetation, topography, increased setbacks, color, or other means acceptable to the local unit of government, assuming summer, leaf-on conditions. The end result should be a development that is visually unobtrusive to the natural environment or surrounding properties.**
- 3) **Units, recreation facilities, and commercial uses must be clustered into one of more groups and located on suitable areas of the development site.**
- 4) **At least 50% of the development area must be dedicated as open space for the users and residents of the development. Road rights-of-way, land covered by road surfaces, parking areas, units, and structures area considered developed areas, units, and structures are considered developed areas and should not be included in the computation of minimum open space. This 50% open space dedication must be filed as a restriction against the property. At least 40% of the lot width at the shoreline setback line shall be left as open space. For other development in shoreland areas, 25% open space at the structure setback line shall be open space.**
- 5) **Open space areas, including topography, vegetation, and allowable uses must be preserved by the use of restrictive deed covenants, permanent easements, public dedication and acceptance, or other equally effective and permanent means.**
- 6) **Areas with physical characteristics unsuitable for development in their natural state, such as wetlands or areas containing significant historic sites shall be considered open space.**
- 7) **The development must also provide access to developed public roads.**
- 8) **The dimensional and density provisions of these guidelines do not apply to incorporated areas served by a public sewer system, but the purposes and intent of these PUD guidelines and policies must be met.**

3.3.4 Sewage Disposal Standards

- 1) On-site water supply and sewage treatment systems must be centralized and designed, installed and operated to meet or exceed applicable standards or regulations of the Minnesota Pollution control Agency (MPCA) or the local unit of government.
- 2) On-site sewage treatment systems must be located on the most suitable areas of the development.
- 3) Public water and sewage service must be used where available, as determined by the local unit of government.
- 4) The potential person capacity of a dwelling shall be used to determine the potential gallons generated which in turn shall dictate the appropriate system(s) that should be utilized by the



proposed development. Local and state standards and regulations apply and should be consulted.

- 5) All new units must utilize water conserving plumbing fixtures and have water meters installed and accessible which serve all sewage generating appliances.
- 6) No occupancy of any unit or use of any commercial structure of any planned unit development shall be allowed until the approved sewage disposal system is in place and fully operational.

3.3.5 Plan Approval

At the time of application, planning, and scheduled development the proposed facility shall be under unified control or ownership. The applicant will provide a detailed development plan to the local government, which must include a description of the following:

- 1) **The property under consideration, including property boundaries, contours, on-site features, roads, lakes, rivers, wetlands, rock outcroppings, wooded areas, and other relevant features.**
- 2) **Building elevations, location on site, proposed uses, number of units, and commercial operations.**
- 3) **A concept statement describing the project.**
- 4) **Parking areas and driveways for both residences and commercial activities, vehicle loading/unloading areas, proposed public road entrances, and projected traffic generation of the proposed development.**
- 5) **Proposed phasing of the final development.**
- 6) **Description of how the project will operate after completion.**
- 7) **Nature of proposed ownership after completion.**
- 8) **Proposed fire protection.**
- 9) **Proposed homeowners association agreement, where applicable.**
- 10) **Detailed landscape plan that shows existing vegetation, proposed alteration, new plantings and landscaping which is consistent with shoreland alteration guidelines.**
- 11) **Recreational space location and use.**
- 12) **Adequate water sources and water supply system plans.**
- 13) **Proposed sewage treatment system plans.**
- 14) **Storm water runoff plans (construction and operation).**
- 15) **Erosion control plan for shoreline, where applicable.**



- 16) Erosion control plan for site (construction and operation).**
- 17) Evidence of application for appropriate permits, state and federal.**
- 18) Evidence of availability of necessary public utilities.**
- 19) Proposed financial plans and necessary performance bonds or escrow agreements to protect the local unit of government's financial liability for site restoration, landscaping, erosion control measures, and sewage treatment systems.**

The proposed development plan will demonstrate that the development will conform with adjacent development and be screened from the lake, adjacent roads, and adjacent properties. Any other information deemed to be necessary by the local unit of government will be provided by the applicant. The local unit of government may require plan modifications or require special conditions or performance standards as a part of its approval of the project.

3.4 WASTEWATER TREATMENT SYSTEMS

3.4.1 Introduction

The 1988 North Shore Management Plan recognized that sanitary systems were an important issue but did not offer substantial policy guidance for dealing with the issue. The original plan contained the following statement: "There are many issues relating to sanitary systems and water supply along the North Shore, however, most are beyond the scope of this version of the Shoreland Management Plan." Following that statement was a summary of existing systems and treatment options coupled with technical information about state regulations pertaining to sanitary systems.

It has been argued that the lack of a cohesive policy by the NSMB toward wastewater planning has been one of primary missed opportunities for the NSMB. The NSMB update will change this by charting a policy course that would allow the NSMB to provide shorewide leadership in facilitating discussion and action on wastewater treatment issues. The NSMB is stating that these issues are not outside the scope of the NSMP. The NSMB, as an existing Joint Powers Board, will serve as a mechanism for the North Shore to speak to these issues in a unified voice.

There has been a realization nationwide that decisions made regarding wastewater infrastructure can have consequences for land use. Planning for sewage treatment systems can not be done without considering the effects that new systems may have on future growth of an area.

In Section 2.4, the discussion will focus major concepts in wastewater treatment, changes in the statewide regulatory framework, and the status of existing wastewater treatment systems on the North Shore.



3.4.2 Major Concepts/Issues in Wastewater Treatment

1) Centralized Systems vs. Decentralized Systems and the question of Growth Management

Centralized systems are considered to be a system where wastewater is collected from individual dwelling units or businesses and sent to a central facility where it is treated. According to the U.S. Environmental Protection Agency, a decentralized system is characterized by the absence of central wastewater collection and treatment. Decentralized systems include conventional onsite systems, cluster systems (a group of homes and businesses served by one decentralized system), and alternative wastewater treatment technologies. Please see the Appendix for more information on these systems.

By their nature, centralized systems can allow higher density growth due to the simple fact that centralized treatment eliminates the need for treatment facilities on individual lots. In the case of the North Shore, areas of substandard soil conditions can make siting of on-site systems quite difficult. Larger tracts of land may be required in order for a single property owner to find adequate space for an on-site system.

Therefore, future density becomes a key issue when an area relatively rural in nature builds a connection to an existing centralized system to solve, for example, a situation where septic systems are failing and causing environmental degradation. The connection may alleviate the septic issue but now a situation has been created where there is potential for substantially higher density in the areas served by new connection.

In addition, advances in on-site system technology are making it possible for some on-site systems to be located on smaller lots. In the past, the land needed for adequate on-site systems could be used as a method of controlling density. These new technologies have the potential for significantly reducing the role that on-site systems requirements have in controlling density.

These issues make land use planning even more important. The link between wastewater treatment and land use planning should be made early on in any planning process, long before any construction of new systems takes place. On the North Shore, an example of proactive planning took place prior to construction of the North Shore Sanitary District connection to the Western Lake Superior Sanitary District system. The North Shore Land Use Plan, completed in late 2001, was required by the State prior to funding due to concerns about management of growth after construction. Through the planning process, a number of jurisdictions along the new sewer line elected to keep their density at previously established levels. Castle Danger is another example where land use planning was part of the wastewater management planning process.

2) Managed On-Site Systems

The EPA and MPCA are supportive of this model to address areas where failing septic systems and/or environmental conditions are a problem and where a connection to a centralized system is



not feasible due to cost, growth concerns, etc. The EPA has provided national guidelines that consist of five model programs that could be used to achieve better management of on-site systems. This continuum of management begins with a program to inventory systems and increase awareness of wastewater issues. The final model programs on the continuum call for a responsible management entity to be created to operate and maintain a system or to manage and own the system. In this scenario, the homeowner pays a monthly fee for maintenance of their on-site system. The maintenance could be done by a public entity or by a private contractor selected by a public entity.

A great deal of work has already gone into studying this topic. In April 2002, a report was published for the Iron Range Resources and Rehabilitation Agency and the Northern Minnesota Consortium of Counties entitled Model Code Framework for Performance Management of Onsite/Cluster Systems. This report (produced by NRRI, Ayres Associates, and St. Louis County) summarizes the EPA guidelines and provides a framework to follow in order to facilitate the development of any of the five models.

3) Performance Code for On-Site Systems

In addition to the framework provided in the report mentioned above, the report also contains a model performance code for on-site systems. In addition, there are other groups in the state who are trying to create as detailed a performance code as possible for use by local staff. The idea behind a performance code is the belief that the existing Chapter 7080 standards that regulate onsite systems in Minnesota are too prescriptive. There is not enough flexibility provided in the standards to allow for the unique site conditions faced in northeastern Minnesota. At this date, no local units of government in the North Shore Management Planning Area have officially adopted a performance code.

3.4.3 Changes in the Existing Statewide Regulatory Framework

Since the adoption of the NSMP in 1988, there have been a number of key changes or proposed changes in the state regulatory framework for on-site systems, which is referred to as Chapter 7080.

In addition, the state is encouraging the use of new cooperative approaches to decentralized wastewater treatment while also proposing significant changes in the scoring system that ranks wastewater projects seeking loans from the State.



CHANGES TO CHAPTER 7080

Chapter 7080 has been revised twice since 1988 to reflect changes to Minnesota state statutes. The highlights of the changes are the following:

- On-site systems designed to treat more than 10,000 gallons per day per development, and discharging to sub-surface needs permitting by the PCA.
- Any system utilizing surface disposal needs permitting by the PCA.
- Collector system language in Plan is obsolete—omit.
- County setbacks should be equal to or greater than state requirements.

WATER QUALITY COOPERATIVE AREA-WIDE SDS PERMITS

This concept, introduced during the 1997 session of the Legislature, established guiding principles for the establishment of area-wide permits for alternative discharging systems. The goal was to give communities another option to consider when deciding on wastewater system options and management. Two pilot projects are underway where area-wide permits have been issued by the MPCA: the Upper Mississippi River basin and the Rainy River basin.

In order to facilitate development of a system of managed on-sites, a water quality cooperative is created. State statute describes this as “an association of person organized under Minnesota Statute Chapter 308A to install own, manage, and control individual sewage treatment systems (ISTS) or alternative discharging sewage systems (ADSS) and provide water-quality treatment and management services within a defined geographic area” (from Minn. Stat 115.58).

PROPOSED CHANGES TO PROJECT PRIORITY RANKING SYSTEM

The MPCA currently has the charge of scoring and ranking proposed wastewater construction projects for loans through the State Revolving Fund (SRF). The result of this ranking is the Project Priority List (PPL). Over the past few years, increasing demand for loans has necessitated a funding cutoff, or minimum number of points for a project to eligible for funding. In the future, however, it is likely the cutoff will need to be raised in order to ensure that high-priority projects are funded. With this in mind, the point system must be reviewed to ensure it accurately represents the state’s priorities.

One of the issues with the current point system is that it does not consider the age or condition of a system. This may not give enough priority to preserving existing municipal wastewater assets. The current system also does not consider whether a community needs to expand due to growth or upgrade due to the need to meet tougher effluent limits. Finally, there is concern about projects in unsewered areas extending beyond what is necessary to correct environmental or public health.



With this in mind, recommendations for the 2004 legislative session will include a revision of principles for ranking the PPL. Projects that address significant health hazards will remain a high priority. In addition, municipalities with stressed existing systems should have access to funds. Finally, projects in unsewered areas should be consistent in scope with the environmental issue being addressed.

Following this principle, a corrective action alternative selection hierarchy will be established for projects proposed in an unsewered area due to failing individual on-site treatment systems (ISTS). This hierarchy requires the following to be considered prior to any consideration of connection to an existing centralized system:

- 1) Replacement of failed ISTS with new ISTS with centralized management
- 2) Decentralized wastewater systems that combine local failed ISTS into a multi-household system with centralized management. (Water Pollution Control Revolving Fund Improvements, MPCA, February 2003)

It seems clear from reading this that projects with limited hookups proposed to connect to a centralized system will be at a competitive disadvantage under the new system. In essence, the state is saying that the “big pipe” solution will be the last one considered for unsewered areas.

3.4.4 Status of Existing Wastewater Systems

Since the adoption of the NSMP in 1988, a number of construction and planning projects have taken place. There has been development of a number of small sanitary districts along the North Shore that are in various stages of progress toward connection to a centralized or decentralized system.

The following is a summary of the status of key issues regarding MPCA permitted or proposed public facilities on the North Shore:

- Duluth/North Shore Sanitary District:
 - Phase 1-(Lester River to Lake County line) – currently constructing a sewer line with collection to the Western Lake Superior Sanitary District (WLSSD)
 - Phase 2-This phase will take the existing Knife River sewer plant off-line and connect its customers to the new sewer line being constructed in Phase I. This project has received partial funding through a grant and is on the project priority list
- Knife River/Larsmont Sanitary District – The project has been placed on the project priority list. The unsewered area from Knife River to the western limits of Two Harbors would be sewered with collection to WLSSD through the Duluth/NSSD line that is currently under construction.
- Two Harbors Wastewater Treatment Facility – The City has been notified by the MPCA that they must address the infiltration and inflow problems with the system. The city is discussing the construction of holding ponds to address the issue. The City of Duluth is dealing with a similar issue.



- Silver Creek Township:
 - Castle Danger Phase 1-Currently in operation
 - Castle Danger Phase 2- (Castle Danger Church to Lafayette Bluff)-Project is in the planning stages
 - Stewart River- (Two Harbors City limits to Silver Creek Cliff) Project is on the Project Priority List. The proposal would call for collection to an existing system.
- Beaver Bay Wastewater Treatment Facility – An expansion of the system is planned with the addition of new ponds.
- Tofte and Schroeder Sanitary District– Proposal for collection system is on the Project Priority List. A number of issues have placed progress on hold.
- Grand Marais Wastewater Treatment Facility-Work will take place this summer to alleviate infiltration and inflow problems with the system

3.4.5 Policy Considerations for the NSMB

There are a number of policies the NSMB could consider for the future. All of these options will require a collaboration with local officials, wastewater experts, and citizens who have already put a great deal of time and effort into North Shore wastewater issues.

These policy options allow the NSMB to passively support or to actively lead in addressing wastewater issues. To some degree, some of these things (more specifically the performance code ideas) are already underway. The NSMB will avoid duplication of effort and work with existing information whenever possible. The priorities among these options are underlined and in bold. The NSMB will take action to support these priorities.

- 1) Take no active role in North Shore wastewater issues. This is the current situation.
- 2) Encourage all local comprehensive plans to contain sections detailing the linkage between wastewater planning and land use planning. Plans should indicate areas for future expansion of centralized systems.
- 3) Support an inventory of on-site system and the building of awareness of maintenance needs for on-site systems. A task force, along with a study, could determine if higher management levels are necessary. If higher management levels are needed, the options beginning with #6 become more realistic:
- 4) **Encourage the adoption of a performance code for on-site systems by individual counties.**
- 5) Work with local officials and others with expertise in on-site systems to review existing model codes and create a detailed model performance code for the North Shore Management Planning Area.
- 6) Encourage the issuance of an Area-wide permit for the Lake Superior Basin.
- 7) **Play a leadership role in gaining support and sponsor the issuance of an area-wide permit for the Lake Superior Basin.**
- 8) **Encourage the idea of managed on-site systems along the North Shore.**



- 9) With or without the issuance of an area-wide permit, assist in the creation and/or become the water quality cooperative for the North Shore.
- 10) Support the creation of a responsible management entity to operate and maintain a network of managed on-site systems.**
- 11) Become the responsible management entity to operate and maintain a network of managed on-site systems.
- 12) Support the creation of a responsible management entity to own and maintain a network of managed on-site systems.
- 13) Become the responsible management entity to own and maintain a network of managed on-site systems.

3.5 SHORELAND ALTERATIONS

3.5.1 Introduction

This section attempts to represent increased efforts in the past 15 years managing wetlands and in encouraging quality stormwater management.

The passage of the Minnesota Wetland Conservation Act (WCA) was a significant event in wetland management. Local units of government are responsible for implementing the standards contained in WCA. Some counties have done separate wetland management plans in addition to adding detailed language regarding wetlands to their zoning ordinances.

There has also been substantial focus on stormwater management since 1988. This section of the plan now contains a specific goal, objectives and policies regarding stormwater management. In addition, a set of Best Management Practices for stormwater management is included in Appendix F as a guide for local units of government.

3.5.2 Shoreland Alteration Goal, Objectives and Policies

Goal

To maintain the natural character of the North Shore as much as possible and minimize soil erosion while allowing for permitted development under the North Shore Management Plan. Alterations of vegetation and topography will be regulated to prevent erosion to public waters, fix nutrients, preserve shoreland aesthetics, preserve historic values, prevent bank slumping, preserve corridor for movement of wildlife, protect fish and wildlife habitat, conserve cultural resources and to preserve the scenic and aesthetic character of the shoreland. These Best Management Practices for shoreland alterations will protect the water quality of Lake Superior and will therefore sustain the economic values in the corridor.



Objective 1: Vegetation Management

To manage vegetation according to applicable statutes with regard to maintaining critical areas, limiting clear cuts, allowing for some selective removal for view purposes, and providing appropriate screening of views from the lake perspective.

To maintain natural vegetative cover in so far as possible, the following policies shall apply:

Policies

- a) **A vegetation management plan will be required for total vegetation removal of over 10,000 square feet or 25% of lot area, whichever is lesser.**
- b) **Vegetation shall be maintained on bluffs, steep slopes, and within the shore impact zone (the area within 50 feet of the vegetation line) in order to maintain stable soil conditions.**
- c) **Removal of vegetation shall be limited so as to screen structures, clear cuts, parked vehicles, or other facilities from public roads and Lake Superior. Selective removal of vegetation shall be allowed to provide a reasonable view of the Lake from individual residences with an emphasis on avoiding removal in the shore impact zone. The shore impact zone is defined as the area within 50 feet of the vegetation line.**
- d) **All proposed clearcutting, shall be reviewed and approved by the local unit of government and shall be carried out consistent with this plan. Clearcutting in the shore impact zone is not allowed.**
- e) **Vegetation shall be preserved as much as possible along North Shore streams to provide for shade coverage, thereby maintaining lower stream temperatures.**
- f) **Private forest management including pruning, trimming, and planting of vegetation shall be encouraged through consultation with the DNR, Extension Service, or other appropriate agencies.**
- g) **Private driveways shall blend into the existing terrain as much as possible and public utility lines to private landowners shall be buried if at all possible.**
- h) **Significant public view corridors from public rights of way to Lake Superior or unique uphill features should be identified and vegetation removal encouraged to enhance these views. A plan for vegetation alterations for each should be developed and clear cutting is specifically discouraged for this purpose.**
- i) **The NSMB will encourage a project to produce a model ordinance that will create vegetation removal and screening standards, with a focus on quantifying the standards**



and defining appropriate vegetation types for revegetation when necessary. This project will need to balance the need for local units to have flexibility with the need for a shorewide exchange of ideas regarding vegetation management techniques.

- j) Local units of government should provide landowners information on how to make preservation of vegetation part of the covenants for newly platted lots.**

Objective 2: Wetlands

To maintain and protect Minnesota's wetlands and the benefits they provide through local administration and enforcement of the Minnesota Wetland Conservation Act.

Policies

- a) Anyone proposing to drain, fill, or excavate a wetland must first try to avoid disturbing the wetland.
- b) Any impacts to wetlands must be minimized as much as possible.
- c) Any lost wetland acres, functions, and values must be replaced according to the wetland management strategies employed by local units of government under the auspices of the WCA.
- d) Wetlands shall be identified on site development plans.
- e) Wetlands on the North Shore should be defined, identified, and inventoried and offered special consideration in determining their functional value. These wetlands may be small to be noted on existing maps.
- f) Raise the awareness of natural resource management options that are permitted strategies for wetland mitigation

Objective 3: Storm Water Management

Minimize the impact of stormwater runoff through professionally designed storm water management plans.

Policies

- a) **Stormwater management plans shall be required for the following types of development**
 - i) **Whenever lot coverage by impervious surfaces is proposed to be 25 percent or more**
 - ii) **Planned Unit Development**
- b) **Stormwater management plans should meet the following criteria:**
 - i) **All plans shall be approved by professional engineer licensed by the state of Minnesota**
 - ii) **Designed to ensure that there is no post-construction increase in the peak rate or volume of stormwater runoff**

- c) **Local units of government should ask for assistance as needed from appropriate parties in reviewing storm water management plans. If not already in place, formal agreements should be created to facilitate such partnerships.**
- d) **Utilize Best Management Practices to control post-development stormwater runoff quantity and quality.**

Any increase in surface runoff resulting from new development or redevelopment within the North Shore Management Area shall be controlled so that post-development stormwater runoff quantity and quality do not exceed pre-development conditions. Stormwater management can be accomplished through the application of best management practices aimed at maintaining post-development runoff at pre-development levels.

Best Management Practices can be defined as physical, structural, and/or land management practices that, when used singly, or in combination, prevent or reduce pollution of water. Stormwater quality and quantity BMPs include source control, runoff treatment, and streambank erosion control. Source control BMPs aim to *prevent* pollution from occurring. Examples include using mulches to cover disturbed soils, re-seeding disturbed vegetation, enclosing outside storage areas, and other practices that prevent soil and other pollutants from being transported by runoff. Runoff treatment attempts to remove sediment and other pollutants from runoff once transport has begun. Runoff treatment BMPs include facilities that remove pollutants by gravity settling of suspended solids, filtration, biological uptake, and soil adsorption. Streambank erosion control BMPs typically control the rate, frequency and duration of stormwater runoff releases. Examples of runoff treatment and streambank erosion control BMPs include detention & retention ponds, biofiltration swales, infiltration ponds & trenches and dry vaults.

It should be noted that it is generally less expensive to prevent pollution of runoff using source control BMPs than it is to treat runoff once it has become polluted. However, since source controls cannot prevent all impacts, a combination of measures will always be needed. Sound watershed management requires that both structural and nonstructural measures be employed to mitigate negative impacts on stormwater runoff. For detailed information on suggested BMP's for water quantity treatment and water quality treatment, see the Appendix F.

Objective 4: Erosion Control

To maintain natural topography and minimize soil erosion, the following policies shall apply. An erosion and sediment control plan shall be required under the following circumstances:

- a) **For land disturbances exceeding 1,000 square feet or 100 cubic yards**
- b) **For fill exceeding 1,000 cubic yards**
- c) **For any shoreland alteration exceeding 50 cubic yards within the structure setback area. Shoreland alterations done in connection with work authorized by a building or sewage disposal permit shall be exempt from the erosion control plan requirements.**



Policies

- a) Erosion and sediment control plans shall be reviewed by the local Soil and Water Conservation District and approved by the local zoning office prior to the start of land alteration work.
- b) Alterations must be designed and conducted in a manner that insures that only the smallest amount of bare ground is exposed for the shortest time possible.
- c) Mulches or similar materials must be used, where necessary, for temporary bare soil coverage and a permanent vegetative cover must be established as soon as possible.
- d) Methods to minimize soil erosion and to trap sediment before they reach any surface water feature must be used. Such methods shall be in place before development occurs.
- e) Altered areas must be stabilized to acceptable erosion control standards consistent with Field Office Technical Guides of the local Soil and Water Conservation Districts and the U.S. Soil Conservation Service.
- f) Fill or excavated material must be stabilized to prevent erosion and slope failure.
- g) Fill or excavated material must not be placed on steep slopes, except as designed by qualified professionals.
- h) Approved permanent erosion control practices should be maintained.
- i) Any development that disturbs one acre or more of land and smaller sites that are part of a larger development disturbing one or more acre of land must obtain a combined National Pollutant Discharge Elimination System/State Disposal System permit from the Minnesota Pollution Control Agency.

Objective 5: Shoreline Alteration

Alterations below the Ordinary High Water Level of lakes and streams shall follow accepted practices. Any alterations shall be first permitted by the responsible government entity, which may be the DNR, Army Corps of Engineers or local unit of government.

Objective 6: Shoreland Restoration

To encourage restoration of disturbed areas along the North Shore where feasible.

Policies

- a) Utilize existing Soil and Water Conservation District Programs
- b) Encourage new programs to beautify Minnesota's North Shore.
- c) Develop partnership by working with the Minnesota Lake Superior Coastal Program, the Lake Superior Basin Plan, the Save Lake Superior Association and other public and private entities concerned with the protection and enhancement of the Lake Superior Coastal area.



3.6 EROSION HAZARD AREAS

3.6.1 Introduction

There has been a concerted effort in the last 15 years to address the shoreline erosion problems on the North Shore. Local units of government have completed a number of erosion control projects. In addition, agencies such as the Board of Water and Soil Resources have provided technical assistance to property owners with erosion problems on private lands.

The North Shore Management Plan provided the foundation upon which erosion hazard maps were created for individual local units of government. The intent of this section of the plan update is to continue this role for the NSMB by encouraging the distribution of information.

3.6.2 Goal, Objectives and Policies

Goal

To protect public and private property and protect public interest and safety by guiding development in areas prone to excessive shoreline erosion.

Objective 1

To promote awareness and understanding of shoreline erosion, lake levels, and natural shoreline processes.

Policies

- a) The North Shore Management Board should encourage the development and distribution of informational materials about shoreline erosion, lake levels, and natural shoreline processes.

In July 2001, BWSR, with assistance from Community GIS, Inc., released the GIS Database for Minnesota's Lake Superior Shoreline. This is a detailed set of topographic maps of the North Shore that contains four map layers overlaid on the topographic maps. The layers measure surface geology erodibility, shoreline erosion potential, slope, and fisheries habitat data. This is a valuable tool that could be enhanced further if parcel maps for the North Shore are added as a layer.

- b) The North Shore Management Board should serve as a liaison to facilitate the distribution, and evaluation of educational material about shoreline erosion, lake levels, and natural shoreline processes
- c) The North Shore Management Board should serve as a liaison working with:
 - Minnesota Department of Natural Resources
 - International Joint Commission



- Environmental Protection Agency, Great Lakes Region Office
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- Natural Resources Research Institute
- Minnesota Department of Transportation
- National Oceanic and Atmospheric Administration

To facilitate the collection, storage, and cataloguing of information pertaining to shoreline erosion, lake levels, and natural shoreline processes. A central repository should be designated that will distribute information to the libraries for Minnesota's North Shore area.

Objective 2

To define and identify Erosion Hazard Areas.

Policies

- a) Erosion Hazard Areas shall be defined as those areas of Lake Superior's North Shore where the long term average annual rate of recession is one foot or greater per year.
- b) Erosion Hazard Areas as presently defined and identified may be refined at a later date by the North Shore Management Board based upon further research and new information.

Objective 3

To designate special provisions for Erosion Hazard Areas.

Policies

- a) Erosion Hazard Areas will be identified in the zoning ordinances of local units of government. The standards for erosion hazard areas shall be noted through the use of an overlay district or through special provisions in the zoning ordinance.
- b) At the time of permitting and/or sale of a property within an Erosion Hazard Area, there will be a covenant recorded against the property that states that it is in an Erosion Hazard Area and notes that there any be future restrictions subject to local ordinances.
- c) At the time of permitting, areas defined as Erosion Hazard Areas by the North Shore Management Board should have an onsite inspection, as determined by the local unit of government, to inform the landowner of erosion susceptibility.
- d) The burden of proof concerning the suitability of land for the proposed development shall be borne by the project proponent. Accordingly, a site development plan shall be required and approved by the zoning officer prior to all new construction in Erosion Hazard Areas. The site development plan shall include a description of:



- Surface runoff including roof drains
 - Subsurface runoff
 - Vegetation removal including proposed landscaping
 - Proposed sewage treatment systems
 - Topography of site
 - Structure and driveway location
 - Potential bluff toe protection
 - Slope alterations
 - Other pertinent information as requested
- e) The site development plan for Erosion Hazard Areas shall include setback and shoreline erosion control recommendations, and follow shoreland alteration guidelines.
- f) **Structure setbacks in Erosion Hazard Areas:**
- 1) **Structures and soil absorption areas shall be setback the annual erosion rate times 50 plus 25 feet (to allow for structure relocation) from the top edge of the eroding bluff. Where slumping is evident, the setback shall be measured from the uppermost shear zone (point at which the soil separates and slumping begins). In the absence of an established long-term erosion rate, the setback shall be 125 feet.**
 - 2) **The structure setback and the location of the soil absorption areas can be modified by variance if the landowner provides technical data proving a different recession rate or that the erosion hazard, although correctly estimated, can be mitigated by structural protection. The setback, however, shall not be reduced to less than the setback standards detailed in the zoning standards portion of this chapter.**

3.6.3 *Erosion Hazard Maps*

Erosion Hazard Areas within the North Shore planning area were shown on the Shoreland Management Area maps included in the original plan. The scale of those maps, however, only provides a general guide to the erosion hazard areas on the shore. It has been the responsibility of local units of government to use those maps as a baseline for establishing erosion hazard maps at a scale that is more useful for site-specific planning and analysis. Local units of government will continue to use the maps they have devised for official determination of erosion hazard areas.

Only those areas deemed to be of high potential for erosion were put on the maps in the 1988 NSMP. Except in rare cases, this was limited to the areas where high clay banks border the lake. Areas of erosion where the long-term erosion rate appeared to be less than the criterion of one foot per year were not mapped. Clearly, there are places outside of the Erosion Hazard Areas



shown on the maps where erosion is a problem. However, mapping was limited to those areas where the Erosion Hazard Area policies apply.

The Erosion Hazard Area subcommittee used the following process to identify the Erosion Hazard Areas. First, a detailed soils map from the Coastal Zone Management study was transferred onto a Minnesota Department of Transportation strip map of the North Shore. Then, 199 surveys from a 1986 shoreline erosion survey were transferred to the map. Surveys indicating high erosion rates were tagged for further analysis. Fifty sites were revisited and measurements were made to see how far the erosion had progressed since 1986. From this information, it was determined that many of the erosion problems reported in 1986 were attributed to the extremely highwater level and severe storms of the period. Losses of cobble beaches, collapse of sea caves and the erosion of rocky shorelines were identified as being outside Erosion Hazard Areas. However, areas of high clay banks continued to show signs of failure despite the two intervening years of relatively low, calm water. These are the areas identified as Erosion Hazard Areas on the maps.

The more critical areas of clay banks were examined from the water. The area from French River to Split Rock River was covered by boat and pictures were taken of potential Erosion Hazard Areas. Field notes, photos, and the 1986 and 1988 videotapes of the shoreline were then used to set the approximate boundaries.

The identification of Erosion Hazard Areas is an ongoing process. As stated previously, the North Shore Management Board should play a role in gathering, compiling, and supporting the shorewide use of data on erosion hazard areas.

