



## Regional Land Use Practices: How Central Minnesota Can Become More Sustainable

By: Philip Hunsicker



### What exactly is sustainable land use?

A wise man once said, “Land use isn’t rocket science; it’s harder.” It’s harder because land use deals with things about which people are passionate and emotional and those strong, often inflexible opinions can be polarizing in a community. One can’t have a conversation about land use without talking about things like the environment, private property rights, the role of government, local control versus state or federal mandates, and balancing the common good with what’s good for the individual.

According to Wikipedia, land use in its simplest form is defined as the "management and modification of natural environment or wilderness into built environment." That conventional kind of land use thinking helped our country to grow by leaps and bounds after World War II, but it also created a predominance of sprawling development patterns like strip mall shopping centers far from our downtowns, suburban subdivisions that are

largely indistinguishable from one another, decimated wetlands, native prairies and woodlands, and an unhealthy dependence on our cars to get from one place to another.

### List of Supporting Documents:

**F-2:** Policy Analysis for Long Prairie, Little Falls, Walker, Brainerd & Wadena: Land Use Policy Analysis

**F-3:** Policy Analysis for the Counties of Cass, Crow Wing, Morrison, Todd & Wadena Counties: Land Use Policy Analysis

**F-4:** William Mitchell College of Law Community Development Clinic Research Project: CMSDP Zoning Typology Memo

**F-5:** Natural Resource Ordinances

**F-6:** Map Narratives: 2010 Population Density, Lakes & Streams (implications for land use)

**F-7:** Land Use Issues, Recommendations, Action Steps Cross Referenced with HUD/DOT/EPA Livability Principles, Activities, CEDS, and Work Groups.

Sustainable land use is what a modern-day computer programmer might call, “Land Use 2.0.” It is the newer and more improved version. It is development that looks at the bigger picture and how what we do on the land is connected to everything else in our community. Sustainable land use makes it possible for communities to grow in ways that support strong local economies and jobs, create vibrant neighborhoods with a range of housing and transportation options, and achieve healthy communities that provide residents – both human and non-human – with a clean environment. Some common traits of sustainable land use include: compact development patterns; mixing of commercial and residential land uses, especially in our downtown cores; promoting development or redevelopment where infrastructure already exists; providing a range of housing choices for all incomes and all stages of life; providing safe transportation options that include biking, walking and mass transit; preserving open space, farmlands, natural beauty and critical environmental areas; and fostering distinctive, attractive communities that stimulate civic pride and offer residents a high quality of life and a strong sense of place.

The communities that choose to grow by looking at land use as something more than just “management and modification of the natural environment or wilderness into built environment” will be the successful, healthy, vibrant, resilient, diverse, and fiscally sound communities of the future. Those are the places where people will want to live and visit and where businesses will want to locate.

### **What’s working and what’s not working?**

Before the Resilient Region Project began, local, professional planners working in the five-county region were interviewed (See Appendix entitled, “Responses by Area Planners to Questions about Sustainable Land Use”). The planners were asked a series of questions about what they thought was working and sustainable, and what

wasn’t working and was unsustainable. While there were some good examples of what was working in various communities throughout the region – things like Design Review Teams, performance-based zoning, form-based zoning, the promotion of conservation design, the support of the booming local foods movement, the promotion of conservation easements, and an overall better understanding of stormwater management – the general feeling was that these examples of success were too isolated and that communities throughout the region are not doing nearly enough to make a substantial difference when it comes to sustainable land use practices. In fact, when asked the question: “What is not working and unsustainable?” one planner responded, “Just about everything.”

Area planners were also asked, “Are there any land-use innovations that you think communities in the region should aggressively pursue?” Common responses from almost every surveyed planner included the following: 1) Communities need to promote conservation design, which is a much better alternative to traditional, suburban-style, lot-block subdivisions; 2) Communities need to adopt better stormwater management techniques like Low Impact Development (LID) or Minimal Impact Development Standards (MIDS); 3) Communities need to create and enforce better shoreland protection ordinances to preserve the quality of our public waters; and 4) Communities need to get away from the traditional Euclidian zoning approach and change to form-based zoning or performance-based zoning, which allow for more flexibility, but can provide better environmental protection.

The above responses beg the question, “If they’re so good, why don’t more communities embrace those kinds of land-use innovations?” That’s a good question, so citizens from the region were asked as part of the Resilient Region Project, “What obstacles get in the way of effective land-

use solutions?” Their responses were as follows: 1) A failure to see new paradigms; 2) The common misconception that economies will be negatively impacted by any environmental restrictions; 3) Short-term instead of long-term thinking; 4) Poorly informed planning commissions and boards of adjustment; 5) Confusing land use ordinances; 6) Conflicting interpretations of ordinances across jurisdictional boundaries; 7) Most local governments simply react rather than plan based on good scientific data; 8) Insufficient funds for staff and programs to protect ecologically sensitive areas; and 9) Elected officials who yield to public pressure rather than what’s right to do for the resources.

### **So how do we move closer to sustainability when it comes to land use?**

The responses by area planners and surveyed citizens were used by the Resilient Region Project to initiate discussions within the land use work group. Work group members were reminded that the project’s overall goal was to promote economic and environmental vitality, and that there were regional trends to be considered such as an aging population, rising energy costs, rising health care costs as well as rising obesity rates, increasing cultural diversity, and that all local governments were being asked to do more with less money.

Work group members came up with a brainstormed list of key land uses issues in the region. That extensive list of issues was whittled down by combining like ideas and, in part, by looking at how the key issues matched up with both the HUD/DOT/EPA Livability Principles and the Region’s Guiding Principles. The HUD/DOT/EPA Livability Principles are: 1) Provide more transportation choices; 2) Promote equitable, affordable housing; 3) Enhance economic competitiveness; 4) Support existing communities; 5) Coordinate policies and leverage investments; and 6) Value communities and neighborhoods. The

Region’s Guiding Principles are: 1) Think regionally and inclusively; 2) Consolidation of effective data; 3) Capitalize on assets, current plans and work in progress; 4) Balance redevelopment/development preservation opportunities through effective land-use planning; 5) Consider regionalization of services (BMPs for our region, drive opportunities) and 6) Connect more people to well-paid jobs, active living opportunities and broadband technology.

That process led to the work group eventually coming up with five priority land use issues along with recommendations to make those ideas happen. They are:

#### **A. Promote land-use plans that are based on a true balance of environmental and economic needs in the long term**

We need to disprove once and for all the paradigm that development and the environment are two opposing worlds. We can do this by creating livable communities for humans that are also livable spaces for other types of life. We should encourage a regional land-use plan that promotes contraction rather than sprawl, and addresses and respects the potential long-term financial burdens placed on local taxpayers (for maintenance and replacement of infrastructure), as well as addresses and respects the potential long-term impacts of a development on the environment. The region needs to define the term, “sustainable land-use” and then adopt a method for measuring if it is attained or not.

#### **Recommendations:**

1. Future development in the region should meet rigorous standards for protection of the environment and should provide residents with social, cultural and civic benefits that match up with the desires communities expressed in their comprehensive plans.

- To accomplish this, communities should use natural resource inventory maps, land cover maps, groundwater maps, and climate change projection maps to determine where future development should happen and where it should not.
2. Rather than having cities/counties/townships reacting to a developer's plan to develop, all jurisdictions should first lay out future road locations that will promote adequate transportation corridors and resource protection, and will be financially affordable to maintain in the long term.
  3. The region should define "sustainable land use" across jurisdictional boundaries and adopt a scorecard (Green Step Cities, or Smart Growth, or other method) to know whether we have achieved it or not.
  4. All new development must meet strict, long-term financial criterion (i.e. full-cost accounting) that assures a community that they will not be burdened with rising property taxes to cover infrastructure maintenance and replacement costs, or the costs to fix potential long-term environmental degradation. Infill development, which is relatively cost-effective, should be a priority.

**B. Create an effective land-use decision process that works better than the current system**

The current system doesn't work. We need a process that incentivizes sustainable development and regional collaboration. We need to standardize terms and definitions throughout the region. Communities within the region need to do a better job of educating their planning officials and their citizens on

sustainable development and Best Management Practices (BMPs), and promoting alternative, decision-making methods that not only give the developer a profitable development, but also provide tangible public benefits and advanced natural resource protections.

**Recommendations:**

1. Our land-use process needs a major overhaul that should include, but not limited to, the following: 1) The region should standardize land-use terms and definitions; 2) The region should create a completely on-line, standardized development application process; 3) All LGUs within the region that have planning and zoning responsibilities should incorporate Design Review Teams (DRTs) to help guide developers toward desired designs/locations/densities before major design costs are incurred; 4) Communities need to implement stronger regulations on nighttime illumination – especially for businesses – to protect the integrity of the "night sky;" 5) The variance process should require a quid pro quo policy that provides public benefit for all granted variances; and 6) The region should look at alternatives to the standard Euclidian form of zoning. Some examples are performance-based zoning (sometimes called outcome-based zoning), form-based zoning and use of a public values-driven collaborative process, which gives flexibility to local governments to work with landowners and developers to maximize the public value of private development.

2. The region should create a regional comprehensive plan to promote a regional vision, regional cooperation and coordination, and regional sustainability.
3. Communities within the region need to do a better job of respecting the vision for the community as determined by local and regional comprehensive plans and letting those documents be the drivers of future development/protection plans, proactively seeking out and utilizing input from community members when it comes to future development/protection, and facilitating an on-going dialogue with community members about what sustainable development is and how to work together to achieve it.
4. Require and provide quality training for all members of the planning commission and the board of adjustment so they understand their job, their limitations, and obligations of their authority. They should also be regularly trained on innovations in sustainable development and Best Management Practices (BMPs), including how to implement the collaborative process described above in #1.

**C. Promote land-use policies that create affordable, intergenerational, active-living, housing opportunities that are close to goods and services, close to public green space and can take advantage of multiple transportation options.**

We need more mixed-use development and “life-cycle housing” that is close to natural areas and promotes walkability, health and

wellness – not just for our growing ranks of seniors, but for every generation living and working in the region.

**Recommendations:**

1. Provide incentives for transit-oriented development, pedestrian-friendly development, mixed-use development, the inclusion of public green space in all developments, and projects that promote multi-generational and multi-family housing opportunities in all residential zones, especially where we have medical and social services, cultural amenities, retail, and community gathering places.
2. Create tax-free (or low tax) housing zones to encourage more housing opportunities (development and redevelopment) back in our urban cores (downtowns) and create an affordable property tax for seniors.
3. Make stronger connections between downtown areas and colleges (Staples – Central Lakes College and Brainerd – Central Lakes College) by providing vibrant corridors that include adequate and affordable housing, multiple transportation options, and easily accessible public green space.

**D. Protect our water (surface and subsurface) and provide better public access to public beaches**

Clean water defines our region and it is the economic driver (tourism and high lakeshore property values). Healthy lakes equal a healthy economy. Therefore, we need to promote and implement a regional land-use plan that, above all, protects water quality. In this region, there are an insufficient number of public beaches that allow non-

lakeshore owners to access public waters, and this is viewed as unfair.

**Recommendations:**

1. Require by regulation, or incentivize into the development process the incorporation of Best Management Practices (BMPs) for improved stormwater management and wetland protection. BMPs include Low-Impact Development (LID), Minimal Impact Development Standards (MIDS), shoreland buffers, wetland buffers, rain gardens, etc.
2. Highly incentivize conservation design developments instead of traditional lot-block subdivisions – especially in shorelands as this will protect the environment and give more people access to public waters.
3. Develop comprehensive watershed management plans, require that county water plans be consistent with watershed plans, and direct funding to only implement county water plans that are consistent with watershed plans.
4. Encourage “collective management entities” to provide cost-effective services like septic inspection/maintenance on a regular basis.
5. Identify where current beach accesses are in the region and work to provide public beach access where the gaps are in the region, with an emphasis on serving the needs of our more densely populated urban centers.
6. We need to adequately fund and coordinate effective water education for the general public along with effective enforcement of laws, rules and regulations.
7. Communities within the region should all meet or exceed the

DNR’s recommended minimum shoreland standards.

8. With the proliferation of invasive species in our lakes, the region needs to work closely with the state to more aggressively contain and limit the further spreading of invasive species to uninfested lakes.
9. LGUs should set strict zoning requirements to keep potentially harmful development away from a municipality’s wellhead protection zone.

**E. Protect our region’s agricultural heritage and support smaller-scale efforts like CSAs (Community Supported Agriculture)**

We need a land-use plan that keeps our prime farmlands in production, rather than chopping them up (fragmenting) and turning them into subdivisions. We need to promote local agriculture for affordable local food production. CSAs and local farmer’s markets offer solutions to the problem that here in Minnesota, we currently import two-thirds of the food we eat. With fuel costs rising, food costs will rise, too. Those costs will be more manageable if we are able to produce and sell food locally.

**Recommendations:**

1. Explore options (regulations and incentives) for adding value to locally grown agriculture. For example, certified organic meat processing, certified organic dairy, certified organic crops, encouraging local public institutions like schools and hospitals to maximize their use of local foods, “doubling the value” of food stamps spent at local farmer’s markets, and setting new, regional regulatory standards that encourage local food production, processing and

- distribution, but the standards still meet federal and state regulations that ensure the health, safety and welfare of the purchasing public.
2. Pursue tax changes that incentivize innovative small-scale agricultural use on small tracts of land and leaving land in forest production rather than current tax codes that encourage conversion to low-density residential development.
  3. To protect farmlands, LGUs should determine where growth areas are, where prime farmlands are, and then direct future development to designated growth areas rather than subdividing farms.
  4. Use the model of Scott County, which created a land trust to provide financial incentives that help family farms remain in production (as well as protect natural areas and open space).

### **Now that we have good recommendations, so what?**

To succeed, recommendations like the ones above require that communities within the region overtly support the tenets of sustainability. This means a community must insert the values of sustainable land use into their long-term vision that is then officially expressed in their comprehensive plan, in their policies, and ultimately in their ordinances.

To help local units of government transition from their current, more traditional land use practices – “management and modification of natural environment or wilderness into built environment” – to more sustainable land use practices, the Resilient Region Project conducted research on what other communities were already doing to get closer to sustainability. From this research (See Appendix entitled, “Model

Comprehensive Plan Policies and Model Ordinances to Implement the Livability Principles”) local governments in the region will have sample comprehensive plan language and model ordinances to make the transition to sustainability a bit easier.

For example, a model policy statement that a community might want to adopt is: “Protect worthwhile landscapes and natural features to preserve the character of the community.” A model ordinance that supports this policy might be to adopt the Alternative Shoreland Management Standards, which were created in Central Minnesota in 2005 as a reaction to the rapid increase in shoreline development, which led to concerns with diminishing water quality, fish populations, shoreline conditions and scenic quality.

Another example is the policy statement: “Expand, maintain, and improve pedestrian access to parks and trail systems.” A method to sustainably fund the expansion, maintenance and improvement of parks and trails is through a Parks Dedication Ordinance that requires that new developments in a community dedicate a specified percentage of the land area for park or recreation use, or pay a fee in lieu of land dedication. Many communities throughout Minnesota have successfully written and implemented Parks Dedication Ordinances to help them maintain what they already have in the way of parks and trails, and also to accommodate the recreational desires of new families that move into the community.

To further help local governments seeking to become more sustainable, the Resilient Region Project also created a toolkit of best management practices (See Appendix entitled, “Supporting a Resilient Region: A Best Practices Toolkit for the Central Minnesota Sustainable Development Plan”). The toolkit is intended to be a useful resource for community leaders who wish to step away from the traditionally perceived antagonism between the economy and the

environment. The toolkit is a set of tools that have been useful in other communities – some in Minnesota, some not.

One such tool is a Fiscal Impact Analysis, which is a nine-step process developed in Wisconsin to monitor the long-term fiscal impacts of a development on a community. Based on the results of the Fiscal Impact Analysis, a developer could be required to adopt mitigation measures to lessen the perceived impacts that strain or degrade existing infrastructure.

Another sustainable land use tool is a Natural Resources Inventory created by the Minnesota Department of Natural Resources. This tool helps a community identify where important (and often irreplaceable) natural resources are located. Knowing what is important to protect – wildlife habitat and travel corridors, groundwater recharge areas, and special places for humans to recreate for the health of their minds and bodies – is information that all communities should have access to before making community-changing decisions about development proposals.

### **Some Final Thoughts on Sustainability:**

There are many good definitions of sustainability. Below are two of my favorites.

*“Do unto other generations as you would have them do unto you.”*

Robert Gillman, Editor of *In Context* Magazine

*“If you get right down to it, sustainability is really the study of the interconnectedness of all things.”*

Barbara J. Luther

Now, let’s combine those definitions with what Albert Einstein said about problem solving: “The significant problems we face cannot be solved with the same level of thinking we used when we created them.”

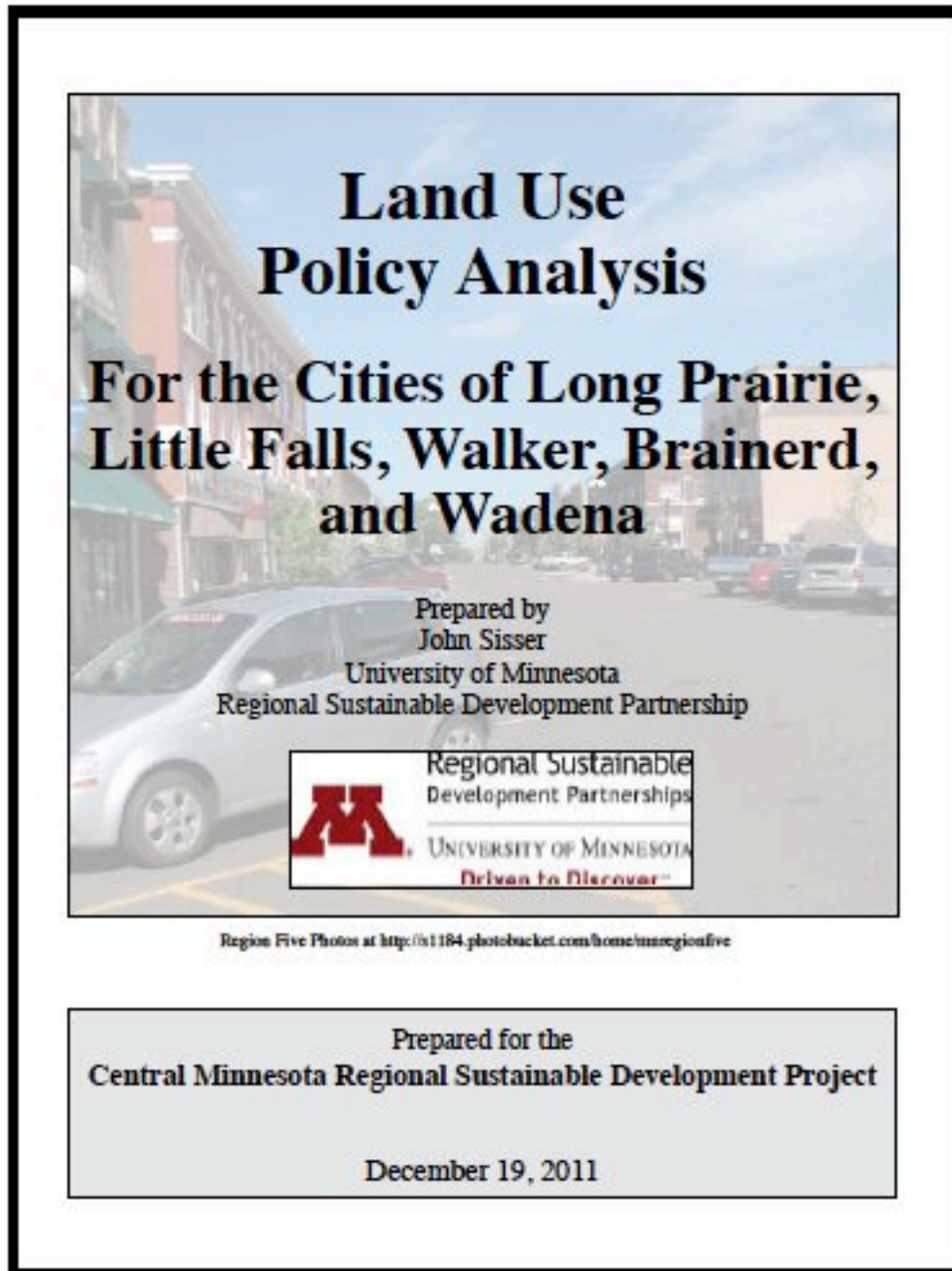
These three quotes are what citizens and their elected and appointed officials need to keep in mind when it comes to deciding how we use our land from this day forward. Development is inevitable. It’s not “if” development will happen in Central Minnesota; it’s about “where,” “how,” and “how much” we develop that will determine if we preserve or destroy the natural resources that make Central Minnesota such a special place to live, work and play.

This sustainable land use plan is a start, and that’s exactly what we need communities to do: to start. They need to start changing one thing. Change one policy. Change one ordinance. Change one person’s opinion about sustainability. Change one official who doesn’t get it. Change the definition of land use from “management and modification of natural environment or wilderness into built environment” to one that looks at the bigger picture and how what we do on the land is connected to everything else in our community. Change is the first step in a long journey towards a resilient region.



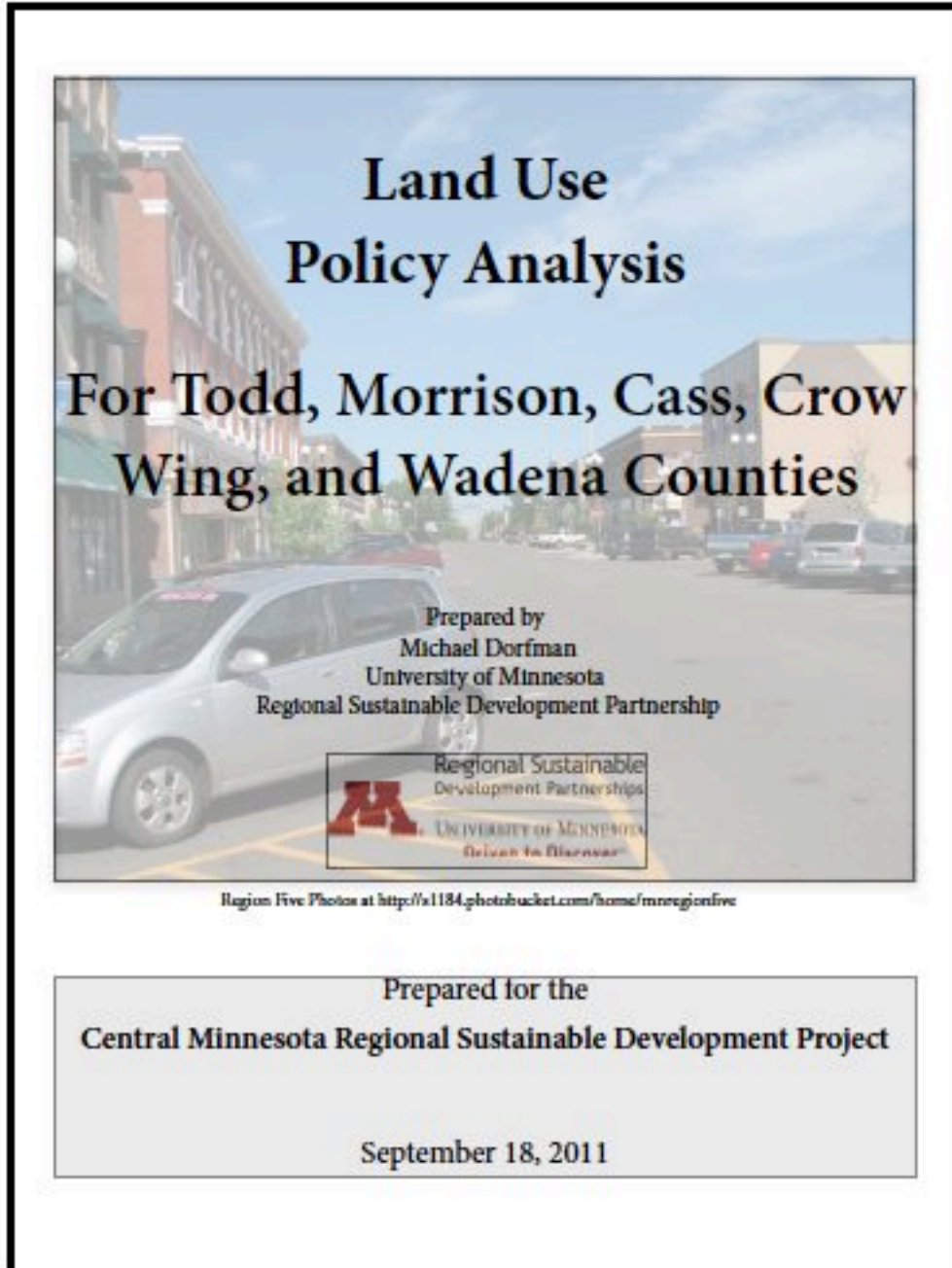
**Appendix F – 2**  
**Policy Analysis for Long Prairie, Little Falls, Walker, Brainerd & Wadena: Land Use Policy Analysis**

<http://www.resilientregion.org/cms/files/Land%20Use%20Policy%20Analysis%20-%20Merged.pdf>



**Appendix F-3**  
**Policy Analysis for the Counties of Cass, Crow Wing, Morrison, Todd & Wadena**  
**Counties: Land Use Policy Analysis**

<http://www.resilientregion.org/cms/files/LandUsePolicyAnalysisFinal.pdf>



**Appendix F-4**  
**William Mitchell College of Law Community Development Clinic Research Project:**  
**CMSDP Zoning Typology Memo**

<http://www.resilientregion.org/cms/files/CMSDP%20Zoning%20Typology%20Memo.pdf>

August 30, 2011

To: REGION FIVE SUSTAINABILITY PROJECT  
Land Use Work Group  
Jean Coleman

From: WILLIAM MITCHELL COMMUNITY DEVELOPMENT CLINIC  
Elizabeth Anne Lyons, Certified Student Attorney  
Diane Marie Dube, Supervising Attorney

Re: Legal Research for the Land Use Work Group

The purpose of this memorandum is to provide summary and analysis of zoning research conducted for the Land Use Work Group of the Region Five Sustainability Project (Land Use Work Group). This legal research concerns one of the six "Key Issues" identified by the Land Use Work Group: The need for an effective land-use decision process that operates better than the current system. Jean Coleman assisted in narrowing down the deliverables to the following:

1. Conduct basic research on different zoning philosophies, particularly those used to achieve sustainable communities and create a matrix with the following information: Type of zoning, brief description of what each system of zoning does, what each standard of zoning accomplishes legally, pros of each system of zoning, cons of each system of zoning, whether or not the system of zoning generally promotes sustainability or whether it is even feasible.
2. Conduct legal research focused on the Micropolitan Project pertaining to the project and how these communities have incorporated multiple zoning philosophies in their zoning ordinances. Create a document describing the following information: Background information concerning the Micropolitan Project, What has been accomplished by the Micropolitan Project since the end of its Planning Phase in 2010, and Provide one to three examples of the Micropolitan Project communities using alternative zoning philosophies and identification of the various zoning philosophies contained in the ordinances of the example communities.
3. Conduct analysis on the zoning of the example communities. Create a document describing which provisions in the zoning ordinance of the example communities promote sustainability and which do not. This will also include definition and discussion

## Appendix F-5 Natural Resource Ordinances

[http://www.resilientregion.org/cms/files/Natural\\_Resource\\_Ordinances.pdf](http://www.resilientregion.org/cms/files/Natural_Resource_Ordinances.pdf)

May 7, 2012

TO: REGION 5 SUSTAINABILITY PROJECT

FROM: WILLIAM MITCHELL, COMMUNITY DEVELOPMENT CLINIC  
Carly Boeticher, Certified Student Attorney  
Diane Marie Dube, Supervising Attorney

### **Comprehensive Plan and Model Ordinances for Natural Resource Protection in Region Five**

**Introduction:** City and county governments have the authority to control local land use and contribute to natural resource protection. It is important to have a comprehensive plan to help implement policies for the protection of these resources using a regional strategy that the counties can use to execute ordinances and laws, making the region as sustainable as possible.<sup>1</sup> Region Five is made up of five different counties in north-central Minnesota. The counties are looking to come together with comprehensive plan and model ordinance language that is best for the region. The counties are Cass, Morrison, Todd, Wadena, and Crow Wing. The region is made up of rural areas, small towns, and many lakes.

The region is made up of different environments that may call for different model ordinances and comprehensive plan language. Resources are abundant in the region. The water resources include many lakes of all sizes as well as the Mississippi River. There are three different environments in the region: coniferous forest, eastern hardwood forest, and western

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<sup>1</sup> "Sustainable Use of Resources" can be defined as use of resources so that they are protected both for present and future generations.

### Appendix F-6: Map Narratives

[http://www.resilientregion.org/cms/files/Map\\_Narratives\\_with\\_Maps.pdf](http://www.resilientregion.org/cms/files/Map_Narratives_with_Maps.pdf)

## Central Minnesota Resilient Region Plan: 2010 Population Density

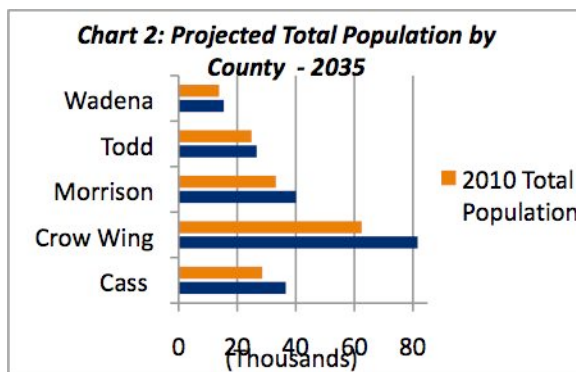
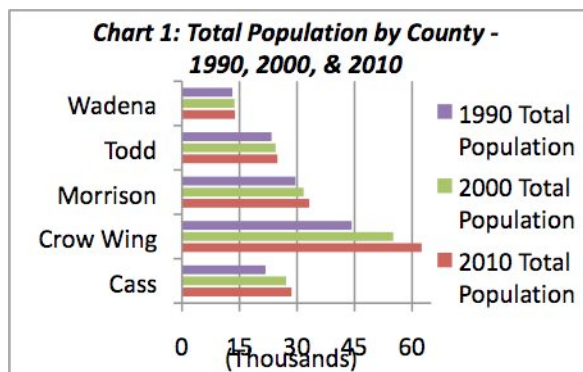
The 2010 Population Density map illustrates the distribution of population within the five-county Central Minnesota region. 2010 Census Bureau Redistricting Data is used to support map information. Population density illustrated on the map is accurate to the five-county region's census blocks. Census blocks are statistical areas bounded by visible features, such as streets, roads, streams, and railroad tracks, and by nonvisible boundaries, such as selected property lines and city, township, school district, and county limits and short line-of-sight extensions of streets and roads. Generally, census blocks are small in area. In suburban and rural areas, census blocks may be large, irregular, and bounded by a variety of features, such as roads, streams, and transmission lines. In remote areas, census blocks may encompass hundreds of square miles.<sup>1</sup>

The five-county Central Minnesota region includes 65 incorporated cities, three of which have a population over 5,000.<sup>2</sup> Population centers within each county are found in Walker (Cass), Brainerd and Baxter (Crow Wing), Little Falls (Morrison), Long Prairie (Todd), and Wadena (Wadena). Smaller cities with significant population densities are found along Highways 10, 27, 210, and 371 corridors. The highest population density in the region is in and around the Brainerd Lakes Area. Brainerd and Baxter cities serve as the region's hub for many recreational, governmental, health care, and

retail services.

What does the five-county population density data suggest in regards to choices the region has to make or solutions they should consider for the future? Changes in population density may mean different choices for housing, infrastructure, and transportation. An increase in population density within the region may mean a need for:

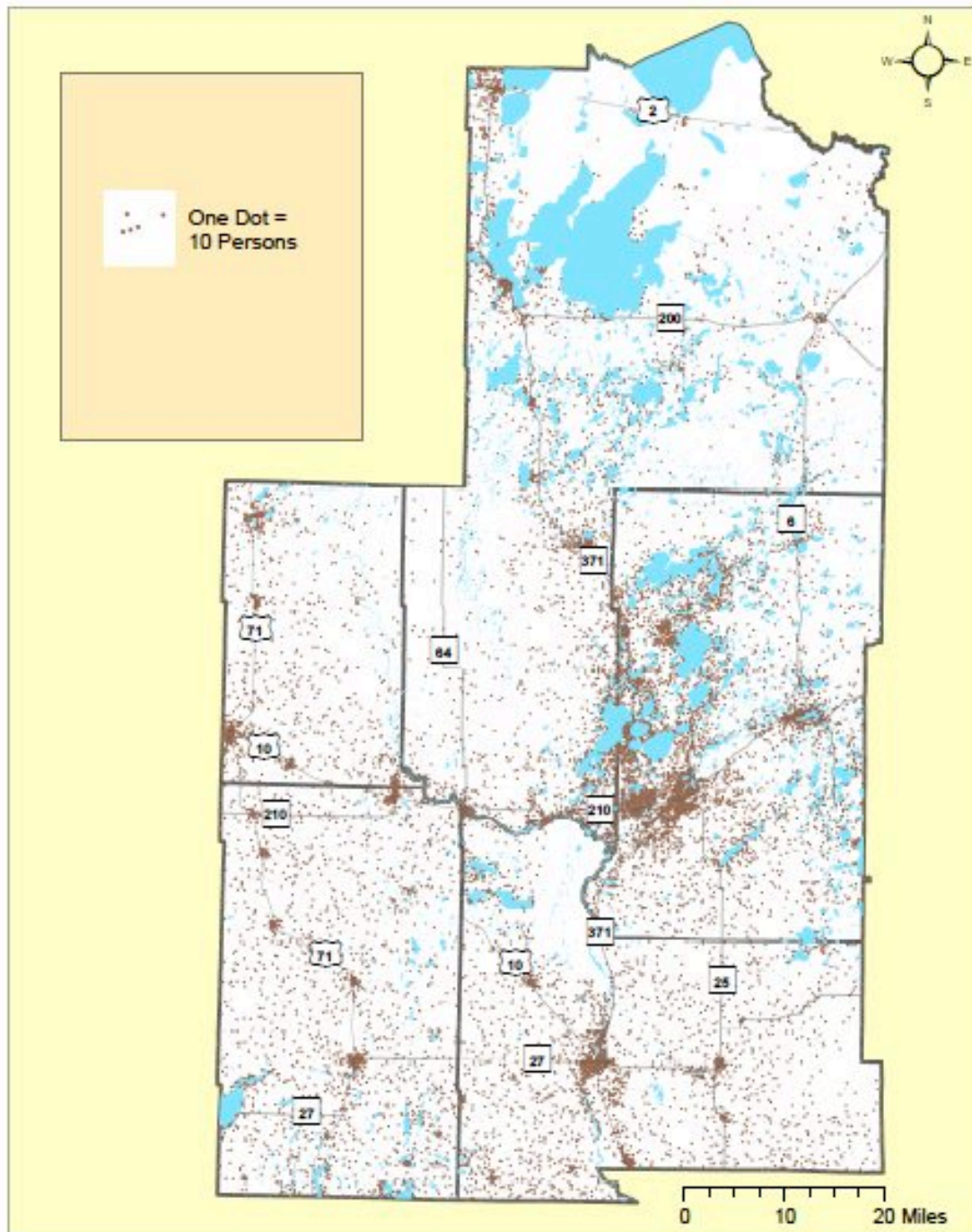
1. Creating neighborhood and communitywide plans that account for the location of infrastructure and encourage efficient and functional development. (Hill Recommendation H4)
2. Ensuring households in the region have high-speed internet access which meets common state standards. (CI Recommendation C1)
3. Increasing collaboration between public and private sectors to implement new energy technologies. (EI Recommendation E1)
4. Balancing development and natural resources by implementing rigorous standards for natural resource protection. (NRI Recommendation NR1)
5. Shifting development patterns away from sprawl and automobile-centric designs through fiscally, socially, and environmentally sound land-use decisions. (NRI Recommendation NR2)
6. Focusing on low-cost, reasonable access to transit service for communities. (CPI Recommendation CP1)



<sup>1</sup> US Census Bureau website accessed August 2012. <http://www.census.gov>

<sup>2</sup> Region Five Development Commission website accessed September 2012. <http://www.regionfive.org>

## 2010 Population Density Distribution of Population, Accurate to Census Block



Source: 2010 Redistricting Data (LCC-GIS using Census Bureau TIGER/Line Files)  
Map production: Z. Tagar, April 25, 2012

# Central Minnesota Resilient Region Plan

## Lakes and Streams

The 2011 *Impaired Lakes and Streams* map illustrates lakes and streams designated as impaired within the five-county Central Minnesota region. United States Environmental Protection Agency (EPA) data and Minnesota Pollution Control Agency (MPCA) data is used to support map information.

The federal Clean Water Act requires states to adopt water quality standards to protect lakes, streams, and wetlands from pollution.<sup>3</sup> The standards define how much of a pollutant can be in the water and still meet designated uses, such as drinking water, fishing, and swimming. The Minnesota Pollution Control Agency (MPCA) monitors and assesses water bodies throughout the state to make sure water quality standards are met. MPCA guidelines determine the extent of violations of standards and whether or not surface waters are considered to be “impaired.” A water body is impaired if it fails to meet one or more water quality standards.<sup>4</sup> Water quality standards include the following components:

- Beneficial uses - designation of the public uses and benefits our water resources provide to people.
- Numeric standards - allowable concentrations of specific pollutants in water, established to protect the beneficial uses.
- Narrative standards - descriptions or statements of unacceptable conditions in and on the water.
- Nondegradation - extra protection for high-quality or unique waters to keep them from being degraded.<sup>3</sup>

Numerous pollutants and stressors from a range of sources can affect the quality of Minnesota’s surface waters. The four most common found throughout the five-county Central Minnesota region and Minnesota is mercury, excessive nutrients, *E. coli*, and water

turbidity.<sup>4</sup> Left unmonitored, pollutants and stressors can lead to increased water treatment costs, reduced fish populations, and unhealthy waters that affect the five-county region’s tourism, eco-tourism, and cultural characteristics.

Mercury can be deposited into lakes and streams through activities such as burning coal, processing taconite, and improper disposal of items such as wiring devices and switches, thermometers, and fluorescent lights. Mercury never degrades and can bioaccumulate through the food chain to toxic levels that can cause serious health effects. One way people are exposed to mercury is through consumption of fish contaminated with mercury deposited in lakes and streams.<sup>5</sup>

Fertilizers containing nutrients such as phosphorous and nitrogen can enter lakes and streams through water runoff from agricultural fields and maintained landscapes. Phosphorus and nitrogen use up oxygen in water bodies, making it unavailable for fish, and fuel algal blooms, making the water unsightly and even unhealthy for swimming.<sup>6</sup>

*Escherichia coli* (*E. coli*) are the major species of the fecal coliform group of bacteria. They can enter lakes and streams with sewage, wastes, or runoff. The presence of *E. coli* bacteria indicates water bodies may be contaminated with human or animal wastes. Illnesses associated with *E. coli* are typically acquired by eating contaminated food, contact with contaminated drinking water, or swallowing contaminated water while swimming.<sup>7</sup>

Turbidity in water is a measurement of how cloudy or murky it is. Although sediment from erosion or agricultural and urban stormwater runoff is often the cause, increased algae growth from excessive nutrients and breakdown of organic matter can contribute to

<sup>3</sup> For access to the Clean Water Act, visit the U.S. Government Printing Office website. <http://www.gpo.gov/fdsys/pkg/USCODE-2011-title33/pdf/USCODE-2011-title33-chap26.pdf>

<sup>4, 3, 5, 6</sup> MPCA website accessed July 2012.

<http://www.pca.state.mn.us>

<sup>4</sup> MPCA TMDL 2010 Impaired Waters List.

<sup>7</sup> Minnesota Department of Health website accessed July 2012. <http://www.health.state.mn.us>

turbidity. Too much algae or sediment in lakes and streams can make them unsuitable for recreation and aquatic life.

To identify and restore impaired waters, Section 303(d) of the Clean Water Act requires states to:

1. Assess all waters of the state to determine if they meet water quality standards.
2. List waters that do not meet standards (also known as the 303d list) and update every even-numbered year.
3. Conduct TMDL (total maximum daily load) studies in order to set pollutant reduction goals needed to restore waters.<sup>8</sup>

Federal and state regulations and programs also require implementation of restoration measures to meet TMDLs. According to the Minnesota Final 2010 303(d) List, five-county Central Minnesota water bodies on the approved list of impaired waters needing TMDLs include:

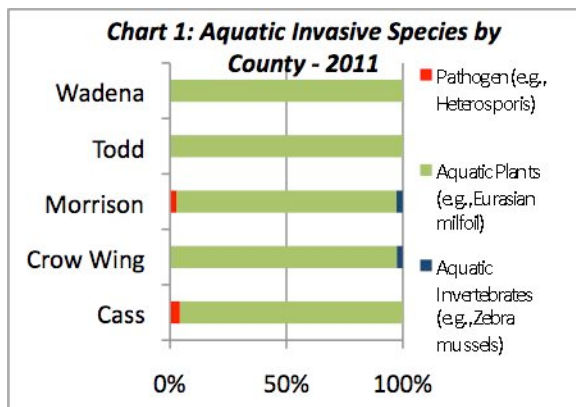
- Ashley, Buffalo, Diamond, Farnahm, Little Rock, Painter, Sand, and Spunk creeks.
- Crooked Lake Ditch
- Long Prairie, Mississippi, Skunk, Straight, and Swan rivers.
- Big Swan, Blueberry, Boy, Crow Wing, Faille, Kego, Maple, Osakis, Ossawinamakee, Platte, Saulk, Steamboat, Stevens, Ten Mile, and Trace lakes.<sup>9</sup>

The 2011 *Aquatic Invasive Species* map illustrates locations of aquatic invasive species throughout the five-county Central Minnesota region. Minnesota Department of Natural Resources (DNR) data is used to support map information. Invasive species are species that are not native to Minnesota. Aquatic invasive species can harm surface waters, affecting economic and environmental health and human health. The five-county region's aquatic invasive species include aquatic plants, aquatic invertebrates, and pathogens.

The two most common invasive aquatic plants identified within the Central Minnesota region are curly-leaf pondweed and purple loosestrife. Although some invasive aquatic

plants, such as curly-leaf pondweed, can provide protective cover for fish or seeds for waterfowl, most are detrimental to lake, stream, and wetland ecosystems. Invasive aquatic plants typically have several methods of reproduction and can grow excessively to compete with and crowd out native plant species. Plants, such as Eurasian watermilfoil, can spread from infected waters to uninfected waters via attachment to boats and other water recreation equipment. They often form dense, impenetrable stands which can be unsuitable for native animals and can interfere with water recreation activities. Water bodies in the region identified as infected include Gull and Leech lakes in Cass County, Pelican and Whitefish lakes in Crow Wing County, Morrison County's Lake Alexander, Osakis Lake in Todd County, and Blueberry Lake in Wadena County.<sup>10</sup>

Invasive aquatic invertebrates, such as zebra mussels, can attach to water recreation vehicles and equipment and be transported from infected waters to uninfected waters. Zebra mussels can cause problems for lakeshore residents and recreationists by attaching to equipment motors, rocks, docks, and swimming equipment. Mussels can harm water ecosystems by attaching to and killing native mussels or reducing food availability through excessive plankton filtration. Zebra mussels have been identified in Ossawinamakee Lake, Rice Lake, Pelican Brook, and Pine River in Crow Wing County, and in the Mississippi River in Crow Wing and Morrison counties.<sup>11</sup>



<sup>8,9</sup> MPCA website accessed July 2012. <http://www.pca.state.mn.us>

<sup>10,11</sup> Minnesota DNR website accessed August 2012. <http://www.dnr.state.mn.us>



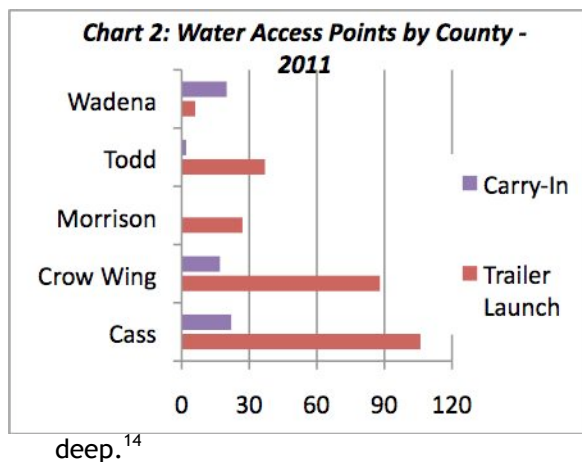
The heterosporis parasite produces millions of spores which infects and gradually destroys muscle tissue of fish. Heterosporis spreads when fish pick up spores from the water or eat infected fish or carcasses, or through infected fathead minnows sold as bait. Fish infected with heterosporis have been discovered in Cass County's Gull, Leech, Vermillion, and Winnibigoshish lakes, and Lake Alexander in Morrison County.<sup>12</sup>

The *2011 Lakes, Streams, and Water Access* map illustrates locations of public water access points within the five-county Central Minnesota region. Minnesota Department of Natural Resources (DNR) Shoreland Management Lake Classifications data is used to support map information. Public waters are lakes, wetlands, and watercourses in which the DNR has regulatory jurisdiction. Public water access points are usually open 24 hours and provide launch ramp or carry-in access to water bodies.<sup>13</sup> The map illustrates two of DNRs' three lake development classifications. Recreational Development Lakes and General Development Lakes are described as follows:

- Recreational Development Lakes usually have between 60 and 225 acres of water per mile of shoreline, between 3 and 25 dwellings per mile of shoreline, and are more than 15 feet deep.
- General Development Lakes usually have more than 225 acres of water per mile of shoreline and 25 dwellings per mile of shoreline, and are more than 15 feet

What do the five-county lakes and streams data suggest in regards to choices the region has to make to protect a valuable natural resource? Changes in lake and stream health and water access may mean a need for:

1. Balancing development and natural resources by implementing rigorous standards for natural resource protection. (NRI Recommendation NR1)
2. Shifting development patterns away from sprawl and automobile-centric designs through fiscally, socially, and environmentally sound land-use decisions. (NRI Recommendation NR2)
3. Developing and implementing management plans that protect the region's surface and subsurface water quality for future viability. (NRI Recommendation NR3)



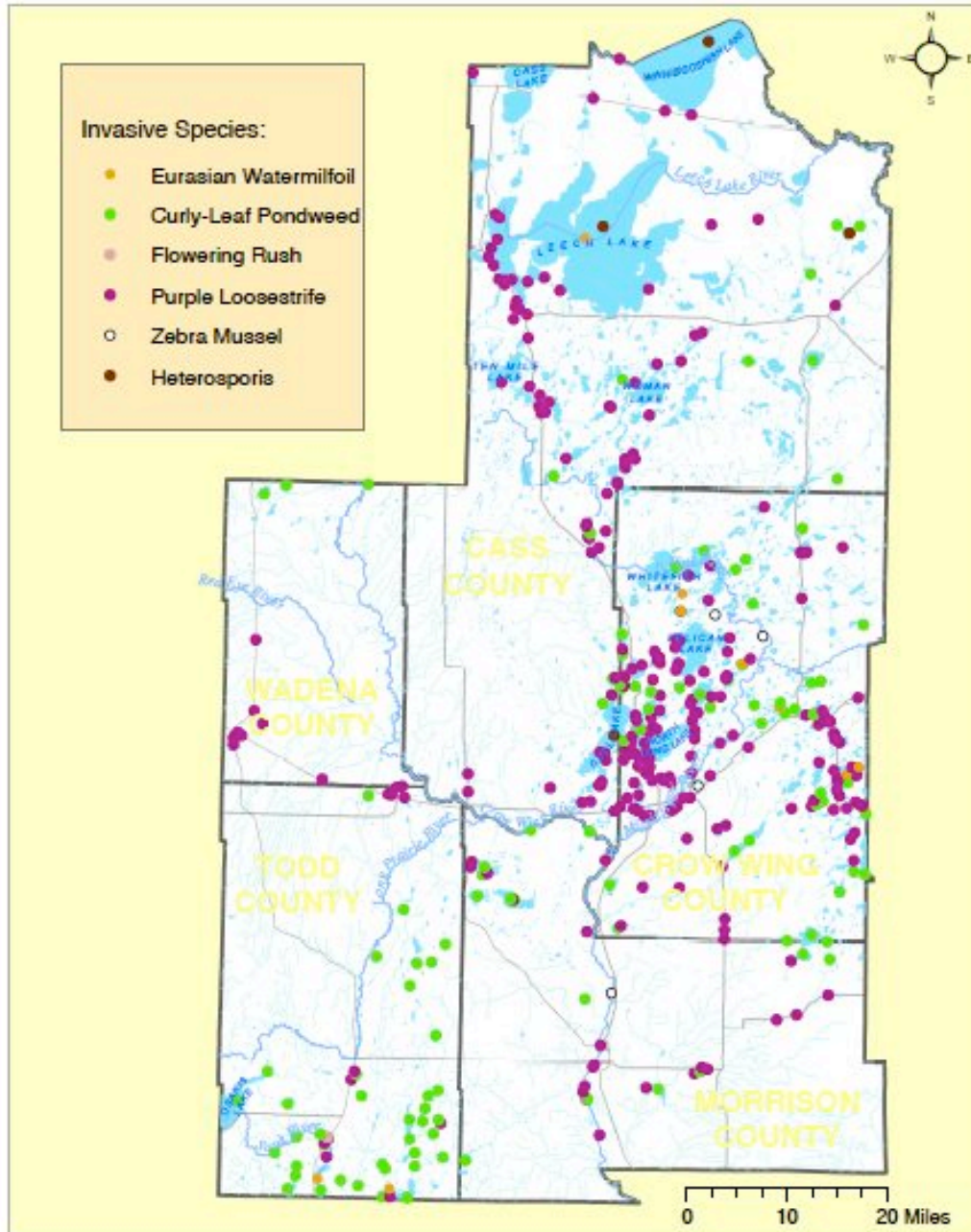
<sup>12, 13, 14</sup> Minnesota DNR website accessed August 2012.  
<http://www.dnr.state.mn.us>

## 2011 Impaired Lakes and Streams



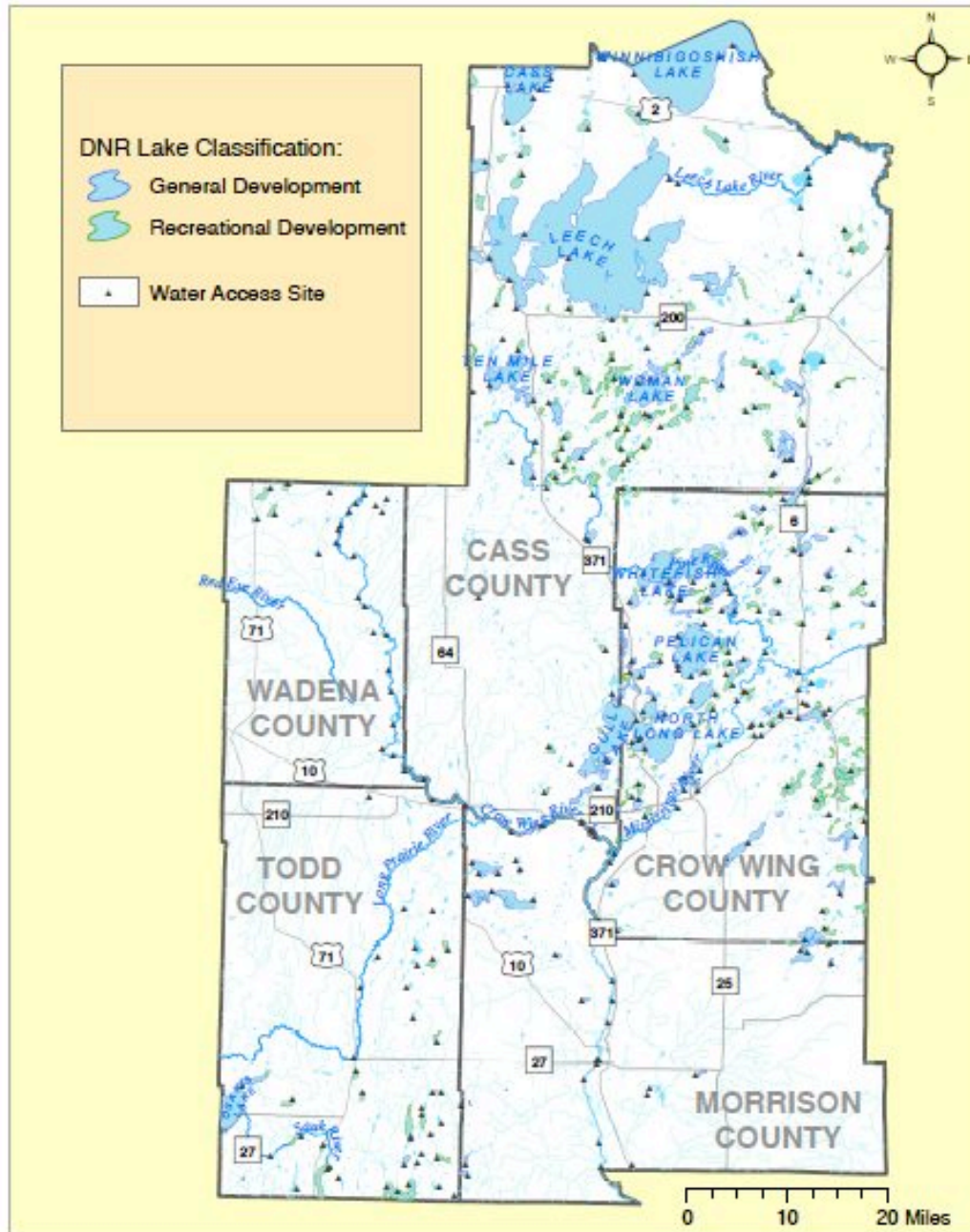
Source: US EPA (Streams); MN Pollution Control Authority (Lakes)  
(With and without US EPA approved TMDL plan)  
Map production: Z. Tagar, May 10, 2012

## 2011 Aquatic Invasive Species



Source: Minnesota DNR - Division of Ecological Resources  
(Observations since as early as 1938, most 1980s-present)  
Map production: Z. Tagar, May 10, 2012

## 2011 Lakes, Streams and Water Access By DNR Development Classification



 Regional Sustainable  
Development Partnerships  
UNIVERSITY OF MINNESOTA  
Drives to Discover

Source: MN DNR  
Map production: Z. Tagar, May 18, 2012

**Appendix F – 7**  
**Land Use Issues, Recommendations, Action Steps Cross Referenced with HUD/DOT/EPA**  
**Livability Principles, Activities, CEDS, and Work Groups.**

<http://www.resilientregion.org/cms/files/Table%20of%20Themes%20vF.pdf>

Guiding Principles	Activities	CEDs	Work Group		<b>Theme 4: Natural Resources and Development Patterns</b>
HLP 4 HLP 6 RGP 1 RGP 3 RGP 4	ACT 5 ACT 7 ACT 12 ACT 13 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22 ACT 23		A combination of key issues from ED and LU	Issue 1	<p><b>Environment and economics in the region:</b> Our five-county region is defined by its rich and diverse natural resources. Healthy forests and lakes drive regional economic engines like the tourism and forest products industries. Other parts of the region are used primarily for agricultural purposes, providing an opportunity to take advantage of the growing local foods movement and energy-related crop cultivation. This wide range of opportunities, along with an ample supply of clean, fresh water, attracts people to live, work, and recreate in the region. It is imperative to realize that economic development and natural resources are not opposing worlds; in fact, the two are closely related. The region's economic vitality will be directly impacted by the preservation and utilization of the region's land, water, and cultural assets. We must look beyond short-sighted visions leading to sprawl, environmental degradation, and infrastructure maintenance and replacement costs burdening taxpayers with continuing financial obligations. Instead, we can improve our environmental and economic outlook by promoting land use plans addressing and balancing long-term economic and environmental needs.</p>
				Goal	<p><b>Natural resources:</b> Achieve balance by creating healthy, livable affordable communities for humans that are also healthy, livable spaces for other plant and animal life.</p>
				Goal	<p><b>Water quality.</b> Water quality/lake clarity improves significantly because the region invests in our lakes. The region needs good water quality to maintain lakeshore property values and to attract tourism.</p>

Guiding Principles	Activities	CEDs	Work Group		<b>Theme 4: Natural Resources and Development Patterns</b>
HLP 1 HLP 2 HLP 4 HLP 6 RGP 4 RGP 7	ACT 5 ACT 6 ACT 7 ACT 8 ACT 9 ACT 11 ACT 12 ACT 13 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22 ACT 23	CEDs/Nat & Social Environ - 3	Partial LA1 and partial ED3	Recommendation 1	<b>Balancing development and natural resources:</b> All development in the region should meet rigorous standards for natural resources protection, not only recognizing the economic value that natural resources provide, but also affirming the innate aesthetic value of a healthy environment. A healthy green infrastructure is just as important to a community as their built infrastructure of roads, sewer and water pipes. Green infrastructure includes a network of wildlife travel corridors, greenways, wetlands, agricultural lands, and unfragmented open spaces.
HLP 4 HLP 6 RGP 1 RGP 2 RGP 3 RGP 4	ACT 5 ACT 7 ACT 12 ACT 13 ACT 14 ACT 15 ACT 16 ACT 22		Partial L A1	Action Step A	<b>Natural resource information and development decisions:</b> Guide future development location with the use of scientific data, including, but not limited to, natural resource inventory, land cover, groundwater, and climate projection maps. Local governments should work closely with state agencies, Soil and Water Conservation Districts (SWCDs) and conservation nonprofits to obtain the best available scientific data in order to make more informed decisions about where and how to grow.
HLP 1 HLP 2 HLP 4 HLP 6 RGP 1 RGP 2 RGP 4 RGP 7	ACT 5 ACT 6 ACT 7 ACT 8 ACT 9 ACT 11 ACT 12 ACT 13 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22 ACT 23		Partial LB3	Action Step B	<b>Community planning and development decisions:</b> Communities within the region must respect their vision outlined by local and regional comprehensive plans. Let those documents, sound scientific data, and a commitment to long-term fiscal and environmental responsibility drive future development and protection plans.
HLP 1-6 RGP 1-8	ACT 6 ACT 7 ACT 8 ACT 9 ACT 11 ACT 12 ACT 13 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22 ACT 23		LB2	Action Step C	<b>Plan regionally:</b> Communities should collaborate to create a regional comprehensive plan. This plan should promote a shared vision, regional cooperation, and sustainability.

Guiding Principles	Activities	CEDs	Work Group		<b>Theme 4: Natural Resources and Development Patterns</b>
HLP 1 HLP 2 HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 4 RGP 7	ACT 5 ACT 6 ACT 7 ACT 8 ACT 9 ACT 11 ACT 12 ACT 13 ACT 14 ACT 15 ACT 16 ACT 18 ACT 19 ACT 22		LA3	Action Step D	<b>Define and measure regional sustainability:</b> Create a regional definition for “sustainable land use” across jurisdictional boundaries. Adopt the Green Step Cities scorecard to measure progress toward land use sustainability.
HLP 4 HLP 6 RGP 1 RGP 3 RGP 4 RGP 7	ACT 5 ACT 6 ACT 7 ACT 8 ACT 11 ACT 13 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22 ACT 23		Partial LB3	Action Step E	<b>Collaborative dialogue:</b> Facilitate a regular, on-going dialogue between community members and leaders about collaboratively defining and achieving sustainable development.
HLP 1 HLP 2 HLP 4 HLP 6 RGP 4 RGP 7	ACT 5 ACT 6 ACT 7 ACT 13 ACT 14 ACT 15 ACT 16 ACT 22		Partial LA4, LA1, LC1 and HE4	Action Step F	<b>Sustainability in ordinances:</b> Communities should update their land use ordinances to reflect their desire to embrace the principles of sustainability. The “SmartCode” ( <a href="http://www.smartcodecentral.org">www.smartcodecentral.org</a> ) is one example of how a community can transition to regulations that foster sustainable land-use.
HLP 1-6 RGP 1-8	ACT 1-26		Develo ped after WG	Action Step G	<b>Sustainability and elected officials:</b> Communities should make sustainability an election-worthy issue. Voters should support candidates who promise to embrace and implement the Resilient Region Plan for economic and environmental vitality.
HLP 1 HLP 2 HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 4 RGP 7	ACT 14 ACT 16 ACT 19 ACT 22		Partial LB	Recommendation 2	<b>Shift development patterns:</b> To shift current development patterns away from sprawl and automobile-centric designs, the region should embrace and implement fiscally, socially and environmentally sound land-use decisions. This type of development will provide residents with environmental, economic, social, cultural, and civic benefits that are in agreement with the desires and visions that communities express in their comprehensive plans.

Guiding Principles	Activities	CEDs	Work Group		<b>Theme 4: Natural Resources and Development Patterns</b>
HLP 1 RGP 7 RGP 4	ACT 5 ACT 6 ACT 7 ACT 8 ACT 9 ACT 12 ACT 13 ACT 14 ACT 18 ACT 19		LC1	Action Step A	<b>Multi-benefit land use:</b> Provide incentives for transit-oriented development, pedestrian-friendly development, mixed-use development, the inclusion of public green space in all developments, and projects that promote multi-generational and multi-family housing opportunities in all residential zones, especially where we have medical and social services, cultural amenities, retail, and community gathering places.
HLP 6 RGP 4	ACT 5 ACT 6 ACT 7 ACT 14 ACT 16		Partial LB1	Action Step B	<b>Sustainable zoning:</b> Communities should look beyond merely dividing municipalities into geographic districts (Euclidean zoning) and consider more creative zoning approaches. This could include using performance-based zoning (also referred to as outcome-based zoning), form-based zoning, and a public values-driven collaborative process. These alternatives will give local governments, landowners, and developers the flexibility they need to work together and maximize the public value of private development.
HLP 1 HLP 2 HLP 4 HLP 6 RGP 1 RGP 2 RGP 3 RGP 4 RGP 5 RGP 7	ACT 5 ACT 6 ACT 7 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22 ACT 23		Partial LB	Action Step C	<b>Incentivize sustainable development:</b> Adopt a land use decision process that incentivizes sustainable development and regional collaboration.
HLP 4 HLP 5 HLP 6 RGP 1 RGP 4	ACT 15 ACT 16		Partial LB	Action Step D	<b>Standard definitions:</b> Communities throughout the region should standardize land use terms and definitions.
HLP 4 HLP 6 RGP 1 RGP 4	ACT 14 ACT 15 ACT 16		Partial LB4	Action Step E	<b>Training for land use decision makers:</b> Require and provide quality training for all planning commission and board of adjustment members. Educating these community leaders will help them better understand their job, limitations, and responsibilities. Additionally, they should be regularly trained on innovations in sustainable development and Best Management Practices (BMPs).
HLP 4 HLP 6 RGP 1 RGP 4	ACT 5 ACT 7 ACT 8 ACT 11 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22		Partial LB4	Action Step F	<b>Active citizens:</b> Educate citizens on sustainable development so they can be more active and influential in their community's' land use decisions.



Guiding Principles	Activities	CEDs	Work Group		<b>Theme 4: Natural Resources and Development Patterns</b>
HLP 4 HLP 6 RGP 1 RGP 4	ACT 5 ACT 7 ACT 8 ACT 11 ACT 14 ACT 15 ACT 16 ACT 17 ACT 18 ACT 19 ACT 22		Partial LB4	Action Step G	<b>Balance development and community needs:</b> Communities should promote alternative development options that take into account profitability for the developer as well as tangible public benefits and advanced natural resource protections.
HLP 4 HLP 6 RGP 1 RGP 4	ACT 16		Partial LB1	Action Step H	<b>Technology in development:</b> Communities within the region should create a completely on-line, standardized development application process.
HLP 4 HLP 6 RGP 4	ACT 14 ACT 16		Partial LB1	Action Step I	<b>Design review teams:</b> Communities with planning and zoning responsibilities should incorporate Design Review Teams (DRTs) to help guide developers toward desirable designs, locations, and densities before major design costs are incurred.
HLP 4 HLP 6 RGP 4	ACT 14 ACT 16		Partial LB1	Action Step J	<b>Lighting:</b> Implement stronger regulations on nighttime illumination, especially for commercial and industrial businesses. This will not only protect the integrity of the night sky, but also promotes energy conservation.
HLP 4 HLP 6 RGP 4	ACT 7 ACT 16		Partial LB1	Action Step K	<b>Variances:</b> Allowing landowners to break the established rules of development is known as the variance process. This process should require a quid pro quo policy providing some public benefit for all granted variances.
HLP 6 RGP 4	ACT 5 ACT 7 ACT 14 ACT 15 ACT 16		LD2	Action Step L	<b>Conservation design:</b> Communities should highly incentivize conservation design developments as the preferred alternative to traditional, suburban-style, lot-block subdivisions.
HLP 1-6 RGP 4 RGP 7	ACT 5 ACT 6 ACT 7 ACT 8 ACT 12 ACT 13 ACT 14 ACT 16 ACT 19 ACT 22		Partial LA4 and partial LC1	Action Step M	<b>Discourage inefficient sprawl:</b> Sprawl is fiscally and environmentally irresponsible. In order to discourage sprawl, communities should incentivize infill, mixed-use, pedestrian-friendly development opportunities in urban cores.

Guiding Principles	Activities	CEDs	Work Group		<b>Theme 4: Natural Resources and Development Patterns</b>
HLP 4 HLP 6 RGP 1 RGP 4	ACT 5 ACT 7 ACT 12 ACT 13 ACT 14 ACT 15 ACT 16 ACT 18 ACT 22		LD	Recommendation 3	<b>Water quality protection:</b> Healthy lakes, rivers, streams and wetlands contribute to a healthy regional economy, and communities with a clean, abundant supply of fresh water will always attract people to live, work and recreate. In addition, millions of people downstream in St. Cloud and the Twin Cities depend on the Mississippi River for their drinking water. Therefore, this region must protect its surface and subsurface water quality for both its own future viability and for those living outside the region that depend on a stable source of clean drinking water.
HLP 4 HLP 6 RGP 2 RGP 4	ACT 5 ACT 7 ACT 14 ACT 15 ACT 16 ACT 18		LD1	Action Step A	<b>Stormwater and wetlands:</b> Require or incentivize the incorporation of stormwater management and wetland protection Best Management Practices (BMPs) into the development process. Such BMPs include, but are not limited to, Low-Impact Development (LID), Minimal Impact Development Standards (MIDS), shoreland and wetland buffers, rain gardens, etc.
HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 4	ACT 14 ACT 16 ACT 18		LD3	Action Step B	<b>Watershed planning:</b> Develop comprehensive watershed management plans throughout the region. These plans must require consistency of county water plans with applicable watershed plans. Direct funding to implement only county water plans that are consistent with applicable watershed plans.
HLP 4 HLP 6 RGP 4	ACT 7 ACT 13 ACT 14 ACT 16		LD9	Action Step C	<b>Wellhead protection:</b> Set strict zoning requirements to keep potentially harmful development away from designated wellhead protection zones.
HLP 4 HLP 5 HLP 6 RGP 2 RGP 3 RGP 4	ACT 5 ACT 7 ACT 14 ACT 16 ACT 18	CEDS/Infr astr. -1, b1,3	EC1, HD7, and LD4	Action Step D	<b>Wastewater and drinking water systems:</b> Explore more affordable options for effective wastewater and drinking water systems. Cluster septic systems, regional wastewater treatment plants, regular cost-effective septic inspection and maintenance, reduced well water quality testing rates, and incentivizing consolidation and infill where there is existing infrastructure should all be considered.
HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 4	ACT 16 ACT 18		LD5	Action Step E	<b>Public beach access:</b> To improve beach access for all, locate and record where current public beaches are in the region. Work to increase equitable access to the abundance of public waters in the region, which will improve the quality of life for all community members.

Guiding Principles	Activities	CEDs	Work Group		<b>Theme 4: Natural Resources and Development Patterns</b>
HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 3 RGP 4	ACT 5 ACT 7 ACT 14 ACT 15 ACT 16 ACT 18		LD7	Action Step F	<b>Shoreland protection:</b> Meet or exceed the Minnesota Department of Natural Resources' recommended minimum shoreland standards throughout the region. Consider adopting the alternative shoreland standards.
HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 3	ACT 16 ACT 18		LD8	Action Step G	<b>Invasive species:</b> Invasive species are infesting our lakes. To protect our region's water resources, focus efforts on working with the state to aggressively contain and limit the further spread of invasive species to lakes which have not yet been infested.
HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 4	ACT 7 ACT 14 ACT 15 ACT 16 ACT 18	CEDS/Infr ast. -1,b1	LD6	Action Step H	<b>Water education:</b> Keep community members informed by adequately funding and coordinating effective water education programs for the general public.
HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 4	ACT 7 ACT 14 ACT 15 ACT 16 ACT 18	CEDS/Infr ast. -1,b1	LD6	Action Step I	<b>Enforcement of regulations:</b> Effectively enforce laws, rules, and regulations that protect water quality.
HLP 4 HLP 5 HLP 6 RGP 1 RGP 2 RGP 3 RGP 4	ACT 8 ACT 14 ACT 16 ACT 18	CEDS/ Infrast – 1 b2	HD16 and HD20, EC1	Action Step J	<b>Sustainable water treatment technology:</b> Encourage further research and development (R&D) in sustainable drinking water and wastewater systems. Create flexibility in regulations to allow for cutting-edge water, septic, energy, wastewater, and technology options that may lead to increased sustainability and long-term cost savings for homeowners.