

Duluth Urbanized Area Growth Impact Study

October 2004



Prepared by



EXECUTIVE SUMMARY — Introduction

Lake Superior Regional Water Committee

A group of local stakeholders met in the summer of 2002 to discuss the possibility of extending water service to areas outside of Duluth. A number of concerns were discussed, such as problems with aging (or failing) residential wells and the need to provide a reliable water source to public facilities. The result of these initial stakeholder meetings was the formation of the Lake Superior Regional Water Committee.

The Lake Superior Regional Water Committee met three times between July and November 2002. The mission of the committee was to “plan, design and fund an adequate metropolitan area public water system to service the general needs of the public and support current and future economic vitality.” Initial discussions of the committee supported the idea of seeking federal and state funding to solve water issues in the area. Discussions about estimating the costs of extensions were begun.

Regional planning process to examine growth impacts

As discussions continued on this topic, it became apparent that this issue was more complex than simply extending water service to outlying areas. Provision of water services is interrelated with other infrastructure and services such as sewer, gas, and roads. The underlying issue is how the growth of residential, commercial and industrial development impacts area communities. It became clear that it would be wise to determine how best to accommodate growth while ensuring taxpayer protection from the consequences of inefficient patterns of development.

This led to a consensus decision to move ahead and conduct a regional planning process with a logical, systematic approach to examine growth impacts. The *Duluth Urban Area Growth Impact Study* identifies areas that are best suited for growth and answers the questions of “where should” water lines and other infrastructure be built.

Study Methodology

Background research consisted of examining demographic information and researching growth management techniques and taxpayer protection strategies. Comprehensive plans, where available for jurisdictions in the study area, were examined to get an idea how these communities currently envision the direction of their future growth and development.

Additionally, case studies were conducted for eight cities with similar populations to get an idea of how other communities are handling growth issues and providing water and wastewater services. Most of the communities were in the Upper Midwest. City administrators or public works directors were contacted and asked a series of questions.

A development suitability analysis was also conducted for this study. This analysis was a Geographic Information Systems (GIS) modeling effort incorporating a number of factors which influence what land is most suitable for certain types of development. Proximity

to roads, water, sewer, wetlands, and flood plains all have some bearing on where development is best suited to occur. With the capabilities of GIS, these multiple factors could be analyzed together. The geographic information was entered into the model and the importance of the different data layers was ranked or weighted by the study steering committee.

Policies and recommendations were created after considering all of the information collected and generated for the study. They are designed to assist all local communities to plan in a coordinated fashion for development and utility extensions.

Steering Committee

A steering committee was organized for this study with city administrators and elected township officials asked to participate. The committee met throughout the planning process to assist staff in the development of the study. Their work was extremely valuable to this planning process.

Study Committee Members

John Chell – Executive Director, Arrowhead Regional Development Commission

Jack Ezell – Manager of Planning, Western Lake Superior Sanitary District

John Foschi – City Administrator, City of Proctor

Russ Georgesen – Township Board Supervisor, Canosia Township

Barb Hayden – Planning Director, St. Louis County

Wayne Jordahl – Township Board Supervisor, Rice Lake Township

Kay Knight – City Councilor, City of Hermantown

Lynn Lander – City Administrator, City of Hermantown

Carmen Orman – Township Board Supervisor, Canosia Township

Margaret Taylor – Township Board Supervisor, Midway Township

Mark Winson – City Administrator, City of Duluth

Demographics

Population and Housing

According to 2000 Census information, the Duluth area population has stabilized. The city saw a small increase in population in 2000, which reversed a downward population trend from the previous census counts of 1970-1990. However, the areas surrounding Duluth have grown at a much faster rate. The area from Whiteface Reservoir to Pequaywan Township on the north to Midway Township on the south, including Hermantown and Proctor, grew by over 11% from 1990 to 2000. The larger first ring townships and cities directly adjacent to the City of Duluth grew by 10-15%, with the exceptions of Proctor and Midway, which declined slightly. The second ring of townships including Gnesen, Fredenberg, and Normanna, grew by 35-55%. In nearby Carlton County, 64% of the population lives in the northeast corner of the county with many of these residents commuting to the Duluth area for work and shopping. What these population numbers show is the region is growing rapidly at its fringes while the core city has somewhat stabilized its population.

Furthermore, the number of households in the region has grown dramatically in proportion to the population. The total number of households in St. Louis and Carlton counties was 68,534 in 1950 and increased by 38 percent to 94,683 in the year 2000. In Duluth, the number of households increased from 31,299 in 1950 to 35,500 in 2000 despite the loss of 18,000 people. These numbers show that even with slow population growth, the region has added a large number of housing units, mostly outside the central city.

Population projections for the area predict the fastest growth in the second ring townships north of Duluth, with continued strong growth in the first ring cities and townships as well as in northeast Carlton County. Duluth and Two Harbors are expected to grow slowly. These projections parallel the type of growth seen from 1990 to 2000.

Comprehensive Plans

Comprehensive plans from area jurisdictions (see list below) were compiled and reviewed to better understand how these communities have already planned for their future development. These plans include goals and concepts that address land use, public services/utilities/ infrastructure, economic development, housing/residential development, and transportation. Examined individually, they give the reader an idea of how each community intends to achieve its goals. Looking at them collectively, we can see how the individual plans may impact the region. At the time of this planning effort, the city of Duluth's Comprehensive Plan was still in progress and not available for review.

- Normanna Township Comprehensive Plan* (2003)
- Canosia Township Comprehensive Plan* (2002)
- Scanlon Comprehensive Plan (2002)
- Proctor Comprehensive Plan (2002)
- Hermantown Comprehensive Plan (2001)
- Carlton County Comprehensive Plan (2001)
- Grand Lake Township Comprehensive Plan* (2000)
- Solway Township Comprehensive Plan* (2000)
- Two Harbors Comprehensive Plan (1999)
- Thomson Township Comprehensive Plan (1999)
- Rice Lake Township Comprehensive Plan* (1998)
- Midway Township Comprehensive Plan* (1997)
- Cloquet Comprehensive Plan (1994)
- Gnesen Township Comprehensive Plan* (1992)
- Lakewood Township Comprehensive Plan* (1985)
- Fredenberg Township Comprehensive Plan* (1984)
- Duluth Township Comprehensive Plan* (1979)

** St. Louis County Planning has authority for township plans within the county. These plans are part of the St. Louis County Comprehensive Plan.*

The information from the comprehensive plans was important because it brought the visions and ideas from each jurisdiction collectively to the planning process. Future land use information from each jurisdiction was used in conjunction with the other information generated by this planning process to help identify the specific areas best suited for future development.

WLSSD Comprehensive Wastewater Services Master Plan Summary (2003)

The Western Lake Superior Sanitary District (WLSSD) was created by the Minnesota Legislature as a special purpose subdivision of the state to address problems with water pollution, sewage collection, and disposal issues in the St. Louis River basin. Minnesota Statute (Chapter 458D) outlines that WLSSD is responsible for improving and protecting the waters of the St. Louis River basin and provides information on the framework by which the district is governed.

WLSSD covers 530 square miles in northeast Carlton County and southeast St. Louis County. The district encompasses nine cities and villages (Duluth, Cloquet, Carlton, Scanlon, Wrenshall, Hermantown, Proctor, Oliver and Thomson) and ten townships (Silver Brook, Thomson, Twin Lakes, Canosia, Duluth, Grand Lake, Lakewood, Midway, Rice Lake and Solway). Approximately 15% of the area is sewered with another 7% to be sewered in the next 10-20 years.

The objective of this comprehensive plan was to create a guideline that identifies current and future issues and needs, and evaluates possible solutions. The plan describes current conditions and planning goals and recommends policies and actions. Implementation of the recommendations will require cooperation from all jurisdictions in the WLSSD area.

WLSSD requires that local units of government submit their plans for the collection, treatment, and disposal of sewage for review and approval. Sewer extension requests are reviewed by WLSSD to determine consistency with land use plans. An analysis of local Comprehensive Plans found that the city of Hermantown, Canosia and Rice Lake Townships, the North Shore and other developed areas have a potential need for public sewer in select areas.

Through this planning process, WLSSD developed an urban service boundary where they will not extend sewer services beyond in the next five years.

Case Studies

Case studies were compiled to compare how other areas approach growth issues and provide water and sewer service. Selected communities were chosen primarily based on size similarity to Duluth area, not economic structure or growth rates. A notable difference between the Duluth area and selected case study communities was the fact that Duluth is growing at a considerably slower pace than all other case study communities. The following communities were contacted as case studies for this report:

- Eau Claire, Wisconsin
- Eugene, Oregon
- Fargo, North Dakota
- Grand Forks, North Dakota
- La Crosse, Wisconsin
- Racine, Wisconsin
- Rochester, Minnesota
- St. Cloud, Minnesota

The following information was sought from each case study jurisdiction.

- Provision of water and sewer services
- Water and sewer extensions
- Annexation policies
- Urban growth boundary policies
- Regional cooperation
- Rate of growth

Summary of Case Studies

Annexation and Service Provisions

In most cases, water and sewer services were not provided beyond city or village limits without required annexation into that city or village. There were a few minor historical exceptions, however, current service provision policies generally limit service areas and require annexation. In some cases limited term service agreements were in place to provide new communities with services for a limited timeframe so that they can build their own infrastructure.

Development Constraints and Growth Management

Sanitary sewer services are the major factor in constraining development. The Wisconsin DNR's Section 208 Sewer Boundary in many respects serves a growth controlling function. This boundary delineates the area that could ultimately be served by that area's regional or jurisdictional sewage treatment plant.

Other growth management techniques utilized included state mandated urban growth boundaries (Eugene) and joint area plans (St. Cloud). These techniques make use of coordinated planning and address issues such as annexation and the provision of water and sewer services.

Regional Growth Cooperation, Planning and Growth

In general, the selected case study communities have not experienced a high level of regional cooperation in the past. Annexation is a contentious issue as is tax base competition for new businesses. Regional cooperation is now occurring due to local impacts from state and federal budget cuts and from new planning laws.

Future Growth

A number of pieces of information were considered in identifying areas most suitable for future growth, including the case studies, comprehensive plan summaries, WLSSD's urban services boundary, current land use, intended future land use and current zoning. As the study committee reviewed the results of the development suitability modeling, they were able to factor in the economic, cultural, political and social issues that the model could not consider.

Development Suitability Analysis

Several factors influence what areas are most suitable for residential, commercial and industrial/manufacturing development. Factors such as distance to utilities, infrastructure, slope, natural features, and zoning all can have a bearing on where different types of development might occur. Factors that are good for one type of development are not necessarily good for another type of development. For example, brownfields are suitable for industrial development but are not desirable for residential development. Much of the geographic data collected for this study illustrate the location of these factors. Three separate suitability models were developed for this project to better identify potential areas for future industrial, commercial and residential growth.

Areas Most Suitable for Future Growth

Industrial

Areas identified as most suitable for industrial development include locations along the waterfront from Rice's Point to the Waseca industrial area in West Duluth and have existing infrastructure that is suitable for industrial or manufacturing development. Other suitable areas include the Morgan Park and Gary/New Duluth industrial areas and the Duluth International Airport. The former U.S. Steel Plant and Atlas Cement Plant offer opportunities to redevelop existing brownfields. The area surrounding the Airport is currently supporting a growing aviation industry and is suitable for additional industrial and manufacturing development. Other smaller areas suitable for industrial growth include sites in Hermantown and Proctor along Highway 2 and sites along I-35 in Proctor and Midway Township.

Commercial

Areas identified as most suitable for commercial development include the Central Entrance – Miller Trunk Highway corridor, downtown Duluth, Lincoln Park, West Duluth, Proctor, Lakeside/Lester Park, and Gary/New Duluth. Most of these areas are currently served by water and sewer services and are suitable for more intensive infill commercial development. Some of these areas are also suitable for mixed-use commercial and residential uses.

Residential

Most of the region examined is suitable for residential development. Areas currently served by water and sewer are more suitable for infill of higher density residential

development. Areas not served by water and sewer are suitable for low-density residential development.

Future Utility Staging

Once specific areas were identified as suitable for future growth, the study committee reviewed information from local jurisdictions outlining where and when they would like to see water and sewer utility services expanded. All of this information, taken together, provided an outline for a future utility staging plan.

The maps on pages 9-10 show a strategy to improve water and sewer services in those areas identified as suitable for future growth, staged in five-year increments. It should be noted that these staging plans are conceptual in nature and implementation would depend on a number of factors such as the condition of the current system and the amount of funding available for upgrades and expansions.

Policies and Recommendations

The policies and recommendations were developed after analyzing all of the information compiled for the study. They are intended to provide area jurisdictions with a foundation for managing future growth and improving utilities on a regional basis. The following text is a brief summary of the policies and recommendations developed during this planning process.

Policies

Regional Cooperation

Regional cooperation is a key element in managing future growth and can be accomplished by encouraging communication among agencies and jurisdictions. Areas where cooperation can take place include sharing of revenues, services, facilities, and economic development. Eliminating duplicate services and facilities results in the most efficient use of taxpayer resources. Cooperation in comprehensive planning is another area that can provide communities opportunities to work together toward more efficient use of taxpayer dollars.

Growth Management

An important part of promoting efficient growth is to discourage dense urban growth beyond current utility service areas and to encourage infill development where utilities exist. WLSSD currently has a service boundary that should be acknowledged as the limit to dense urban growth. Rural development should be limited to land uses that are compatible with a rural environment and do not require extensive public facilities and services.

Water and Sewer Infrastructure

Coordinating future water and sewer service planning will help affected jurisdictions with their land use decisions. Urban service boundaries should be very similar for both water and sewer services in order to control growth. Target more compact development within current utility service areas will more efficiently utilize infrastructure already in place. Alternatives to the traditional “big sewer pipe” solutions such as managed on-site sewage systems in areas beyond current sewer service areas should be investigated.

Transportation

Transportation systems should be designed to enhance current neighborhoods and communities with a goal of increasing walkability, bikeability, and access to transit. Improving freight movement is important and should be considered within the transportation network. All jurisdictions should participate in long range transportation planning to ensure a balanced transportation network capable of efficiently moving people and goods.

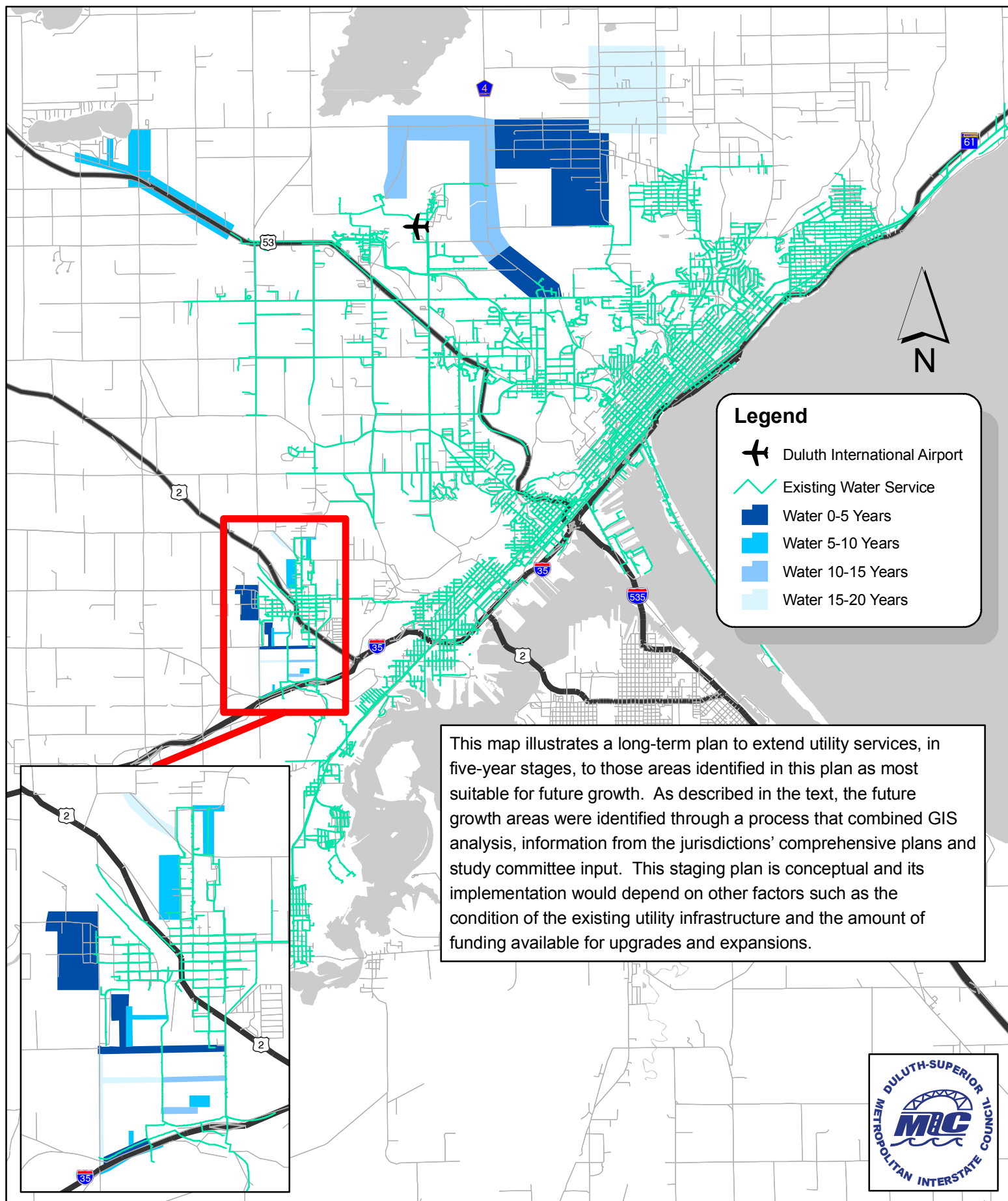
Recommendations

The recommendations from this planning process were designed to help implement the policies.

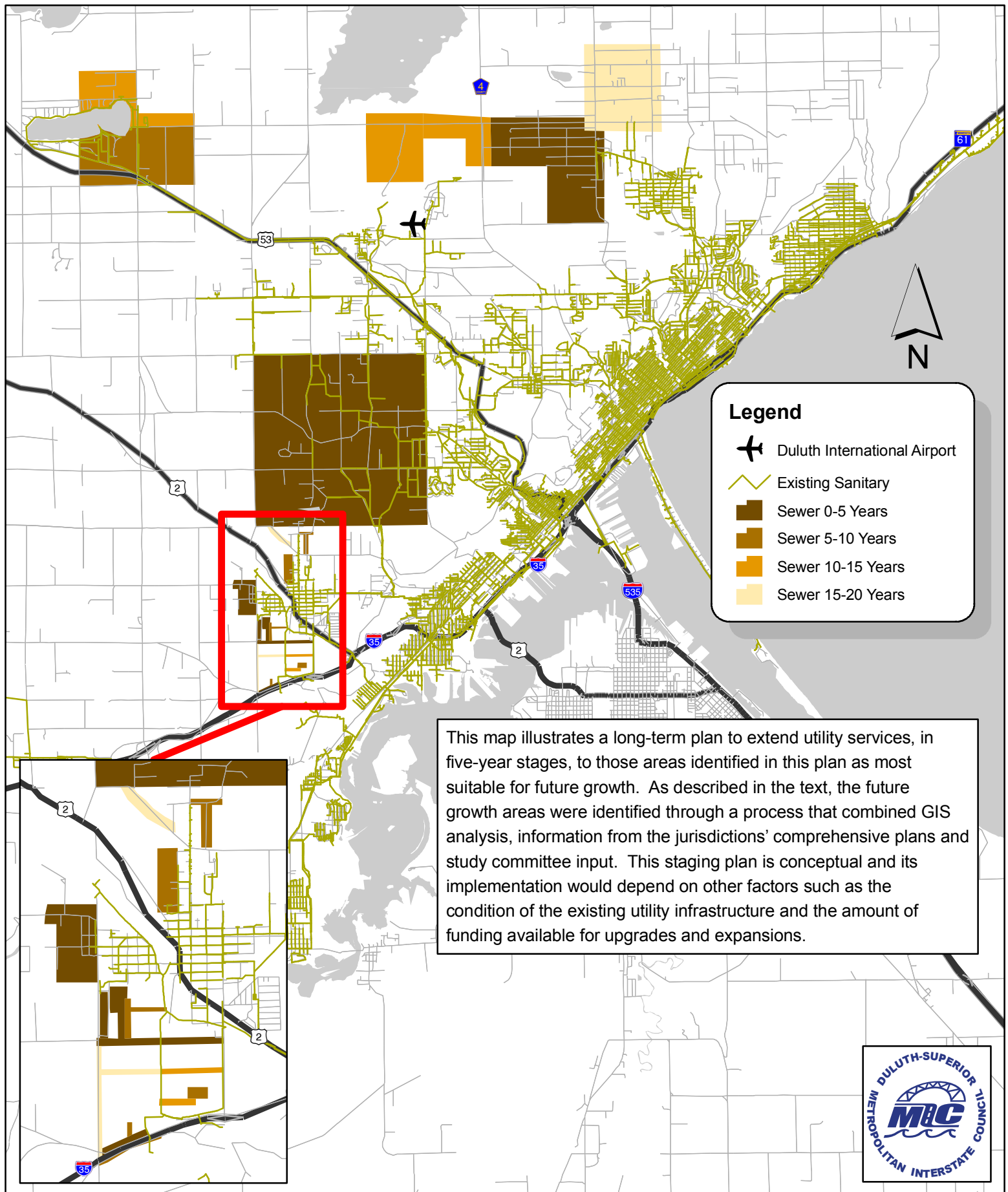
- Communicate findings of this study to local stakeholders.
- Evaluate current water system to identify necessary upgrades and costs for system expansion.
- Jurisdictions that have been identified for future utility upgrades should update land use and zoning policies to reflect a more intensive land uses.
- Modify zoning and land use regulations to promote mixed-use development.
- Identify opportunities and provide incentives for infill housing.
- Communicate with other jurisdictions during comprehensive planning to identify areas of cooperation and mutual benefits.
- Identify development opportunities that can utilize alternative transportation modes such as bike, pedestrian and transit.
- Preserve areas for industrial, manufacturing and commercial uses that have highway, rail, airport and water access to take advantage of intermodal freight movement opportunities.
- Promote the benefits of managed on-site sewer systems.
- Develop a mechanism where additional tax revenues generated from the expansion of water and sewer services are shared.
- Identify areas along common borders where land resources can be pooled.
- Identify opportunities to share services where a savings to local jurisdictions and agencies will result.
- Update the information from this study in 5-10 years.

To view the full text of the *Duluth Urbanized Area Growth Impact Study*, go to www.ardc.org/library/plans/mic/DUAGIS_Final.pdf .

Water Staging Plan



Sewer Staging Plan



DULUTH URBANIZED AREA GROWTH IMPACT STUDY

October 2004

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Duluth-Superior Metropolitan Interstate Council



*Duluth and Superior urban area communities
cooperating in planning and development
through a joint venture of the
Arrowhead Regional Development Commission
and the
Northwest Regional Planning Commission*



Duluth-Superior Metropolitan Interstate Council
221 West First Street
Duluth, MN 55802
(218) 722-5545
(800) 232-0707
www.ardc.org/mic

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Duluth-Superior Metropolitan Interstate Council
St. Louis County
City of Duluth
Western Lake Superior Sanitary District
City of Hermantown
City of Proctor
Rice Lake Township
Canosia Township

DULUTH-SUPERIOR METROPOLITAN INTERSTATE COUNCIL (MIC) MEMBER AND STAFF LISTING

MIC Policy Board

David Allen, City of Hermantown
Ed Anderson, Superior City Council
Nick Baker, Douglas County Board (*WI Co-chair*)
David M. Bilden, City Superior Citizen Rep
David Conley, Douglas County Board
Bill Eckman, Douglas County Board
Earl Elde, St. Louis County Suburban Townships
Bob Finsland, Superior City Council
Wayne Jordahl, St. Louis County Suburban Townships
Richard A. Kieren, City of Proctor
Kathryn McKenzie, Douglas County Board
Isobel Rapaich, Duluth Transit Authority
Jim Stauber, Duluth City Council
Jackie Stenberg, City of Superior
Rob Stenberg, City of Duluth Citizen Rep (*MN Co-chair*)
Russ Stover, Duluth City Council
Peg Sweeney, St. Louis County
Douglas Co Suburban Townships (vacant)

ARDC / MIC Staff

Ron Chicka, MIC Director
Sherry Berhow, Intern**
Holly Butcher, Senior Planner**
James Gittemeier, Planner
Andy Hayden, GIS Specialist**
Andy McDonald, Senior Planner*
Kirk Skoog, Planner**
Rondi Watson, Division Secretary**

NWRPC / MIC Staff

Sheldon Johnson, MIC Deputy Director

* Project Lead ** Project Contributor

Transportation Advisory Committee

Jim Benning, City of Duluth
Lance Burger, WisDOT
Jim Foldesi, St. Louis County
John Foschi, City of Proctor
Chuck Froseth, City of Duluth
Paul Halverson, Douglas County
Bryn Jacobson, Bike/Pedestrian Rep
Dennis Jensen, Duluth Transit Authority (*Vice-Chair*)
Denny Johnson, MnDOT
Paul King, City of Superior
Dick Larson, City of Duluth
Walter Leu, MnDOT
Mike Metso, City of Duluth
Brian Ryks, Duluth Airport Authority
David Salo, City of Hermantown
Jason Serck, City of Superior (*Chair*)
Ray Skelton, Duluth Seaway Port Authority



***Guiding the Future of Transportation
and Planning for the Twin Ports Area***

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Map Disclaimer

The information contained in the following maps is a compilation of data from various federal, state, county, regional, and municipal sources. Geographic information has limitations due to the scale, resolution, date and interpretation of the original source materials. Users should consult available data documentation (metadata) to determine limitations and the precision to which the data depicts distance, direction, location or other geographic characteristics. These maps and/or data are not legal survey documents to be used for describing land for the purpose of ownership or title.



INTRODUCTION

An important function of planning is to help us deal with change. For urban areas, change usually means growth and development. Many times this growth and development happens at an incremental pace, other times it can happen on an accelerated scale. However it takes place, development requires capital investment in public infrastructure to provide necessary services. Planning helps us utilize scarce capital resources in an efficient manner to provide public services that protect the health and welfare of citizens. It also helps us keep public efforts in line with the values of the people.

The Duluth-Superior urban area is not growing as fast as many parts of Minnesota and Wisconsin. However, similar to other parts of the two states, our area's population is dispersing throughout the area. The townships surrounding Duluth as well as the City of Hermantown are experiencing rapid growth (see Demographics Chapter on page 5). These communities face the challenge of providing water and sewer services to protect the health and welfare of their citizens.

Providing utility services to newly developing areas is expensive, as it entails major upgrades of the current systems to handle expanded capacities. These upgrades and expansions have the potential to generate indirect future costs and impacts, which can far exceed the cost of the utility work itself. The expansion of water and sewer utilities normally induces additional growth. The indirect costs of this additional growth include providing roadway capacity expansion, fire and police protection, and new schools and parks to accommodate future populations. Planning for future growth will ensure that the health and welfare of current and future citizens is protected while using taxpayer resources in an efficient manner.

State and Federal Utility Infrastructure Needs

According to a report released by the Water Infrastructure Network, America's water and wastewater systems will need an additional \$20 billion a year investment over the next 20 years to replace aging and failing infrastructure to comply with national environmental and public health priorities in the Clean Water Act and Safe Drinking Water Act. Current federal contributions have declined by about 75% in real dollars since 1980 and today represent only 10% of the capital outlay needed for improvements. New solutions are needed in critical water and wastewater investments if we are to prevent a reversal in the public health, environmental and economic gains we have achieved over the last 30 years created by public investment of water and wastewater infrastructure.

According to an infrastructure study conducted by the West Central Initiative (WCI), Greater Minnesota (all of Minnesota excluding the seven county Twin Cities metro region) faces an immediate need of \$6.9 billion to upgrade water, wastewater, and storm sewer infrastructure. The WCI study points out that no regional, state, or federal source collects or maintains information on the status of community infrastructure or the scale of needs. For regions that share infrastructure, this information provides a strong reason to plan cooperatively for future maintenance and expansion of service areas.

The two reports referenced above show that on both state and national levels we are falling behind in our investment of public utility infrastructure. These shortfalls will have to be made up and could come at the exclusive expense of local taxpayers and rate payers. Therefore communities need to think about how local infrastructure maintenance, capacity expansion, and extensions should best be developed. Creating the most efficient system possible will protect future taxpayers and ratepayers from unmanageable costs.

Local Stakeholder Discussions

A group of local stakeholders met in the summer of 2002 to discuss the issues surrounding extension of water service. A number of concerns were discussed, such as problems with wells in areas outside of Duluth, providing a reliable water source to public facilities, and problems with current water service. The result of these initial stakeholder meetings was the formation of the Lake Superior Regional Water Committee.

Lake Superior Regional Water Committee

The Lake Superior Regional Water Committee met three times between July and November 2002. The mission of the committee was to “plan, design and fund an adequate metropolitan area public water system to service the general needs of the public and support current and future economic vitality.” Initial discussions of the committee supported the idea of seeking federal and state funding to solve water issues in the area. Much time was spent describing difficulties with current systems and the desire to upgrade these systems to remain economically competitive with the rest of the state. Discussions about estimating costs of extensions were begun.

As discussions continued on this topic, it became apparent that this issue was more complex than just looking at expansion of water service. Provision of water services is interrelated with other utility services such as sewer, gas, and roads. The underlying issue is how growth impacts area communities. It became clear that it would be wise to first look at growth issues and how to accommodate it in the most efficient manner while ensuring taxpayer protection from the consequences of inefficient growth.

This led to a consensus decision to move ahead and conduct a regional planning process with a logical, systematic approach to examine growth impacts. This study of growth impacts in the Duluth area will answer the questions of “where should” water lines and other infrastructure be built. It will also look at how growth management strategies can protect taxpayers, help local governments plan for public facilities, determine when and where they're needed, distribute facility costs according to burdens imposed and benefits received, and protect local and regional economic tax bases.

The second part of the process would be to conduct an assessment study of the current water system and plan future expansion phases. This step can be carried out as soon as the growth impact study identifies specific areas best suited for growth. At that time, area jurisdictions can approach federal and state sources, demonstrating that a plan is in place, and asking for financial assistance for these cooperatively planned water service improvements.

Study Objective

The objective of this study is to identify areas that are best suited for growth (and utility improvements) and to provide information to Duluth area cities and townships on growth impacts. Given the limited resources available for expansion of utility services, identifying areas best suited for growth should target limited resources where they can be used most efficiently. In the past, state and federal assistance was more readily available. However, state and federal budgets today do not include as much funding available for local municipalities to expand utility services. As state budgets have been shrinking, the backlog of applicants in Minnesota have unmet needs in the hundreds of millions of dollars.

The future of communities may depend on how much funding is available and how efficiently it is utilized. Communities need to take a hard look at growth in their areas and how the health and welfare of residents are served. State and federal sources are telling communities that providing infrastructure to accommodate growth in their areas should be funded locally. This is an important reason for communities to work more cooperatively with their neighboring communities to identify strategies and techniques to become more efficient in the use of public infrastructure funds.

This study will highlight areas that may be more suitable for growth given the existing systems, and will provide information for communities to control growth, share resources, and become more efficient using these scarce resources.

Study Methodology

This study addresses growth impacts on the Duluth side of the urbanized area but does not address the same issues on the Superior side. While we recognize that the Superior is part of our urbanized area, the provision of utility services are separate due to the geography of the area with St. Louis River dividing the two cities. The study was initiated due to the desire of extending utilities on the Minnesota side. Growth issues are also present in Carlton and Lake counties but this study will mostly focus on Duluth and the townships surrounding it. Ideally, the whole area could have been studied but given the limited resources available, the study focused on the area with the most growth pressures near the current water and sewer service areas.

The major activities for this study process are performing background research, compiling case studies, organizing a steering committee, performing a development suitability analysis, and developing policy recommendations.

The background research consisted of examining demographic information, compiling comprehensive plans from the region, and researching growth management techniques and taxpayer protection strategies. The growth management strategies and techniques are contained in the plan appendices and include urban growth boundaries, adequate services provisions and inter-governmental boundary agreements. Taxpayer protection strategies include shared service agreements, shared revenue agreements, hidden subsidies and user fees. Comprehensive plans were examined (where available) to get an idea how individual communities are currently planning to accommodate growth in the future.

Case studies were conducted for eight communities similar in size to the Duluth area to get an idea how other communities are handling growth issues and providing water and wastewater services. Most of the communities were in Minnesota, Wisconsin and North Dakota, along with one in Oregon, to see how their state mandated growth management policies function. The city administrators or public works directors were contacted and asked a series of questions.

A development suitability analysis was also conducted for this study. This analysis was a geographic information systems (GIS) modeling effort incorporating a number of factors which influence what land is most suitable for certain types of development. Proximity to roads, water, sewer, wetlands, and flood plains all have some bearing on where development occurs. With the capabilities of GIS, these multiple factors can be analyzed together. The geographic information is entered into the model and the importance of the different data layers is ranked or weighted. The final result displays a cumulative score for all weighted data.

After all of the information collected and generated for the study was considered, policies and recommendations were created. The recommendations and policies are designed to assist all local communities plan in a coordinated fashion when it comes to development and utility extensions. Coordination between jurisdictions was one of the focal points in developing the recommendations and policies.

A steering committee was organized for this study with city administrators and elected township officials asked to participate. The committee met throughout the planning process to assist staff in the development of the study. Their work was extremely valuable to this planning process.

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Margaret Taylor – Township Board Supervisor, Midway Township

Mark Winson – City Administrator, City of Duluth

DEMOGRAPHICS

Local Population and Housing Growth and Dispersal

The Duluth area population has stabilized according to 2000 Census information. The city saw a small increase in population, which reversed a downward population trend from the previous census counts of 1970-1990. However, the areas surrounding Duluth have grown at a much faster rate. The area from Whiteface Reservoir to Pequaywan Township on the north to Midway Township on the south, including Hermantown and Proctor, grew by over 11% from 1990 to 2000. The larger first ring townships and cities directly adjacent to the City of Duluth grew by 10-15% with the exceptions of Proctor and Midway, which declined slightly. The second ring of townships including Gnesen, Fredenberg, and Normanna grew by 35-55%. In nearby Carlton County, 64% of the population lives in the northeast corner of the county with many of these residents commuting to the Duluth area for work and shopping. What these population numbers show is the region is growing rapidly at its fringes while the core city has somewhat stabilized its population. The Duluth urbanized area's population is dispersing to the rural and lakes areas surrounding the urban core.

Map 1 and Table 1 display the dramatic change in percentage increase (or decrease) in population for communities in the study area between 1950 and 2000. The table is arranged in descending order ranked by this change. The map shows that while the total population has increased only slightly, by 3 percent since 1950, the distribution is much different. The central city of Duluth has seen a significant decline, while nearly all of the suburban and outlying areas have had large increases in population.

Despite the slow population growth, the growth in households in the region has increased dramatically. The total number of households in 1950 in St. Louis and Carlton counties was 68,534. By 2000 this total had increased to 94,683; an increase of 38 percent. In Duluth, the number of households has increased from 31,299 in 1950 to 35,500 in 2000 despite the loss of 18,000 people. These numbers show that even with slow population growth, the region has added a large number of housing units, mostly outside the central city.



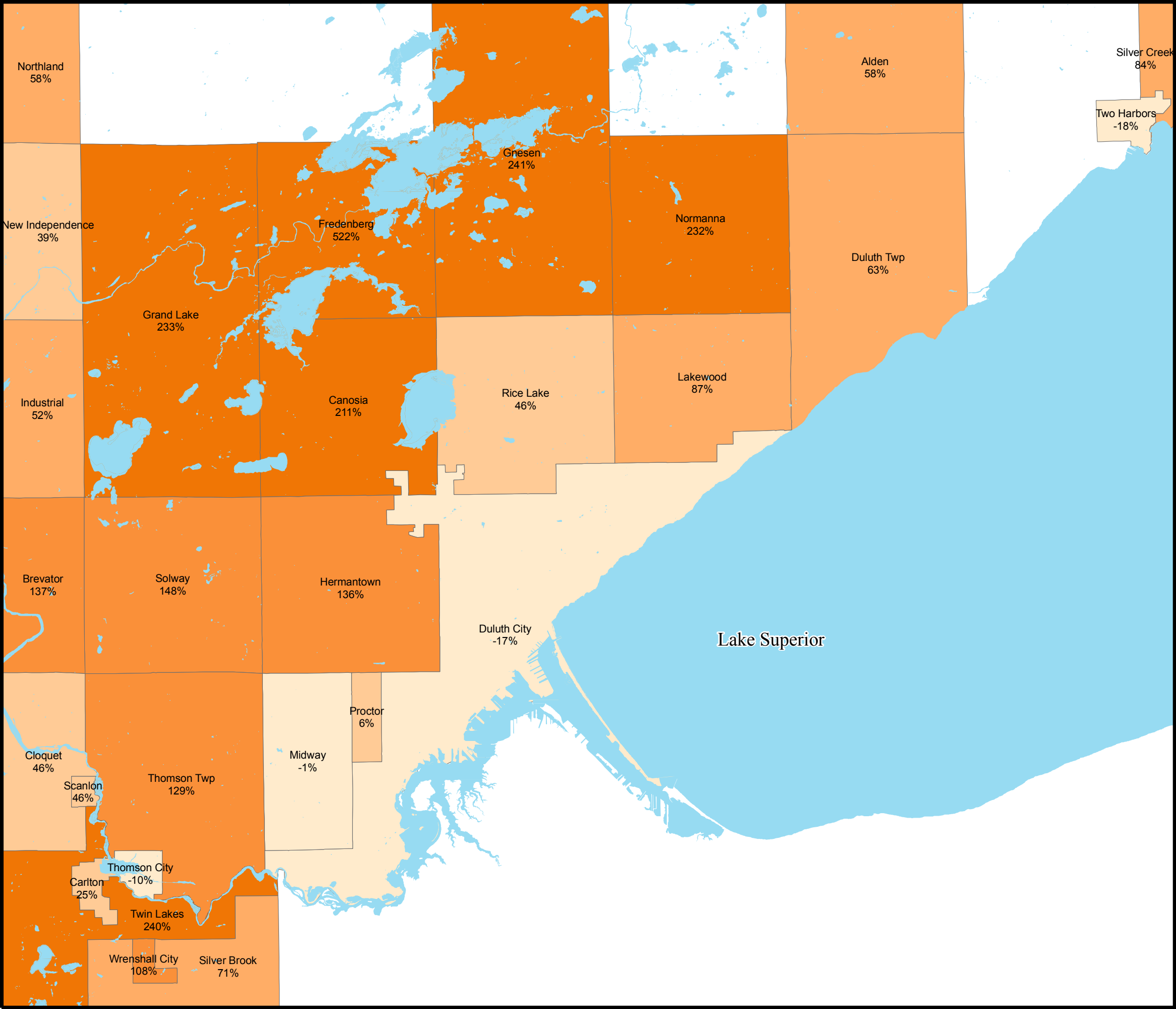
Map 2 displays population density. As expected, the highest density is in Duluth with areas near Duluth and along the Interstate 35 corridor toward Cloquet having the next highest density. Table 2 shows that population densities vary widely throughout the country, as a result of development style, terrain and the era in which most of the city was developed. Duluth has lower densities than most Midwestern cities, including suburban areas of large cities such as Bloomington, Minnesota. Cities such as Milwaukee and Minneapolis have densities much higher still; Chicago has nearly double the density of those two while New York City has the highest in the nation.

Table 1**Historical Population and Long Range Projections***Ratio Trend Method used for projections*

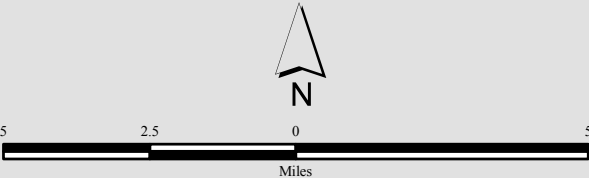
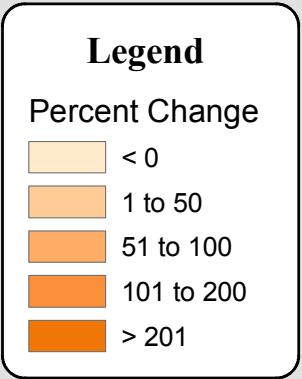
Area			% change		% change		Land	Pop/sq	
	1950 pop	2000 pop	1950-2000	2030 pop	2000-2030	Area (sq mi)	mi - 1950	mi - 2030	
Fredenberg Twp.	186	1,156	521.5	2,155	86.4	25.4	7	85	
Gnesen Twp.	430	1,468	241.4	2,480	68.9	61.5	7	40	
Twin Lakes Twp.	562	1,912	240.2	2,961	54.9	42.8	13	69	
Grand Lake Twp.	788	2,621	232.6	3,627	38.4	65.9	12	55	
Normanna Twp.	192	637	231.8	1,083	70.0	36.5	5	30	
Canosia Twp.	643	1,998	210.7	2,988	49.5	30.1	21	99	
Hermantown	3,159	8,047	154.7	12,148	51.0	34.3	92	354	
Solway Twp.	744	1,842	147.6	2,319	25.9	35.5	21	65	
Thomson Twp.	1,905	4,361	128.9	6,273	43.8	39.7	48	158	
Wrenshall	148	308	108.1	406	31.8	1.51	98	269	
Lakewood Twp.	1,076	2,013	87.1	2,746	36.4	27.8	39	99	
Silver Brook Twp.	356	609	71.1	859	41.1	20.0	18	43	
Duluth Twp.	1,059	1,723	62.7	2,362	37.1	46.5	23	51	
Scanlon	572	838	46.5	968	15.5	0.84	681	1152	
Rice Lake Twp.	2,838	4,139	45.8	5,220	26.1	32.4	88	161	
Cloquet	7,685	11,201	45.8	13,313	18.9	35.2	218	378	
Carlton	650	810	24.6	851	5.1	2.1	310	405	
Proctor	2,693	2,852	5.9	3,202	12.3	3.0	898	1067	
Midway Twp.	1,497	1,479	-1.2	1,464	-1.0	18.0	83	81	
Thomson	170	153	-10.0	186	21.6	1.88	90	99	
Duluth	104,511	86,319	-17.4	90,286	4.6	68.0	1537	1328	
Two Harbors	4,400	3,613	-17.9	3,878	7.3	3.2	1375	1212	
Total Study Area	136,264	140,099	2.8	161,775	15.5	632.1	216	256	

Table 2**Population per square mile of selected cities**

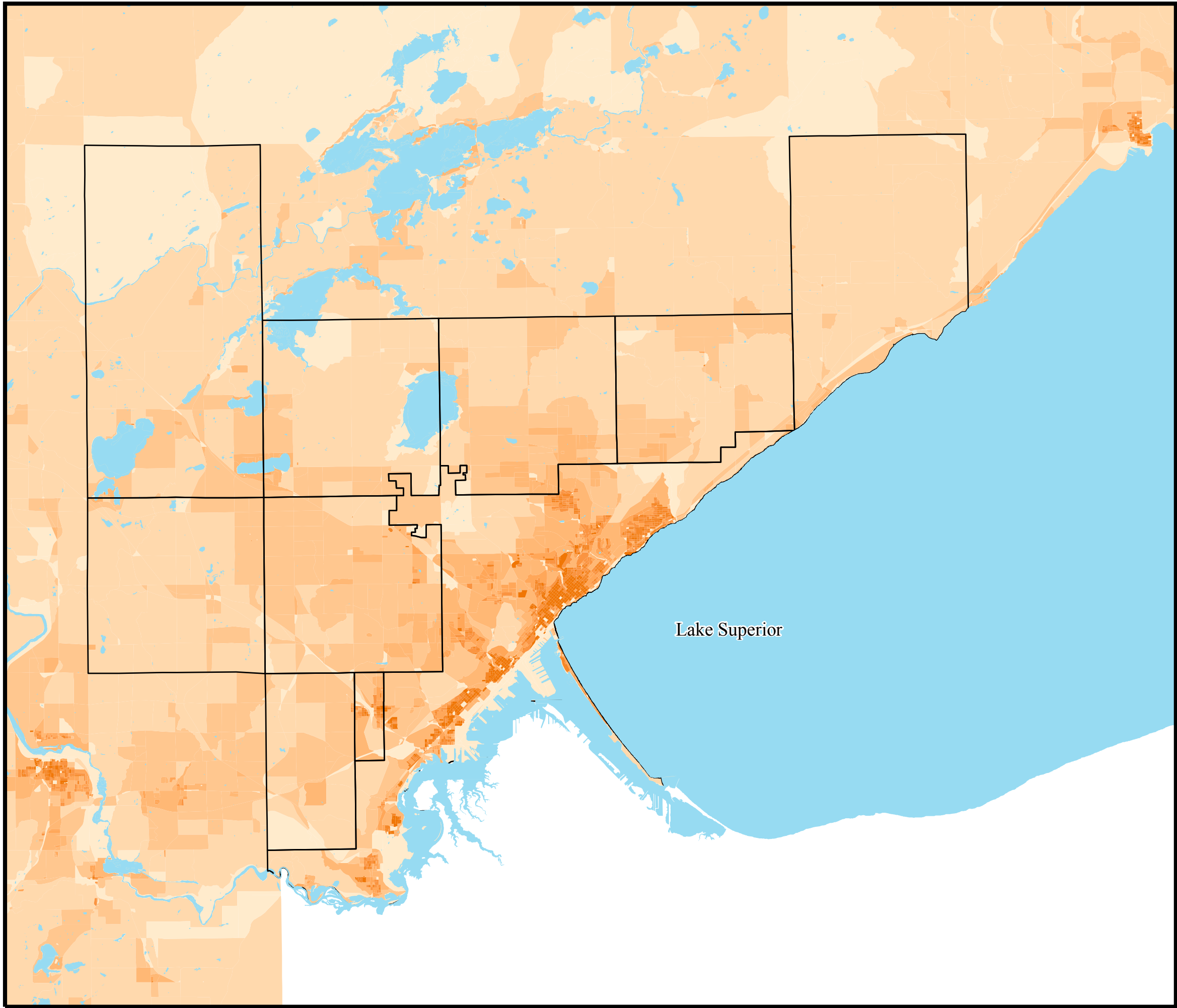
City	Persons per square mile
Duluth	1,269
Eau Claire	2,038
Rochester	2,166
Bloomington	2,401
Milwaukee	6,214
Minneapolis	6,970
Chicago	12,750
New York	26,403



Population Change 1950-2000



Source: US Census Bureau 2000

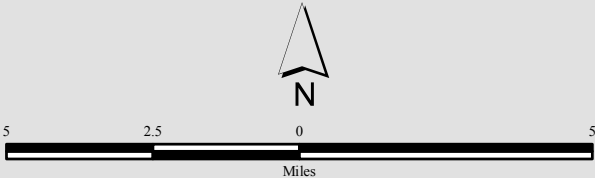


Population Density

Legend

Population Density (People/Mi²)

0
1 - 72
73 - 317
318 - 1449
1450 - 3383
3384 - 5114
5115 - 7647
7648 - 233200



Part of the reason for the low densities in the Duluth area can be explained by extreme elevation changes, bedrock at the surface and numerous wetlands. These conditions make significant parts of the area difficult or impossible to develop. However, despite the limitations, there are still large areas of developable land in the central city. A recent study by the City of Duluth researched residentially zoned undeveloped land and concluded that there is space for thousands of new units within the city limits. There are also opportunities for infill development.

Population projections

MIC staff has developed population projections at the minor civil division (MCD) level for the study area. Table 1 displays these projections. A combination of two ratio-trend analyses was used to prepare the projections. The main driving force of this model is past population trends. Population figures for each MCD were gathered from the years 1950 to 2000, along with the most recent estimates from the state (2002). Then a proportion for each MCD was determined that represented the percentage of the county's total population. For example, in 1950 Duluth had a population of 104,511 and St. Louis County's population was 206,062, which means that Duluth had 50.72% of the county's population.

The next step was to obtain county projections already completed by the state. The Minnesota Department of Administration recently published long-range projections at the county level. The MIC also obtained projections from Woods & Poole Economics, Inc. for St. Louis County. Both sources of data project increasing population for the region. The state's projections were somewhat higher than those of Woods & Poole. The MIC decided to use the midpoint of these sources for the purposes of these projections. (For Carlton County, only Minnesota's projections were used because the MIC did not have Woods & Poole data available.) To arrive at the projections a combination of ratio-trend analysis for the years 1950 to 2000 and 1990 to 2002 was used.

The overall trends show that the fastest percentage growth is predicted in the second ring townships north of Duluth with continued strong growth in the first ring cities and townships as well as in northeast Carlton County. Duluth and Two Harbors are expected to grow slowly. One anomaly is the projected decrease in Midway Township. This occurs because of the closing of the Nopeming care center in 2002, which caused the township to lose approximately 150 residents. The detailed projections in the appendix show Midway losing people in the current decade because of this occurrence but increasing slowly by 2020 and 2030.

The increasingly dispersed population has brought an increased demand for infrastructure such as water and sewer. This increased demand has led to water service expansions in Proctor, Hermantown and Rice Lake Township. Sewer service has also expanded with new wastewater collections lines to the Pike Lake area in Canosia and Grand Lake Townships as well as extensions under construction along the North Shore of Lake Superior and the Fond du Lac neighborhood in the southwest area of Duluth. Much of the existing sewer and water systems within the City of Duluth are 50 –100 years old.

There have been much-publicized incidents with wastewater overflows going into Lake Superior as well as numerous breaks in water mains over the past few years. The challenge facing this area is how to maintain and improve the current systems while looking at expansions in the future.



COMPREHENSIVE PLANS

Comprehensive plans from area jurisdictions (see list below) were compiled and reviewed to get an idea of how local jurisdictions were planning for their future. These plans include goals and concepts that address land use, public services/utilities/ infrastructure, economic development, housing/residential development, and transportation. Examined individually they give the reader an idea of how each community intends to achieve their goals. By looking at them collectively, we can see how the individual plans may impact the region. This chapter contains a brief summary of each plan by listing goals and objectives that pertain to land use, growth and development. Map 3 displays the location of the jurisdictions whose comprehensive plans were examined. At the time of this planning effort the city of Duluth's Comprehensive Plan was still in progress. This chapter also examines the recently completed WLSSD Comprehensive plan. It also examines comprehensive plans from its service area jurisdictions to get a better idea of intended future land uses.

St. Louis County Planning has authority for township plans within the county. These plans are considered to be part of the St. Louis County Comprehensive Plan.

- Normanna Township Comprehensive Plan (2003)
- Canosia Township Comprehensive Plan (2002)
- Scanlon Comprehensive Plan (2002)
- Proctor Comprehensive Plan (2002)
- Hermantown Comprehensive Plan (2001)
- Carlton County Comprehensive Plan (2001)
- Grand Lake Township Comprehensive Plan (2000)
- Solway Township Comprehensive Plan (2000)
- Two Harbors Comprehensive Plan (1999)
- Thomson Township Comprehensive Plan (1999)
- Rice Lake Township Comprehensive Plan (1998)
- Midway Township Comprehensive Plan (1997)
- Cloquet Comprehensive Plan (1994)
- Gnesen Township Comprehensive Plan (1992)
- Lakewood Township Comprehensive Plan (1985)
- Fredenberg Township Comprehensive Plan (1984)
- Duluth Township Comprehensive Plan (1979)

What is a Comprehensive Plan?

Comprehensive planning provides an assessment of a community's needs, a statement of a community's values, and the community's long-term goals and objectives as well as measurable steps which can be taken to achieve one or more goals. The plans are *comprehensive* in that the various components encompass many of the functions that make a community work such as wastewater treatment, transportation, housing, and land use. The plans should also consider the interrelationships of those functions and help coordinate the various plans, programs, and procedures of a community. The comprehensive plan is usually

the only public document that describes the community as a whole in terms of its complex and mutually supporting systems. Implementation of the comprehensive plan must be linked to the local budget, cooperation with other units of government, and the needs and capabilities of the private sector.

While the comprehensive plan serves as a blueprint for the community's physical development, the plan must also attempt to clarify the relationship between physical development policies and social and economic goals. The plan provides a long-term perspective to guide short-term community decisions such as how much capacity to build into a new wastewater treatment plant or how to evaluate the potential impacts of re-zoning a parcel of land. A comprehensive plan is also not a static document. It needs to be continually updated as conditions change.

This long-range planning tool is used to define an area's vision, goals, and policies for the future. It is intended to guide a community's growth based on preserving, protecting, and upholding the best characteristics of the built and natural environment by effectively addressing community needs. It provides direction for the anticipated changes and future growth communities may face as well as finding effective solutions to existing problems. As a long-range decision making tool, the plan sets forth the values its citizens seek and ties those values to the physical development and shaping of the community.

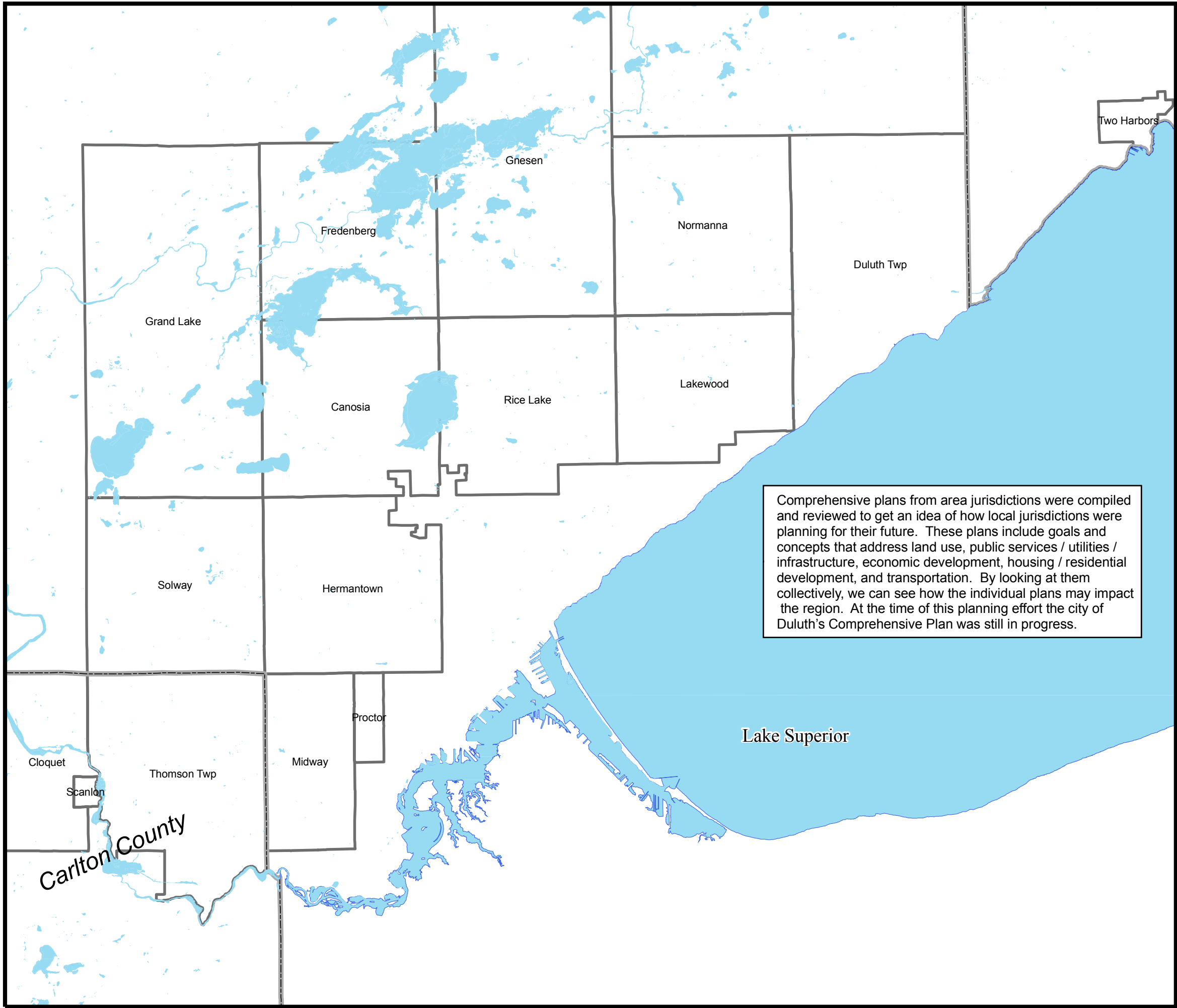
A comprehensive plan should include policy statements that outline actions a community should take for making both simple and complex decisions. These policies should reflect the problems and opportunities provided by the community's resource base, physical and social needs, and community goals.

The comprehensive plan presents an official policy framework which outlines steps for incremental decisions regarding land development issues. It indicates where existing lands or facilities are proposed to be extended, widened, removed, relocated, vacated, narrowed, abandoned, or changed in use. Finally, the comprehensive plan outlines the strategies and steps the community can follow by presenting an official policy framework and mapped context for making incremental decisions regarding land development uses to make it a reality.

Comprehensive Plan Summaries

The following section is a listing of land use goals taken from area comprehensive plans. Not all plans are organized in the same manner, producing different section headings for similar information. The goals listed may not always come from a section titled "land use" but are related to how the different communities are planning for land use. The number in parentheses after each goal or objective is the page number in each plan where that particular goal or objective can be found.


The plans are listed in reverse chronological order. At the time of this planning effort, the City of Duluth had not completed its plan.

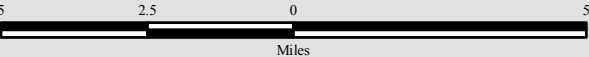


Comprehensive Plans

- Normanna Township Comprehensive Plan (2003)
- Canosia Township Comprehensive Plan (2002)
- Scanlon Comprehensive Plan (2002)
- Proctor Comprehensive Plan (2002)
- Hermantown Comprehensive Plan (2001)
- Carlton County Comprehensive Plan (2001)
- Grand Lake Township Comprehensive Plan (2000)
- Solway Township Comprehensive Plan(2000)
- Two Harbors Comprehensive Plan (1999)
- Thomson Township Comprehensive Plan (1999)
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- Midway Township Comprehensive Plan (1997)
- Cloquet Comprehensive Plan (1994)
- Gnesen Township Comprehensive Plan(1992)
- Lakewood Township Comprehensive Plan (1985)
- Fredenberg Township Comprehensive Plan (1984)
- Duluth Township Comprehensive Plan (1979)

Legend

 Comprehensive Plan Reviewed



Normanna Township Comprehensive Plan (2003)

Land Use Goals:

- Maintain and enhance the rural character of Normanna Township and promote low-density residential development.
- Residential building activity in the township will occur in a manner that maintains unpolluted waterways, healthy soil and clean air.
- Adjacent land ownership with potentially incompatible land use shall be separated by buffer zones. Buffer zones shall be designed so that potential conflicts are minimized through the use of physical barriers, distance, vegetation screens, and proper physical orientation of lots, building and machinery. All shall conform to use standards as defined by the St. Louis County Zoning Ordinance.
- Residence density should be higher along existing roads and lower in interior lands.
- Large commercial and industrial development is discouraged in all areas of the township.
- Allow the diffuse location of "small" business throughout the township (of the "family or home business" type).
- Community needs for public services and recreation shall be respected and evaluated as the need arises.
- Maintain the quality of all roads to keep them efficient and serviceable.
- Preserve and conserve all water resources within the township boundaries.
- Land suitable for agriculture and forestry should be encouraged for such uses.
- Require the orderly development and extraction of mineral resources and gravel, follow sound mining management and land reclamation practices, mitigate adverse environmental impacts, preserve other existing natural resources, and encourage future land use.
- Encourage and promote energy conservation and development of alternative energy resources such as solar power, tree farms, and forestland development.
- Maintain and encourage an air quality that is compatible with good health, welfare, and quality of life.
- Keep the number and visual impact of wireless communication or radio towers to a minimum and insure they have no negative impact on the environment or wildlife.
- Keep visual impact of utility infrastructure to a minimum.
- Encourage the existence and maintained function of a planning committee formed from among township residents and sanctioned by the township board of supervisors to provide a constant means of communication between county planning and zoning offices and township residents to help meet the future needs of the township regarding its land use.
- Any proposed change of land use in Normanna Township shall be determined in accordance with the present land use plan.

Canosia Township Comprehensive Plan (2002)

Land Use Goals and Objectives:

- Residential development in Canosia should be carried out in a way that maintains the existing rural character of Canosia Township. (23)

- Commercial growth in Canosia Township should be concentrated in areas with suitable infrastructure and near existing commercial or industrial centers. Presently, these areas include Four Corners and the North Development Area of the Duluth International Airport. (24)
- The natural resources of Canosia Township should be protected, with emphasis given to shore land areas and wetlands. (24)

Public Services and Facilities Goals and Objectives:

- Ensure adequate public facilities and infrastructure that meet the residents' needs. (33)
- Transportation Goals/Objectives:
 - Establish and maintain a transportation system capable of providing safe, efficient, and economical travel patterns within and throughout the township. (47)
 - Protect the major capital investment of the road network within the township. (47)
 - Promote improved bike and pedestrian facilities within the township. (48)

Scanlon Comprehensive Plan (2002)

Land Use Concepts, Goals, and Objectives:

- Provide affordable, safe, and sanitary housing opportunities that accommodate the range of lifestyles, ages, and incomes of current and future Scanlon residents. (15)
- Provide areas for commercial development of Scanlon that are appropriate for Scanlon's role within the Cloquet region and that take advantage of Scanlon's location along Interstate 35 and Highway 45. (16)
- Expand park and trail amenities within the St. Louis River Corridor. (17)
- Protect and enhance environmentally sensitive areas in order to preserve the environmental qualities and functions such as storm water retention, water quality protection, and recharge for local streams. (17)

Public Facilities, Services, and Infrastructure Goals and Objectives:

- Ensure adequate public services and infrastructure throughout the city that meet the needs of residents. (25)

Proctor Comprehensive Plan (2002)

Land Use Goals:

- Promote aesthetically pleasing and sustainable downtown business development through redevelopment opportunities. (47)
- Promote creative development possibilities throughout the city to allow for wise use of the land while protecting environmental resources and quality of life. (47)

Economic Development Goals:

- Provide and promote economic opportunities within the community. (47)
- Promote tourism of the city. (47)
- Improve community image. (48)
- Develop strategic partnerships to promote economic development. (48)

Housing Goals:

- Promote infill development. (48)
- Promote a welcoming atmosphere for new housing construction. (48)
- Promote housing rehabilitation by identifying and removing slum and blight. (48)
- Encourage the development of life-cycle housing. (48)



Transportation Goals:

- Improve the mobility of Proctor residents. (48)
- Ensure that a safe, adequate system of roads is in place in the community. (48)
- Decrease the reliance on single-occupant automobile usage. (49)

Infrastructure Goals:

- Continue discussions with local governments on infrastructure issues. (49)
- Work closely with WLSSD to determine long-term goals for sewer capacity. (49)
- Determine and quantify the condition of water and sewer facilities. (49)

Hermantown Comprehensive Plan (2001)

Plan Concepts:

- Maintain the rural and suburban character of the city of Hermantown. (9)
- Manage residential development to preserve critical natural features and existing, established neighborhoods. (9)
- Phase residential development consistent with necessary and available public infrastructure. (9)
- Locate new light industrial development in areas with similar uses, adequate public facilities, highway and arterial road access, and without conflicts with existing, established residential, public, recreational or commercial development. (9)
- Develop new commercial uses in areas with similar uses, adequate public infrastructure, including fire, police and emergency medical services, highway and arterial road access and without adverse visual or environmental impacts on existing, established residential, public, recreational or commercial development. (10)
- Maintain large areas of contiguous open space to preserve critical habitat and natural features such as forested and open water wetlands that help protect the surface and groundwater resources of the community. (10)
- Develop an inventory of public open space that will provide passive and active recreational opportunities for all the residents of Hermantown. (10)
- Reduce the community's reliance on the automobile and connect neighborhoods with public and private activity centers through a system of on and off road bicycle trails and pedestrian paths that would not be accessible to motorized traffic. (10)
- Plan a community traffic circulation system to serve the evolving land use pattern and provide the necessary right-of-way for new roadways to serve development and

enhance the community traffic circulation system for people, goods and services entering and leaving the city. (10)

- Preserve large tracts of agricultural land throughout Hermantown, especially in the area west of Ugstad Road. (12)
- Preserve large areas of contiguous forestland and/or forested bog areas through zoning, public dedications and conservation easements. (12)
- Preserve natural views and vistas of significant topographic, water and forest resources in all of Hermantown. (12)
- Preserve the air, water and land resource quality in the city of Hermantown. (13)
- Maintain the quality of the community's housing supply at a level to ensure consistent property values throughout a neighborhood or area, and to result in housing with increasing property values. (13)
- Plan for and provide needed and necessary public facilities and utilities appropriate to support suburban level development. (14)
- Program all utility improvements necessary to service existing development and new development over a 5 to 7 year period. (14)
- Reduce the community's dependence on fossil fuels by maintaining an efficient traffic circulation system, quality energy efficient public and private buildings, alternative travel modes and alternative fuels. (14)
- Identify key partnerships for Hermantown that are necessary for development in the commercial sectors of the community and in development of infrastructure. (15)
- Work to preserve older established neighborhoods by providing needed infrastructure improvements and rehabilitating or removing substandard structures. (15)
- Plan for the preservation of historic properties and structures. (15)
- Assist in establishing Hermantown as a strong, diverse center for the community and the region. (16)
- Assist in developing the commercial center of Hermantown into a vibrant, dynamic, full service business community with safe vehicular access and egress, safe, energy efficient buildings and building sites that preserve water quality and present a pleasant, spacious, landscaped property, without conflicts with adjacent uses. (16)

Carlton County Comprehensive Plan (2001)

Land Use Goals:

- Promote land and water uses that result in sustainable use of natural resources, in order to enhance the natural beauty of the county for this and future generations. (113)
- Maintain high water quality in Carlton County's lakes, wetlands, and waterways. (114)
- Protect the native wildlife, plants and their communities found in Carlton County. (115)
- Manage forests sustainably to provide for multiple uses across the county. (116)
- Maintain options for future mining activities in areas of high mineral potential. (118)
- Provide recreation facilities to meet public needs while maintaining user safety and protecting the environment. (118)
- Encourage agriculture as a viable part of a diverse economy and maintain rural settlement characteristics of agricultural areas. (119)

- Encourage a variety of land use types within the county, which enhance the quality of life and environment of the area, and facilitate cost and efficient provision of public services. (119)
- Encourage all commercial and industrial businesses to be well designed and adequately maintained. (120)

Public Facilities Goals

- Provide and maintain adequate public facilities in Carlton County that preserve and enhance the health, safety, and welfare of the residents. (51)

Grand Lake Township Comprehensive Plan (2000)

Plan Concepts:

- Preserve the rural character of Grand Lake Township through large lot development that maintains present dwelling unit densities in the non-shore land, rural areas of town. (10)
- Protect the quality of Grand Lake Township water resources by managing development in watersheds and decreasing population densities allowed in the watershed away from the immediate shore land. (10)
- Develop the Twig area as the commercial center for the community. (10)
- Locate compatible and complementary commercial uses in the Twig area. (10)
- Limit light industrial development in Grand Lake Township to those areas presently zoned for light industrial uses. (11)
- Limit new industrial uses first to lands that will not create conflicts with existing residential and commercial uses. (11)
- Provide recreational opportunities for all residents and age groups. (12)
- Provide safe and efficient connections to state and county trails. (12)
- Minimize expansion of the township maintained road system and upgrade existing town roads to provide a safe and efficient local traffic circulation system. (12)
- Provide residents with a modern town hall/community center in the Twig area. (13)
- Ensure resource extraction activities conform to all local, county, state and federal environmental standards. (13)
- Minimize the impacts to the local environment from forestry and mining activities. (13)
- Minimize the impacts from resource extraction and transportation operations on existing development. (13)
- Support strict enforcement of existing county zoning standards for all existing and new development in Grand Lake Township. (15)
- Preserve wetland and bog areas in Grand Lake Township consistent with federal, state, and county standards. (15)

Solway Township Comprehensive Plan (2000)

Natural Resource Goals:

- Develop land to take advantage of and respect the physical limitations of natural resources that a quality environment can be enhanced and preserved. (16)

- Integrate recreational uses with the preservation and maintenance of natural resources and environmental features whenever possible. (16)
- Encourage the sound utilization of economically valuable natural resources. (17)
- Encourage landowners to preserve the aesthetic quality and natural topographical features specific to Solway Township. (17)

Housing Goals:

- Encourage housing development that accommodates the lifestyles, ages, and income levels of existing and future residents. (23)

Commercial and Economic Development Goals:

- Maintain current commercial areas and discourage expansion of commercially zoned areas as indicated by the survey results. (25)
- Allow “cottage industries” and home businesses as permitted by the St. Louis County zoning regulations. (25)
- Ensure protection of the health, safety, and welfare of township citizens when reviewing requests for commercial and industrial development. (25)

Public Services and Facilities Goals:

- Work with Independent School District 704 on the redevelopment of the old Munger School site as a recreation area. (28)

Transportation Goals:

- Establish and maintain a transportation system capable of providing safe, efficient, and economical travel patterns within and through the township. (46)
- Protect the major capital investment of the road network within the township. (46)
- Promote methods of increasing transportation energy efficiency. (46)
- Coordinate new road construction and maintenance with traffic circulation, the need for developable land, and available financial resources. (46)
- The township should seek to minimize the consumption of land for utility right of ways. (46)

Land Use Goals:

- Ensure that land use decisions made at the county level are made with the greatest possible amount of township input and with the opportunity for public participation. (65)
- Maintain and enhance the rural character of Solway Township and promote low-density residential development. (65)
- Limit commercial development. (65)
- Reduce potential conflicts arising between gravel pit operations and residents. (66)
- Provide a full range of recreational opportunities for all township residents to enjoy, on an equal basis, through the expansion of existing and the development of new recreational options. (66)
- Allow limited levels of light industrial and rural industrial uses where existing zoning and transportation infrastructure allows. (66)

- Support the continuation of the existing character of agricultural operations and reduce the potential for conflict with residential uses. (67)
- Support the continuation of forest management to ensure the survival of woodlands for future generations. (67)
- Keep the number and impact of landfills to a minimum to protect the health, safety, and welfare of Solway Township's residents. (67)
- Keep the number and visual impact of cell towers to a minimum. (68)
- Keep the visual impact of utility infrastructure to a minimum. (68)

Two Harbors Comprehensive Plan (1999)

Land Use and Environmental Goals:

- Use land within the city of Two Harbors in a planned and managed way to bring about moderate population and economic growth while protecting key environmental and historical features such as the lakeshore, Skunk Creek, wetlands, scenic views, the lighthouse and other historic sites and preserve access and view to the waterfront. (23)
- Have adequate land properly zoned and with infrastructure to allow an active development market in the city. (23)
- Provide adequate residentially zoned land to permit short-term growth for a population of 4,000 and sufficient residential reserve land to permit long-term growth to 5,000. (23)
- Sustain our existing neighborhoods as viable and desirable living areas and protect them from disruptive land uses and activities. (23)
- Provide enough commercially zoned land in several appropriate areas to permit continuous commercial expansion. (23)
- Preserve the pedestrian and village aspects of the older town of Two Harbors. (23)
- Work with Lake County and Silver Creek Township to manage development around the city in accordance with these goals. (23)

Land Use and Environmental Action Steps:

- Rejuvenate the downtown as an entertainment, hospitality, retail and waterfront historic district relating to the development of a marina in Agate Bay. (23)
- Continue developing the west entrance to the city as a travel oriented commercial area, while improving the visual, environmental and traffic management aspects of new and existing development to reflect the Scenic Byway Designation of Highway 61. (23)
- Preserve the "Old Town" nature of 7th Avenue between the railroad underpass and 4th Street as a shopping and hospitality district for residents and visitors through a design oriented zoning district, a streetscape project and improvements to maximize traffic capacity. (23)
- Protect land along CSAH 26 for industrial expansion within the city limits and work with Lake County to provide a long-term supply of industrial land near the city through zoning, infrastructure and acquisition. (23)
- Reserve the Burlington Bay/Skunk Creek mouth/ bus barn and football field area for a long-term high quality commercial hospitality development surrounding a core of open space, water and recreation space. This area is the trailhead to the North Shore. (24)

- Construct a marina in Agate Bay, while improving waterfront access and providing open space by acquiring the lighthouse and all of lighthouse point, and encouraging downtown investment. (24)
- Create and expand a system of recreational trails into the developed, developing and natural fabric of the city. (24)
- Have Skunk Creek become a clean, biologically sound, visually attractive, well-maintained waterway, recreation trail and parkway, that connect and pull together the entire city. (24)
- Provide for a small highway commercial development in the vicinity of CSAH 2 and CSAH 26 in the northeast corner of the city. (24)
- The city of Two Harbors should be prepared to apply these goals to railroad land in and around the city, whenever it becomes available for marketing. (24)
- Plan for new residential areas in North Segog and the 10th and 11th additions (undeveloped area west of CSAH 26 and the area adjacent to the golf course), using modern subdivision and development methods including the principles of sustainable development. (24)
- Maintain the zoning ordinance and map in conformance with this plan. Several areas will be covered. (24)

Housing Goals:

- Sufficient new housing should be constructed to replace housing lost to aging and demolition and to permit population growth for at least a population of 4,000 residents. (36)
- Housing development and programs support the overall-planning goal of maintaining a compact community rather than scattering new facilities and development in ways and places that fragment and separate the community. We want to give high priority to building and to completing the existing community and discourage actions that pull it apart. (36)
- All existing Two Harbors neighborhoods remain or become highly livable through completion, protection, rehabilitation or restoration. (36)
- Residential land at several locations must be available and prepared for development in order to create a diverse market supply with choices in price, style and locations. Several developers and marketing efforts are needed to increase demand for housing. (36)
- To accomplish orderly growth and development through the planned extension of municipal utilities and services. (36)
- That selection of areas for new residential development be based on service capacities, existing land use, and natural features, such as; topography, wetlands, and vegetative cover on the future land use map, and carefully evaluate residential development proposals to ensure compatibility with the approved Comprehensive Plan. (36)

Economic Development Goals:

- Continue to grow commercial areas. (55)

Transportation Goals:

- Attain a well-maintained, safe, efficient, and convenient transportation system that links neighborhoods with community resources and businesses, as well as with regional transportation systems. (69)
- Continue to provide transportation opportunities in Two Harbors, so all residents have equal access to services. (69)
- Encourage pedestrian oriented transportation through the provision of well-maintained sidewalks and trails. (69)
- Encourage Lake County and Arrowhead Transit in providing transit services for all ages in Two Harbors. (69)

Thomson Township Comprehensive Plan (1999)

Land Use Goals and Objectives:

- To manage, preserve, and enhance unique land and water resources, thereby enhancing the community as a place to live, work, and visit. (1)
- To protect and preserve the natural environment by avoiding development on high value wetlands, steep slopes, and floodplains. (1)
- To plan 400 additional acres for residential use. (1)
- To encourage in-fill development in existing residential neighborhoods. (1)
- To plan community growth based on the availability of infrastructure. (1)
- To plan specific areas of the township primarily for residential land uses. (1)
- To promote subdivisions of cluster housing by encouraging Planned Unit Developments. (3)
- To provide life-cycle housing. (3)
- To enhance small town character. (3)
- To promote and expand the Esko central business district. (3)
- To maintain distinct land uses, including a central community park, business park, town center, and residential neighborhoods. (4)
- To create an additional 10 acres of neighborhood commercial sites. (4)
- To create a highway commercial center of 30 acres along I-35. (4)
- To create industrial or business parks and to protect these areas from encroachment by non-compatible land uses. (4)

Housing Goals:

- Include a variety of housing types and values to accommodate a 2018 projected population of 5,071 residents of all income levels and stages in the life cycle. (6)
- Work with the private sector to provide housing for a growing senior population. (6)
- To support affordable housing. (7)
- To protect the homeowners' views of the surrounding natural resources. (7)

Wastewater Facilities Goals:

- To adequately maintain or upgrade existing sanitary sewer systems. (8)
- To require industrial wastewater pretreatment and pollution prevention. (8)

- To provide sanitary sewer service for the homes and businesses within the town center, including the industrial park. (8)

Surface Drainage and Storm Water Facilities Goals:

- To maintain adequate surface drainage and storm water facilities so Thomson is a safe and environmentally conscious community. (9)

Water Facilities Goals:

- Create well field for water supply, with associated overhead and ground storage, plus distribution systems. (9)

Transportation Goals:

- To construct all roadways within the Town to design standards consistent with their designated functional classification. (10)
- To upgrade the town roadways based on a pavement management system, measured and projected traffic volumes, safety considerations, and functional classification needs. (11)
- To maintain the vehicular carrying capacity of county state aid highways (CSAHs) 1, 2, and 61, and Interstate 35, to serve both the intercity and the internal circulation needs, as well as the need for adjacent property access. (11)
- To protect the safety of the students at and while accessing the school site. (11)
- To require that proposed street systems in new developments be integrated with existing street systems, and accommodate future roadway extensions for adjacent developable property. (11)
- To design dead-end streets to accommodate public safety and maintenance vehicles. (12)
- To promote coordination between residential neighborhoods and transportation resources, including pedestrian, bike, and roadway connections. (12)
- To pave all gravel surfaced public roadways by 2018. (12)
- To extend the minor collector street of Church Road north to intersect Cloquet Road East. (13)

Bicycle and Pedestrian Goals:

- To provide or improve walking, biking, and street connections between neighborhoods. (13)
- To construct all new roadways with the assumption that they will be used by bicyclists and pedestrians and incorporate appropriate design considerations for safety, intersection design, roadway surface, and roadway width to accommodate a compatible use with vehicles. (13)
- To provide a trail system that facilitates use and connects to the Munger trail. (13)

Public Facilities Goals:

- To have a central community park located on the east side of Canosia Road, just north of the central business district. (15)

Rice Lake Township Comprehensive Plan (1998)

Land Use Goals and Action Steps:

- Inform the public on alternative wastewater systems. (31)
- Focus commercial growth along the Rice Lake Road corridor. (31)
- Focus light industrial land use along Martin Road, west of Rice Lake Road (located in airport overlay zone). (31)
- Maintain existing industrial areas on East Calvary Road. (31)
- Address the need for buffer zones between residential land uses and commercial/industrial land uses. (31)
- Identify areas that cannot and or should not be developed for housing, based on environmental constraints. (31)
- Adhere to lot size requirements for residential lots as prescribed by the official zoning ordinance. (31)
- Identify areas and locations for specific housing development. (32)
- Educate township residents and potential developers on different types of housing developments including cluster developments, sustainable land use, etc. (32)
- Work with the Parks Board in maintaining and expanding park and recreation areas. (32)
- Establish an agreement with WLSSD for the acquisition of buffer zone land located along Rice Lake Road. (32)

Public Facilities Goals and Action Steps:

- Look into providing trail areas and locations. (40)
- Work with local school districts to identify alternatives to existing situation. Possibilities may include realignment of current district boundaries or the creation of a new school to accommodate growth and overcrowding and to allow all students from the town to attend the same schools. (40)
- Investigate the feasibility of acquiring natural gas service from the city of Duluth or other suppliers. (40)
- Develop a long-range financing plan to implement a four-phase utilities extension. (40)
- Develop a plan for roadway resurfacing for county and township roads. (40)
- Address the need for replacement and/or improvements to existing township owned and operated building facilities. (40)
- Proceed with park improvement plans by the Parks Board. (41)

Economic Development Goals and Actions Steps:

- Create new industrial opportunities on Martin Road west of Rice Lake Road. (53)
- Continue to work with regional agencies to create and attract new business and industry. (53)

Transportation Goals and Action Steps:

- Work with the DTA, St. Louis County, and Public Works to address recommendations put forward in this plan in order to provide safe, efficient transportation opportunities throughout Rice Lake Township. (68)

Midway Township Comprehensive Plan (1997)

Plan Concepts:

- Most of Midway is to be rural development characterized as low density residential and agriculture. (11)
- Open space areas and significant natural features are to be preserved to enhance Midway's rural character, encourage low densities, and protect the ecological function of natural systems. (13)
- Moderate density urban and suburban style development is to be limited to Midway Park and logical limited extensions from it. (13)
- Commercial/industrial development is to be geographically designated as the following: I-35/Midway Road interchange area for commercial and light manufacturing/warehousing; Highway 2 for general commercial; retention but not expansion of existing uses along Midway Road north of I-35; and home occupations throughout the town as appropriate for the specific neighborhood. (14)
- Encourage the continuation of Nopeming as a health care facility and, if a change of use is considered by a future owner, the town shall undertake a specific planning process for the property and surrounding area to insure a desired redevelopment result. (15)
- Maintain buffer zone for regional recreation/open space systems, and integrate town recreation/open space systems with those regional facilities. (15)
- Consider a variety of mechanisms to ensure the provision of adequate quantities of quality drinking water for residents throughout the community. (16)
- Limit number of power and utility corridors to the existing level and encourage multiple uses of such corridors by power and utility services. (16)

Goals:

- To preserve the existing rural character of the town. (18)
- To preserve and enhance the already high quality of the town's physical environment. (19)
- To consider the orderly development of commercial and industrial activities. (21)
- To encourage decent housing of various types for people of all economic levels in a manner consistent with the character of Midway. (22)

Cloquet Comprehensive Plan (1994)

Residential Land Use and Housing Goals and Objectives:

- To achieve a balance in housing type and density within the community that accommodates the range of lifestyles of residents while maintaining the existing character of the community. (61)
- To encourage housing availability for all ages and income levels so as to meet both current deficiencies and projected demand. (61)
- To encourage orderly growth through the planned extension of municipal utilities (sanitary sewer and water) and the directing of development to those areas already serviced. (61)
- To preserve the rural, open character of the non-urbanized area of the community. (61)

Residential Land Use and Housing Policies:

- Designate suitable expansion areas for residential development close to or near readily accessible community sewer and water services. Promote orderly clustered growth, rather than costly scattered development. (62)
- Allow rural subdivision developments that utilize on-site sewer and water systems only in cases where municipal services are not feasible, and only in those areas which can be proven to be suitable for such development without creating environmental, health, pollution, or other detrimental impacts in the area. (62)
- Encourage the planned development concept in housing so as to provide developer incentives to utilize marginal or unique lands within the city, and to promote diverse residential developments that have excellence of design and open space characteristics. (62)
- Carefully evaluate development proposals for medium and higher density residential construction to conform to the approved land use plan. Authorize higher density residential zoning only when the potential developer has established the project's feasibility and conformance to the land use plan. Prevent speculative rezoning for higher density use in undeveloped residential areas in order to protect residential land values from negative impacts. (62)
- Revise zoning and subdivision regulations to promote the development of available vacant land with the urban core. (62)
- Preserve the small lot single-family residential character of the community's core, and the low-density, open, agricultural character in the rural sector of the community. (62)
- Adopt a housing plan that identifies substandard housing areas, housing needs, and areas suitable for new housing development. Formulate strategies for housing rehabilitation and new housing development. (62)
- Identify an area or areas suitable for the development of a manufactured (mobile) home park(s). (62)

Commercial Land Use Objectives:

- To provide for a functional and well-defined central business district (CBD) that offers a variety of services with convenient customer and employee parking, and overall design theme, and shopper convenience facilities. (62)
- To establish growth areas for highway commercial service uses key to an expanding tourism industry, and set standards for placement and construction that will complement rather than conflict with the urban thoroughfare function. (62)
- To establish neighborhood shopping areas which encourage the grouping of neighborhood convenience commercial uses at strategic locations rather than scattered indiscriminately throughout residential areas. (63)
- To encourage development of tourism and other emerging markets in an attempt to diversify and strengthen the economic base. (63)

Commercial Land Use Policies:

- Designate a Downtown Development District and work together with the Chamber of Commerce, community merchants, Housing and Redevelopment Authority, and other interested citizens to improve and promote the CBD. (63)

- Set design standards and identify locations along urban thoroughfares for the logical placement of highway service uses to anticipate the construction demand for this type of use. (63)
- Plan, design and construct a frontage road system to provide easy access to highway service uses so as to minimize conflicts with the urban thoroughfare function. (63)
- Encourage the clustering of highway service uses into area keyed to major highway access points that are designed to maximize traffic safety and minimize traffic congestion, conflict, and confusion and encourage appropriate neighborhood commercial uses to lessen traffic congestion and strengthen neighborhoods. (63)
- Continue the redevelopment of Dunlap Island in accordance with the overall redevelopment plan prepared in 1985-86, and encourage the redevelopment of “The West End Business District” and portions of the old CBD to focus on expansion of tourism. (63)
- Identify suitable neighborhood commercial “nodes” in the land use plan and utilize appropriate zoning controls to encourage the clustering of neighborhood commercial uses into these “nodes”. (63)
- Prepare and adopt an overall economic development plan, which will address the commercial and industrial needs and potential of the community and provide guidelines for meeting those needs and potential. (63)

Industrial Land Use Objectives:

- To maintain and expand the employment and tax base generated by industry within the community. (63)
- To maintain and encourage a balanced land use pattern by locating new industrial development in industrial park areas identified on the land use plan map. (64)
- To diversify and expand the industrial base of the community so as to assure a stable economic climate. Such diversification and expansion should look within and beyond the timber-related resources that now dominate the local economy. (64)

Industrial Land Use Policies:

- Provide development incentives and adopt industrial development regulations that encourage and assist new or expanding industry to locate within designated industrial parks. (64)
- Coordinate efforts with the Cloquet Development and Industrial Corporation to develop industrial park areas and to attract suitable new and expanding industry to the city. (64)
- Adopt new industrial development zoning regulations to encourage new development in industrial park areas and which will ensure design standards to compliment and benefit surrounding, already developed properties. (64)
- Locate and identify in the land use plan suitable land areas for the development of industrial park areas, as the existing parks approach capacity. (64)
- Prepare and adopt an overall economic development plan that assesses current concentrations of industrial uses, addresses the commercial and industrial needs and potential for the community, and provides guidelines for meeting those needs and potential. (64)

Recreation Land Use Objectives:

- To encourage a wide variety of uses in the programming of existing facilities for both active and passive recreational functions that will appeal to all age groups. (64)
- To acquire and develop new recreation areas, especially neighborhood parks and lots, as residential development occurs in undeveloped areas not currently served by existing facilities. (64)
- To expand opportunities for indoor recreation to meet the needs and interests of various age and income groups. (64)

Public Facilities Objectives:

- To meet the demands of Cloquet residents for efficient public services and facilities, and expand these services and facilities as new growth occurs with emphasis on location as land use patterns develop. (65)
- To equitably assign the cost for new and expanded public facilities to those who receive the primary benefit. (65)

Transportation Objectives:

- To identify priorities for the upgrading of an urban arterial and collector street system, and to establish logical extensions of major streets as new residential subdivisions occur. (66)
- To identify special transportation needs and maximize the efficiency of other transportation functions in and through the city. (66)
- To equitably assign the costs of new street development and existing street redevelopment to those who would primarily benefit from such improvement. (66)

Gnesen Township Comprehensive Plan (1992)

Land Use Principles:

- Preserve the rural character of the community and enhance the natural essence of the various developed areas within the town. (25)
- Encourage appropriate new development while protecting existing development and the environment from adverse impacts. (25)
- Recognize the importance of the town's extensive surface and ground water resources including the Boulder and Island Lake Reservoirs, the Cloquet River and its tributaries, the numerous small lakes and extensive wetland areas as important for recreation, aesthetics, wildlife and habitat and for healthful rural living. (25)

Environmental Quality Principles:

- Adopt a general standard of no net loss of wetlands and, in areas of special concern or sensitivity or unique value, no loss of wetland. (25)
- Achieve the minimum disruption of immediate lakeshore and riverfront lands through vegetation loss, reshaping of the land, and similar actions. (25)
- Encourage proper land management activities (use of lawn fertilizers, pesticides, septic system maintenance, and the like) in shore land areas. (26)

- Encourage owners of existing developed lakeshore and river or stream front lots to restore shore lands to more natural conditions in terms of vegetation and land contours. (26)
- Support efforts to ensure that people maintain on-site septic systems in proper working condition. (26)
- Recognize that public water and sewer systems will not and, likely cannot economically be extended to Gnesen and, prohibit development that cannot safely be served by individual wells with on-site wastewater treatment systems, approved by St. Louis County and the Minnesota Pollution Control Agency (MPCA). (26)

Transportation Principles:

- Discourage development or activities which exacerbate safety problems along Rice Lake Road and other highly traveled roads in the community. (26)

Housing Principles:

- Support and pursue programs to assist property owners to maintain and upgrade their housing. (26)
- Carefully evaluate all proposals for new housing developments to ensure the types and locations of proposed new housing is consistent with the general character of community and surrounding development. (27)

Recreation Principles:

- Cooperate with Minnesota Power, the Minnesota Department of Natural Resources (MN DNR), St. Louis County and other groups in development of new or expansion of existing recreational facilities in the town. (27)

Commercial Development Principles:

- Promote development of compatible and desirable tourism and recreation related businesses. (27)
- Commercial and light industrial uses that do not require large amounts of potable water and/or generate more than 500 gallons of sewage per day should be located away from residences and present a credible appearance on all property lines fronting on a public street or highway. (27)
- New commercial uses should not result in traffic conflicts, safety hazards or congestion on the community road system. (27)

Industrial Development Principles:

- Recognize that gravel mining is a light to heavy industrial activity that presents a number of problems and nuisances for residents of the community in the vicinity of the pit. These uses require more diligent regulation by St. Louis County and Gnesen Township. (28)
- Examine all proposed industrial uses for compatibility with adjacent development and, for short and long-term impacts on surface and ground waters of Gnesen. (28)
- Recognize that residential and industrial developments are generally incompatible and normally should not be permitted uses on the same parcel. (28)

Lakewood Township Comprehensive Plan (1985)

Land Use Goals:

- Land should be developed in order to take advantage of and respect the limitations of the natural resources of Lakewood so that a quality environment is enhanced and preserved. (38)
- Protect and preserve the scenic beauty of the community. (39)
- Maintain the water quality of Lakewood's streams and rivers to insure their continued use for recreation, domestic water consumption and aquatic habitat. (39)
- Forestland shall be protected and managed as a natural resource, a recreational resource and an industrial resource contributing to the general welfare and scenic beauty of the township. (39)
- Maintain and enhance the present rural, semi-rural and suburban mix in Lakewood. (39)
- Consolidate similar land uses in order to facilitate the ease of providing services, to help maintain land values and to make individual land uses more convenient and economical. (40)
- Provide healthy, safe, efficient and attractive residential areas for permanent and seasonal residents. (40)
- Establish and maintain a transportation network capable of providing safe, efficient and economical travel throughout Lakewood. (40)
- Coordinate any new road construction or maintenance with overall traffic circulation, the need for developable land and available financial resources. (41)
- Promote methods of increasing transportation energy efficiency. (41)
- Minimize the consumption of land for transportation related uses. (41)
- Encourage a full range of recreational opportunities for all residents on an equal basis. (41)
- Provide for open space within the township which can be integrated whenever possible with the preservation and maintenance of significant natural resources and environmental features. (41)
- Maintain the water quality in Lakewood for domestic consumption. (41)
- Public utilities will be provided only where deemed necessary and economically feasible. (42)

Residential Housing Concepts (43)

- Moderate to high-density residential development will be confined to the Clifton area in the southeast corner of the township.
- Moderate density residential development will continue in the southwest portion of Lakewood.
- Low density, wide lot, rural residential development will continue in the remainder of the township.
- Develop the area around the intersection of the North Tischer and Strand Roads into a multi-purpose community center to serve Lakewood residents.
- Commercial development will continue in the existing commercial zone districts and in other sites deemed appropriate by the Zoning Board and Town Board and as conditional uses.

- Heavy and light industry should be confined to existing zone districts.
- The home business will be allowed as a conditional use in concept 1, 2, and 3 areas of Lakewood.
- The hydrologic function, aesthetic quality and recreation potential of all rivers, streams, valleys, wetlands, and the shore of Lake Superior are to be maintained and protected from adverse development impacts.
- Lakewood shall promote and maintain a safe and efficient transportation system. All development should occur in a manner that supports that system.
- Provide for the recreational needs of local and non-local residents.
- Lakewood will provide public services which will fulfill needs of the residents and will seek to improve the quality of those services.

Fredenberg Township Comprehensive Plan (1984)

Land Use Goals:

- Maintain the existing rural character of the Town of Fredenberg.
- Preserve the high quality of the town's natural environment.
- Provide for the orderly growth of commercial and industrial activities with the town.
- Maintain and promote safe and efficient travel throughout the township's road network.
- Provide a range of recreational activities that meet the needs of local residents.
- Encourage Fredenberg residents and other interested parties to participate in land use and development decisions.
- Encourage and participate in programs that meet housing needs of town residents.
- Rural residential development, consistent with current levels, shall continue to be the predominant land use for the town.
- Interior parcels, primarily landlocked and undeveloped, shall be zoned by the dominating land use of the immediate vicinity. Multiple uses are possible because of the expanse of these areas and compatible land use activity.
- All lake and stream designations shall be consistent with or more restrictive than the classification determined by the MN DNR.
- Commercial and industrial growth within the town should be channeled into existing operations wherever possible; potential commercial and industrial sites should be inventoried and prioritized.
- Fragile lands, especially those that relate to the hydrological system of the town, should be inventoried and protected from potential side effects of development.

Duluth Township Comprehensive Plan (1979)

Land Use Goals:

- Maintain and enhance the present essentially rural character of the town. (1)
- Provide adequate government services to satisfy the needs of the town in anticipation of future demands. (1)
- Develop land so as to take advantage of and respect the physical limitation of natural resources so that a quality environment can be enhanced and preserved. (1)
- Consolidate similar land uses to facilitate ease of providing services, to maintain land values, and to make individual land uses more convenient and economical. (2)

- Encourage housing of various types for people of all economic levels in a manner consistent with town land use goals. (2)
- Promote limited levels of light industrial/manufacturing uses where facilities, roads and neighboring land uses dictated. (2)
- Establish and maintain a transportation system capable of providing safe, efficient, and economical travel patterns within and through the town. (2)
- Provide accessible, attractive, and conveniently located commercial areas of sufficient size to offer an adequate range of goods and services to local residents. (2)
- Provide a full range of recreational activities to allow recreational opportunities for all residents on an equal basis. (2)
- Integrate wherever possible recreational uses with the preservation and maintenance of significant natural resources and environmental features. (2)
- High-density residential development is to be confined to the area lying between the expressway and the lake. (3)
- Moderate density, wide lot, rural residential development is to occur in the area south of the east-west line established by the Lismore (Pioneer) Road.
- Low density, wide lot, rural development is to be located north of the east-west line established by the Lismore (Poiner) Road. (3)
- Commercial development will be encouraged to develop in the Clifton, Wonderland, and Palmers areas along North Shore Drive and commercial businesses already operating elsewhere along the North Shore Drive will be allowed to choose commercial zoning. (5)
- Rural commercial development will be allowed in the inland portions of the town, and existing commercial operations in this area are to be allowed to choose commercial zoning. (5)
- Existing industrial operations will be allowed as a light industrial area upon adoption of such land use control as may be necessary and desirable. (6)
- Home business level light industrial development will be allowed in the Concept 2 and 3 portions of the town. (6)
- Three multiple-use forestry areas are to be designated in the north and east central portions of the town. These areas are to be contiguous, large blocks of land containing the headwaters of north shore streams and are to be owned by the public or by private parties who desire their property to be in a forest management zone. (6)
- A transportation program is to be established to promote and maintain a safe and effective transportation system, and all land use development is to occur in a manner which supports that system. (7)
- The hydrologic function of all stream valleys, drainage ways, wetlands and the shore of Lake Superior are to be maintained and protected from adverse development impacts. (8)
- Recreation facilities are to be provided to satisfy the needs of local users. (8)
- The town is to provide public services which fulfill the needs of the town, and to evaluate the impact of continuing land use development of these services. (9)

WLSSD Comprehensive Wastewater Services Master Plan Summary (2003)

The main mission of WLSSD is to provide a plan that is environmentally sensitive to key water quality and wastewater collection needs. At the same time, this plan also provides a basis for current and future cost effective planning, consistent with local and regional planning guidelines.

Introduction

The Western Lake Superior Sanitary District (WLSSD) was created by the Minnesota Legislature as a special purpose subdivision of the state to address problems with water pollution, sewage collection, and disposal issues in the St. Louis River basin. Minnesota Statute (Chapter 458D) outlines that WLSSD is responsible for improving and protecting the waters of the St. Louis River basin and provides information on the framework by which the district is governed. In 1974, legislation was passed adding solid



waste management as a responsibility of WLSSD. Enabling legislation gives WLSSD broad powers for planning wastewater treatment and solid waste, acquisition of existing facilities, construction of new facilities and the authority to operate facilities and set rates for such services.

WLSSD covers 530 square miles in northeast Carlton County and southeast St. Louis County. The district encompasses nine cities/villages (Duluth, Cloquet, Carlton, Scanlon, Wrenshall, Hermantown, Proctor, Oliver and Thomson) and ten townships (Silver Brook, Thomson, Twin Lakes, Canosia, Duluth, Grand Lake, Lakewood, Midway, Rice Lake and Solway). The largest industrial customers of WLSSD include: SAPPI, Georgia Pacific, Gypsum, Stora Enso and Specialty Minerals.

Comprehensive Planning

WLSSD is required by law to develop a comprehensive plan “for the collection, treatment and disposal of sewage in all or a designated part of the District through a system of interceptors and treatment works.” WLSSD developed a comprehensive plan in both 1976 and 1995 to serve as water quality guides, capital budgeting and facility management.

The planning approach of this comprehensive plan was to evaluate current and future conditions and to prepare an effective asset management and capital improvement plan. The plan addresses: goals; a natural resources inventory and analysis; land use and demographics; individual sewage treatment systems (ISTS); process and facility analysis; and plan recommendations.

The objective of this comprehensive plan was to create a guideline that identifies current and future issues and needs, and evaluates possible solutions. The plan describes current conditions, planning goals, and recommends policies and actions. Implementation of these recommendations will require cooperation from all jurisdictions in the WLSSD area. The vision statement of WLSSD is:

“WLSSD will be the leader in effective waste management, continuously evolving to reflect the ever-changing demands of our many customers at the local, regional, state, national and international levels. Our services will be delivered at a cost that is considered by our customers as fair and equitable. We will meet or exceed all permit standards and will act proactively to continue to be an international showcase for creative and innovative environmental protection technologies. Facilities and equipment will be maintained to a standard of excellence, stressing preventative approaches and modernization. Treatment and disposal services will be available to all within the District who need these services. We will maintain programs of effective community relations so that our facilities are viewed as assets to the neighborhoods where they are located.”

Plan Goals

The WLSSD comprehensive plan addresses these major planning topics:

1) Water Quality Management

Goal: Work with member communities and other agencies to provide effective wastewater treatment services in the Western Lake Superior Sanitary District.

2) Area-wide Development

Goal: Collaborate with appropriate agencies and citizen groups to plan land uses that ensure sustainable development and water quality protection; evaluate alternatives for wastewater collection, treatment, and disposal; support efforts to consolidate similar land uses to economize utility service.

3) Public Facilities and Services

Goal: Provide cost effective and environmentally sound wastewater collection and treatment facilities.

4) Public Participation, Information, and Education

Goal: Increase public participation and knowledge in water quality management

5) Regulatory Responsibility

Goal: Maintain responsibility for managing water quality within the District while recognizing the regulatory authority of other local, state, tribal, and federal entities.

6) Finance

Goal: Finance projects by means that are equitable to all customers.

7) Records Management and Documentation

Goal: Preserve and make available to the public historical data, records, and files pertaining to the water resources of the planning area.

Natural Resources

Regional groundwater flow is east to southeast toward Lake Superior and the St. Louis River in the district. Natural features such as bedrock geology, soils, groundwater levels and topography affect on-site sewage disposal system efficiency. Wetlands represent a physical constraint to development but also require protection from pollutant discharges, whether from surface sources or groundwater influences.

Water quality is not only a public health concern but a concern also to economic growth and tourism. Poor soils and high groundwater tables epitomize shoreline areas, therefore suburban lakes are subject to water quality degradation from shoreline development. Lakes in St. Louis and Carlton counties are highly populated with seasonal or year-round homes. Several lakes have threatened or degraded water quality and as a result some Lake Associations have formed to educate owners. The Minnesota Pollution Control Agency's (MPCA) list of impacted waters shows concern for surface water quality. Concern has also been registered about individual septic system contamination on area lakes, which will continue to degrade water quality if not corrected. Problems relate to existing development as many prime suburban lakes have already been fully developed, the majority of which prior to enactment of shoreline setbacks and structure spacing requirements therefore wastewater disposal systems are improperly located.

The St. Louis River is one of 42 "Areas of Concern" on the Great Lakes due to pollution issues. At present these issues and problems are being addressed by the St. Louis River System Remedial Action Plan, which is focused on the 39 miles of river from Cloquet to Lake Superior. A GIS-based sediment quality database is being developed for this area.

Comprehensive Land Use Planning Responsibility

Land use planning authority in relation to WLSSD is set forth in Minnesota State Statute (Chapter 458D). WLSSD requires local plans be submitted for review and approval in relation to collection, treatment, and disposal of sewage for which the local government unit is responsible. Local sewer extension requests are reviewed by WLSSD to determine consistency with land use plans. Most area comprehensive plans were developed in the 1970's and updated in the mid-1990's.

Land Use

Growth within WLSSD boundary can be described as linear. Development activity has historically spread to outlying suburban areas and along transportation corridors extending to the north, south and west of the city. Duluth is the concentrated urban growth center with smaller freestanding centers such as Cloquet and Carlton, suburban areas such as Hermantown and Proctor, and low-density communities such as Canosia and Twin Lakes surrounding it. Additionally, scattered urban development exists on inland lakes such as Pike, Grand and Caribou. There is also development along the shore of Lake Superior (Duluth and Lakewood Townships) and in the second tier of townships around Duluth where lake frontage and rural character are within commuting distance.

A large percentage of high-growth areas are rural in nature and served by individual sewage treatment systems.

Population

The overall shift in population to suburban and nearby rural areas is indicative of demographic trends across Northeast Minnesota. Historically population was concentrated, however in the last 15-20 years a change in population has been noted in second tier suburban tracts and rural locations. Isolated development and population shifts are noted around area lakes and along the North Shore of Lake Superior.

Population trends find that this suburban shift will continue. Of note is a significant forecasted rise in population in the city of Hermantown and the Townships of: Canosia, Grand Lake, Duluth, Lakewood and Rice Lake. This is important to WLSSD, as public sewer does not currently serve the majority of these areas.

Service Areas

The WLSSD area covers 530 square miles encompassing eight cities and ten townships. Approximately 15% the area is sewered with another 7% to be sewered in the next 10-20 years. An analysis of local Comprehensive Plans found the city of Hermantown, Canosia and Rice Lake Townships, the North Shore and other developed areas have a potential need for public sewer in select areas.

Map 4 shows WLSSD's wastewater service areas and urban services boundary. The information on the map is explained below.

- **Sewered Area:** currently served by publicly owned sanitary sewers. Wastewater is treated at WLSSD in Duluth.
- **Urban Service Area:** the master planning process found areas where urban growth (higher-density development served by public utilities such as sewer) is planned to occur during the next several years.
- **WLSSD Urban Services Boundary:** delineated after consulting communities about locations where urban density development will occur. Outside this boundary are areas that should be protected from urban sprawl or unorganized growth. The boundary's intent is to show the approximate location beyond which public utilities (such as sanitary sewer) should not be extended and to ensure controlled expansion of local sewer systems consistent with local Comprehensive Plans as well as WLSSD's District Plan and Capital Improvement Program.
- **Areas of Concern:** these are areas within the 530 square mile statutory boundary of WLSSD that may require further investigation. These areas are typically located around lakes and rivers, with small lots and seasonal homes, and have few options to improve their septic systems.

Individual Sewage Treatment Systems (ISTS)

Seventeen-percent of the population in the WLSSD area does not have public sewer, a number which is slightly less than 1995 estimate due to removing large unsewered populated areas within Cloquet (1,201), Hermantown (2,483), Towns of Thomson (3,561) and Rice Lake (3,127). In the state of Minnesota, twenty-seven percent of the population is unsewered, a number that is decreasing statewide.

Responsible Units of Government

Statewide:

MN Rules Chapter 7080 “ Individual Sewage Treatment System (ISTS) Standards” (Administered by MPCA) provides technical standards and guidance for the siting, design and construction of on-site individual systems. Adopted as the first state law addressing ISTS in 1994 with major changes in 1996.

MN Statutes Chapter 103F: Requires counties and municipalities to adopt and enforce these standards within designated floodplain, shore land and wild and scenic rivers. Outside these areas Chapter 7080 applies as the only guidance to municipalities and counties.

Counties, Municipalities, and Towns:

In St. Louis County, municipalities and townships with zoning authority, excluding Duluth, use county staff to approve new and rehabilitated ISTS. This is a cost effective arrangements for municipalities and towns to utilize the county’s expertise.

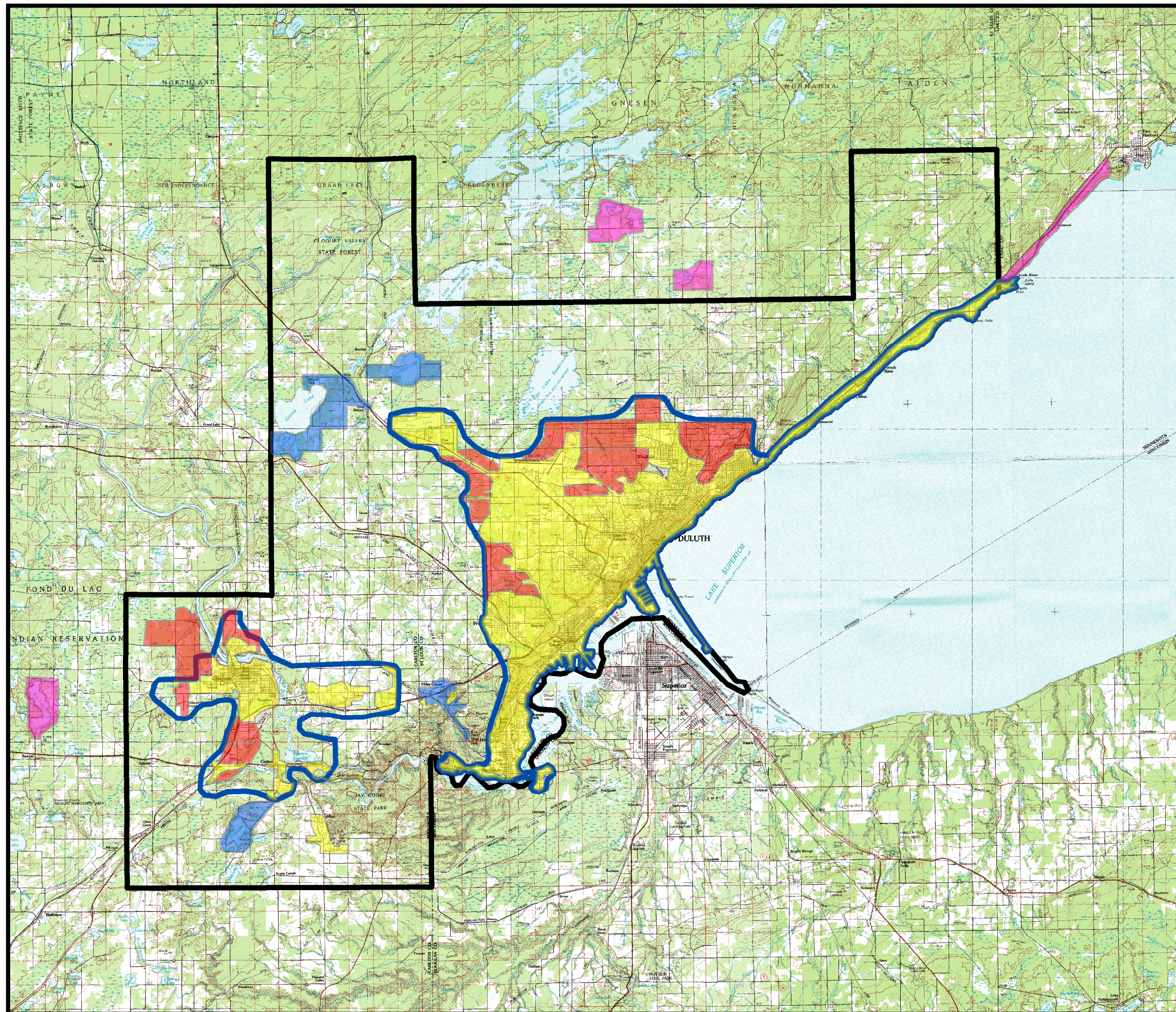
WLSSD Role (with respect to ISTS):

The enabling statute of WLSSD does not mention individual sewage treatment authority as an intended purpose for the District. However, there is an indirect role for WLSSD in ISTS authority through land use and comprehensive planning. This occurs when local governments request transporting of sewage anticipated from and existing or future collection system versus continuing with the construction or maintenance of individual systems.







Process and Facility Analysis

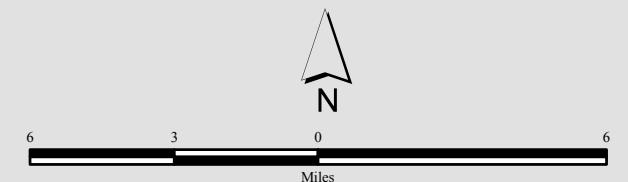
Public sewers serve only 15.3 percent of WLSSD Service area, or 81 square miles. An additional 7.1 percent, or 38 square miles, of public sewer has been planned and designated to receive service over the next ten years and includes: Hermantown, Fond du Lac, Rice Lake Township and the North Shore. Concentrated urban areas receive wastewater service connected to the regional treatment plant through a 74-mile network of interceptors and force-main sewers. Nineteen pumping stations are necessary to move wastewater from as far away as Wrenshall and Jay Cooke State Park. The three largest pumping stations are Cloquet, Scanlon and Knowlton Creek. The regional treatment plant is designed to treat wet weather flow of 48.4 million gallons.

WLSSD Service Area



Legend

-  WLSSD Urban Services Boundary
-  WLSSD Border
- Wastewater Service Areas**
 -  Area of Concern (IN)
 -  Area of Concern (OUT)
 -  Future Sewer Area
 -  Sewer Area



Future Wastewater Utility

Future service areas reflect development (in some cases existing) and population growth requiring public utility services through new or extended interceptors. Decision factors of expanding service areas include: plant and interceptor capacity, inflow and infiltration, and local planning objectives.

Sewer Overflows and Asset Management

Addressing one or a combination of the following actions can mitigate sewer overflows: increase system conveyance and treatment capacity, provide storage to lengthen peak flows, or reduce peak flows contributory to the systems. WLSSD interceptors that have experienced persistent overflows in the past include: East Interceptor/Fitgers Area; Lakeside Interceptor/Endion Pump Station Area; and the Dodge Street Pump Station.

For this comprehensive plan, WLSSD inspected its pump stations to assess general condition and functionality. Pump stations identified for risk of failure included: Cloquet, Scanlon, Knowlton, Railroad Street, Oneota Street, Esko, Endion, Dodge Street and Gary-New Duluth. The condition of system pipes is monitored by a closed circuit television. Pump station recommendations included:

- Railroad, Oneota and Dodge Pump Stations have significant problems and must be upgraded.
- Bristol Station has hot process wastewater issues and degradation to concrete structures.
- The packaged or can stations are 25 years old and have major problems as they are not providing reliable service.
- Additional equipment should be purchased to facilitate safe transport of pump station components and existing equipment should be stenciled with rated hoist capacity.
- High and low alarm devices should be installed.

Plan to Maintain System Capacity

Future system condition is based on the assumption that the Duluth footing drain disconnection program will be fully completed. Future analysis shows that widespread surcharging and some overflows are still expected to occur.

Capacity Ratio = Facility Capacity available for Municipal flow /Average Municipal Flow

The capacity ratio computations were also performed using estimated 2020 average flows. Results indicated that segments of Bayview Heights and Hermantown Interceptors would not meet the target capacity ratios when future flows occur. Relief sewer costs for these segments are estimated to be about \$3.8 million in 2002 dollars. Additionally, Gary, Pike Lake and Carlton pump stations don't meet target capacity ratio. Priority interceptors that are known to have condition problems that will require rehabilitation within the next ten years include: Polk, Cloquet/Scanlon (Division F), Woodland, West, East, Proctor and Lakeside.

Plan Recommendations

1) Managed On-Site and Cluster Systems

On-site systems in certain areas will have oversight by St. Louis and Carlton counties in association with MPCA rules. The cost of construction, maintenance, and operation of these systems would be borne solely by the property owner.

2) WLSSD Sanitary Sewer System Extension Policy

WLSSD has limited capacity within its interceptor collection system, which has been illustrated over the years by the number of overflow events recorded by the city of Duluth and WLSSD annually. In August 2002, the city of Duluth and WLSSD were issued a new NPDES (National Pollutant Discharge Elimination System) permit to operate and maintain a sanitary sewer system. A sanitary sewer system is designed to collect and transport sewage to the WLSSD wastewater treatment facility for treatment and disposal into the St. Louis River then ultimately to Lake Superior. Specific requirements have been included in the joint NPDES permit requiring a more thorough review of sanitary sewer extension requests. For each extension request received by the District, applicants must include more detailed information when the location is upstream of certain listed areas. WLSSD must also review extension requests more thoroughly insuring compliance with NPDES permit. WLSSD will recommend a nominal fee associated with each extension request based in part on the location of the extension request as it relates to overflow locations identified in the NPDES permit and part on the projected flows expected from the request. The more expensive the review, the more the permit will cost; however, it will not exceed \$240. WLSSD will adopt a policy by January 1, 2004.

3) New Connection Permit

There is no existing procedure that informs WLSSD when development occurs along an existing sewer or whether the usage of the sewer system is consistent with the development plans in-place at the time the original sewer extension was approved. That information is needed for planning of the interceptor system and wastewater treatment facility. There are also some instances where a governmental unit within a municipality is not required to obtain a building permit nor a sewer connection permit from the municipality. In those situations, no information is provided that will enable either the municipality or the WLSSD to plan for changes in wastewater flow or characteristics.

Requiring a sewer connection permit for all new connections, or for modifications to facilities with existing connections that would increase the flow or load entering the sewer system, would provide the District with important information about how the sewer system is being used so that adequate capacity can be maintained. The new permit would be integrated into existing municipal building permit procedures. A permit fee of \$200.00 per equivalent residential unit will be established by January 1, 2004.

4) Updated “Model Sewer System Ordinance”

The model ordinance adopted by the District Board in 1977 for use by local units of government needs to be updated to reflect more modern terminology. A model ordinance should be developed January 1, 2004 and participating communities would have until June 30, 2004 to make their ordinances consistent with the model ordinance.

5) Minimum Standards for Sewer Design and Construction

The minimum standards would provide for quality construction and minimize inflow and infiltration to the public sewer system. The standards would be in the form of a checklist the designer or local municipality would use to assure the District that their designs and specifications met the minimum standards. These would be implemented immediately.

6) Level of Service and Municipal Peak Flow Standards

Defines a level of service commitment for hydraulic capacity to be provided by the District to its users. This recommendation would also define wet weather peak flow reduction goals for municipal users and sewer capacity standards for construction of new sewers, lift stations and treatment facilities.

WLSSD has no formal procedure in place for dealing with strategic questions relating to sewer system capacity. Questions such as the following are dealt with on a case-by-case basis: how large should we build our sewers or whose problem is it when we run out of capacity? WLSSD should adopt municipal peak flow standards based on: design standard/service commitment; inflow and infiltration reduction targets; cost sharing guidance and capacity allocation agreements.

7) Prohibition of Private Connections to WLSSD Interceptors

WLSSD will not accept as District Facilities interceptors to which private sewer lines are attached. The District has historically discouraged direct private connections to its interceptor system. This recommendation would formalize that restriction. When no alternative exists an application may be requested by a municipality and will be owned and maintained by the municipality.

8) Long-Range Capital Improvements Plan

The capital needs identified in this plan have been incorporated into a long-range capital improvement plan. The costs for the next decade have integrated into the District's Ten-Year Capital Improvement Plan as published in the 2003 Budget. The new capital plan would be adopted by the Board and incorporated in the 2004 capital budget as appropriate.

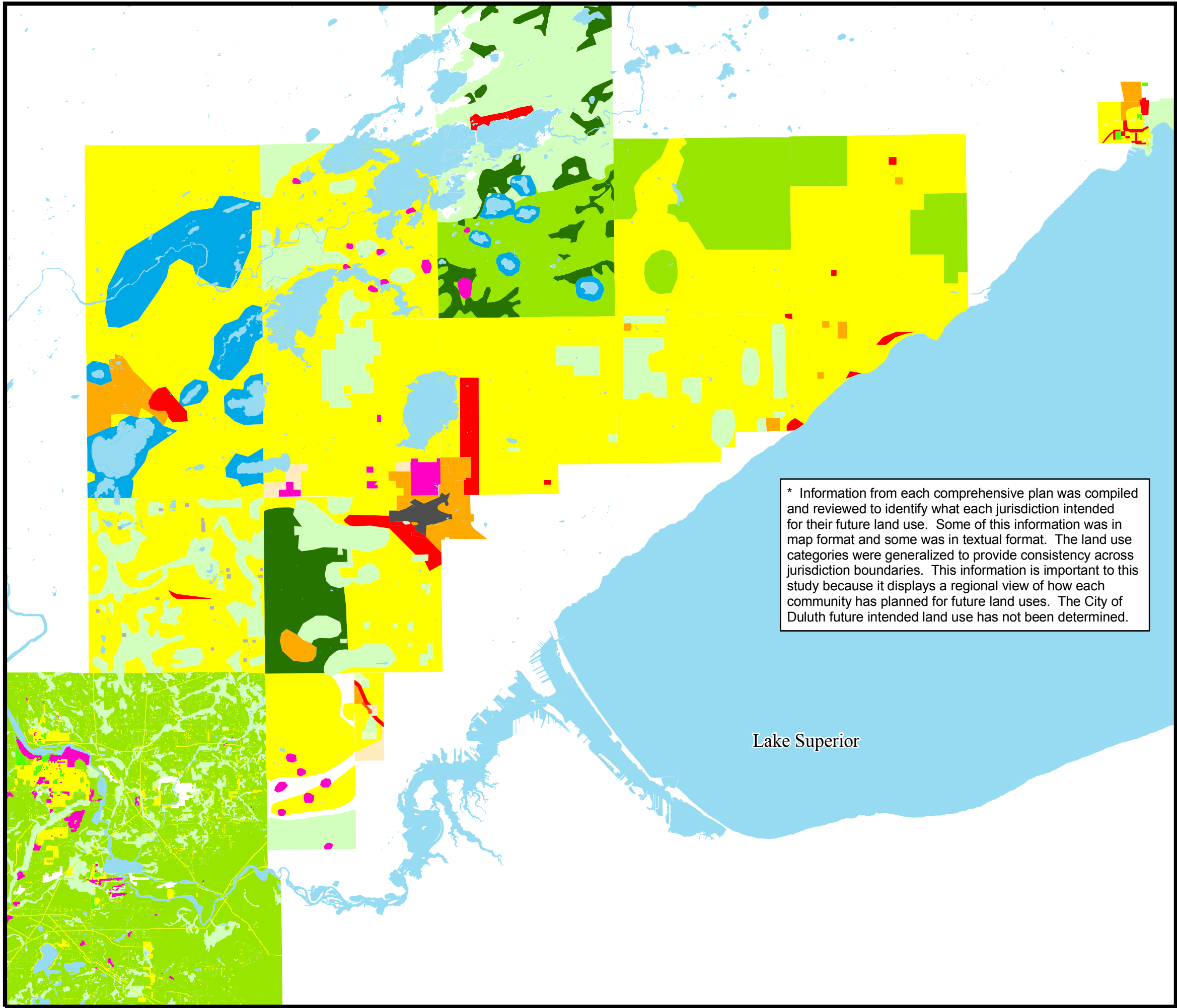
Amendment Procedures

The WLSSD Comprehensive Plan will extend through 2007. Any person either residing or having business within the District can request amendment proposals any time. The amendment process is as follows: request for amendment, staff review, board consideration, public hearing and board adoption.

Conclusion

The information compiled in this chapter was used to generate an intended future land use map (see Map 5) and was used in conjunction with other information generated in this planning process to identify areas suitable for future development. This information was important because it brought the visions and ideas from each jurisdiction collectively to the planning process.



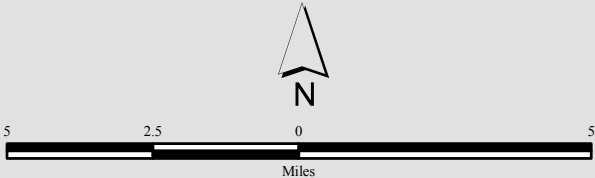


* Information from each comprehensive plan was compiled and reviewed to identify what each jurisdiction intended for their future land use. Some of this information was in map format and some was in textual format. The land use categories were generalized to provide consistency across jurisdiction boundaries. This information is important to this study because it displays a regional view of how each community has planned for future land uses. The City of Duluth future intended land use has not been determined.

Future Intended Land Use

Legend

- Future Land Use *
- Commercial
 - Commercial/Industrial
 - Forestry/Agriculture
 - Industrial
 - Mining/Gravel Pits
 - Public
 - Recreation/Open Space
 - Residential
 - Residential/Commercial
 - Residential/Open Space
 - Transportation
 - Water
 - Water Resource Protection Area



CASE STUDIES

Case studies were compiled in an effort to gain knowledge about how other areas, mainly in the Midwest, approach growth issues and provide water and sewer service. Selected communities were chosen primarily based on size similarity to Duluth area, not economic structure or growth rates. There were three bi-state areas that were selected: La Crosse, WI-La Crescent, MN; Grand Forks, ND-East Grand Forks, MN; and Fargo, ND-Moorhead, MN. These areas were selected to examine similarities and differences with the Duluth area. A notable difference between the Duluth area and selected case study communities was the fact that Duluth is growing at a considerably slower pace than all other case study communities. The following questions were asked of each case study jurisdiction.

- 1) How are sewer and water services provided for throughout the region?
- 2) Who manages and controls the extensions of these systems (city, county, regional agency, etc.)?
- 3) Does the City have an annexation policy? Is there a requirement for annexation before extension of sewer and water services? Are there density requirements for annexation?
- 4) Are there constraints placed on the extensions of sewer and water? Does the region have any type of urban growth boundary?
- 5) Is regional growth an issue that is addressed cooperatively in the area or does each municipality function on its own not necessarily coordinating with how the others are handling the growth issue? Is there a regional government such as an MPO? What do they do regarding growth planning?
- 6) How much of a relationship does the city have with surrounding jurisdictions regarding growth, is it cooperative or constrained?
- 7) How fast is growth in the region? Is the rate of growth manageable for the region?

Case Study: Duluth, MN

The city of Duluth Administrator and Water Specialist (Public Works Division) were both interviewed for this case study. For more information on the city of Duluth, visit:

<http://www.ci.duluth.mn.us/city/mainpage/>.

Water and Sewer Provisions

Water is provided to city of Duluth residents and charged at a flat rate; it is not based on the distance from the water source.

The city of Duluth has three jurisdictional agreements regarding the sale of water to other jurisdictions (Rice Lake Township, cities of Hermantown and Proctor). Duluth could decide to cap improvements in the future, however, that is unclear at present. The goal for Duluth's water infrastructure is to create redundancies in the system to backup the water source. A special area of concern is the Duluth Airport.

Duluth studied the size of water towers that they would need to accommodate water extensions and patterned growth for twenty-five years.

Duluth, MN			Table 3
(contiguous minor civil divisions with at least 100 persons per square mile)			
Place	2000 Population	Square Miles	Pop/sq. mi
Duluth	86,319	68.0	1,269
Superior	27,368	36.9	742
Cloquet	11,201	35.2	318
Hermantown	8,047	34.3	235
Thomson Twp.	4,361	39.7	110
Rice Lake Twp.	4,139	32.4	128
Proctor	2,852	3.0	951
Scanlon	838	0.8	1,048
Carlton	810	2.1	386
Superior Village	500	1.2	417
Oliver	358	2.1	170
Total	146,793	255.7	574

Jurisdictions that are provided with water from the City of Duluth include: Rice Lake Township, City of Hermantown and City of Proctor. Once the water pipe infrastructure is brought in to a jurisdiction, that entity owns and must maintain those pipes. Nevertheless, these jurisdictions still pay the city of Duluth for water. The water rates charged to these communities are based on two consultant led studies of the Duluth water system. The first study was the "Highland Zone Study," a technical report about how water flow is provided and includes technical information such as pipe size. This study impacts rates charged in Hermantown. The second water report was the "Bayview Study," which was an attempt to model the Duluth water system and estimate the cost of providing water to the city of Proctor. The study found that it costs more to provide water to Proctor due to steep geography.

The Western Lake Superior Sanitary District (WLSSD) provides sewer service regionally to approximately 19 Duluth area jurisdictions. WLSSD recently completed a Comprehensive Plan that is heavily linked to land use and comprehensive planning. WLSSD has mapped urban service areas, planned areas for sewer in the future, and has delineated an urban services boundary.

Annexation and Service Provisions

The City of Duluth does not have an annexation policy. The city limits were set long ago and have not changed significantly due to low population growth rates. Past annexations included Fond du Lac, Gary-New Duluth, Lakeside, and Lester Park. These annexations

occurred several decades ago. The city does not actively annex and there is no requirement that adjacent areas be annexed if services are extended to them.

Development Constraints and Growth Management

In the City of Duluth the only development constraints that exist are physical. In terms of increasing the capacity of water or sewer, in Duluth it is an issue of cost. Storm water issues are treated with best management practices. In terms of managing growth, growth is slow and the closest thing that Duluth has to an urban growth boundary is the WLSSD urban services boundary for sewer.

Regional Growth Cooperation, Planning and Growth

Regional growth has not typically been addressed in a cooperative fashion in the Duluth area. Jurisdiction relations are improving and have mainly been constrained due to history of the area. Regional cooperation has never been forced; it has been taken on an issue-by-issue basis. The City of Duluth's Community Development Division (planning) staff will occasionally meet with other jurisdictions as necessary. There has been some preliminary discussion about potentially sharing services with the county such as a joint law enforcement center, joint purchasing, joint public works facilities (which exists at MnDOT with city and county onsite), and further cooperation on public works projects. Existing regional planning agencies (regional development commissions and metropolitan planning organizations) have focused on transportation as a logical regional impact and discussion point. The annual rate of regional growth in the Duluth area is 0.06%.

The only metropolitan area planning that has occurred has been initiated by the Duluth-Superior Metropolitan Planning Organization (MIC) and has been primarily issue based. Regional Duluth area studies have covered topics such as land use planning for the Duluth-Superior port, the prospects for a combined Duluth-Superior Port Authority, corridor planning for the Miller Hill Mall area and the present look at growth impacts for the Duluth Urbanized Area. The MIC continues to expand planning efforts beyond transportation into the realm of growth and land use interactions.

Case Study: Eau Claire, WI

For the purposes of this study the Director of Community Development was interviewed. The Community Development Department of the City of Eau Claire includes: economic development, housing, inspections and planning. For more information visit: <http://www.ci.eau-claire.wi.us/Departments/Default.htm>

<i>Eau Claire, WI</i>			<i>Table 4</i>
<i>(contiguous minor civil divisions with at least 100 persons per square mile)</i>			
Place	2000 Population	Square Miles	Pop./Sq. Mi.
Eau Claire	61,704	30.3	2,036
Chippewa Falls	12,925	10.9	1,186
Washington Twp.	6,995	56.1	125
Altoona	6,698	4.1	1,634
Lafayette Twp.	5,199	34.5	151
Hallie Lake	4,703	21.4	220
Total	98,224	157.3	624

Water and Sewer Provisions

Water is provided by each jurisdiction and is generally not a limiting factor for development. One exception exists where city water is provided outside the city limits to the Town of Washington, which resulted from a legal settlement in the 1960's. The Town of Washington is adjacent to the city of Eau Claire and has septic for sewage. In terms of water, the Town of Washington had a failing water system, remnants of which still exist, and the City of Eau Claire supplemented their water supply. These Town of Washington properties pay for actual water usage through the Eau Claire's monthly and quarterly billing system. What makes this case unique is that based on the legal agreement, Eau Claire agreed to provide these properties with water without annexing them into the City of Eau Claire, which would not be the case today.

Sanitary sewer is provided by the City of Eau Claire. Sewer service is not provided beyond the city's municipal boundary.

Annexation and Service Provisions

In terms of annexation, in the 1980's there was a US Supreme Court lawsuit that held cities can require annexation if water and sewer are extended into extraterritorial areas (townships). In the Eau Claire area, annexation is typically required for sewer extension (as water is less of an issue) and there is not a population density requirement. The city's annexation policy is:

"Petitions to annex property to the city are handled by the Planning Division. Prior to submitting a petition to annex property, it is advisable to discuss the proposal with staff. Any property proposed for annexation must meet the following criteria:

- The land must be contiguous to the city and cannot lie within another city or village.
- The annexation will not cause the creation of an island which is not part of the city.
- The proposed annexation is in compliance with the Comprehensive Plan."

The City of Eau Claire and Eau Claire County have a minimum lot size requirement for unsewered lots of 1.5 acres. This lot size is problematic in terms of being able to handle sewage effectively. This minimum lot size applies to a three-mile extraterritorial radius around the city of Eau Claire. One component of the city of Eau Claire's current comprehensive plan update will aim to increase this minimum lot size.

Development Constraints and Growth Management

The only development constraints that exist on sewer and water extensions are natural ones. The sewer boundary around Eau Claire was devised by the Wisconsin Department of Natural Resources (DNR) and represents an area that could ultimately be served by sewer. There is a regional sewage treatment facility in Eau Claire. The city of Altoona, adjacent to Eau Claire, had a failing sewage plant so Eau Claire took over treatment of that sewage. Altoona pays Eau Claire the cost of that sewage treatment. Sewer service is not provided beyond the city of Eau Claire boundary. In the 1970's the city of Eau Claire received money from EPA to

build a new sewage treatment plant. The plant is relatively up-to-date and there are no sewer overflow problems nor are there capacity problems. The only issue that exists stems from new computer plants in the Eau Claire area that produce exotic minerals that are difficult for the facility to treat. The capacity of the city's sewage treatment plant is about 12 million gallons per day. There is no separate treatment for storm water, other than best management practices.

In terms of water operation, there are no constraints; the system is operating well. Approximately fourteen years ago, the City of Eau Claire expanded their well fields to draw from the Eau Claire and Chippewa Rivers. It is rare that there is a drought, however when one occurs it is not uncommon for water to be rationed. Since these wells have been added to the Eau Claire water system, there have been no problems in terms of capacity. Other jurisdictions such as the cities of Chippewa Falls and Altoona also draw from the same water sources.

In terms of growth management, the majority of Eau Claire's population growth occurred between 1970 and 1980. Regional growth is primarily controlled by the sewer boundary drawn around Eau Claire by the Wisconsin DNR. There is no official urban growth boundary (UGB) however this DNR sewer boundary serves a similar function to a UGB in that it serves a growth controlling function. Water service does not limit development in the Eau Claire area, as many residents have private wells. Sewer is the limiting factor for development.

Regional Growth Cooperation, Planning and Growth

Regional growth has not been addressed cooperatively in the Eau Claire area. There has been ongoing litigation with towns such as Washington, Union and most recently Hallie (which has recently incorporated as a village and changed its name to Lake Hallie). All litigation has been over annexation; at issue has been the City of Eau Claire's land area growth causing constrained regional relationships. Eau Claire's position is if development becomes urban, then city government and services best serve it. Eau Claire's policy is that in the urbanized area, sprawling half-acre lots are not desirable; urban development patterns are. The City of Eau Claire's annexation process was previously detailed. The legal petition for annexation is reviewed by the state of Wisconsin, which then goes to the Eau Claire Plan Commission, then to the Eau Claire City Council, and then a town has a set number of days to file a legal protest. Litigation lengthens the annexation process, which is what has been happening in the Eau Claire area.

Regional relationships are improving and future cooperation will be necessary to survive the impacts that all local governments are feeling from losses in both state and federal aid to local governments. Local governments are now strapped in their ability to provide certain services. Presently, seven Eau Claire area jurisdictions have joined together in a preliminary effort to examine how they might combine services to save money. The jurisdictions participating in the shared services study include: the city of Eau Claire, Eau Claire County, City of Chippewa Falls, Chippewa County, City of Altoona, Town of Washington, and the Eau Claire Area School District. Areas being discussed for combining services include: purchasing, risk management and school districts. Hopefully long-term planning

relationships will continue into the future rather than first having to deal with confrontation. Obviously, as Eau Claire continues to grow in land area, there will be impacts on townships' land.

The Eau Claire Comprehensive Plan Update will be aligned with Wisconsin's Smart Growth laws. A key goal of the comprehensive plan update will be to develop a series of intergovernmental boundary agreements, which would square off Eau Claire's jurisdictional boundaries and further specify annexation policies.

In terms of regional planning, the Eau Claire area has a Metropolitan Planning Organization (MPO). The MPO focuses primarily on transportation issues and provides a variety of technical services to smaller communities (such as GIS). In terms of growth issues, the MPO has not necessarily worked extensively in this area nor have regional growth relationships been fostered. The MPO has been resourceful in educating jurisdictions on Wisconsin's Smart Growth legislation. One function that is unique to the Eau Claire MPO is that they handle all amendments to the DNR sewer service boundary. The area of this DNR sewer boundary must remain the same, so if more area is needed in northern Eau Claire, area must be subtracted in the southern part of Eau Claire.

Growth is presently occurring at approximately one-percent annually in the Eau Claire area. In the 1970's growth was occurring at a rate of 1.5% annually, in the 1980's there was less growth, and during the 1990's there was more growth. Annual growth averages between 1 to 1.5% annually. In the last five or six years there has been a higher annual rate of development in suburban areas of Eau Claire County but not as fast as other Wisconsin counties such as the quickly suburbanizing St. Croix County. Eau Claire does not experience a no-growth scenario; development is manageable and fairly steady but does not occur at a booming rate. One example of this is that school district enrollment has remained stable even though population growth has occurred at a rate of 1% annually.

Between the years 1980 and 1990, the city's population increased by 5,337 persons. This represents an estimated annual increase of 535 persons over this period or a growth rate of 1.04 percent per year. Between 1990 and 2000, the city saw an increase of 4,848 persons. This represents an annual rate of growth of approximately 485 persons per year. Population estimates for the city indicate continued growth.

Case Study: Eugene, OR

For the purposes of this case study, the Urban Growth Boundary Specialist in the City Planning and Development Division was interviewed. For more information visit: <http://www.ci.eugene.or.us/PDD/Planning/gms/default.htm> .

Water and Sewer Provisions

An Urban Growth Boundary (UGB) exists around the Eugene-Springfield Metropolitan area as required by Oregon State law.

The City of Springfield is adjacent to Eugene therefore the two cities have a coordinated growth management plan and a combined Comprehensive Plan.

Each city however provides separate infrastructure services. The UGB surrounds both Eugene and Springfield.

Eugene, OR			
Table 5			
(contiguous minor civil divisions with at least 100 persons per square mile)			
Place	2000 Population	Square Miles	Pop./Sq. Mi
Eugene	137,893	40.6	3,396
Springfield	52,864	14.4	3,671
Total	190,757	55.0	3,468

The City of Eugene provides sewer services only within the UGB area. A connection fee is charged which pays for system extensions. Infrastructure for new housing subdivisions is paid for by developers who then receive a pipe credit against fees for new pipes. It is typical in Oregon for developers to pay most, if not all, infrastructure costs.

Water service is provided by a subsidiary of the City of Eugene called Eugene Water and Electric Company. Eugene Electric has a Policy Board and manages water service within the Eugene UGB area.

Annexation and Service Provisions

The typical development rule is that water and/or sewer service cannot be extended beyond the city limits of Eugene and not beyond the UGB. Annexation is required for new water and sewer hook ups. The city of Eugene does not assertively annex, although for property owners who want to develop their land, annexation is sometimes done. Land can only be annexed inside the UGB and not beyond. Land that is annexed is typically near-vacant land that a developer is interested in building on. Jurisdictions that exist beyond the UGB include unincorporated and incorporated towns and cities as well as unincorporated county land.

The city of Eugene has minimum population density requirements for development within the city, which differs in density ranges, and is controlled by the zoning ordinance; density is not a requirement of annexation.

In terms of water system functionality, there are older parts of the Eugene area (within the UGB) that were built at near urban densities but have not been incorporated into the city. These areas are experiencing water pressure problems which the Eugene Electric Board is attempting to resolve.

In terms of sewer system functionality, it is rare that sewer overflows occur. A joint regional sewer treatment plant, which both Eugene and Springfield sewers empty into, treats sewage. Storm water treatment is an evolving area and is treated by best management practices. For instance, erosion control is now a priority at construct sites and some retaining ponds exist in Eugene.

Development Constraints and Growth Management

Development constraints growth management are not discussed for this case study as they are addressed in length in the other sections.

Regional Growth Cooperation, Planning and Growth

As previously mentioned, Springfield and Eugene have coordinated growth management and comprehensive plans but do not coordinate infrastructure services. Relations with Springfield are generally good though at times the two cities compete for new industry or businesses. Staff from each city meets regularly.

In terms of regional planning, the Lane County Council of Governments (COG), the designated MPO, is not an elected government power as it is in Portland or the Twin Cities. The Lane County COG coordinates and receives various funds to help with metropolitan planning. The State of Oregon provides financial assistance to governments to stay abreast with state growth mandates. These funds are filtered through the MPO. The Lane County COG does much more than transportation planning and programming, they examine all public facilities, environmental issues, and address growth.

The rate of growth is not regulated inside the UGB just the physical location of development, planning for projected densities and population growth. Eugene does not force growth to occur in one area or another although currently there is some discussion about directing growth to rural areas outside the UGB and taking a county-wide or regional approach to growth rather than a metropolitan approach.

The Eugene-Springfield metropolitan area's population recently exceeded 200,000. The growth rate for the metropolitan area is approximately 1.5 percent annually. The primary issue in terms of growth has been the availability of vacant land. When the UGB was originally designated there was plenty of open land to develop into the future. Vacant or undeveloped land within the UGB has now become scarce and tract housing developers are complaining. There are high quality agricultural lands and quarries outside the UGB so there are no logical expansion areas. Additionally, the State of Oregon has recently issued new rules on UGB expansion, which are time consuming and complex to change the original UGB.

In the fall of 1995, the City of Eugene began a Growth Management Study. The purpose of the study was to conduct a comprehensive review of existing growth management policies shaping the city and to propose options for future growth strategies in the Eugene. In February 1998, Eugene adopted 19 smart growth principles to hold the UGB where it is, as the city is not keen on easy expansion of the UGB, and to encourage infill development. The question has been, how does Eugene want to manage growth and the answer has been infill or redevelopment. Many of these 19 smart growth principles are focused on high-density nodal developments around transit service. Someday the UGB may need to be expanded but there is no way of predicting how small or large of a modification may be needed. The 19 adopted policies are:

Policy 1: Support the existing Eugene Urban Growth Boundary by taking actions to increase density and use existing vacant land and under-used land within the boundary more efficiently.

Policy 2: Encourage in-fill, mixed-use, redevelopment, and higher density development.

Policy 3: Encourage a mix of businesses and residential uses downtown using incentives and zoning.

Policy 4: Improve the appearance of buildings and landscapes.

Policy 5: Work cooperatively with Metro area partners (Springfield and Lane County) and other nearby cities to avoid urban sprawl and preserve the rural character in areas outside the urban growth boundaries.

Policy 6: Increase density of new housing development while maintaining the character and livability of individual neighborhoods.

Policy 7: Provide for a greater variety of housing types.

Policy 8: Promote construction of affordable housing.

Policy 9: Mitigate the impacts of new and/or higher density housing, in-fill, and redevelopment on neighborhoods through design standards, open space and housing maintenance programs, and continuing historic preservation and neighborhood planning programs.

Policy 10: Encourage the creation of transportation-efficient land use patterns and implementation of nodal development concepts.

Policy 11: Increase the use of alternative modes of transportation by improving the capacity, design, safety, and convenience of the transit, bicycle, and pedestrian transportation systems.

Policy 12: Encourage alternatives to the use of single-occupant vehicles through demand management techniques.

Policy 13: Focus future street improvements on relieving pressure on the City's most congested roadways and intersections to maintain an acceptable level of mobility for all modes of transportation.

Policy 14: Development shall be required to pay the full cost of extending infrastructure and services, except that the City will examine ways to subsidize the costs of providing infrastructure or offer other incentives that support higher-density, in-fill, mixed-use, and redevelopment.

Policy 15: Target publicly-financed infrastructure extensions to support development for higher densities, in-fill, mixed uses, and nodal development.

Policy 16: Focus efforts to diversify the local economy and provide family-wage jobs principally by supporting local, and environmentally sensitive businesses. Direct available financial and regulatory incentives to support these efforts.

Policy 17: Protect and improve air and water quality and protect natural areas of good habitat value through a variety of means such as better enforcement of existing regulations, new or revised regulations, or other practices.

Policy 18: Increase the amount and variety of parks and open spaces.

Policy 19: Expand City efforts to achieve community-based policing.

These policies are intended to guide the work of the City Manager and staff in formulating for Council consideration proposed changes to the Eugene Code (1971), and also to guide other work programs, including such actions as preparation of the budget and revisions to the capital improvement program.

Case Study: Fargo, ND

For the purposes of this case study, the City Planning Director was interviewed. For more City of Fargo information visit: www.ci.fargo.nd.us. There is also a link to the *Growth Plan for the Urban Fringe and Extraterritorial Area of the City of Fargo* at: http://www.cityoffargo.com/Planning/Docs/GrowthPlan/Growth%20Plan_ch1.pdf.

Water and Sewer Provisions

The sewer and water systems are owned and operated by the City of Fargo. The Cities of West Fargo and Moorhead operate their own systems.

Annexation and Service Provisions

Annexation is required in order for properties to receive sewer and water. There have been a few cases in the past where sewer was extended without annexation. These extensions occurred in areas where on-site septic systems were failing. In these cases, agreements were prepared for future annexation. Fargo generally annexes a half section or section at

<i>Fargo, ND</i> <i>Table 6</i>			
<i>(contiguous minor civil divisions with at least 100 persons per square mile)</i>			
Place	2000 Population	Square Miles	Pop./Sq. Mi.
Fargo	90,599	37.9	2,390
Moorhead	32,177	13.4	2,401
West Fargo	14,940	7.3	2,047
Dilworth	3,001	2.0	1,501
Frontier	273	0.2	1,365
Briarwood	78	0.2	390
Total	141,068	61.0	2,313

a time (320 or 640 acres). If one-fourth of the property owners protest a planned annexation, it blocks the process and the case is heard and determined by an administrative law judge.

Development Constraints and Growth Management

The Fargo area has a natural urban growth boundary in a sense because it is located on a floodplain where there are development restrictions. Fargo has extraterritorial zoning powers four-miles beyond their municipal boundary (into unincorporated areas). They also have a growth plan for the fringe areas and have identified areas that are likely to be developed in the next 15 years – septic systems are not allowed in these areas.

Regional Growth Cooperation, Planning and Growth

The cities in the region have zoning agreements and meet from time to time in order to discuss regional issues. The Fargo MPO primarily deals with transportation issues in the region and is not located in city and county facilities.

The region is growing relatively fast. The City of Fargo increased from 47,000 people in 1960 to 91,000 in 2000, an increase of 94% in population. The Fargo-Moorhead Metropolitan Area (consisting of Cass County, North Dakota and Clay County, Minnesota) grew from 106,000 to 174,000 during this same period, an increase of 64% in population.

Case Study: Grand Forks, ND

For the purposes of this case study, the city planning office was consulted. For more information on the City of Grand Forks, visit: www.grandforksgov.com.

Water and Sewer Provisions

The City of Grand Forks owns and operates its water and sewer systems. The City of East Grand Forks, Minnesota utilizes Grand Forks' sewer system but has its own water system.

Annexation and Service Provisions

Grand Forks utilizes an annexation point rating system. Points are assigned to a proposed annexation based on the area's proximity to features generally associated with urban growth such as municipal water and sanitary sewer availability, distance to a fire station and public park, and other factors such as contiguity and compactness.

<i>Grand Forks, ND</i>			<i>Table 7</i>
<i>(contiguous minor civil divisions with at least 100 persons per square mile)</i>			
Place	2000 Population	Square Miles	Pop/sq. mi.
Grand Forks	49,366	19.2	2,571
East Grand Forks	7,501	5.0	1,500
Total	56,867	24.2	2,350

The total number of points assigned is taken into consideration when the annexation decision process is undertaken. Of the 23 possible points, planning staff recommends that at least 12

points be achieved in order to consider annexation of the property. However, the final annexation decision is ultimately determined by the city council.

In a voluntary annexation, a petition is signed by not less than three-fourths of qualified electors or by the owners of not less than three-fourths in assessed value of the property in any territory contiguous or adjacent to any incorporated municipality and not embraced within the limits thereof. The governing body of the municipality may then, by resolution or ordinance, annex such territory to the municipality.

The city council may refer an annexation petition to the planning and zoning commission for recommendation. The commission determines consistency with the comprehensive plan.

In an involuntary annexation, if the city council decides to annex contiguous or adjacent territory, it is done by resolution, describing the property to be annexed. Protests by owners of one-fourth or more of the territory proposed to be annexed blocks annexation by resolution.

Development Constraints and Growth Management

Grand Forks has extraterritorial zoning powers for a two-mile radius beyond their municipal boundary. Since both Cities of Grand Forks and East Grand Forks (own water system) use the Grand Forks' sewer system, the area has what functions as an urban growth boundary around the cities. Additionally, there is a city-county commission that meets to deal with border issues.

Regional Growth Cooperation, Planning and Growth

The relationship between the two cities is relatively cooperative. The major flood that occurred in the 1990's forced the communities to jointly deal with issues. The area is still recovering from the flood, which caused the loss of approximately 10% of its population. Over the last few years, however, the area is beginning to see modest growth. The cities are cooperating with the planned construction of a floodway that will divert Red River water through a channel around the cities in the event of future floods.

As previously mentioned, sewer extensions are determined cooperatively while water extensions are not. The region's MPO is housed within the City of Grand Forks planning department and manages transportation issues in the metro area. The metro area encompasses parts of both North Dakota and Minnesota.

Case Study: La Crosse, WI

For the purposes of this case study, the City Planning Director was interviewed. For more information on the city of La Crosse visit:

<http://cityoflacrosse.org/Planning/planning.htm>.

Water and Sewer Provisions

The City of La Crosse provides water to city residents only. Other incorporated jurisdictions have their own water systems or use wells. Urban services, both water and sewer, are offered by four jurisdictions within the region: the City of La Crescent, MN; and the Wisconsin Cities/Villages of La Crosse, Holmen, and West Salem.

La Crosse, WI			Table 8
(contiguous minor civil divisions with at least 100 persons per square mile)			
Place	2000 Population	Square Miles	Pop./Sq. Mi.
La Crosse	51,818	20.1	2,578
Onalaska	14,839	9.1	1,631
Holmen	6,200	3.2	1,938
Onalaska Twp.	5,210	37.0	141
La Crescent	4,923	3.0	1,641
Shelby Twp.	4,687	25.6	183
Campbell Twp.	4,410	3.8	1,161
Medary Twp.	1,463	11.7	125
Total	93,550	113.5	824

Sewer service is provided from the La Crosse regional sewer plant, which is currently operating at half of its total capacity. Approximately 80,000 people are currently served by this system that has the total capacity of serving 160,000 people. The City of La Crosse provides sewer services to the City of Onalaska (have their own water system), the Town of Campbell (have no water system just wells) and the Town of Shelby (have no water system just wells). Though the city of La Crosse provides sewer service to the city of Onalaska, Onalaska controls who service is provided to within their jurisdictional boundaries. Sewer service provisions are arranged through three separate contracts with each jurisdiction. Each jurisdiction pays for sewer service from La Crosse and there is a twenty-five percent surcharge for capital and maintenance expenses for the La Crosse regional sewer plant.

The Town of Campbell is an island area on the Mississippi River that used to be a low-income area but is now a floodway area filled with elite waterfront homes. Formerly, the City of La Crosse did not require annexation for urban services, which is why the Town of Campbell is provided with sewer service. The Town of Shelby, which has the highest per capita income in the La Crosse area, is currently trying to incorporate.

Wisconsin DNR rules regarding septic systems have relaxed in recent years. It is now much easier to locate septic systems on a variety of land types therefore mound systems have increased septic system proliferation. An incorporated jurisdiction is still required to conduct a feasibility study and generally municipalities with their own sewer or water plants will expand their plant capacity rather than relying on the City of La Crosse.

Annexation and Service Provisions

The extension of City of La Crosse sewer or water services to abutting areas requires annexation into the city. This same policy is held by the Village of Holmen and City of

Onalaska. Generally, incorporated municipalities require annexation in order to provide city services. Holmen, Onalaska and La Crosse are all annexing into surrounding townships.

In terms of annexation in Wisconsin, laws require the process to be initiated by private landowners. Extra-territorial plat review applies to a three-mile radius around the city. This used to be a commentary only with the theory that someday these areas would inevitably be in the city. In April 2003, there was a Wisconsin Supreme Court case that gave cities more review authority than in the past.

Development Constraints and Growth Management

Due to the way that Wisconsin annexation law is set up and lack of a statewide growth boundary requirement, it would be extremely difficult to have an urban growth boundary in Wisconsin. Therefore the City of La Crosse does not have one. What La Crosse does have is the DNR's Section 208 Water Quality Boundary that denotes the limits of the area that could ultimately be served by the La Crosse sewer plant. This boundary in many respects serves a growth controlling function.

Regional Growth Cooperation, Planning and Growth

Each jurisdiction functions on its own in the La Crosse area and there has been little regional cooperation. Annexation is a contentious issue therefore relations with adjacent townships and cities has been strained. The City of Onalaska, which is adjacent to the City of La Crosse, shares commercial development in the mall area with more of the new retail growth occurring in Onalaska than in La Crosse. Annexation is a function of tax policy in the state of Wisconsin. There is no regional tax base sharing which is why there is annexation, it is simply about expanding territory to then expand jurisdictional tax base. There would be more cooperation if there were a more level playing field with something such as a regional tax base sharing policy like the Twin Cities.

Regionally, there are trends indicating that people are moving back into the city but there are still major problems with central city disinvestment. The downtown revitalization plan was ten years in the making and will be a never-ending planning process.

The La Crosse Area MPO conducts regional planning efforts. The MPO was formerly housed in the City of La Crosse Planning Department however as of June 2003 it is now located within the county. Regional planning did not mesh well with city planning for several reasons. First, it is hard to build regional trust if the MPO is housed within the region's largest city. Secondly, the City Planning Department staff has neighborhood-level issues to focus on and do not have time to conduct regional planning. A new MPO director has been hired and has been encouraged to foster more regional land use discussions, approaches and integration into transportation planning. *Coulee Visions* was a regional land use study conducted by the La Crosse Area MPO; however, it was an advisory report with no teeth and was used as an educational tool for elected officials on how to foster smarter growth and land use planning. It was also a tool to integrate land use planning into the MPO's Long Range Transportation Plan.

The annual rate of growth in the La Crosse region is one-percent annually. Growth is modest and manageable and could continue to be managed better.

Other

The City of La Crosse will be updating its 1977 comprehensive plan to examine land development, parks, roads, utilities, environmental protection and other community concerns. The update will also be aligned with Wisconsin's Smart Growth Law, which requires that all cities, villages, and towns adopt comprehensive plans by 2010. Beginning January 1, 2010, any community that makes land-use decisions is required to base those decisions on its adopted comprehensive plan. Each element of the plan will include background information, objectives, policies and goals, programs and a portrayal of what those aspects of the community are planned to look like when the target year arrives. The nine required elements are: issues and opportunities; housing; transportation; utilities and community facilities; agriculture, natural and cultural resources; economic development; land use; intergovernmental coordination; and implementation.

The La Crosse Comprehensive Plan Update will examine three alternative growth patterns: neighborhood revitalization focus, fringe development focus, and environmental and cultural focus. The analysis of these growth scenarios will reveal that there are fundamental choices possible in terms of how the community grows and invests. None of these scenarios is expected to be selected without modification; instead, positive aspects of each might be identified and brought together to create a preferred general development pattern.

Case Study: Racine, WI

For the purposes of this study, city planning staff were consulted. For more information about the City of Racine, visit <http://www.cityofracine.org>.

*Includes only those areas in Racine County. If all adjacent areas were included that contain over 100 people per square mile, nearly the entire Chicago and Milwaukee metro areas would be included (nearly 11 million people).

Water and Sewer Provisions

The city of Racine provides sewer and water services to all communities in Racine County east of Interstate 94 (all of those listed in the above chart). The city manages and controls sewer

<i>Racine, WI*</i>			
<i>(contiguous minor civil divisions with at least 100 persons per square mile)</i>			
Place	2000 Population	Square Miles	Pop/Sq. Mi.
Racine	81,855	15.5	5,281
Caledonia Township	23,614	45.5	519
Mount Pleasant	23,142	34.9	663
Sturtevant	5,287	3.1	1,705
Wind Point	1,853	1.2	1,544
Elmwood Park	474	0.2	2,370
North Bay	260	0.1	2,600
Total	136,485	100.5	1,358

Table 9

and water extensions.

Annexation and Service Provisions

Racine has agreed to not annex neighboring property in return for receiving 75% of all new tax revenue generated by new development.

Development Constraints and Growth Management

The only constraints that exist are the zoning powers of neighboring communities and the requirements of the agreement (as detailed below) reached between Racine and its neighbors.

Regional Growth Cooperation, Planning and Growth

The aforementioned agreement between Racine area jurisdictions was developed to coordinate growth within Racine County. The county however is part of the much larger Chicago-Milwaukee area where growth is largely uncoordinated.

The population of the city of Racine has been decreasing steadily since 1970. The rest of the county has been growing moderately for the last 30 years.

Background on Revenue Sharing Agreement

Racine has two townships that surround the city that have grown extensively. Each has more than 23,000 residents. Approximately 10 years ago, one of the largest employers in the region, S.C. Johnson and Son Inc., moved to Mount Pleasant Township just outside the city limits. S.C. Johnson is a large company that manufactures such household products as Windex, Ziploc, Pledge, Glade and Edge. The operation requires large quantities of water. Racine extended its water and sewer systems to this company without annexation requirements. This fact led to many other extensions throughout the Township and also into Caledonia Township.

The City of Racine is almost fully developed and is a densely populated city. Although the city's population is similar to Duluth's (Racine has 82,000 people compared to Duluth's 86,000), Racine has 16 square miles of land compared to Duluth's 68. There is little room for growth in the City of Racine and no annexation options. When Racine extended sewer and water, it required extension agreements with the townships. These agreements expired several years ago and now Racine, the two townships and the Village of Sturtevant have entered into negotiations to establish a new contract. At the time, Racine's sewer and water systems were aging. The city needed to invest approximately \$80 million to upgrade the facilities. The suburban areas wanted extensions of services to handle additional growth pressures. After four years of negotiations, a creative solution was reached. Sewer and water extensions would be available, however, revenue sharing was required. The result was that 75% of new tax base generated by development in the two townships and the Village of Sturtevant would be given to Racine in order to pay for upgrading facilities. In return, Racine agreed to support Mount Pleasant and Caledonia in their quest to become incorporated villages in Wisconsin. This is important in Wisconsin because a township requires the support of neighboring cities to become incorporated. If successful, these two townships will become the 29th and 30th largest incorporated places in Wisconsin.

Case Study: Rochester, MN

For the purposes of this case study, city planning staff was consulted. For more city of Rochester information visit: www.ci.rochester.mn.us. Additionally, the *2003 Housing Study* is available for viewing at: www.olmstedhra.org/pdf/rochester.pdf.

Water and Sewer Provisions

The City of Rochester owns and operates the water and sewer systems that serve the city. The extensions are based on Olmsted County and Rochester's separate zoning ordinances and comprehensive plans. Rochester and Olmsted County have a merged planning staff but retain separate processes. For example, the two entities

have different zoning ordinances and each have a planning commission. The planning staff serves not only these two entities, but also functions as the MPO for the region. The planning division is divided into sections that focus on each area.

<i>Rochester, MN</i>			<i>Table 10</i>
<i>(contiguous minor civil divisions with at least 100 persons per square mile)</i>			
Place	2000 Population	Square Miles	Pop/sq. mi.
Rochester	85,806	39.6	2,167
Marion Township	6,159	33.6	183
Cascade Township	3,183	17.4	183
Rochester Township	2,916	22.3	131
Total	98,064	112.9	869

Annexation and Service Provisions

Annexation is required for parcels of land to receive sewer and water services if they are not part of the city at time of extension. Rochester annexes portions of the County approximately 20 times per year.

Olmsted County voters (containing Rochester) recently approved a half-cent sales tax to raise funds to deal with growth issues. There are a significant number of large-lot neighborhoods on the periphery of Rochester that utilize private well and septic systems. A portion of the funds raised from the sales tax will be used to extend public sewer and water to these large-lot neighborhoods and beyond. Another portion of these sales tax funds will be used towards a Rochester flood control project and the construction of a new city hall.

Rochester utilizes extraterritorial zoning powers which allows them to control growth two miles beyond their borders. This practice is enabled by the Minnesota Statutes. By doing this, Rochester can plan for areas outside the city that will ultimately be annexed into the city in the future.

In unincorporated areas, Olmsted County has a minimum requirement of two-acres for a residential lot. This requirement exists to provide a large enough area to accommodate

private well and septic systems. (There are numerous areas throughout Minnesota and other states where major problems have occurred in neighborhoods of one-acre lots and smaller, especially cabins surrounding lakes.)

Development Constraints and Growth Management

Olmsted County's land use plan has planned growth boundaries for the next 20 and 50 years. These boundaries were determined through the comprehensive planning processes involving multiple agencies and departments (planning, public works, fire etc.). Several items were taken into consideration including the water and sewer system capabilities, the transportation system and political realities. These growth boundaries are used to establish the urban service district which limits areas of growth. This urban service district policy has led to litigation by some townships in the county.

In order to pay for themselves, the extension of public sewer and water lines require three residential units per acre (equal to 14,520 square feet or a typical suburban style lot). By comparison to the Duluth area, many of the extensions into Hermantown are serving existing neighborhoods which have much larger lots.

Regional Growth Cooperation, Planning and Growth

Rochester and Olmsted County have consistent comprehensive plans with regard to land use. They also have defined agreements with the surrounding townships regarding growth and annexation. Despite this situation, 15 of the 18 townships in the county have pending litigation against Rochester and the county regarding growth issues. Most of these relate to zoning and its relationship with comprehensive plans. In several cases, townships were proposing commercial and industrial projects with septic systems and wells which both the city and the county object to. There have been several lawsuits decided and the county and city have won.

The Mayo Clinic provides approximately 40,000 of the 70,000 jobs in Olmsted County. The Clinic hires 500 people per year just to replace retirees. In the past, IBM had a large presence in the county however its employment peaked years ago at 12,000 and it now retains about 5,000 employees. Almost all of the rapid growth in Rochester can be attributed to the Mayo Clinic. According to the Minnesota Demographer's Office, Rochester's estimated population in 2002 was 91,254, an increase of 6.3% in just two years. If this growth is extrapolated outward, the city's 2010 population will be 113,046.

Case Study: St. Cloud, MN

For the purposes of this case study, the City Planning Director and City Engineer were interviewed. For more information about the city of St. Cloud, visit:

www.ci.stcloud.mn.us.

Water and Sewer Provisions

The City of St. Cloud provides municipal water to residents and properties within the city limits of St. Cloud only. The water supply comes from the

Mississippi River and is then treated. St. Cloud is currently processing a new water agreement with the city of St. Augusta, a former township that recently incorporated. St. Cloud will provide them with water service for a limited timeframe of ten years. This agreement will help St. Augusta establish their own infrastructure, as they currently have none. Supplying this water will not hinder St. Cloud's water system as it was recently expanded and has extra capacity that they were willing to sell to St. Augusta. St. Cloud does not plan to continue building capacity for another community, as an issue of dollars and cents, and expects that within ten years St. Augusta will not be provided with water.

Aside from St. Augusta, no other community in the St. Cloud area has ever asked the city to supply them with water. Each municipality has its own municipal water system, which is supplied from ground water wells and treatment facilities. Extra capacity is generally stored in water towers.

The City of St. Cloud provides sanitary sewer service for the other metropolitan cities in accordance with a St. Cloud Area Joint Planning District Plan that was adopted in 2000. Jurisdictions provided with sewer service include: Sartell, Waite Park, Sauk Rapids, and St. Joseph. St. Cloud recently approved a sewer agreement with the City of St. Augusta.

St. Cloud has found that when it comes to multi-jurisdictional agreements there is little trust between communities. When another layer of government is added, such as a sanitary district, it adds another layer of bureaucracy but may be the only way to foster trust between communities. What St. Cloud has decided to do in terms of building trust amongst the six jurisdictions using the joint wastewater treatment facility, is to form a multi-jurisdictional advisory committee called SCAWAC (St. Cloud Area Wastewater Advisory Committee). SCAWAC is comprised of one engineer and one administrator from each jurisdiction. The committee chooses topics to consider and discuss and the result has been increased trust and education amongst jurisdictions using the regional sewer system.

<i>St. Cloud, MN</i>			
<i>(contiguous minor civil divisions with at least 100 persons per square mile)</i>			
Place	2000 Population	Square Miles	Pop/Sq. Mi.
St. Cloud	59,111	30.2	1,957
Sauk Rapids	10,213	4.6	2,220
Sartell	9,641	5.9	1,634
Waite Park	6,568	7.8	842
Le Sauk Township	1,880	14.1	133
Total	87,413	62.6	1,396

Annexation and Service Provisions

The City of St. Cloud has three orderly annexation agreements that establish the terms for growth and development into respective townships. The city does require annexation prior to the extension of services as a general rule. There is not a population density requirement for annexation, although the orderly annexation agreements establish a variety of terms for annexation (petition of majority of owners, etc.).

Development Constraints and Growth Management

The St. Cloud metropolitan area does not have a state recognized urban growth boundary but has a regionally adopted set of boundaries set forth in the *St. Cloud Area Joint Planning District Plan*. Recognized boundaries include: (1) Planned Urban Areas (primary and secondary); (2) An Ultimate Service Area; (3) Future Major Roadway Corridors; and (4) Future Sewer Interceptors. *Planned urban areas* are locations outside the existing urbanized area that are in the direct path of urban growth. The majority of this area has established orderly annexation agreements in place for orderly development patterns. *Primary planned urban areas* are expected to develop at urban densities with urban services within the next twenty years. *Secondary planned urban areas* are not expected to urbanize until after this twenty-year horizon. The *ultimate service area* is the identified boundary in which wastewater services could be provided from the St. Cloud regional sewage treatment plant.

Regional Growth Cooperation, Planning and Growth

The St. Cloud Area Joint Planning District Plan is overseen by the Joint Planning District Board, which is comprised of elected officials from each jurisdiction and meets quarterly. It is an example of regional cooperation between political entities. The plan establishes the general framework for growth in the metropolitan area. Each of the cities in the metropolitan area have their own comprehensive plans to further refine their jurisdictional goals and each city serves as the zoning and subdivision authority for their jurisdiction.

In terms of St. Cloud's relations with surrounding jurisdictions, the single biggest issue identified in the 1993 Comprehensive Plan was the lack of intergovernmental cooperation in the region. In 1995, St. Cloud Township merged with the City of St. Cloud and the City of Waite Park, eliminating many of the regional politics. The most recent example of intergovernmental cooperation has been the adoption of a Life-Cycle Housing Agreement between the five area cities. The agreement is quite simple in principle, each of the jurisdictions have agreed to build a minimum of 15% of new housing in the affordable price range. A community survey in 2001 identified affordable housing as the largest issue facing St. Cloud.

In terms of regional planning agencies, the St. Cloud Area Planning Organization (APO) is the MPO and exists to focus primarily on transportation issues within the metropolitan area. Their role is to coordinate transportation efforts between jurisdictions and address future needs.

Annual growth in the St. Cloud metropolitan area is high and each of the area cities are in the process of updating their comprehensive plans to address emerging issues. The City of St.

Cloud seems to handling growth fairly well and is fortunate to have resources not available to some of the surrounding cities. As part of St. Cloud's merger agreement with St. Cloud Township, the city must install water and sewer service to numerous subdivisions in the former township area by 2005.

Summary of Case Study Trends

Water and Sewer Provisions

In all cases except for Racine, water and sewer services were not provided beyond city or village limits without required annexation into that city or village, unless provided by a regional treatment plant (generally sewer). There were a few minor historical exceptions (e.g. Eau Claire providing water to Town of Washington residents and La Crosse providing the Town of Campbell with sewer etc.), however current service provision policies generally limit service areas and require annexation.

St. Cloud was the only case study besides Duluth and Racine that was selling water to a newly formed jurisdiction, St. Augusta. St. Augusta will only be provided with water for a period of ten years after which time they need to have built their own infrastructure as the City of St. Cloud has stated that they will not build capacity, which is costly, for surrounding communities. A mix of regional treatment plants and city owned facilities comprised the provision of sanitary sewer services. Sewer, not water, was noted as the limiting factor for development.

Annexation and Service Provisions

In all cases except for Racine, unless service is provided by a regional treatment plant (typically sewer only), annexation into a given jurisdiction is required for the extension and provision of urban services (water and sewer) outside that jurisdiction's boundaries. The majority of case study communities held this annexation policy, though some historical exceptions did exist. In some cases limited term service agreements were in place (St. Cloud-St. Augusta water agreement) to provide new communities with services for a limited timeframe so that they can build their own infrastructure.

Development Constraints and Growth Management

As mentioned previously, sanitary sewer services are the major factor in constraining development. Due to the way that Wisconsin annexation law is set up and lack of a statewide growth boundary requirement, it is extremely difficult to establish an urban growth boundary (UGB). Though Eau Claire, La Crosse and Racine, Wisconsin do not have UGBs, the Wisconsin DNR's Section 208 Sewer Boundary in many respects serves a growth controlling function. This boundary delineates the area that could ultimately be served by that area's regional or jurisdictional sewage treatment plant. Similarly in Duluth, WLSSD had recently identified an urban services boundary for sewage treatment based on area comprehensive plans.

The only case study which has a legally state defined UGB was the City of Eugene, Oregon. A UGB exists around the Eugene-Springfield Metropolitan area as required by Oregon State

law. The City of Springfield is adjacent to Eugene; therefore, the two cities are required to have a coordinated growth management plan and a combined Comprehensive Plan. Each city, however, provides separate infrastructure services. The typical development rule is that water and/or sewer service cannot be extended beyond the city limits but especially not beyond the UGB. Annexation is required for new water and sewer hook ups.

The City of St. Cloud, MN does not have a state recognized UGB but what they do have is a regionally adopted St. Cloud Area Joint District Plan which guides regional growth and identifies (1) Planned Urban Areas (primary and secondary); (2) An Ultimate Service Area; (3) Future Major Roadway Corridors; and (4) Future Sewer Interceptors. Planned urban areas are locations outside the existing urbanized area that are in the direct path of urban growth. The majority of this area has orderly annexation agreements in place so that orderly development takes place. Primary planned urban areas are expected to develop at urban densities with urban services within the next twenty years. Secondary planned urban areas are not expected to urbanize until after this twenty-year horizon. The ultimate service area is the identified boundary in which wastewater services could be provided from the St. Cloud regional sewage treatment plant. These areas are best served with a connection to this treatment plant and should be protected from unsewered large-lot development. This “ultimate service area” is similar to the state of Wisconsin’s Section 208 sewer boundary.

Regional Growth Cooperation, Planning and Growth

In general, the selected case study communities have not experienced a high level of regional cooperation in the past. Annexation is a contentious issue as is tax base competition for new businesses. Regional cooperation is now occurring due to local impacts from state and federal budget cuts and from new planning laws.

Some communities, such as Eau Claire, are developing regional cooperation by discussing the possibility of regionally sharing services. Other communities, such as St. Cloud, have established orderly annexation agreements to square off their jurisdictional boundaries. Additionally, the St. Cloud metropolitan area has adopted a regional growth plan that identifies planned future urban areas and service areas. La Crosse and Eau Claire, like many other Wisconsin communities, are faced with updating their comprehensive plans by 2010 to incorporate the nine elements of Wisconsin’s Smart Growth Legislation. The City of Eugene, Oregon has an established urban growth boundary (UGB) around the Eugene-Springfield Metropolitan Area as required by Oregon State law. Eugene and Springfield are adjacent and required by law to have a coordinated growth management plan and a combined Comprehensive Plan even though they provide infrastructure services separately. The UGB that surrounds the Eugene-Springfield area is becoming more urbanized and large undeveloped tracts of land are more scarce—raising complaints from developers. As a result, in 1998 Eugene adopted 19 growth management principles to hold the UGB where it is and encourage infill development. In addition, the state of Oregon has passed legislation making it increasingly difficult to modify the originally set UGBs. In Duluth, a comprehensive plan for regional sewage treatment, expansion and infrastructure maintenance has been adopted by the Western Lake Superior Sanitary District (WLSSD). Clearly, regional cooperation is becoming increasingly popular and necessary to tackle the complex issues of regional growth.

FUTURE GROWTH

A number of pieces of information were considered in identifying areas most suitable for future growth. The key piece of information was the results of the development suitability modeling. As the study committee reviewed this information, they were reminded to also consider such factors as economic, cultural, political and social issues that the model could not consider. Other information considered included the case studies, comprehensive plan summaries, WLSSD's urban services boundary, current land use, intended future land use, current zoning and areas currently served by water and sewer. This chapter will illustrate the location of the most highly suitable areas for residential, commercial and industrial/manufacturing growth.

Development Suitability Analysis

Several factors influence what areas are most suitable for residential, commercial and industrial/manufacturing development. Factors such as distance to utilities, infrastructure, slope, natural features, and zoning all can have a bearing on where different types of development might occur. Factors that are good for one type of development are not necessarily good for another type of development. For example, brownfields are suitable for industrial development but are not desirable for residential development. Much of the geographic data collected for this study illustrate the location of these factors. With the capabilities of Geographic Information Systems (GIS), all of these development factors can be analyzed together in a development suitability modeling process.

Development Suitability Modeling

Working with numerous data layers in a project can be challenging, especially when each data layer can impact the final outcome of the analysis. In order to organize the data and assess its relative importance in the final analysis, a ranking model is often used. Three separate ranking models were developed for this project to better identify potential areas for future residential, commercial and industrial/manufacturing growth.

Simple Additive Weighting Model

Weighting involves placing factors, such as wetlands and infrastructure, into discrete classes. These classes are assigned numerical values based on their relative importance to residential, commercial and industrial/manufacturing development. This type of ranking, called a Simple Additive Weighting model (SAW), involves a raw score that is added for all participating factors. This type of modeling has been used in numerous studies including a multi-factor (criteria) model developed by the MIC to aid in the identification of developable parcels for the Duluth Airport Land Use Plan. By assigning ranks to various geographic and cultural features in the GIS database, the MIC was able to provide a single map that stemmed from all contributing factors involved in the project.

Weighting

Since the factors used in this study are discrete in nature, assigning a single score (representing a range of strongly suitable to poorly suitable areas) to each factor was

sufficient. In this analysis, 23 factors were evaluated and weighted according to the scale below (see Table 12). As an example, industrial development is most suitable in areas within proximity to water and sewer service but should not be located in a wetland. The weighting could reflect this by giving areas within 500 feet of water and sewer service a high numerical value and wetlands a negative value. The model results reflected this by showing areas near water and sewer service to be more suitable than wetland areas in this instance.

Table 12	
Weight	Suitability
5	Highly Suitable
4	
3	
2	
1	
0	Neutral
-1	
-2	
-3	
-4	
-5	Poor Suitability

In addition to assigning a numeric score to each factor, it was determined that some factors should be entirely excluded from consideration as a potentially developable site. These areas were ultimately not given a rank but rather were used as inputs for a Boolean overlay. A Boolean overlay is an operation that evaluates whether a certain condition is true or false. In the case of each development model, if a particular condition was met (condition = true) it was eliminated from any kind of consideration as a potentially developable area. For example, for all development types, areas that are lakes or streams should not have any consideration for development (there will not be any kind of development on open water). The Boolean overlay looks at geographic areas that are lakes or streams (condition = true) and excludes these areas from any further consideration as a developable area.

Geographic Data

The following section provides a brief explanation of the geographic input data for the Simple Additive Weight model used in this analysis

100-Year Flood Plain

Areas within a 100-year floodplain may have limitations that make them less desirable than areas that fall outside of a 100-year flood plain. The Federal Emergency Management Agency (FEMA) maintains Flood Insurance Rate Maps (FIRMs) for use in floodplain management, mitigation and insurance activities for the National Flood Insurance Program (NFIP). Q3 Flood Data is a product derived from the FIRMs. 100-year flood plain information was extracted from the Q3 Flood Data and considered in each development model.

Brownfields

Depending on the type of development, areas that fall within a brownfield site may or may not be a desirable site for development. The United States Environmental Protection Agency (EPA) defines a 'brownfield site' as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance,

pollutant, or contaminant.” Data representing the approximate center point of each brownfield site location was obtained from the Minnesota Pollution Control Agency’s (MPCA) Master Entity System (MES). Areas within 500’ of each brownfield site were considered in each development model.

Environmentally Sensitive Areas

Environmentally sensitive areas are areas that have unique environmental value that should be considered in regard to any type of development. The Natural Heritage & Nongame Research Program of the Minnesota Department of Natural Resources (MNDNR), Division of Ecological Services maintains a Natural Heritage Rare Features Database. This database includes rare plant, animal and geologic features as well as information pertaining to each feature. Areas within 500’ of each environmentally sensitive feature were considered in each development model.

Lakes

The Minnesota Department of Natural Resources maintains a 1:24000 scale lake database that was evaluated in each development model. It was determined that for each development model any area of the physical landscape that is open water would not be considered for potential development.

Public or Park Land

Park and public lands were identified as areas not to be totally excluded from development consideration but rather as areas that would be highly undesirable to develop in each development model. MNDNR Land Ownership and City of Duluth parks data were aggregated and used for public/park land consideration.

Rail

Depending on the type of potential development, proximity to rail service could be a positive or negative attribute of a particular area. The Minnesota Department of Transportation (MNDOT) maintains information on rail line locations, and areas within 50’ of a rail line were used in each development model.

Road Functional Classification

Roads can be divided into 3 general functional classifications: arterials, collectors and local streets. Arterials function mainly to move traffic, whereas a local street functions mainly to access land. A collector has an intermediate function of moving traffic and accessing land. Areas within 1000’ of each functionally classified road (arterials and collectors) were evaluated in each development model.

Slope

Slope was considered as a factor in each development model. Percent slope values were derived from United States Geological Survey (USGS) 30-meter Digital Elevation Models (DEMs) and also a 5-meter digital elevation model of the City of Duluth. Slope ranges of 0-10%, 10-15% and >15% were considered for each development type.

Streams

MNDNR maintains a 1:24000 scale stream database that was used in each development model. Due to the environmental sensitivity of areas in immediate proximity of a stream, it was decided to eliminate areas within 50' of a stream from each development model.

Sanitary Sewer Service

Availability of sanitary sewer service can be a great positive factor for development. Sanitary sewer service location information was gathered for all areas known to have sanitary sewer service. Data were provided in many different formats, including digital and paper maps. All data was converted to a digital format with varying degrees of accuracy depending on each source. The digital data was then used to evaluate areas within 500' and 1000' of a sanitary sewer service line for each development model.

Transit Routes

Duluth Transit Authority (DTA) routes were considered in each development model. Areas within 1000' of a transit route were considered for each development type.

Water Utility Service

Availability of water service can be a great positive factor for development. Water service location information was gathered for all areas known to have water service. Data were provided in many different formats, including digital and paper maps. All data was converted to a digital format with varying degrees of accuracy depending on each source. The digital data was then used to evaluate areas within 500' and 1000' of a water service line for each development model.

Wetlands

The National Wetlands Inventory (NWI) is a United States Fish and Wildlife Service (USFWS) sponsored program. The program has developed a database of wetland information. This data was used in each development model. Due to the complications wetland sites provide to most types of development, wetland areas were considered negative attributes for all development models. Wetlands were not totally excluded in any of the development models though because a wetland site does not entirely preclude a site from being developed.

Zoning

Zoning data for this project came from many sources in many different formats. Due to the fact that there is no standard for zoning classifications, zoning was generalized for each source and aggregated to create a single zoning data set. The generalized zoning classifications include: commercial, heavy industrial, light industrial, high-density residential, low density residential and park/open space. Each zoning classification was evaluated separately according to its relative value for each development type.

Model Results

After the study committee participated in a weighting exercise to apply weights to the above list of geographic information, the simple additive weighting models were run for three types of development – residential, commercial and industrial/manufacturing.

Industrial/Manufacturing

The industrial/manufacturing model results (see Map 6) show that areas along functionally classified roadways with current water and sewer service near current industrial areas as the most suitable for industrial/manufacturing development. Again, linear patterns near functionally classified roads showed a moderately high suitability. Areas currently zoned as high density residential were excluded from the model to reflect the desire to preserve this relative limited land in this zoning classification.

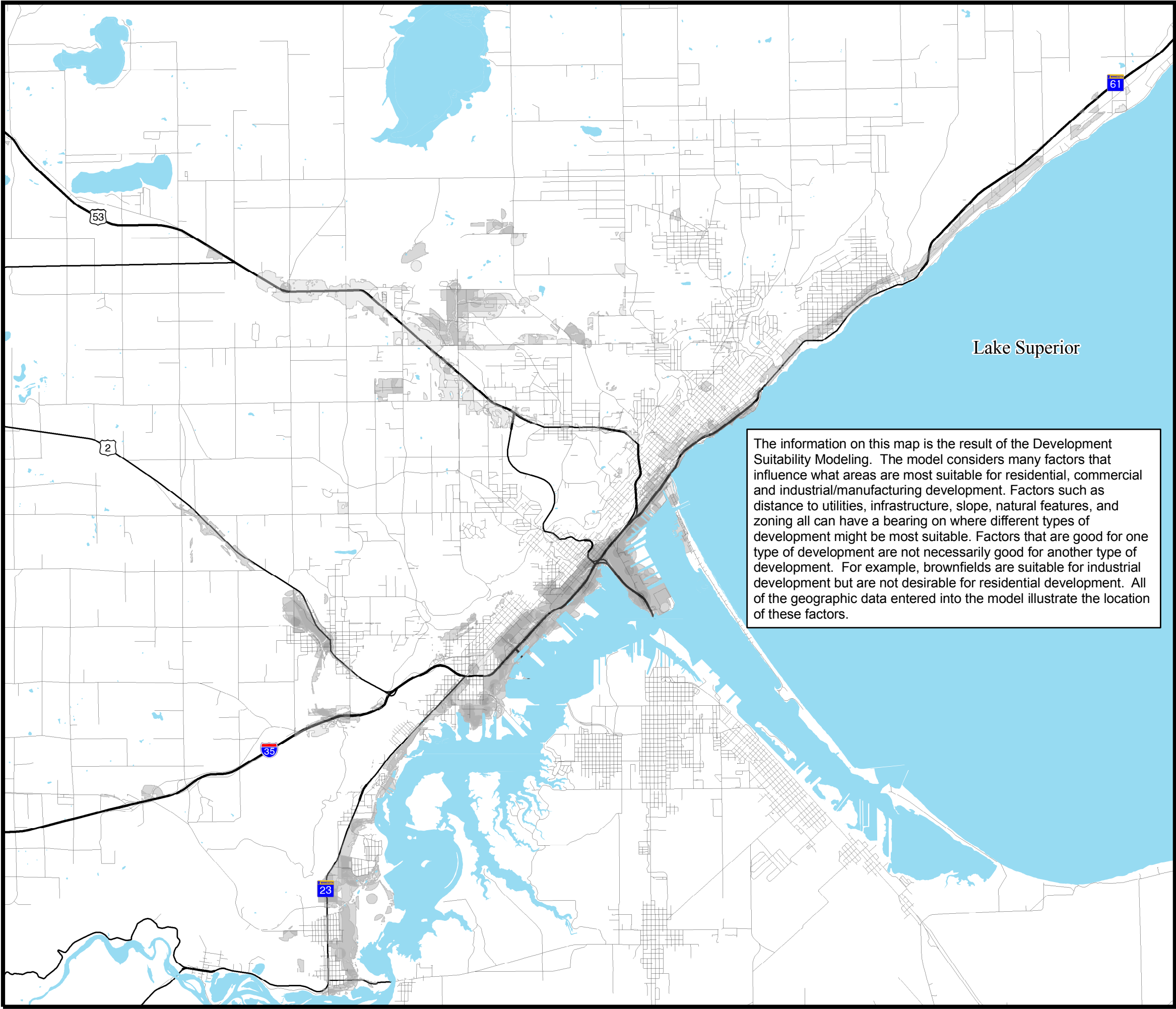
Commercial

The commercial model results (see Map 7) show the areas with current water and sewer service along functionally classified roadways as the most commercially suitable. Areas adjacent to functionally classified roadways throughout the region showed a higher commercial suitability than areas not near a functionally classified roadway. The areas showing the lowest commercial suitability were wetland areas and areas of severe slope.

Residential

The residential model results (see Map 8) showed the highest suitability in areas currently served by water and sewer service. Other areas showing high residential suitability include areas with no wetlands or severe slopes. The lowest residential suitability is areas with wetlands, severe slopes and in areas identified as parks or parkland.

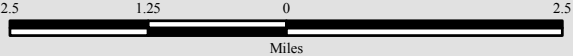


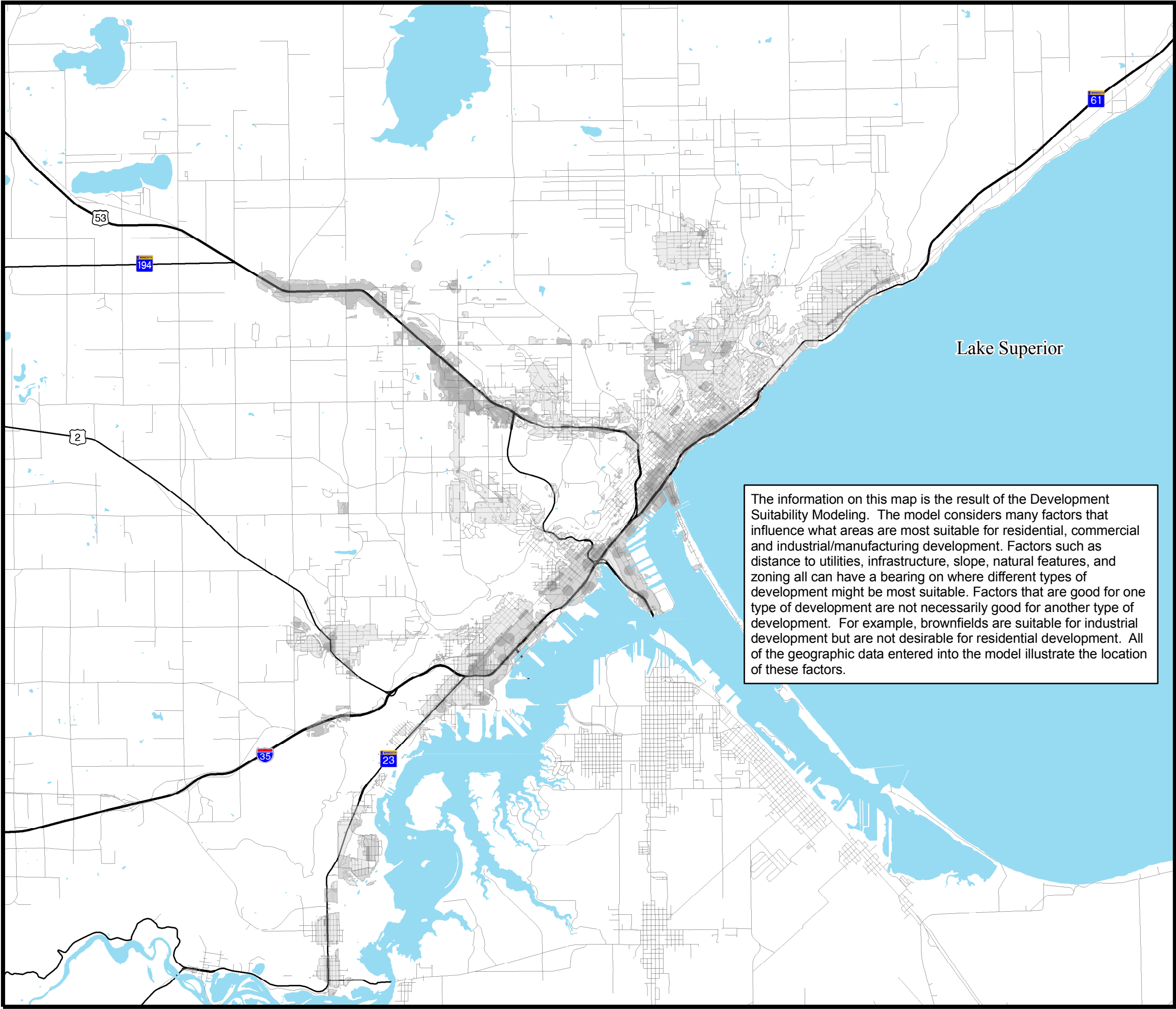


Industrial Model Results

Legend

- Industrial Model
- Lower Suitability
 - Higher Suitability

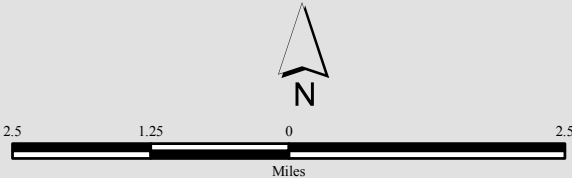


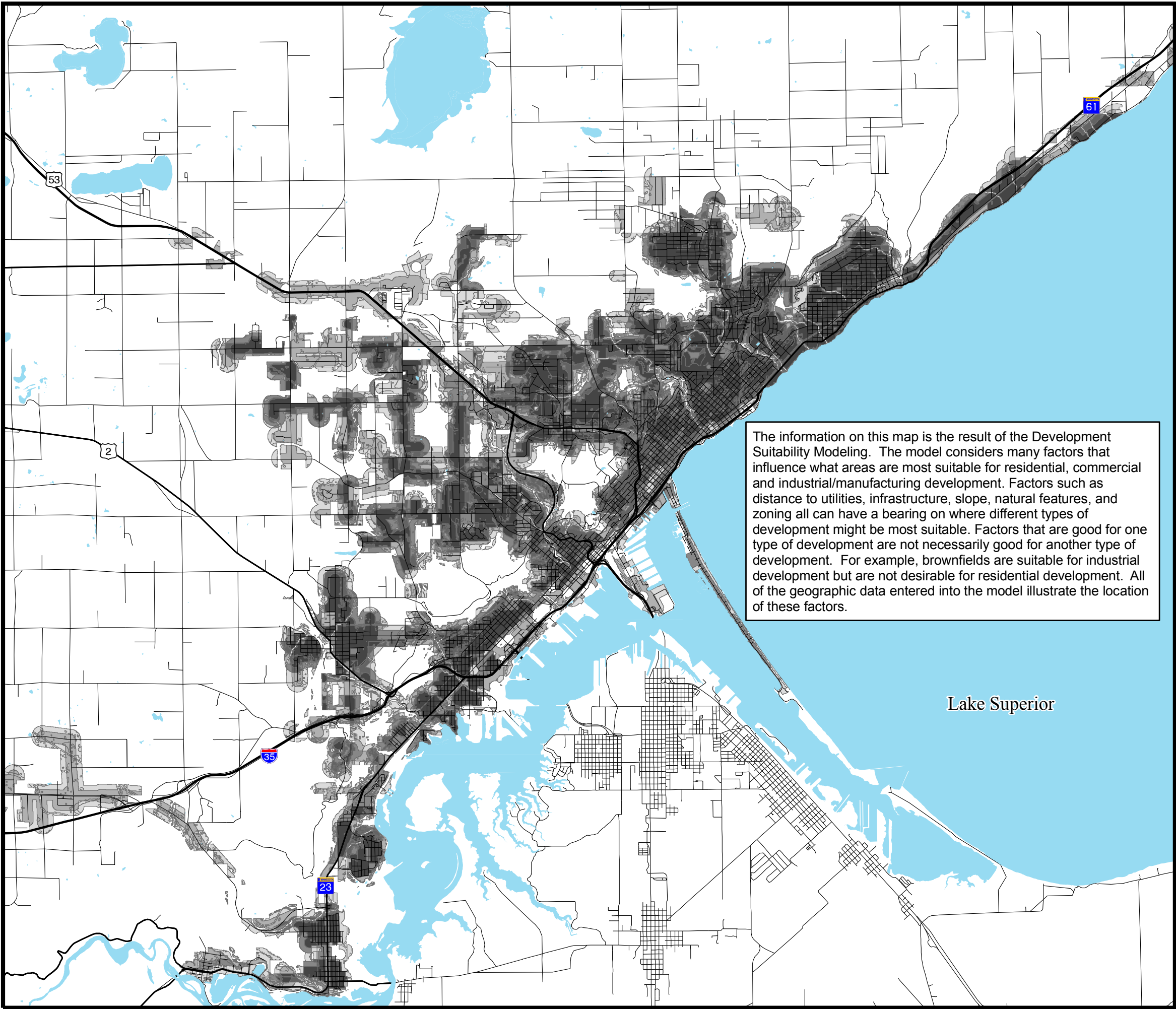


Commercial Model Results

Legend

- Commercial Model
- Lower Suitability
 - Higher Suitability

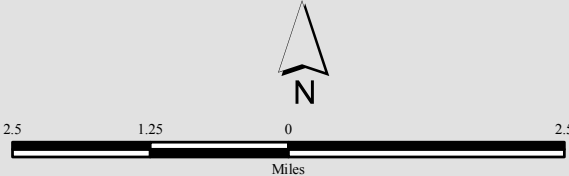




Residential Model Results

Legend

- Residential Model
- Lower Suitability
 - Higher Suitability



Intended Future Land Use

Information from each comprehensive plan was compiled and reviewed to identify intended future land use for each jurisdiction. Some of this information was provided in map format and some in textual format. The land use categories were generalized to provide consistency across jurisdiction boundaries. This information was compiled into one map and is displayed on Map 5 on page 47. This information is important to this study because it displays a regional view of how each community has planned for future land uses.

Current Zoning

Map 9 shows a simplified zoning coverage for the Duluth area. Zoning information from all area jurisdictions was obtained and simplified in order to be able to display it in map format. Current zoning was considered an important factor in determining areas suitable for future growth, given the short supply of land in certain zoning categories such as high density residential and industrial.

Areas Most Suitable for Future Growth

The Development Suitability Analysis was used as a starting point in identifying land suitable for future development. After the study committee reviewed the results of the suitability modeling, they also considered cultural, social, economic, and political factors that the model cannot measure. That information, combined with current and future land uses identified by the individual jurisdictions, was used to determine areas most suitable for future growth. These areas are outlined in red dashed lines on Maps 10, 11 & 12.

Industrial/Manufacturing

Areas identified as most suitable for industrial/Manufacturing development (see Map 10) include locations along the waterfront from Rice's Point to the Waseca industrial area in West Duluth have current infrastructure and are suitable for industrial or manufacturing development. Other suitable areas include the Morgan Park and Gary/New Duluth industrial areas and the Duluth International Airport. The former U.S. Steel Plant and Atlas Cement Plant offer opportunities to redevelop existing brownfields. The area surrounding the Airport is currently supporting a growing aviation industry and is suitable for additional industrial and manufacturing development. Other smaller areas suitable for industrial/manufacturing growth include sites in Hermantown and Proctor along Highway 2 and sites along I-35 in Proctor and Midway Township.

Commercial

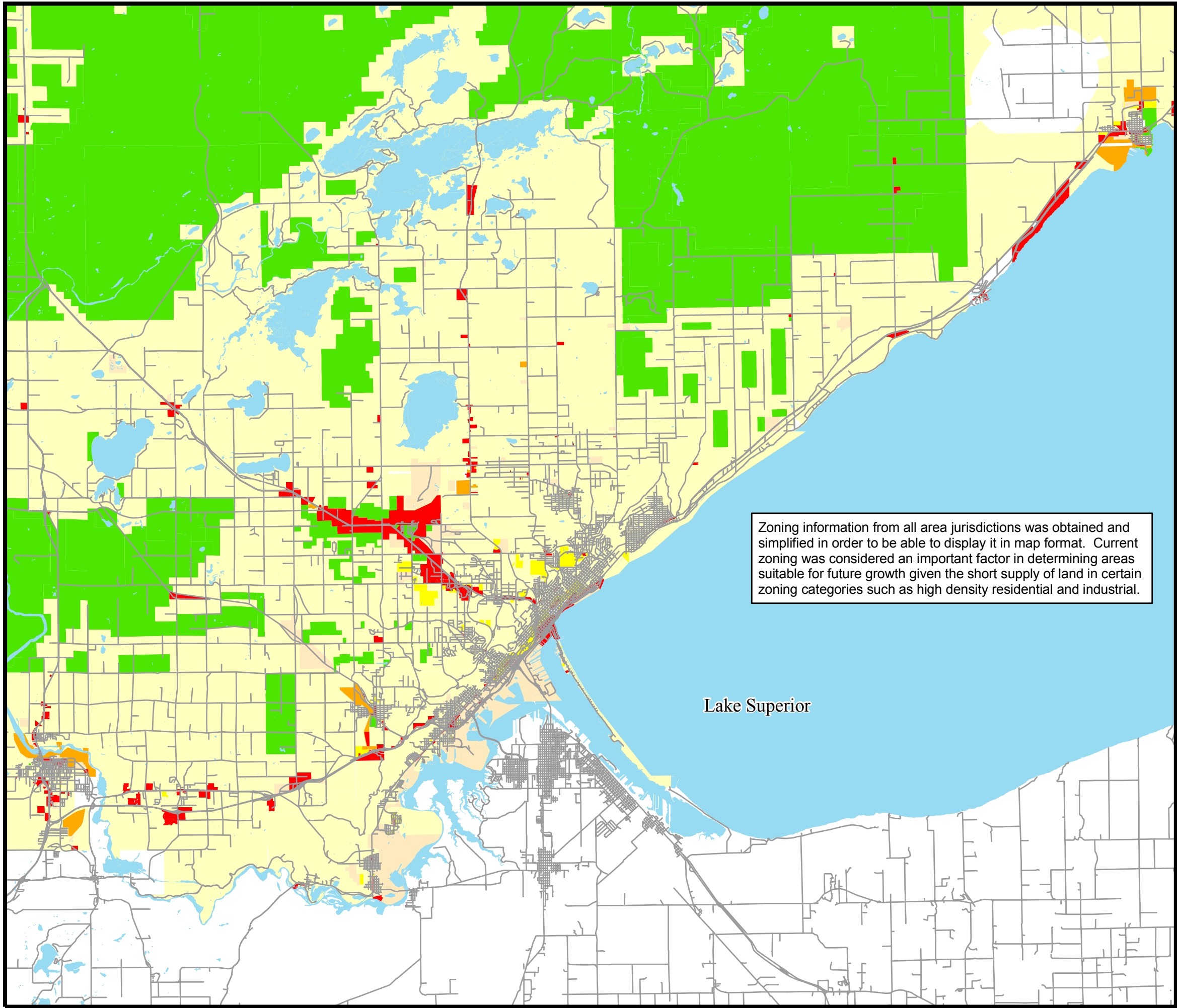
Areas identified as most suitable for commercial development (see Map 11) include the Central Entrance – Miller Trunk Highway corridor, downtown Duluth, Lincoln Park, West Duluth, Proctor, Lakeside/Lester Park, and Gary/New Duluth. Most of these areas are currently served by water and sewer services and are suitable for more intensive infill commercial development. Some of these areas are also suitable for mixed-use commercial and residential uses.

Residential

The Residential Suitability Map (Map 12) does not identify specific areas, as most of the region is suitable for residential development. Areas currently served by water and sewer are more suitable for infill of higher density residential development. Areas not served by water and sewer are suitable for low-density residential development.

Future Utility Staging

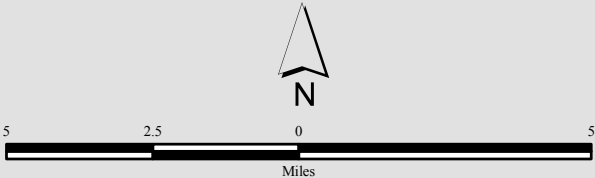
When all of the information was considered and areas best suited for growth were identified, utility extensions were then considered. The study committee reviewed information from local jurisdictions outlining where and when they would like to see water and sewer utility services expanded. All of this information was compiled and compared to those areas identified as most suitable for future growth to provide an outline for a future utility staging plan. Maps 13 & 14 show coordinated efforts at improving water and sewer services to areas that were identified as suitable for future growth. The maps show the extensions in stages of five-year increments. It should be noted that these staging ranges are conceptual in nature and are dependent on a number of factors such as the amount of upgrades needed to the current system and the amount of funding available for upgrades and expansions.

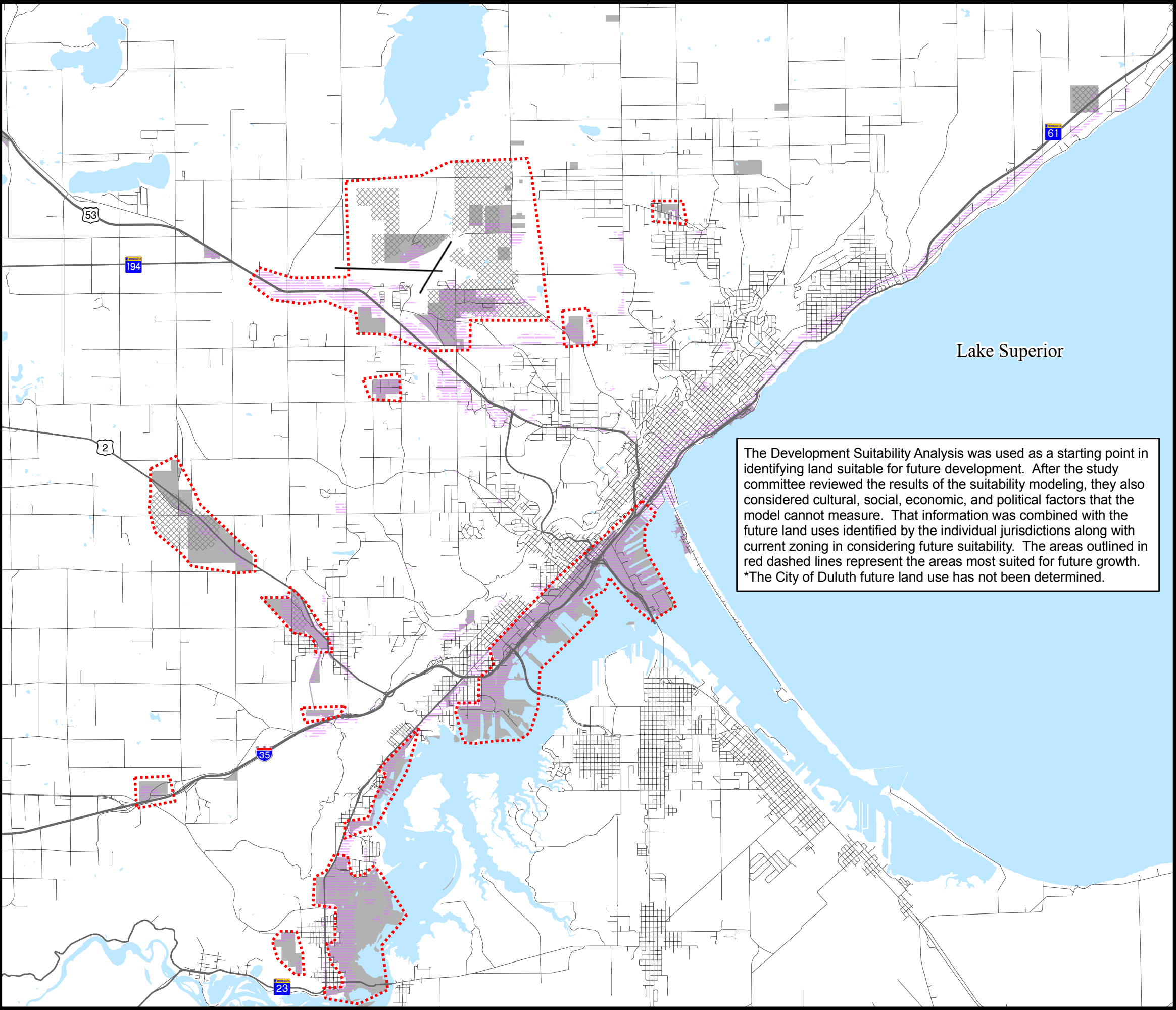


Current Zoning

Legend

- Zoning
- Commercial
 - Heavy Industrial
 - High Density Residential
 - Light Industrial
 - Low Density Residential
 - Park/Open Space

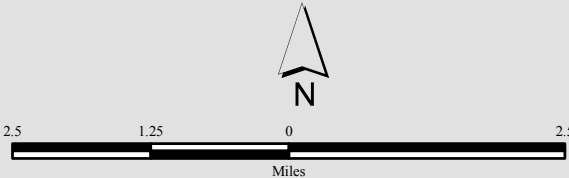


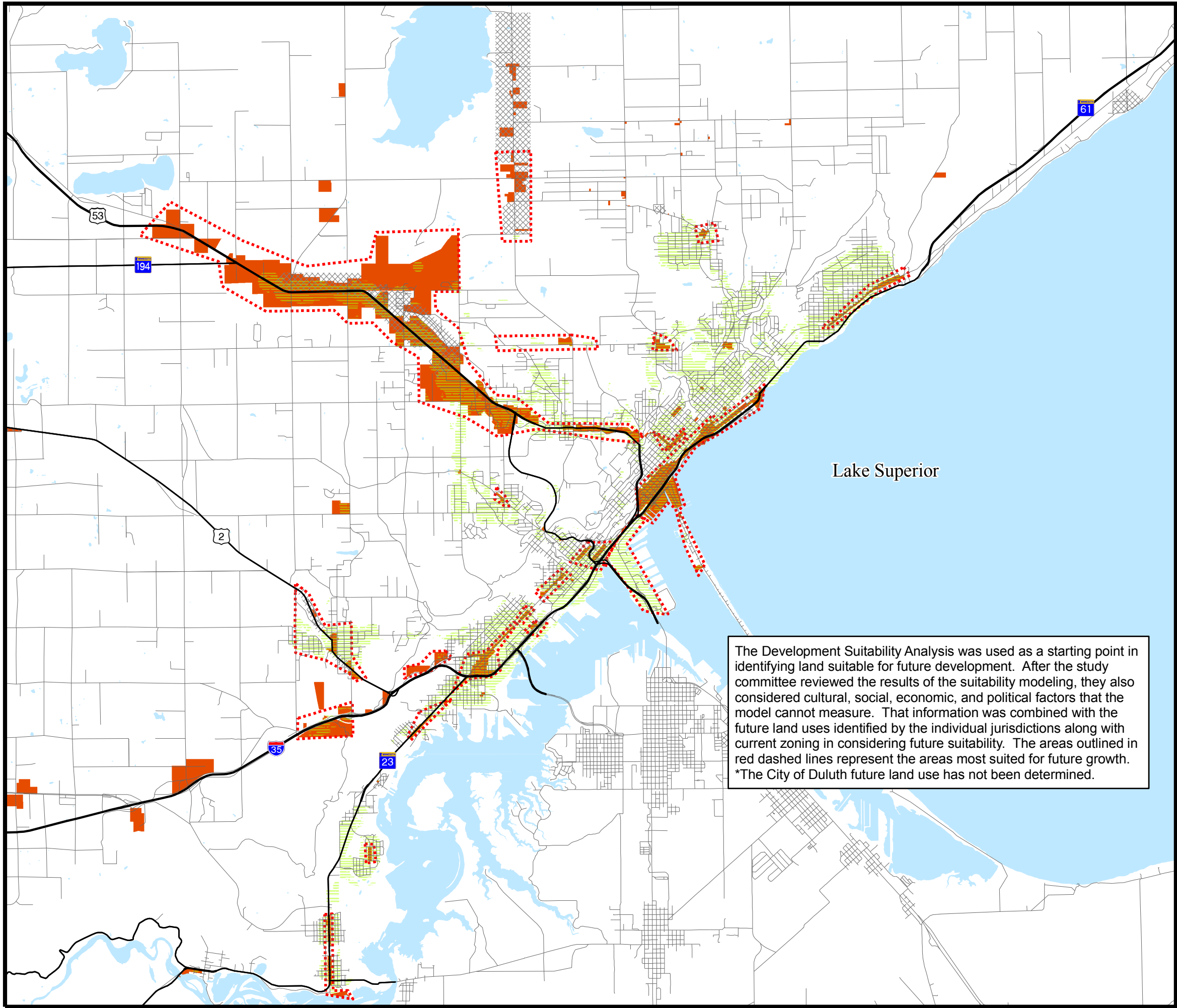


Industrial Suitability

Legend

- Suitable Industrial Areas
- Industrial Model Results
- Future Land Use - Industrial *
- Industrial Zoned Areas







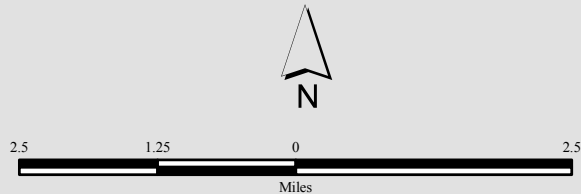


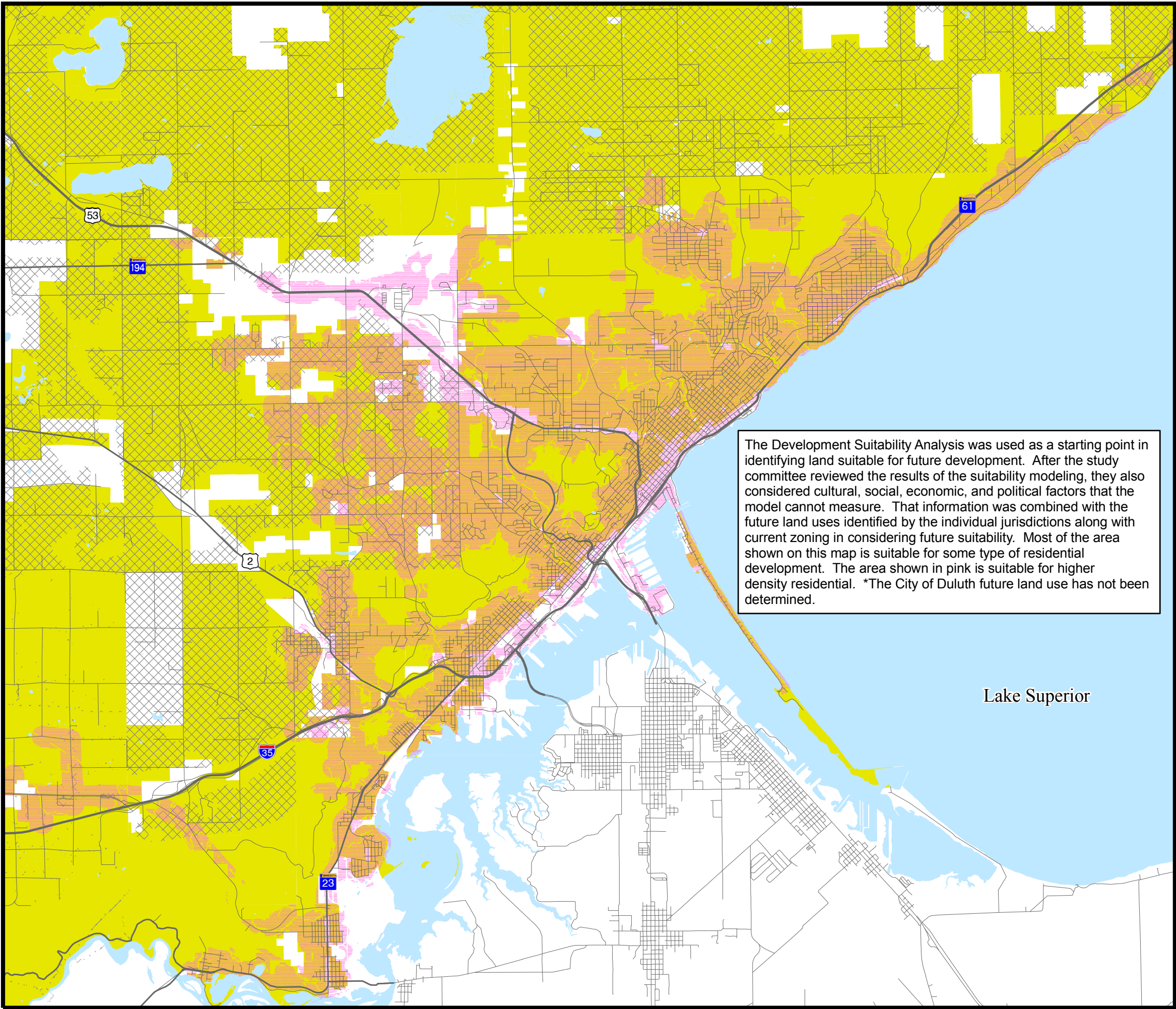
The Development Suitability Analysis was used as a starting point in identifying land suitable for future development. After the study committee reviewed the results of the suitability modeling, they also considered cultural, social, economic, and political factors that the model cannot measure. That information was combined with the future land uses identified by the individual jurisdictions along with current zoning in considering future suitability. The areas outlined in red dashed lines represent the areas most suited for future growth. *The City of Duluth future land use has not been determined.

Commercial Suitability

Legend

-  Suitable Commercial Areas
-  Commercial Model Results
-  Future Land Use - Commercial *
-  Commercial Zoned Areas








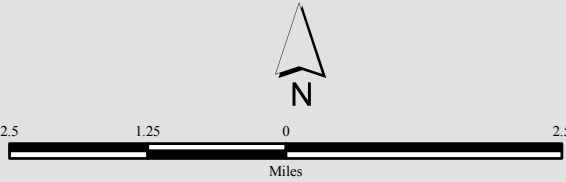
The Development Suitability Analysis was used as a starting point in identifying land suitable for future development. After the study committee reviewed the results of the suitability modeling, they also considered cultural, social, economic, and political factors that the model cannot measure. That information was combined with the future land uses identified by the individual jurisdictions along with current zoning in considering future suitability. Most of the area shown on this map is suitable for some type of residential development. The area shown in pink is suitable for higher density residential. *The City of Duluth future land use has not been determined.

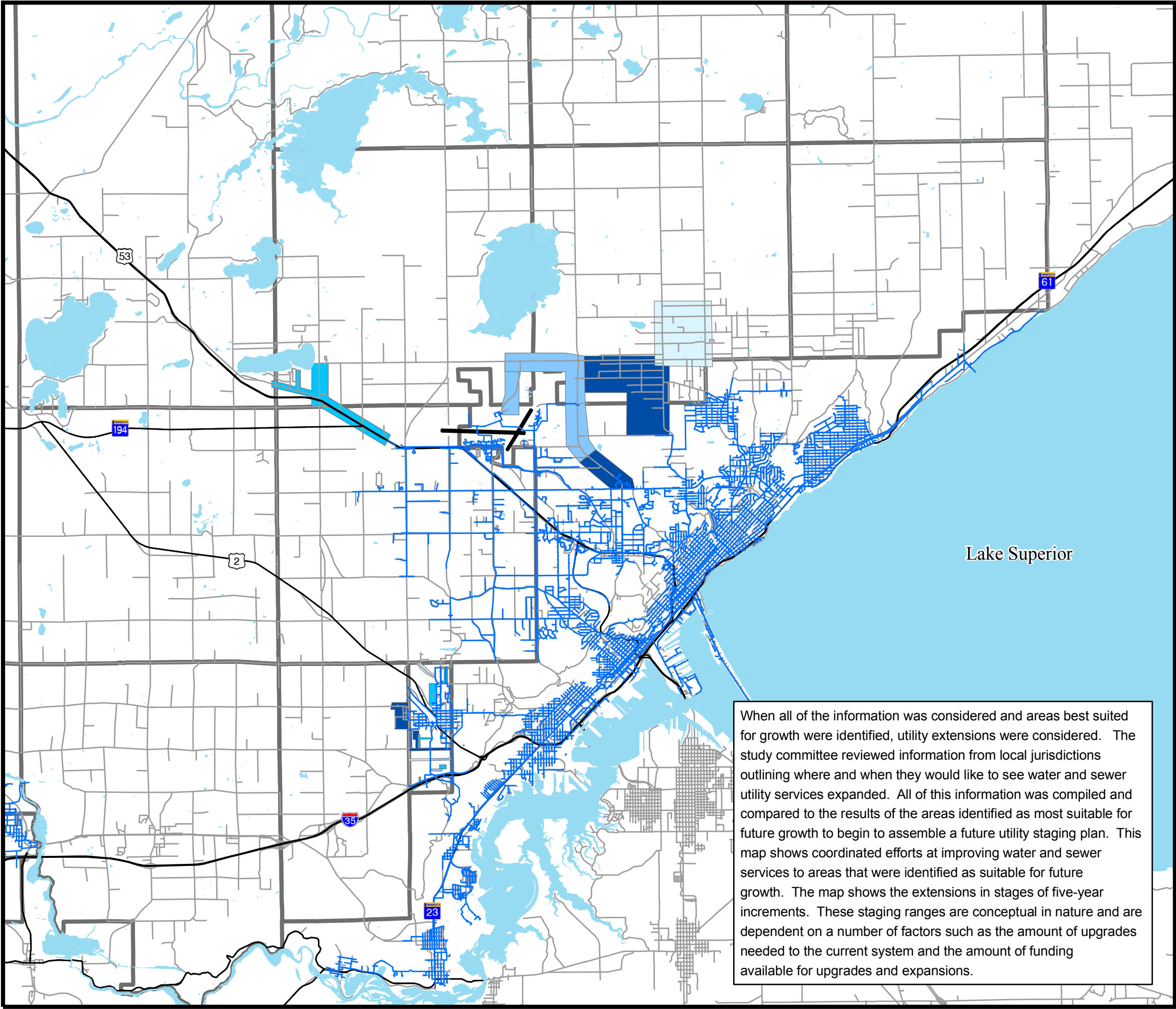
Residential Suitability

Legend

-  Residential Model Results
-  Future Land Use - Residential *
-  Residential Zoned Areas

Lake Superior

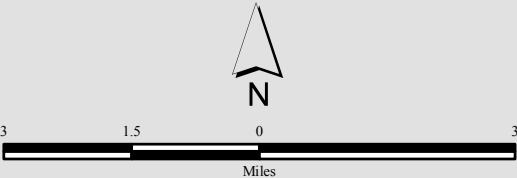


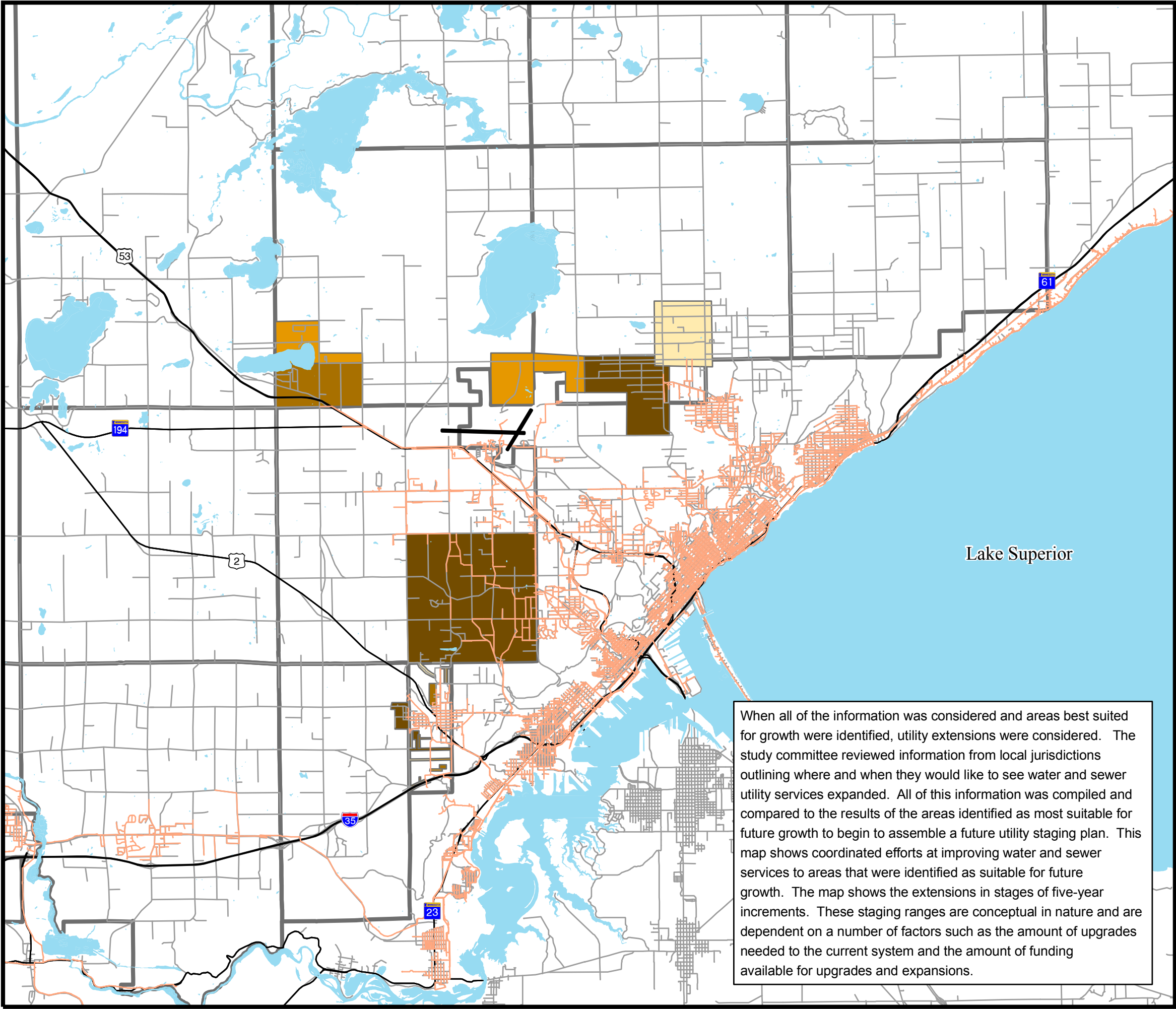


Water Staging Plans

Legend

- Existing Water Service
- Water 0-5 Years
- Water 5-10 Years
- Water 10-15 Years
- Water 15-20 Years
- Municipal Boundary

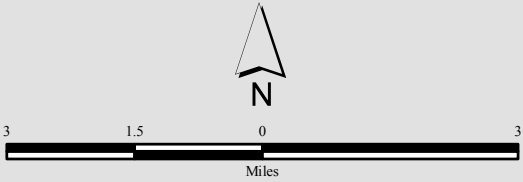




Sanitary Staging Plans

Legend

- Existing Sanitary Service
- Sewer 0-5 Years
- Sewer 5-10 Years
- Sewer 10-15 Years
- Sewer 15-20 Years
- Municipal Boundary



POLICIES AND RECOMMENDATIONS

The policies and recommendations in this chapter were compiled after all the information for the study was analyzed and are designed to provide area jurisdictions with the basis for managing future growth on a regional basis.

Policies

Regional Cooperation

All local units of government should communicate their intentions for growth to each other as well as regional service and planning agencies in order to allow for adequate infrastructure and utility planning. These agencies include the City of Duluth Public Works for water service planning, WLSSD for sanitary sewer and solid waste planning and the Metropolitan Interstate Council for transportation planning. Open lines of communication will allow better coordination and planning for the impacts associated with growth and development particularly along jurisdictional borders.

Shared Revenue

Revenues generated from growth that resulted from utility expansions should be shared and used to upgrade and maintain the current systems. The goal for shared revenue agreements should be to level the playing field for growth and development while providing a certain level of taxpayer protection. Competition from area jurisdictions for commercial and industrial development does not benefit local taxpayers; instead it creates winners and losers, driving up costs for everyone. *One example of this, described on pages 52-53, is how Racine, Wisconsin developed an agreement with its neighboring communities to provide water and sewer services and support of local autonomy in exchange for revenue sharing.*

Shared Services and Facilities

Local jurisdictions, agencies, and school districts should share services and facilities when an overall savings is possible. One example of a school that has partnered with the community to share facilities is the new Harbor City International School in Duluth. They have made arrangements to have classes and activities at the aquarium, library, Depot and YMCA. The school location was chosen with the idea of sharing these community facilities.

Shared Economic Development

Economic development should be conducted on a regional basis. Opportunities to partner on projects should be encouraged.

Cooperative Comprehensive Planning

Local jurisdictions should use information generated from this planning effort to update their comprehensive plans.

Intergovernmental cooperation should be part of every comprehensive planning process. Efficient use of financial resources should encourage every level of government to look at opportunities for communities to work together.

Growth Management

Strengthen the urban core by encouraging infill development and redevelopment to better utilize current water and sewer infrastructure. *Examples include mixed uses that provide housing opportunities in commercial areas along with reinforcement of current neighborhoods.*

Discourage dense urban growth beyond WLSSD's urban service boundary.

Limit rural development to land uses that are compatible with a rural environment that do not require extensive public facilities and services.

Transportation

Encourage a balanced transportation system that includes transit, bike, and pedestrian elements. Design transportation systems to enhance current neighborhoods and communities with a goal of increasing walkability, bikeability, and access to transit.

Incorporate freight mobility issues in all regional transportation planning.

Encourage all jurisdictions within the MIC planning area to participate in long range transportation planning. Communicate growth plans and development proposals so that transportation planning can be done in a comprehensive manner.

Water and Sewer Infrastructure

Make necessary upgrades to existing water and sewer systems before extending services to outlying areas. Investments in Duluth's water system as well as in WLSSD's sewer system benefit all communities surrounding Duluth that receive water and sewer service.

Explore the option of Managed On-Site Sewage Systems in rural areas outside the WLSSD Urban Services Boundary that experience poor soil conditions, higher population densities, or persistent failure of on-site sewer systems. A managed on-site system requires the home or business owner to have a third party manage and maintain wastewater treatment systems. The benefit would be all systems in a given area would operate at a consistent high level.

Water service should not be extended outside the current WLSSD's service boundary. The areas inside the service boundary should be targeted for more compact development to more efficiently utilize current infrastructure.

Recommendations

- 1) Communicate the findings of this study to local stakeholders. Steps include presentations to local planning bodies, city councils or town boards. The Lake Superior Regional Water Committee should meet again to review the results of the study.

Responsible Parties: Metropolitan Interstate Council
Timeline: *Immediate*

- 2) As a follow-up to this study, evaluate the current water systems to identify upgrades necessary and costs for system expansion. A detailed engineering study could identify the steps needed and the associated costs to upgrade the current water system.

Responsible Parties: City of Duluth
Timeline: *Immediate*

- 3) Local jurisdictions that anticipate water and sewer service extensions should update their land use and zoning policies to reflect more intensive uses in areas to be served by facility expansions.

Responsible Parties: Study Partners
Timeline: *1-5 years*

- 4) Modify zoning and land use regulations to promote additional mixed-use developments such as second story residential living spaces over first floor commercial or office space.

Responsible Parties: Study Partners
Timeline: *1-5 years*

- 5) Identify opportunities and provide incentives for infill housing in order to encourage a more efficient use of current utility and transportation systems.

Responsible Parties: Study Partners
Timeline: *1-5 years*

- 6) In the comprehensive planning process, individual jurisdictions should communicate with adjacent jurisdictions to identify areas of cooperation that could mutually benefit residents. Upon completion, comprehensive plans should be shared with neighboring communities, WLSSD and ARDC/MIC.

Responsible Parties: Study Partners
Timeline: *ongoing*

- 7) Identify development opportunities that can utilize alternative transportation modes such as bike, pedestrian and transit.

Responsible Parties: Study Partners
Timeline: *ongoing*

- 8) Preserve areas for industrial, manufacturing and commercial uses that have highway, rail, airport and water access to take advantage of intermodal freight movement opportunities.

Responsible Parties: Study Partners
Timeline: *ongoing*

- 9) Promote the benefits of managed on-site sewer systems. Provide information to the general public on how managing these systems benefits water quality and are cost effective over the long run.

Responsible Parties: Study Partners
Timeline: *ongoing*

- 10) Areas jurisdictions should develop a mechanism where additional tax revenues generated from the expansion of water and sewer services are shared and used to fund upgrades to the current systems.

Responsible Parties: Study Partners
Timeline: *Upon completion of detailed engineering study (see recommendation 2)*

- 11) Identify areas along common borders where land resources can be pooled. Areas near jurisdictional boundaries may provide an opportunity to package larger tracts of land. With the scarcity of industrial land available for development border areas may provide unique opportunities.

Responsible Parties: Study Partners
Timeline: *Undertake in conjunction with Duluth Comprehensive Plan*

- 12)** Identify opportunities to share services where a savings to local jurisdictions and agencies will result. Examples include combining schools with libraries, community centers, and recreation areas. School facilities are normally used only during the day and can go unused during the evening hours. Community centers have a need for evening and weekend space for residents to meet.

Responsible Parties: Study Partners and local School Districts
Timeline: *ongoing*

- 13)** Update the information from the Growth Impact Study. This step will be determined by how quickly utility expansions take place and how growth pressures are impacting area communities.

Responsible Parties: Study Partners
Timeline: *5-10 years*



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GROWTH MANAGEMENT IN THE UNITED STATES

Rigid growth controls evolved in the 1970's to curb development. The majority of these techniques had undesirable consequences such as exclusionary zoning and excessive sprawl, some were even found to be unconstitutional. Growth control techniques of the era included: building moratoria, permit quotas, large-lot zoning, and large minimum sizes for residential structures. Urban sprawl development occurs when growth controls and restrictions push development away from areas served by existing infrastructure. When developers cannot use vacant lands in exclusive suburban municipalities, they move outward and build more affordable housing on farmland and in open spaces in the metropolitan periphery.

Growth management evolved in response to unintended consequences of restrictive growth controls of the 1970's. Growth management strives to direct development in a socially, environmentally, and fiscally efficient way. The public sector, through growth management techniques, is allowed to pursue goals that otherwise developers would not seek on their own such as preventing negative "spillover" effects and equitably distributing the positive and negative impacts of development. Growth management combines various regulations and incentives. The technique differs from conventional planning techniques in that it (1) estimates long-range development needs (2) identifies where and how to meet development needs in an efficient and equitable manner; and (3) utilizes public resources to shape development. Growth management addresses regulatory, financial and land use management tools and techniques. The six major goals of growth management are:

- 1) Protect lands that provide public and quasi-public goods
- 2) Accommodate development needs
- 3) Provide adequate public facilities and services at minimum cost and distribute costs equitably
- 4) Distribute the burdens and benefits of growth fairly
- 5) Prevent or mitigate negative and foster positive externalities
- 6) Provide administrative efficiency

The state of Oregon adopted growth management policies in the late 1970's because during the 1960's, the state lost 3.2 million acres of farmland, gained 300,000 new residents, and had tax increases twice the national rate. During the period of 1982 to 1992 the state grew by an additional 300,000 new residents, lost very little farmland, and had tax increases at half the national average. Oregon accomplished this by implementing growth management policies.

Unintended Consequences of Uncontrolled Growth

Low density, uncontrolled suburbanization has wide-ranging effects on land use, transportation, regional fiscal structure, public services, facilities, and economic development. Communities throughout the United States are experiencing the impacts of unplanned growth with environmental decline, lost open space, displacement of natural resources, vanishing community character, and the financial and social burdens placed on local and state governments.

Causes of Suburban Growth:

Initially the core area serves low-income and immigrant households. As households from these areas experience a rise in income they move out to the suburbs resulting in vacancy rates rising for the core area. This rise in vacancy decreases the property tax base and a decline of physical structures and public services to the area including public schools. As physical structures grow older, and crime and vandalism rates increase, businesses select to move out of the core areas and into the suburbs where they continue to have a source of labor available to them. When a business leaves the city, they take their jobs with them increasing poverty and crime even more.

As time goes on, inner-ring suburbs fill up with houses, businesses and commercial structures, roads, and highways. As the total fraction of occupied land increases, construction in these older suburbs halts. Residents of sprawling communities drive three to four times as much as those living in compact, well-planned areas causing the highways to become congested; yet the building of more roads becomes impractical. Agricultural land beyond the existing belt of suburbs becomes a prime target for development. The cycle described for the core cities begins to occur for the aging "inner suburbs." Because of the availability of cheaper land lying on the periphery and taxpayer subsidies granted to developers, suburbanization takes on a new characteristic, namely making the outlying green spaces more attractive for development than the original suburbs around the inner city.

The cycle of building road capacity extends into new territory to form the "outer suburbs." These new roads, and infrastructure such as sewers, provide the opportunity for people and businesses situated in the inner suburbs to move to the new outer suburbs. As the inner suburbs age, so does their housing stock, triggering another exodus of middle class people out of the older suburbs and into the affluent newer suburbs.

New suburbs lead to more housing developments, traffic congestion, retail strip development, and the need for increasing infrastructures. Property taxes in these areas rise to provide for the expanding infrastructure. Outlying vacant areas surrounding these new growth suburbs result in the development of scattered home clusters and new low-cost subdivisions and the cycle of suburbanization is repeated.

Sociological Effects of Uncontrolled Growth

Residents in suburbs experience congestion, separation, and a loss of the sense of community. They perceive that most shopping centers and strip malls are ugly and that the amount of land that is being consumed by development is leaving less land for future open spaces. As commercial and residential development extends out in neighboring towns, transforming the landscape and attracting new residents and lifestyles, long-standing residents can no longer afford to live in the area due to increased housing values and higher taxes and are forced to move out.

Environmental Effects of Uncontrolled Growth

For every 1 percent increase in developed land there is a corresponding 1-1.5 percent increase in vehicle miles traveled (VMT). This increase in VMT by residents living in sprawling communities significantly increases the amount of air pollution as compared to residents living in compact, well-planned areas. The negative effects of air pollution have been linked as a source of health problems as well as property damage.

An increase in travel requires that roads be upgraded, widened and improved. More parking lots must be built producing more non-point source pollutants, including oil, grease and toxic chemical runoff from asphalt surfaces.

Fertilizers, herbicides, and insecticides from residential lawns, seep into the waterways, degrading wetlands and threatening water quality.

As farmland and forests are transformed into residential subdivisions or business centers, the availability of habitat for wildlife declines. Buildings, roads and other manmade barriers alter or block essential wildlife corridors, woodlands, streams and lowlands. Deforestation harms the health of the urban ecosystem since trees improve air quality.

Fiscal Impacts of Uncontrolled Growth on Public Services

Residentially driven growth is costly, especially if it takes place in counties that do not have sophisticated public-service systems. In these cases, reasonably sophisticated public safety, public works, roads, general government, police and fire protection, and schools must be provided and financed by taxpayer subsidies. The costs of extending facilities can increase significantly if an area develops in a low-density, leapfrog or radial pattern and the needed facilities and services are added later. This need for these public services could be required to serve low density or scattered areas for reasons of health hazard, pollution, and congestion.

Development standards for roads (lane widths, central dividers, sidewalks, etc.) affect the costs of roadway construction. These standards are typically different for rural roads, where a two-lane highway with five-foot-wide shoulders might be sufficient, than for urban roads, where the standards may include curbs, gutters, and a 12-foot auxiliary lane. Both national and state sources provide per-mile construction costs for urban and rural development environments. Per-mile costs set by a state's department of transportation does not take into consideration land acquisition or related structures such as bridges.

For the projection period 2000-2025, under traditional or uncontrolled growth the United States will spend more than \$927 billion to provide necessary road infrastructure amounting to an additional 2.05 million lane-miles of local roads. Under controlled growth, 1.85 million lane-miles of local roads will be required amounting to \$817 billion in local road costs. Overall a saving of 188,300 lane-miles of local roads and \$110 billion can be achieved with more-compact growth patterns.

Governmental Funding Effects of Uncontrolled Growth

As businesses and population shift to the suburbs more political entities in the form of townships, villages, and municipalities are formally created. As these suburbs increase in economic and political strength local, state, and federal governments begin to allocate more funds for roads to the municipalities that surround the city and less to the core-city itself. In the case of many metropolitan areas, a majority of the investment in highway construction takes place in the most rapidly growing affluent suburbs in the area.

Reversing the process of uncontrolled growth is very difficult, yet the cost in terms of lost agricultural lands, pollution, and social impacts are overwhelming. Strategies to slow down the process need to be re-examined to end its effects on the urban areas.

A number of different growth management methods exist and are being used today. This chapter will outline two techniques: urban growth boundaries and adequate facilities provisions. It will also provide examples of other methods. Normally, growth management methods are used as a result of policies spelled out in comprehensive plans.

Urban Growth Boundaries, A Land Use Planning Tool

What is a UGB?

A UGB is a line drawn on planning and zoning maps to show where a city expects to grow. This is depicted on a map by illustrating (1) the current city limits and (2) the UGB. The area between the UGB and the city limits is "urbanizable land," land that is currently undeveloped but will logically accommodate future city growth. This urbanizable area will eventually have urban services such as sewers and streets and will probably be annexed to the city. This area will have urban development patterns: a variety of housing, office buildings, stores etc. Land outside the UGB will remain rural (farming, forestry, low-density residential etc.) and no urban services will be extended there. Zoning ordinances prohibit urban development and the creation of small new lots outside the UGB.

Urban growth boundaries, or UGBs, have been adopted to limit land development beyond a politically designated area in an effort to curb sprawl, protect open space, and encourage the redevelopment of inner-city neighborhoods. Statewide mandates for urban growth boundaries exist in Oregon, Tennessee, and Washington as well. Every city in the state of Oregon is surrounded by a UGB.

As mentioned, this land between the city limits and UGB is not within the city's corporate limits but is under county jurisdiction. Since this land inside the UGB may be annexed to the city at some point in the future, the city and county must work together through "urban growth management agreements" on planning and zoning in this urbanizable area. Usually, this urbanizable area is subject to the city's comprehensive plan. However, the county controls zoning and land use permits until the area is annexed or becomes developed to urban standards.

These urban growth management agreements rectify which city, county or local government will administer land use regulations in this area, zoning, public service standards, and growth controls.

How is a UGB Drawn or Modified?

A UGB is devised jointly by the city it will surround, the adjoining county (which is responsible for planning and zoning in the area outside the city limits and UGB), special districts that provide urban services, and interested citizens. For example, in Oregon, after local governments have devised their UGB, the State Land Conservation and Development Commission reviews the boundary to ensure it is consistent with state goal 14, adopted in 1974, titled “urbanization.” This goal requires that the “establishment and change of the boundaries shall be a cooperative process between a city and the county or counties that surround it.” Additionally, seven “factors” based on need and location must be considered in drawing or changing the UGB.

The size of the UGB will depend on how much the city expects to grow in the future. Growth estimates and population projections are used to estimate the amount of vacant land that will be needed to accommodate future growth. City planners are asked to calculate “housing mix” and estimate vacancy rates, household sizes, and densities of development. They then subtract the amount of vacant land available in the current city limits and add the remainder as urbanizable land beyond city limits for future growth. The city and county must then decide which areas should be inside the UGB and which should be outside the UGB based on state goal 14’s “locational factors.” Locational factors examine the efficient use of land, protection of agricultural land at the city's edge, and cost-effective public services. For example, a rugged, hilly area would be costly to serve with sewers, water, and streets and therefore should not be included in the UGB.

UGBs can be modified. To amend the UGB, a city must comply with the "exception" requirements from Oregon statewide planning goal 2 and apply goal 14's standards for establishing an urban growth boundary. Goal 2 requires a review of alternatives and asks the question whether it is best to expand or contract the UGB. Recently, the state of Oregon passed additional legislation making it more difficult to modify UGBs.

Do UGBs Work?

Oregon has shown UGBs to be highly effective in helping to hold down the costs of public services and facilities, saving farmland from urban sprawl, and better coordination of multi-jurisdictional land use planning. Landowners and users at the city’s edge are educated about the use and investment of that land and the UGB is jointly devised.

Opponents of UGBs—Unintended Consequences

UGBs have potentially negative unintended side effects. When the supply of developable land is reduced, housing and land prices can increase, thereby reducing housing affordability and production. The effectiveness of UGBs has been constrained by: (1) preferences for single-family, detached homes by prospective homebuyers, (2) poor coordination amongst

local public agencies, (3) housing-price increases and (4) political manipulation by anti-growth interest groups.

The **Portland, Oregon** region adopted a UGB in 1979 encompassing 24 cities and portions of three counties as part of the statewide growth management law. The UGB has controlled metropolitan development and regional government has attempted to foster higher density development and redevelopment of urban areas. A study published by the Fannie Mae Foundation in 2002 provides initial evidence that an urban growth boundary or other stringent land-use controls can, at least for a short period, exert upward pressure on the rate of increase of housing prices, if it is combined with other factors strongly stimulating the demand for housing in the region, such as employment growth. However, it does not find evidence that urban growth boundaries necessarily exert this upward pressure. The study states, “if policies serve to restrict land supply and housing production, housing prices should rise. But if they restrict land supply while facilitating housing production at a level needed to meet market demand, housing prices should not rise because of supply constraints.” The study also noted that the Portland Urban Growth Boundary does incorporate innovative ways to increase housing supply, even while restricting land supply.

In **Boulder County, Colorado**, urban service areas, along with strict growth controls, have been in place since 1978 to protect open space. Since the area encompasses the whole county, the city's surging job growth and limitations on residential growth have had a significant impact on housing demand in adjoining communities. The most striking example is the nearby community of Superior. In 1990, the population of Superior was 255; in 1996 it was 3,377. It has practically no jobs and no sales tax base. This regional imbalance between jobs and housing has created tremendous problems with traffic congestion, lack of affordable housing and school facility needs.

In Boulder's initial planning efforts, there was a clear expression of a preference for infill and redevelopment over sprawl. Since there is no requirement that a certain amount of land be contained within its service area (such as the 20-year required land supply within Oregon's urban growth boundaries), Boulder does not have to make a trade-off between expansion versus infill and redevelopment. However, it is increasingly difficult to convince specific neighborhoods and the community as a whole that additional density is in their best interests. The community can choose to not expand the service area, maintain current densities and simply not grow.

Is that good or bad? On the good side, it has allowed Boulder to determine its own ideal city size, with consideration of how much congestion is tolerable, what sized city leads to a high quality of life, and what is sustainable over time. On the bad side, it holds Boulder back from capturing some of the benefits that additional development could bring, such as more affordable housing and less dependence on the automobile by building mixed use, transit-oriented neighborhood centers.

Lancaster County, Pennsylvania a rural county with significant Amish culture, enacted several programs to protect the character of the county. Lancaster has one of the country's most aggressive county-level growth management programs. In the 1980s, local

policymakers enacted farmland protection programs and in the 1990s growth boundaries were adopted to curb urban development. Approximately 60 percent of the county's land development still occurs outside growth boundaries. This is happening despite recommended densities of five units per acre (one-fifth acre lots), actual densities average three units per acre (one-third acre lots) inside the boundary and less than one unit per acre (more than one acre) outside the boundary.

UGB opponents argue that there are other approaches available to create growth patterns that advocate Smart Growth. They generally feel that market-driven approaches are more likely to achieve broad land use and housing goals than arbitrary land limits such as UGBs. Market-oriented approaches for the real-estate market to achieve these results include: (1) relaxing density restrictions in zoning codes to allow for market-determined densities; (2) purchasing development rights to private land with private funds to protect open space in strategic areas of the city or metropolitan area; and (3) pricing public infrastructure at its full marginal cost to ensure new development pays its way without subsidizing new or existing residents. Opponents want policymakers to recognize the political, economic, and social tradeoffs of adopting restrictive land use policies. Policymakers should avoid subsidizing low-density development, however they must also avoid subsidizing high-density development.

Adequate Public Facilities Requirements

Adequate public facilities requirements (APFR) also known as adequate services provisions ensure that that public facilities and services necessary to support development are adequate or will be provided in a timely manner. These requirements usually relate to the public services such as water, sanitary sewer, schools, parks, roads, fire protection and surface water management. Funding of public facilities is normally the responsibility of the developer and is roughly proportional to the impact of the proposed development. These tools help local governments avoid the negative impacts associated with rapid growth such as insufficient sewer capacity and traffic congestion.

Potential Impacts

The impacts depend on the requirements. In general, APFRs:

- **Reduce the amount of development that lacks adequate urban services.** Enforcement of the APFR would prevent development in the absence of urban services. This would reduce the amount of development in underserved areas. It also may encourage the extension of systems or the formation of new special districts to provide the required services.
- **Encourage infill development in areas well served by public facilities.** To the extent that APFRs limit development elsewhere, they increase the demand for development in areas that have good levels of urban services. To the extent that land in these areas is limited, developers will tend to build at higher densities. APFRs also encourage contiguous development because it's closer to existing urban services and therefore less costly to serve.

- **Direct development to areas with some urban services.** APFRs encourage development in areas where levels of service are better than other areas. Areas that are partially served will be attractive because of the lower cost to develop. To some extent, this already occurs; APFRs will simply reinforce the current pattern. This unintended consequence can be addressed by varying level of service standards. For example, setting high standards in fringe areas.
- **Shift development to other jurisdictions.** If not coordinated with neighboring jurisdictions, strict APFRs combined with a tight capital improvement budget could cause developers to build in neighboring communities with lower standards.

Regional Coordination

Growth management and the efficient provision of urban services are regional issues that should be coordinated to be most effective. If only a single jurisdiction in a region implements APFRs, growth is likely to move to neighboring communities. If a city or county adopts APFRs, then special districts that may provide those urban services need to be aware of the requirements.

Florida: Legislation Requires Adequate Public Facilities

The Florida legislature has created a statewide APF law, which requires that public facilities and other services needed to support development must be available concurrent with the impacts of that development. This “concurrency” requirement mandates that necessary roads, drainage, solid waste, potable water, sanitary sewer, parks and recreation, and mass transit be in place before localities may issue a development order or permit. The state law required localities to create level of service standards for each of these facilities. Local governments were called upon to develop systems to manage concurrency that would continuously keep track of development, capital improvements, and capacity. Although the state has provided inadequate funding for many of the planning burdens placed upon localities by the statewide planning laws, the concurrency requirements have been well funded. Many localities have had to turn to impact fees in order to fund improvements to public facilities that are needed to avoid a prohibition on new development. Like Montgomery County, Maryland, Florida has learned that APF requirements often must be location specific. Florida found that its concurrency standard sometimes conflicted with other state objectives by discouraged development in dense urban areas because of failing levels of infrastructure (especially roadways) in those areas. Florida’s solution was to create innovative measures of concurrency that allowed development to continue by recognizing the desirability of dense development patterns.

Montgomery County, Maryland: APF Requirements Since 1973

The county has adhered to adequate public facilities (APF) requirements since 1973. Over time, the county has gained considerable experience in assessing the capacities of existing and planned public facilities and in evaluating the impacts of proposed projects on those facilities. The county’s planning board has developed computer models to estimate traffic and fiscal impacts of proposed projects. Since 1986, the County has published an annual “Growth Policy Report” which defines the capacity of public facilities in various areas of the county to accommodate new development. The report provides developers with advance

notice of those areas of the County in which development projects are likely to receive approval. The capacity ratings are tied to the Capital Improvement Program so that the ratings change annually to reflect new investment in public facilities. The County's ability to provide accurate estimations of future public facilities capacity has been hampered by a lack of political resolve to follow the schedule of improvements laid out in the Capital Improvement Program. Also, as funding for public improvements has become progressively more elusive, the APF regulations have forced developers to shoulder more of the infrastructure burden created by proposed projects. The County has also had to make exceptions to its APF standards in some cases where the standards have conflicted with other policy objectives. For example, failing levels of service for traffic congestion were blocking development around Metrorail stations. Because the resulting moratorium on development conflicted with other policy objectives including encouraging dense development around mass transit and provision of affordable housing, the county waived APF requirements for development projects in those areas.

Other Growth Management Tools

Impact Fees

Development impact fees are one-time charges applied to offset the additional public-service costs of new development. According to one definition, impact fees are "monetary charges imposed on new development to recoup or offset a proportionate share of public capital costs required to accommodate such development with necessary public facilities" (Nicholas and Nelson, 1988 as cited in 1991 p. 2). Impact fees grew out of the public's realization, during the 1960's, that despite the use of developer exactions, growth may actually be a drain on public coffers. Prior to this time, growth was seen as a way to increase tax revenue and generally boost the local economy. As neighborhoods became crowded and public services were not able to keep up with growth, attitudes began to change.

A concurrent trend was that during this time federal, state, and local governments began reducing their commitment to finance community facilities. Between 1965 and 1984, average per capital outlays in constant 1972 dollars for infrastructure dropped from \$161 to \$87. (Nelson, 1988). Anti-growth sentiments continued throughout the 1970s, as several studies found that new developments did not generate sufficient tax revenues to pay for the additional demand they put on public services. Another event of the 1970s, that may have helped shape impact fees, was the passage of the National Environmental Policy Act (NEPA), which required that environmental impact assessments be conducted for certain construction projects (Nicholas, et al., 1991). The methods used for calculating environmental impacts are similar to those that have been adopted for determining impact fees.

Where are Impact Fees Being Used?

Impact fees have been used extensively in Florida, California, Oregon, Colorado and Texas. In recent years, ten states have taken steps to specifically authorize communities to assess impact fees. These states include Arizona, California, Georgia, Maine, Maryland, Nevada, Oregon, Texas, Vermont and Washington. One difficulty in determining how many

communities are currently using impact fees is terminology. Impact fees are also called developer charges, benefit assessments, connection charges, exactions or extractions (by developers), or donations (by jurisdictions) (Nicholas, et al., 1991).

What are Impact Fees Used For?

Impact fees are usually applied at the time a building permit is issued and are dedicated to provision of additional services, such as water and sewer systems, roads, schools, libraries, and parks and recreation facilities, made necessary by the presence of new residents in the area.

Generally, impact fees cannot legally be used for operation, maintenance, repair, alteration, or replacement of capital facilities. Most commonly, fees are used to recoup the cost of water and sewer hookups. Fees that are used for highway construction rank as the next most common type. However, using impact fees to pay for facilities other than roads and utilities is still relatively uncommon in the U.S. Generally, these fees are used to offset the costs incurred by jurisdictions when larger scale development is taking place.

TAXPAYER PROTECTION

With growth, comes expense of extending existing water and sewer services. Density has a strong effect on the cost of public facilities, a greater cost, in fact, than urban form. The per-unit basis cost for maintenance, operation, repair, and replacement of these facilities are greater for less densely developed areas than more densely populated areas. The costs can become a community liability.

Whether a developer is willing to pay for infrastructure improvements or not, the taxpayers and ratepayers are still responsible for the cost of maintaining facilities. For example, perhaps a vacant building requires the city to serve it with infrastructure capacity; taxpayers are ultimately responsible for those types of future infrastructure costs.

Hidden Subsidies

In the complex system of charging users of water and sewer services the cost of providing the respective service, there are winners and losers. Some people pay more than it costs for the services and some pay less than the actual costs. Factor in expansions and long term capital investments needed to maintain the system, it would be nearly impossible to charge each user the exact actual cost of providing water and sewer services.

A number of strategies exist and are listed later in this chapter to equitably charge customers fair and just rates. However, there are hidden subsidies that have some ratepayers subsidizing others. The most obvious subsidies would be in the location to the service. Those residents located closer to the source of water or wastewater treatment plant have lower costs for the service but many times pay a flat rate, the same as ratepayers located farther away from the sources.

Another hidden subsidy has to do with the density of the residential area. Studies have shown that the per-unit cost for maintenance, operation, repair, and replacement of water and sewer facilities are greater for less densely developed areas than more dense areas. Density at 10 units per acre is only 10 percent more costly than density at fifteen units per acre, but it is nearly a quarter less expensive than five units per acre based on contiguous development patterns. At less than three units per acre, development becomes very costly.

Water and Sewer Pricing Strategies

Utility pricing strategies are designed to raise revenues necessary to provide essential services at affordable prices to the general public. Larger issues that need to be considered in setting these rates are equity among current users and intergenerational equity, or developing systems that will not be a financial burden to future generations. Rate structures should provide the financial capital necessary for operations. Revenue exceeding operating expenses is needed for other expenses, which might include debt service, financial reserves, or generating revenue for future capital improvements or to handle emergencies.

Water rates should cover the cost of pumping, treating, storing, distribution, operation, and maintenance. Sewer rates should cover the collection, treatment and disposal of sewage. These rates should equitably distribute costs among customers.

Sewer Rates

Many sewer rates are based on water usage. Other methods used to determine sewer rates include a flat rate based on location in relation to treatment facilities, meter size, or rate studies. Water and sewer rates usually include a fixed charge. Rates should be reviewed periodically and any rate increases done incrementally, as large increases are unpopular.

Sewer rate charges help fund several items including: sewage treatment, sewer construction, and maintaining and repairing sewer lines. Existing and proposed rates are generally set to meet state and federal regulations that require user charges to reflect the cost of services. Different user classifications are common (i.e. residential, commercial, industrial etc.) and charged based on average portions of suspended solids and biological oxygen demand concentrations for that classification category. Generally, when sewer rates are calculated, the rule of thumb is: the dirtier the wastewater the higher the sewer rate. Winter use is a good measure of basic household sewer volume as summer water use often includes outdoor watering. Sewer volume charges are usually based on winter use or actual use, generally, whichever is lower. Additionally, there is usually a “base charge” which covers the cost of reading meters, servicing, and billing. This charge is based on one daily rate for sewer and one for water.

Common sewer rate structures include uniform, descending, ascending and a flat rate structure. In the Eastern United States the flat rate structure is most prevalent, followed by ascending rate structure, flat fee and lastly descending rates.

Uniform rate structure – the cost of providing sewerage disposal is recovered from those ratepayers who receive the service in the form of a uniform annual sewer charge. This charge is averaged over the district.

Descending rate structure – using descending rates, a system charges less per unit as additional sewage is disposed of. The charges for extra disposal provide a minor, if any, incentive for customers to conserve amounts of wastewater they produce, while consumers disposing of large amounts of wastewater (e.g., industry and businesses) are provided with a volume discount.

Ascending rate structure – With ascending rates, a system charges more for each unit as use increases. This structure provides a greater incentive for conservation, but can hinder industrial and business operations in which disposal needs are greater.

Flat fee—these do not change from month to month within user classification categories as water consumption changes. The rate is based on the average sewage volume generated for that user classification (single family rate, multi-family rate, hotel/motel etc.). For example, a commercial user can be charged a flat monthly fee plus a quantity charge such as “per 100

cubic feet of water used”. For businesses it is generally assumed that 20% of the water does not drain to the sewer system.

Flat rate structure – rates are usually a flat fee. These are used when no meter is available to measure wastewater or water usage.

Some communities, such as the County of Sacramento, charge sewer impact fees which are charged to cover the connections of new customers to the sewer system. The purpose of these fees are to ensure each sector of development pay for its appropriate share of capital improvements to the water or sewer treatment and distribution systems through these impact fees. These fees are used to finance, defray, and reimburse a portion of the costs of capital improvements to a jurisdiction's sewer or water system. Each user classification (i.e. single-family, multi-family, industrial) is charged an amount based on the location of that new development. For example, single-family infill development is significantly cheaper than new green-field development.

Water Rates

The importance of reliable and safe drinking water supplies to public health and economic welfare is undisputed. However, many water utilities face significant challenges in replacing aging infrastructure. Much of the current buried water lines are nearing the end of their expected lifespan. A study by the American Water Works Association estimates a nationwide need of \$250 billion over the next 30 years. Ultimately, the rate-paying public will have to finance replacement of this aging infrastructure either through taxes or increased water rates.

Water Rate Structures

Most rate structures normally include a fixed service charge and a charge for water consumption. The fixed service charge is to cover the costs of delivering the water or operating costs. Much of the literature describing water rates breaks down the structures into conserving and non-conserving rate structures. This has been the influence from water shortages in southern and western states.

Flat Rates – Flat rates are required when water service connections are not metered, and the amount of water used by each customer is unknown. Flat rates are based on estimates of water usage for various customer classes. Some utilities have established 30 to 40 separate rate classes in an effort to sufficiently characterize the variations in water use patterns within their service area.

Declining Block Rates – Declining block rates are characterized by a reduction in the commodity rate as total water usage increases. This type of rate structure is becoming increasingly rare where water conservation is necessary due to the perception that it does not promote water conservation, even though declining block rates are consistent with cost of service principles. In many parts of the country, declining block rates are quite prevalent, particularly for industrial customers. This type of structure is appropriate when the marginal cost of providing an additional unit of water is less than the average cost.

Minimum Charges – Sometimes water rates will include an initial volume of water with the fixed service charge. This structure is commonly referred to as a minimum charge with its minimum quantity of water. The minimum block of water can be viewed from two perspectives. First, it can be viewed as a *free* block of water. Customers whose use stays within the minimum quantity have no incentive for conservation (using less does not lower their water bill). Alternatively, the minimum charge can be viewed as including the cost of the minimum quantity of water. Customers using less than the minimum may feel they are paying for water not used. Some rate analysts view minimum charges problematic from a pure cost of service standpoint.

High Fixed Component – Water rates characterized by high fixed service charges and low commodity rates are considered nonconserving because customers have limited ability to reduce their water bill by using less water. Some water utilities have high fixed costs of water service because they are near ample water supply, have minimal treatment requirements, and can utilize gravity for water distribution. The rate structure reflects the high fixed costs and provides revenue stability needed as the transition from flat rates to metered billing occurs. Customers usually favor rates with a lower service charge and higher commodity rate as a means of providing greater ability to control their water bills.

Uniform Commodity Rates (with low service charge) – Uniform commodity rates are considered to be conservation-oriented because water users are charged for every unit of water consumed. Rate structures that include a relatively high commodity rate and low service charge provide customers with greater ability to control their water bill. Therefore, the higher the commodity rate the greater the conservation incentive. It is not uncommon for water utilities to have rate structures that generate 65 percent or more of the rate revenue through commodity charges and the balance through service charges. The fixed and variable nature of water utility costs can vary dramatically. A utility with a very high percentage of fixed costs may be concerned about financial stability issues associated with a relatively high variable rate component, and therefore justify a lower percentage than other utilities.

Tiered Commodity Rates – Tiered (or inclining block) rate structures are characterized by higher commodity rates as total water usage increases. Tiered rate structures are gaining prominence in areas where water conservation is necessary. Two or three-tier rate structures are the most common, although more tiers are possible. Tiered rate structures are more difficult to design, and when improperly designed can be ineffective in encouraging conservation and/or viewed as punitive by customers. Tier structures should be designed around water use patterns of a relatively uniform customer class. Single-family customers tend to be a uniform class exhibiting a reasonably well-defined range of *normal* water use. Multi-family customers (when examined on a per-dwelling-unit basis) are also a uniform class, although usually with different use characteristics than single family. Non-residential customers typically do not exhibit uniform water use patterns, and the design of tier structures is more problematic. Many utilities have developed tier structures for residential customers and use a uniform or seasonal rate for non-residential customers.

Seasonal Rates – Seasonal rates are characterized by higher commodity rates during the period of peak demand and lower rates during non-peak periods. Seasonal rates may include

uniform rates, tiered rates, or a combination (e.g., uniform in winter and tiered in summer). Frequently tiered rate structures may have higher tier break points during the summer season to allow for some increased usage during the peak season. While this type of structure has seasonal characteristics, it is not necessarily intended to target conservation during the peak season. Design considerations for developing seasonal rates include determining an appropriate peak season, identifying seasonal costs, and addressing issues related to billing during the transition from one season to the next.

Marginal Cost Based Rates – Marginal cost refers to the approach for evaluating cost of service. It differs from traditional approaches that are based on embedded historical and average costs. Marginal cost-based rates have found a place in water utility rate structures, even though they require more detailed analyses to be developed. The tier structure is intended to reflect the marginal cost of local, imported, and recycled water supply sources. Marginal cost-based rates can provide a sound cost-based rationale for tier rates.

Surcharges – Surcharges are additional charges intended to reflect a specific cost or to encourage specific behavior. Elevation surcharges are occasionally included in water rates to reflect the cost of additional pumping required to serve customers at higher elevations. Some utilities include debt service or capital program surcharges on water bills to reflect the cost of specific obligations. If the surcharge is placed on the commodity rate, then it can provide an additional incentive for conservation. Excess use (or water shortage) surcharges are frequently used to encourage additional conservation during water shortage situations. In addition to providing an added incentive for conservation during critical supply situations, the surcharge was designed to generate needed revenue for the water utility during a period of significantly reduced water sales.

Discounts and Credits – Base water rates can also be supplemented with discounts or credits tied to conservation activities to provide customers with a financial incentive to conserve. This *carrot* approach may be useful in encouraging customers to change water using fixtures or practices. Programs can be adopted where customers that install low flow showerheads, faucet aerators, and low flow toilets can receive a reduced water rate. The discount provided a financial incentive to retrofit homes to save water.

Penalties – Base water rates can also be supplemented with penalties against customers for undesirable behavior. Penalties for late- or non-payment of bills are fairly common and are intended to encourage timely payment of bills. Using penalties to encourage water conservation, however, implies that customer's water use is restricted when water utilities are normally expected to meet the reasonable demands of customers. This *stick* approach should be used with caution and only when necessary due to the significant negative public perception.

Discounts and penalties may be opposite sides of the same coin. Nevertheless, public perception of each approach can be dramatically different. All types of rate overlays should be designed and implemented with consideration of the overall objectives as well as public perception and acceptance.

Utilities should develop a comprehensive local strategy that includes:

- Assessing the condition of the water system infrastructure
- Strengthening research and development
- Raising public awareness of the challenges ahead
- Assessing local rate structures and adjust rates where necessary.

REGIONAL COOPERATION

In today's climate of budget cutbacks and attempts to control spending, regional cooperation offers an opportunity to save taxpayers money by looking at the way individual jurisdictions and governmental agencies do business. At times there can be duplication of services from different entities such as the state, counties, cities, townships, school districts and other groups that provide services to the general public. Regional cooperation can be a method to allow local units of government to work together to save local taxpayers money through efficiencies of shared service agreements, purchasing cooperatives and sharing of capital resources. This chapter provides some strategies and examples from other areas of the country where cooperative agreements are used to provide taxpayer savings. These agreements can also apply to issues such as boundary agreements, which can affect the provision of utility services.

Revenue Sharing

Municipal Revenue Sharing

Municipal revenue sharing, a relatively new planning tool, allows two or more municipalities to share all or specific parts of tax revenues or special charges. This agreement requires public hearing, potential referenda, and must span at least ten years. Two examples are provided here to get a better idea of how municipal revenue sharing works.

Examples of Shared Revenue Agreements

Minneapolis-St. Paul, Minnesota: Regional Tax Base Sharing Used to Fund Public Facilities

The regional property tax sharing program between the seven-county Minneapolis-St. Paul metropolitan area was established by the Fiscal Disparities Act of 1971, and the state legislation implemented it in 1975. Under the Act's requirements, a local jurisdiction compares its commercial and industrial property values with its 1971 assessment for those properties. Forty percent of the increase over the 1971 assessment is put in a metropolitan pool, which is then redistributed according to each community's population and overall tax base. When the program began, Minneapolis and St. Paul were the major beneficiaries. Minneapolis is now a net contributor due to the successful redevelopment of its downtown, and St. Paul's redevelopment efforts have reduced its dominance of the recipient pool. Small communities are now the major beneficiaries of the program.

Hackensack Meadowlands, New Jersey: Another Innovative Example of Regional Tax Base Sharing

In New Jersey's Hackensack Meadowlands, a regional commission controls development and apportions property tax revenue among fourteen municipalities. The tax-base-sharing program is aimed at ensuring that those communities that contain valuable tidal wetlands do not suffer financially because wetlands cannot be developed for business or industrial development. The 1972 Hackensack Meadowlands Development Commission and Redevelopment Act provides the legal basis for the tax-base sharing program. Each town's tax base as of 1970 is unaffected by the arrangement and all the revenues from that tax base

continue to go to the individual towns. Forty percent of the increase in the tax base over the 1970 valuation is subject to the tax-sharing program. Redistribution is based on the number of school children and the proportion of property the town has in the Meadowlands District. All new tax revenues are distributed among the fourteen towns, with no diversion of tax revenue to the regional commission.

Shared Service Agreements

Inter-municipal Cooperation: Local Roads

Each municipality maintains their roads yet the same types of services and equipment are used to do so. Shared service agreements allow both local and state road agencies to maximize their resources and save money. Several states legally allow local governments to develop agreements with one another to share services.

Many communities have negative perceptions about inter-municipal sharing. Common fears include: (1) job losses from combining services, (2) loss of control, (3) loss of community identity, (4) inexperience with partnerships; and (5) lack of legal understanding. There are, however, several benefits to sharing municipal services, though they may take time to be realized. Benefits include: (A) sharing expensive equipment that alone individual communities could not afford, (B) access to community expertise from local roadway partners (C) building trust and community collaboration; and (D) cost savings over time.

Several agreements exist between state and local municipalities for snow and ice control, insurance coverage, purchasing, equipment loans, bridge maintenance, and more. Many highway departments share equipment, services, and crews without a written agreement, however documented agreements are a good idea for several reasons; written agreements protect agencies during litigation, clearly state arrangements between parties, eliminate misunderstandings, and ensure fairness. Agreements also remain continuous when department and elected officials change.

Shared Services & Regional Collaboration

Several counties advocate for shared services as a cost effective means of providing services so that tax dollars can be maximized. The sharing of services tends to improve the level of service provided, promotes greater efficiency of service operations, and saves local governments and taxpayers money. In sharing resources and services, local governments can maintain essential services without increasing costs. A variety of shared service agreements exist such as county-county, county-municipal, municipal-private etc. Types of shared services often include:

- Cooperative purchasing agreements
- Employee education and training
- 911 & police dispatch
- Drug and alcohol testing for county and municipal employees
- Joint bidding on construction and demolition projects
- Resurfacing of county and municipal roadways
- Road maintenance vehicles and equipment

- Public works facilities
- Engineering services
- Gas purchases
- Traffic signal maintenance
- Clean up and redevelopment of superfund sites
- Health and environmental services
- General maintenance
- Recycling
- Land Use and Planning

Across the country there is growing interest in developing cooperative agreements for services between public sector partners. In the fall of 1997, the Institute for Local Governance and Regional Growth at the University at Buffalo surveyed 278 Western New York cities, towns, and villages to review collaborative agreements for municipal services. They found that intergovernmental agreements and public-private agreements are widespread. Several of these agreements focused on public works, fire protection, police services, planning, senior services and more. Villages and towns typically had more agreements than cities, an issue of economies of scale. The majority of agreements were legally documented, while a few were "handshake" agreements. Fees for service, cost sharing, and tax revenues typically finance jointly provided services. There are several benefits to sharing services including:

- Enabling small communities to maximize economies of scale while remaining politically autonomous
- Standardizing service quantity and quality for residents and businesses in different locations
- Sharing personnel, facilities, and equipment across jurisdictions via mutual aid pacts, which is particularly helpful in times of crises
- Creation of innovative and cost-saving arrangements between public, private, and nonprofit agreements with municipalities can create innovative.
- Stimulation of further regional efforts through trust building.

These types of agreements represent regional cooperation and improve the quality of life for citizens by providing better service.

Realities of Shared Services

The University of Wisconsin Extension's Local Government Center released a report during the summer of 2003 on weighing the benefits of merging local government services. The report indicated that few local governments save money through consolidating services in the short term because spending is not necessarily cut. There is no guarantee that merging services quickly helps to deal with current cuts in state aid and property tax limits. Most service mergers have major up-front investments to cover equipment and personnel. These service mergers are most common in areas where growth is occurring and more services are being demanded of local governments. Merging services is not a quick solution to deal with budget cuts. Cost savings from merging services are only realized over the long-term,

savings are typically noticed starting in the three to five year timeframe. Certain types of shared service offer more savings than others, such as fire protection, while other types of service mergers do not show as significant a savings of taxpayer money.

Intergovernmental Boundary Agreements

Some states, such as Wisconsin, provide statutes allowing for intergovernmental agreements (66.30, passed in 1939). State statutes allow local governments to cooperatively enter into lawful agreements regarding shared services, operating regional projects and establishing boundary agreements. Intergovernmental boundary agreements or orderly annexation agreements are formal contracts between municipalities and/or towns, which set boundaries and plan for the orderly development and extension of urban services to be shared. Many jurisdictions have found this cooperative method of planning ahead avoids lengthy and costly future litigation. An example of items contained in such an agreement (i.e. city and town) could include: maintenance, road improvements, tax revenue, annexations, land use, boundaries, municipal services and extraterritorial plat review. Components typically contained in these agreements include:

- A description of the area to be annexed
- A description of responsible planning jurisdictions
- Alterations of boundaries
- Conditions for annexation
- Approval process
- Provision of municipal utility service
- Provision of other municipal services
- Revenue sharing
- Tax step-up
- Completion of the annexation process
- Annexation outside of the orderly annexation area
- A map description

A note of interest in these agreements is the revenue sharing portion. For instance, in the City of St. Cloud, annexed properties are annually rebated a portion of taxes for a period of nine years. Properties that are located in a tax increment financing (TIF) district or other tax abatement areas will have the town's present tax capacity rate applied to the city's share of the base tax to calculate the dollars to be returned to the town. For all other properties, the amount of money to be returned to the town is calculated by applying the assessor's market value for the annexed property by current tax capacity rates. This calculation generates the individual tax capacity value for each property, which is then multiplied by the town's present tax capacity rate.

An additional point of interest in these agreements is the tax step-up. This process applies to platted, residential properties in the town. Increasing the proportion of taxes, over a six-year period, until it equals the current city tax rate, shall phase in the tax rate applied to the area that is annexed.

The City of St. Cloud, MN has adopted a regional growth plan, and as a result, has established order annexation agreements with the bordering towns of Minden, Haven, LeSauk and the city of Sartell. The cities of Eau Claire and La Crosse, Wisconsin will both be working to establish these types of agreements during their comprehensive plan updates.

Cooperative Boundary Plans

Cooperative boundary plans (or agreements) are new concepts within the past ten years and exist in some states, such as Wisconsin (66.023). The responsibility of this type of program typically rests with a municipal boundary review board that is usually housed within the State Department of Administration. The cooperative boundary plan tool provides communities with a means to cooperatively plan for development at the edges of their communities. There are binding contract elements of these plans such as scope, boundary change schedules, and the extension of urban services. Annexation cannot be conducted during this planning period. There are three required elements before a cooperative boundary plan can be implemented (1) development of a cooperative plan (2) local adoption of the plan by two or more municipalities; and (3) State Department of Revenue approval of the plan.

The key difference between an intergovernmental boundary agreement and a cooperative boundary plan is that the cooperative boundary plan is approved by the state and is a binding agreement for at least ten years. Coordinated planning is required and boundary changes occur driven by the plan, not by annexation. An intergovernmental agreement is not approved by the state and is not a binding agreement; it is subject to elected boards and councils. Unified planning techniques are not required with intergovernmental agreements; boundary changes rely on traditional annexation procedures. Cooperative boundary plans must specify state and federal laws, affordable housing, urban sprawl, and environmental consequences and is reviewed and approved by the State Department of Administration. Once the agreement is approved, annexations initiated by individual property owners are no longer possible, they occur as specified in the agreement and local governing bodies proceed to make decisions according that agreement.

Extraterritorial zoning

Extraterritorial zoning allows cities to control development outside their boundaries if the proper cooperative steps are followed with the adjacent town. This allows a city to exercise land use control over new development that otherwise might be incompatible with a city's future growth.

According to Minnesota Statutes "A municipality may by resolution extend the application of its subdivision regulations to unincorporated territory located within two miles of its limits in any direction but not in a town which has adopted subdivision regulations; provided that where two or more noncontiguous municipalities have boundaries less than four miles apart, each is authorized to control the subdivision of land equal distance from its boundaries within this area."

In Wisconsin, Cities and villages have been given by statute either a 3-mile (if pop. 10,000 or more) or a 1.5-mile extent of zoning control outside their corporate boundaries if the proper cooperative steps with the adjoining town are followed. This allows a city/village to exercise

land use control over new development that otherwise might be incompatible with a city/village's future growth.

The benefits of extraterritorial zoning include a better transition between urban and rural areas, a reduction in conflicting land uses, and protection of property values. It also allows for better coordination in planning for roads, water and sewer services.

Conclusion

All of the cooperation techniques listed here are being used in many parts of the country. This information gives the reader a brief introduction to how regional cooperation can work for communities. The biggest factor in implementing any of these techniques is to begin a dialog between different communities and agencies. Communication is a key feature for all of these strategies.

SOURCES

Information from the following organizations was used as background research in compiling this document.

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1000 Friends of Wisconsin

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University of Washington

Western Lake Superior Sanitary District

Minnesota Pollution Control Agency

Wisconsin Department of Administration

University of Wisconsin Extension

Institute for Local Governance and Regional Growth
University of Buffalo

New Jersey Association of Counties

Oregon Department of Land Conservation and Development

Transportation Research Board

American Planning Association