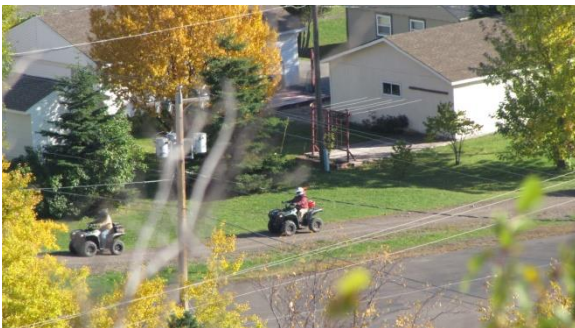


City of Silver Bay Comprehensive Plan

Adopted December, 2015



City of Silver Bay, Minnesota

On Lake Superior's Beautiful North Shore

City of Silver Bay Comprehensive Plan

Acknowledgments

We wish to acknowledge the following people who were instrumental in guiding the Comprehensive Plan process.

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Councilor Richard DeRosier
Councilor Dustin Goutermont
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I. Introduction

A Comprehensive Plan is the official long-range policy document for the City, guiding zoning and land use ordinances, investments in public infrastructure, economic development programs, natural resource use and protection, housing policy, and other issues. The comprehensive plan is a policy document that provides the policy foundation for the City's ordinances, programs, and capital investment plans. The plan portrays the community's desired future and guides decision-making by elected and appointed officials on how development, conservation, and public investment take place within the city.

Comprehensive plans identify the community's desired future looking out 25 years, or in this case, to the Silver Bay of 2040. The desired future is illustrated with a future land use map and described with supporting written goals and objectives. Plans typically have three important parts – background information to define “what is,” maps and goals to define the “desired future condition,” and a set of implementation actions to guide the community in “how to get there.”

Silver Bay's 2007 Comprehensive Plan provided the foundation for the current plan. An update of the previous version became necessary, as many policies and recommendations no longer reflected the current desires, concerns, and issues of Silver Bay residents and businesses.

The Comprehensive Plan update process took place beginning in late autumn of 2014 through early summer of 2015. A Comprehensive Plan Steering Committee guided the planning process, serving as advisors to the City Staff and the City Council, which adopts the plan. The public was involved through a community survey and public meetings. Background studies were updated to provide an up-to-date assessment of where the city is. Vision, goals, and objectives were created to guide the choices for future land use, community services, natural resources and open space, transportation considerations, housing opportunities, and economic development policies.

Minnesota Statutes, Chapter 462, Section 355 ADOPT, AMEND COMPREHENSIVE PLAN; INTERIM ORDINANCE.

Subdivision 1. Preparation and Review

The planning agency shall prepare the comprehensive municipal plan. In discharging this duty the planning agency shall consult with and coordinate the planning activities of other departments and agencies of the municipality to insure conformity with and to assist in the development of the comprehensive municipal plan. In its planning activities the planning agency shall take due cognizance of the planning activities of adjacent units of government and other affected public agencies. The planning agency shall periodically review the plan and recommend amendments whenever necessary. When preparing or recommending amendments to the comprehensive plan, the planning agency [...] must consider adopting goals and objectives that will protect open space and the environment.

Chapter 2 – Process

Chapter 3 – Existing Conditions

Chapter 4 – Desired Future Conditions; Vision, Goals and Objectives

Chapter 5 – Strategies & Implementation

II. Planning Process

This section provides an overview of the planning process used to develop the 2015 Silver Bay Comprehensive Plan, a description of the Steering Committee, and a summary of public involvement during the Plan update.

The Update Process

The City of Silver Bay adopted its most recent Comprehensive Plan in 2007. This was the first long-range plan the City had completed since 1993. Shortly after the completion of the plan, the country fell into a deep economic recession with impact nationwide. Upon recovering from the economic downturn, the City has found itself at a critical point where reevaluation of its future conditions became necessary.

A Steering Committee of residents and businesses was appointed to guide the Plan Update and to make recommendations to the Planning Commission and City Council. The Steering Committee worked with a team of consultants to: update background materials; review and revise the City's vision; choose a future land use map; prepare goals, objectives, and implementation actions. Additional public input was sought through a community-wide survey and public meetings.

2007 Silver Bay Comprehensive Plan

The 2007 Silver Bay Comprehensive Plan developed new background information and recommendations for the City. Background information included demographics; transportation and public works; housing; recreation; descriptions of existing land use and zoning; and community and economic development. The Plan made a number of recommendations for guiding development and investment, but did not include a future land use map, a vision statement or desired future narrative.



Steering Committee

The Comprehensive Plan Steering Committee was vital to development of the 2015 Silver Bay Comprehensive Plan. Steering Committee members represented a broad range of stakeholder groups. The Steering Committee worked closely with the project consultant team and City staff in the development of the Comprehensive Plan in order to ensure that the Plan's vision, goals, objectives, and strategies reflected the diversity of interests and needs in Silver Bay. The Committee was the decision-making entity throughout the process and advances a recommended plan to the Planning Commission and City Council for final review and adoption.

In addition to attending many meetings, reading background materials, and commenting on content, Steering Committee members were also a primary point of communication to and from other community members. The Committee included a wide breadth of citizen, business, and government representation, including:

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- Industry representatives
- Homeowners/Residents
- School District
- Downtown businesses
- Home business owners
- County officials
- Planning Commission members
- Elected officials
- Rural residents
- City staff

A list of participating members is provided in the Acknowledgements page.

Public Involvement

As part of the Comprehensive Plan process, the City of Silver Bay completed a community survey to assess the priorities and opinions on a number of issues being addressed in the Plan Update.

A community survey is a tool that allows the City to solicit input from a broad cross-section of residents on a variety of topics. Surveys have limitations in regard to the depth of questions and the difficulty in clarifying answers. When used with other public outreach or involvement tools, however, surveys can validate or challenge other results. The survey was conducted in late Fall of 2014.

The survey was mailed to every household in the City of Silver Bay. Respondents could choose to mail their responses or complete the survey online. Over 1,000 surveys were distributed, and 312 were returned, for a return rate of nearly 30 percent.

The survey was intended to gather input from residents for housing, economic development, government operations, and ideas for the future of Silver Bay.



The Steering Committee reviewed the survey results and used the results to shape the vision, goals, mapping, and implementation strategy selection throughout the planning process. A summary of the community survey results is included below and a detailed discussion of the results are provided in Appendix 1 of the Plan.

City of Silver Bay Comprehensive Plan

Community Survey Results

Process

As part of the Comprehensive Plan update process, the Steering Committee prepared and conducted a survey to gain insight into Silver Bay residents' vision for the community. A community survey is a tool that allows the City to solicit input from a broad cross-section of residents on a number of topics. The survey was developed through a collaborative process guided by the Steering Committee and administered by the City and consultants. The survey asked questions regarding housing, economic development, government services, and visions for the future.

The survey was mailed to every household within the city limits. Upon completion of the survey, respondents had the option to mail the survey in, hand deliver it, or complete it online through the survey collection site, Survey Monkey. The survey was available from November through the end of 2014. 312 surveys were received and all were entered into Survey Monkey to be tabulated. The final results of the survey were presented to the community in an open meeting January 21, 2015. The Steering Committee reviewed the survey and used the results to inform their decision-making for the Comprehensive Plan vision, goals and policies.

The following is a summary of the survey, complete results can be found in the Appendix.

Summary of Results

The survey was divided into five sections:

1. About You
2. Housing
3. Economic Development
4. Government
5. Vision for the future

The first 13 questions (About You) of the survey were intended to understand who was responding to the survey. By gathering this information, the City can have a better knowledge about how different residents view the city and what their expectations are for the future. These questions revealed that 86% of respondents are homestead property owners, and that more than half have lived in Silver Bay for longer than 20 years; 40% have lived in Silver Bay for more than 40 years.

Respondents were asked to select the main reasons they live in Silver Bay. The top response received was to be close to their job. Other motivations included small town atmosphere, close to family, and the proximity of the natural environment. As the community looks to its future, it should continue to recognize the aspects currently enjoyed by its residents.

Close to job **43%**
Small town atmosphere **42%**
Close to family **34%**
Natural Environment **33%**
Quiet Community **30%**
Close to Lake Superior **30%**

This section also looked into how residents felt about the government services received. Overall, residents are generally satisfied with government services, with more than 93% of respondents expressing that they were at least "Somewhat Satisfied". There were, however, some aspects of city operations that were unpopular with

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residents. A quarter of respondents indicated that they found certain operations inadequate including: street maintenance, sidewalk disrepair, police, and garbage service.

Housing considerations included a question regarding the types of housing respondents would like to see in Silver Bay. More than half (52%) expressed the need for existing houses to be rehabilitated versus any new development. Senior housing also seemed to be important to residents, with 43% indicating a need for more. A little less than 30% would like to see construction of additional single-family homes. Other housing types (multi-family, townhomes, vacation housing, etc.) were viewed less favorably.

When asked what residents saw for the future of Silver Bay, many (42%) responded that they would like to see it be a stand-alone small town. One third (33%) would like to see it be a regional economic center. These responses are not necessarily mutually exclusive; Silver Bay can plan to maintain its small town atmosphere, while providing a node of lively economic center for locals and seasonal tourists along the north shore.

The results were analyzed to see if there were major differences in responses based on the amount of time a respondent has lived in Silver Bay. The respondents were divided into those who have lived in the community for more than 20 years and those who lived in Silver Bay for fewer than 20 years. The results are below:

Q7. What is the main reason you live in Silver Bay?

| More than 20 years | Fewer than 20 years |
|---|---|
| 1. Close to job 2. Small town atmosphere 3. Close to family | 1. Natural environment 2. Close to Lake Superior 3. Small town atmosphere |

Q17. In the future how do you view Silver Bay?

| More than 20 years | Fewer than 20 years |
|--|--|
| 45% Stand alone small town 37% Regional economic center | 39% Stand alone small town 30% Regional economic center |

Q21. Identify the types of business that are needed for Silver Bay

| More than 20 years | Fewer than 20 years |
|--|---|
| 1. Campground 2. Transportation services 3. Manufacturing oriented businesses 4. Technology oriented business 5. Recreational oriented business 6. Small retail | 1. Technology oriented business 2. Manufacturing oriented business 3. Campground 4. Recreational oriented business 5. Transportation 6. Restaurant/coffee shop |

The difference in tenure does not appear to create significant differences in future community priorities. There are few distinctions in the preferences of those who have lived in Silver Bay for more than 20 years and those who have lived in the community for less time.

Complete results of the community survey can be found in Appendix 1.

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III. Existing Conditions

Demographics

The 2007 Silver Bay Comprehensive Plan included an analysis of the historic and projected population changes in Silver Bay based on U.S. Census data and 2005 Minnesota State Demographic Center projections. In 2010, a new U.S. Census was completed and as the data is made available, new inferences can be drawn for Silver Bay and Lake County. The following demographic analysis uses data gathered from the 2010 U.S. Census as well as current projections from the Minnesota State Demographic Center.

The changing demographics in Silver Bay are strongly linked to the successes and failures of the mining industry as well as trends that are taking place nationwide. Generally, the population has adjusted in line with Lake County. However, as a community that has been largely dependent on a single industry for employment, Silver Bay has seen more population volatility than the rest of the county. Also impacting the local population are national trends like an aging population and shrinking household size. Such demographic changes are important in understanding and planning for Silver Bay's future.

Historic Trends

Silver Bay was founded in the early 1950s by the Reserve Mining Company as a planned community to house the employees of its nearby taconite processing plant. Much of the community that exists today was built throughout the 1950s and 1960s during the boom of taconite mining. In 1960, production of taconite processing increased from 6 million to 10 million tons per year. The expansion created 400 new jobs and led to the peak population of 3,504 by 1970.

Through the 1970s and 80s the taconite industry faced a number of environmental and economic challenges, including increasing competition from foreign and domestic alternatives to taconite processing and a decline in the demand for steel.

Reserve Mining eventually succumbed to economic forces. In the 1980s, the demand for steel declined significantly and the economic consequences were felt in cities and communities throughout the traditional manufacturing areas, including material processing communities like Silver Bay. In 1986, Reserve Mining Company closed, causing its employees to seek work elsewhere. By 1990, Silver Bay's population had declined to 1,894, a 35% drop in population from 1980. Figure 1, illustrates the percent change in population in Silver Bay beginning in 1980. The population

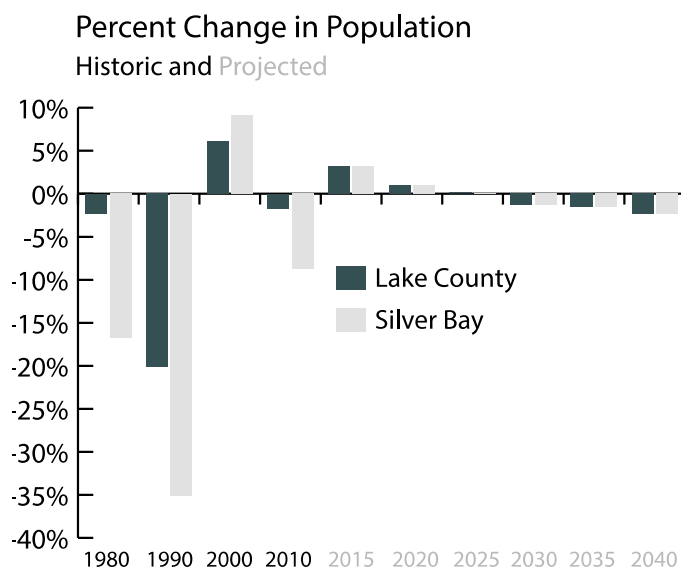


Figure 1 Sources: U.S. 2010 Census Data (historic) and the Minnesota State Demographic Center (projections).

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rebounded by 2000 due, in large part, to the re-opening of the processing plant in 1989. By 2010, Silver Bay saw another decline in population likely due to the recession of 2008.

Figure 1 also displays the changes in Lake County's population over the same time period. It can be seen that the population of both the City and county have tended to rise and fall together, albeit at different rates. The population of Silver Bay has seen more dramatic and volatile changes than the County.

The Minnesota State Demographic Center projects the County will see a small rise in population before a steady decline out to the year 2040. Because the State Demographic Center does not currently have projections at the community level, the population forecast for Silver Bay was determined using the 2010 population ratio of Silver Bay to Lake County. This forecast is based on a business-as-usual economic scenario, with continued operation of regional taconite facilities, and neither significant contraction nor expansion. Economic and social factors will likely continue to have a major impact on how Silver Bay's population deviates from Lake County. Recent discussion of adding direct reduction pellet capacity at the Northshore Mining facility could create a population bump, while another downturn in steel demand could cause a slump.

Historic Populations of Lake County Communities

| Community | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 |
|-------------|-------|-------|-------|-------|-------|-------|
| Silver Bay | 3,723 | 3,504 | 2,917 | 1,894 | 2,068 | 1,887 |
| Beaver Bay | 287 | 362 | 283 | 147 | 175 | 181 |
| Two Harbors | 4,695 | 4,437 | 4,039 | 3,651 | 3,613 | 3,745 |

Table 1 Source: United States Census, 1970, 1980, 1990, 2000, 2010

Nearby communities experienced similar population trends. Since 1960, Beaver Bay and Two Harbors have seen a decline in population (with an exception of a brief rise in Beaver Bay's population in 1970). The most recent census, however, shows each of these communities increased their population, where Silver Bay's decreased.

Age

The age structure of Silver Bay's population has seen significant change overtime. Figure 2, below, provides a snapshot of the current age structure within the community. The graph below shows the population is nearly evenly divided between men and women – men

Age Structure of Silver Bay Population

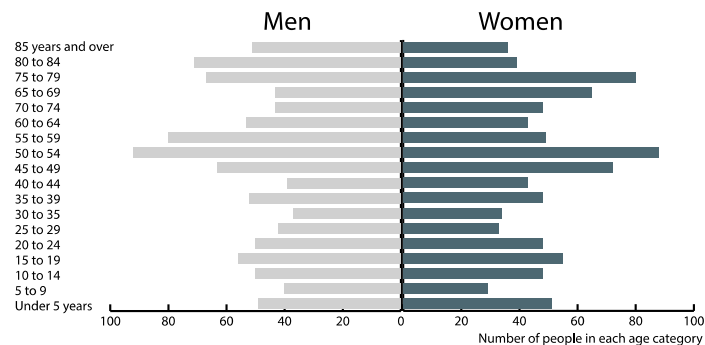


Figure 2 Source: U.S. 2010 Census Data

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currently make up 51.8% of the population while women make up 48.2%. Silver Bay sees some significant differences in age and gender characteristics compared to the general population. Men make up 62% of the over-80 population, while state and national statistics show that women typically comprise most of the older age cohorts.

Nationally, aging baby boomers make up a significant portion of the population; the same is true in Silver Bay. The baby boomers in Silver Bay correspond with the bulge in population that can be seen in the graph among those who are about 50 to 70 years old.

Perhaps a better representation of how Silver Bay is aging is the change in different age categories over the past 10 years (Figure 3). The graph below shows the difference in five age categories from 2000 to 2010.

Silver Bay Age Categories

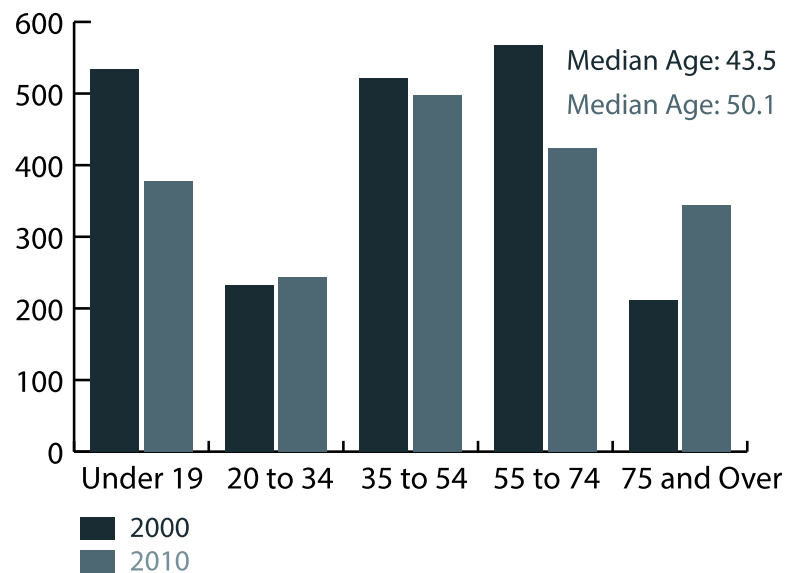


Figure 3 Source: U.S. 2010 Census Data

The dark blue bars signify age categories in the year 2000 and the lighter blue is 2010. Over the ten-year period, the population under 19 decreased by nearly 200 residents, while the population over 75 increased by more than 100. Importantly, the median age of Silver Bay has increased from 43.5 to 50.1. To compare, the median age of Lake County in 2010 was 48.3 and in Minnesota, it was 37.4. It is evident that Silver Bay has a relatively older population that will only increase as baby boomers age.

Households

Housing characteristics included in this analysis are median household income, poverty levels, and housing occupation. Table 1 illustrates the housing characteristics of Silver Bay using data from the 2010 U.S. Census. Each can be used as an indicator of how Silver Bay is performing relative to the county and the state.

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| Characteristics | Number | Percent |
|--------------------------|----------|---------|
| Median Household Income | \$42,169 | N/A |
| Population below poverty | 277 | 14.7% |
| Total Housing Units | 974 | N/A |
| Occupied Housing Units | 836 | 85.8% |
| Owner-occupied | 721 | 86.2% |
| Renter-occupied | 115 | 13.8% |
| Vacant Housing Units | 138 | 14.2% |

Table 2 Silver Bay Housing Characteristics. Source: 2010 United States Census Data

Table 3 includes the median household income in Silver Bay, which is \$42,169. The median income is lower relative to both the county and state, which have median household incomes of \$47,210 and \$59,126, respectively.

Silver Bay has a higher percentage of its population living below the poverty level when compared to the county and the state. The percent of Minnesotans living in poverty is 11.2%, in Lake County it is 13.1%; and in Silver Bay, 14.7%.

Education

The graph below shows levels of education achieved in different age categories for both the year 2000 and 2010. Silver Bay clearly has a very high level of high school graduates – this is consistent from 2000 to 2010 across most age groups (with the exception of those over 65 years old). Significantly fewer residents, however, hold a bachelor's degree or higher degree.

Education by Age Categories

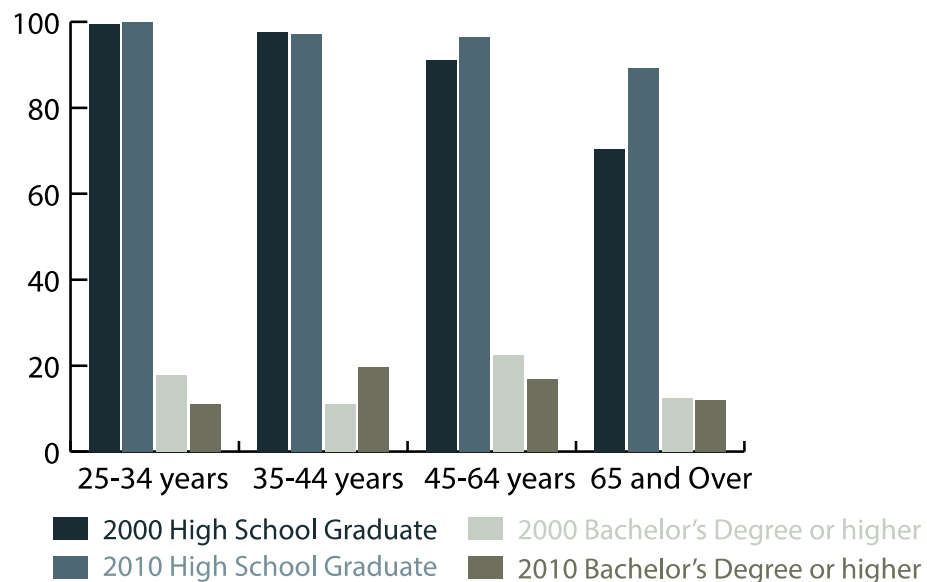


Figure 4 Source: 2010 United States Census Data

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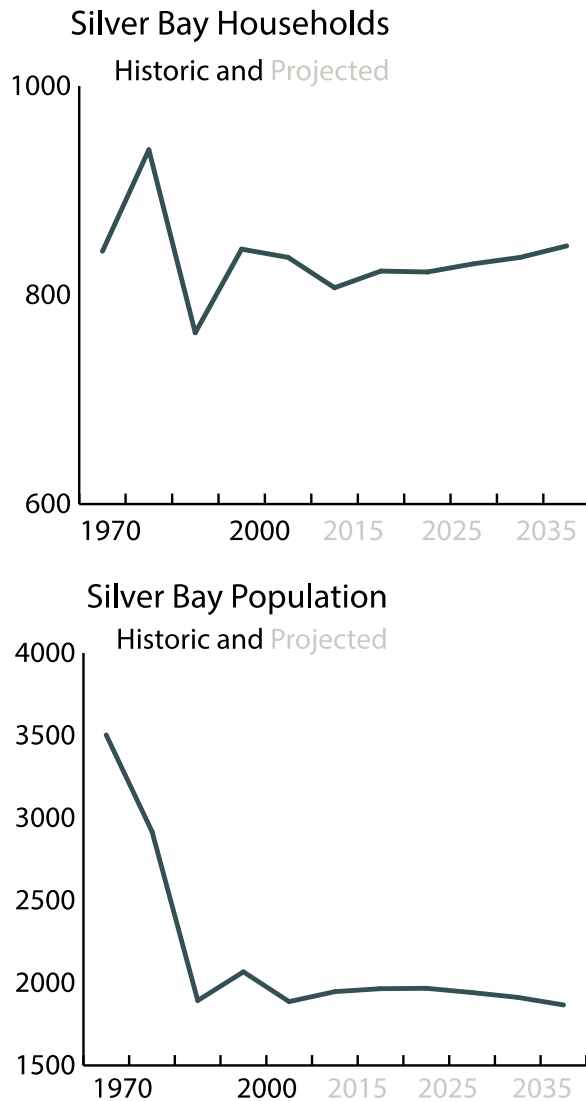
Population Forecasts

Population forecasts were made using Lake County Projections from the Minnesota State Demographic Center. Because data is currently unavailable at the local level, a ratio of Silver Bay's population to Lake County was used. It is important to note that the population projections for Silver Bay are not necessarily accurate predictions of what may occur. Changes in the local economy and various social factors may affect future growth. For instance, if mining operations expand, there will be a higher demand for workers. Similarly, if Silver Bay successfully diversifies its economy by adding different businesses in its industrial park, this would likely increase the number of new residents.

Current projections show an expected increase in households by 2040. The graph to the above right (Figure 5) illustrates the historic changes in households and the projected growth that is expected.

Despite an increase in households, the state demographers predict a decrease in population by 2040. Figure 6 (right) shows the decline in population that occurred after the 1980s plant closure and that it hasn't yet recovered to its peak. Looking out to 2040, this trend is expected to continue.

One of the primary reasons that households are expected to increase while the population is expected to decrease is that household sizes are getting smaller. The graph below (Figure 7) demonstrates that since 1970 household sizes in Silver Bay have decreased from just over 4 people per household to about 2 in 2010.



Figures 5 & 6 Sources: U.S. 2010 Census Data (historic) and the Minnesota State Demographic Center (projections).

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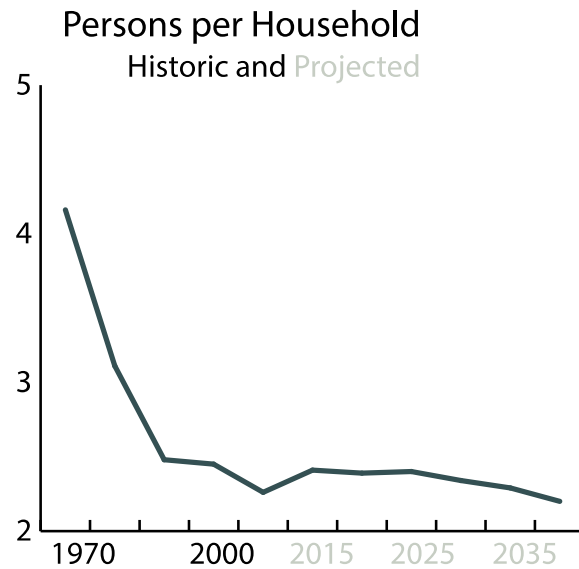


Figure 7 Sources: U.S. 2010 Census Data (historic) and the Minnesota State Demographic Center (projections).

Nationally, this trend is the same. In the United States, more people are living alone, fewer people are getting married and having children, and others are waiting longer to get married and are having fewer children. In Silver Bay (Figure 8), there were fewer married couples in 2010 than in 2000; fewer couples with children; and more non-family households. Changes in household type are important in the consideration of how Silver Bay intends to develop.

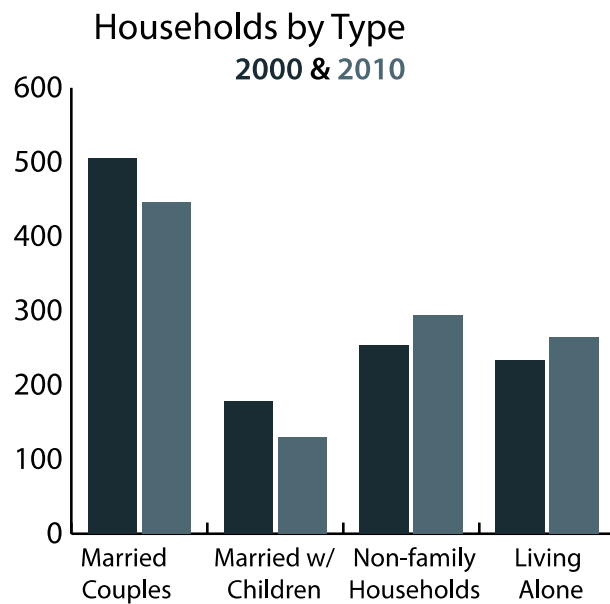


Figure 8 Source: 2000 & 2010 United States Census Data

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Demographics Looking Forward

Demographic changes in a community tend to occur slowly over time. However, as Silver Bay has seen, changes can also occur rapidly. Because of its isolated geographic location and reliance on a single major industry, Silver Bay's population is tied to the health of the local economy. In addition to uncertain population growth, other important demographics factors are summarized below.

- **Aging of population:** The median age is likely to continue to rise as the baby boomer generation ages. An older population demands different types of goods and services, have different transportation needs, and live in different housing than young adults and families.
- **Uncertain population growth:** The population of Silver Bay has fluctuated greatly in the past. Currently the population is expected to slowly decrease over time, though there are number of factors that may alter the population forecast. Economic and social changes in the area could bring more people to the area and have a significant impact on increasing the population.
- **Shrinking household size:** There have been significant changes to households in the last 20 years that are expected to continue. Households are shrinking as people age and live alone or without children, families have fewer children, and fewer people are getting married. These changes will likely result in a housing demand that is considerably different than Silver Bay has seen.
- **Growth in number of households:** The population growth is uncertain, but not expected to change rapidly. However, with shrinking household sizes and an aging population, Silver Bay can expect to see an increase in the number of households. This does not necessarily mean there will be growth in income or the financial ability to support additional city infrastructure and services. The City will need to determine an effective approach to serving more households without a corresponding increase in revenue.

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Land Use

The City of Silver Bay is a planned community, initially built in the 1950s, to provide housing and support for the nearby taconite industry facilities that still provides the city's economic foundation and dominates the City's land uses. The development was clustered in the city core (Buck Valley) on small lots with modest housing that were typical for the housing expansion in the post-war development era, with a commercial center that includes many of the municipal operations. The city is geographically large relative to its population, including a significant amount of undeveloped land surrounding the developed core. Some large City-owned public parcels have been used for economic development purposes at the west and east ends of the City, including a public golf course and the eco-industrial park. Most of the remaining undeveloped land, however, is either publicly owned (mostly State owned, and some County owned land) or owned by Northshore Mining. These two entities largely constrain expansion of the developed area within City limits, and limit expansion by annexation should market conditions warrant expansion.

Development is also constrained by the topography and geology. As noted in the natural resources section, Silver Bay is located at the end of a geologic formation where the Lake Superior Plain disappears and the Superior Stony and Rocky Loamy Plains and Hills extend all the way to Lake Superior from the highland area. The small amount of developable land along the lake is primarily taken by Northshore Mining, and the non-industrial developed portion of the City is separated from the Lake by a large bedrock formation more typical of the Superior Stony geology. Privately owned rural areas have limited access to city services (wastewater, water, gas) and face challenges for on-site wastewater management due to bedrock and poor soils.

Growth pressure is relatively low, however. Sufficient numbers of developable parcels can be found within or near to the urban service area to meet forecast housing demand, and a number of redevelopment opportunities for residential and commercial development can also be found within the City's developed landscape.

Since the initial 1950s boom, the developed portion of the City did expand from the original core. Housing now extends up the hillside to the west and over into the Beaver River valley. The creation of an industrial park at the City's eastern edge between Lake Superior and

**Current Land Use
Number of Acres**

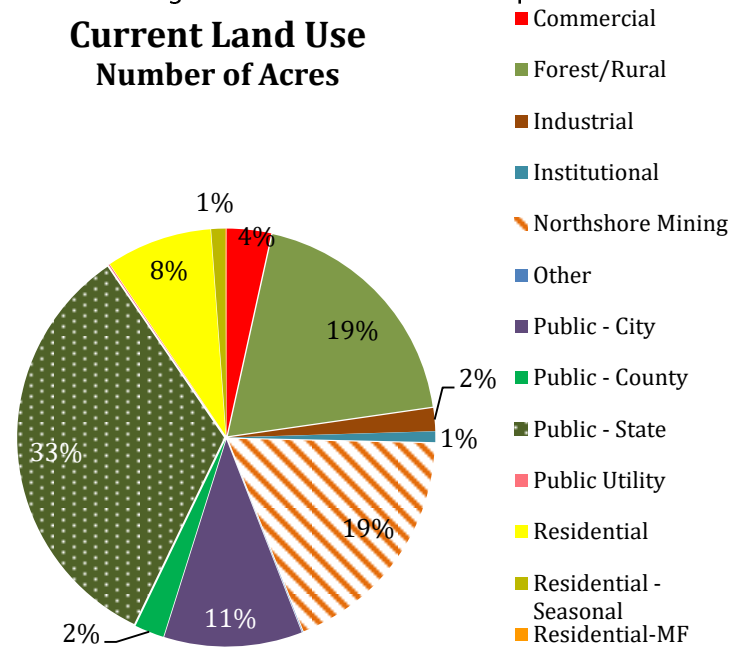


Figure 8 Sources: Lake County Assessor, CR Planning

Highway 61 has built upon the City's industrial and commercial base. Trail development (both multi-use and passive use trails) in the State and County-owned lands has expanded recreational uses.

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Summary of Land Use Types

To assess current land uses in the city, a map based on the land use tax codes was compiled and then ground-truthed for large parcels. The tax codes are only a partial reflection of the actual land uses, and do not distinguish between different land uses that may be on the same parcel. Moreover, the ownership of almost a quarter of the city area by Northshore Mining or subordinate companies, which are exempt from property taxes, creates additional inconsistencies. Thus, the following summary of existing land uses is accurate at the big picture level, but would need much more detailed investigation to correct for differences between actual land uses and locations relative to the tax codes.

Residential land uses comprise nine (9) percent of the city, while State and County publicly-owned land (forestry and recreation land uses) comprise 35% and industrial land uses other than Northshore Mining only 2%. Northshore Mining owns well over 20% of total land, although some of the land is not currently being used for industrial purposes and has been categorized as Forest/Rural. Undeveloped private land comprises approximately 19% of the City's land (although some large residential parcels are mostly undeveloped), and would likely increase this percentage with a more complete ground-truthing of the tax code designations.

The City owns or manages approximately 11% of the land, with most of this in parks and recreation facilities and in the Business/Eco-industrial Park. However, the City does not own much of this land, or only owns it as a transition to private ownership. For instance, some of the City's park and recreation areas are owned by Northshore mining, but designated for long-term recreational use under City management. Similarly, the Business/Eco-industrial Park is gradually shifted out of public ownership as businesses occupy parcels, but currently most of the land remains under public management. Existing land uses are depicted in Figure 9, Current Land Uses.

Zoning

Silver Bay administers its own zoning regulation, as allowed for under Minnesota Statutes Chapter 462. The City created a number of zoning districts that, used in conjunction with the zoning ordinance, help minimize land use conflicts, create land use and economic synergies, and protect natural and economic systems. The City has ten zoning districts that cover the land use transect from Forestry to fully developed areas for residential, commercial, and industrial land uses:

| | |
|-----|---|
| R-1 | Single- and Two-(2) Family Residence District |
| R-2 | Multi-family Residence District |
| SC | Shopping Center Commercial |
| HB | Highway Business Commercial |
| LB | Limited Business Commercial |
| LI | Limited Industry Commercial |
| GI | General Industry Commercial |
| EP | Silver Bay Eco Park |
| FR | Forest Reserve District |
| RC | Recreation District (Public) |
| RR | Resort & Recreation District |

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The zoning code is one of the primary tools that a community has to implement its desired future conditions. Silver Bay's zoning code has not been significantly modified for over a decade. Silver Bay's zoning map is depicted Figure 10, Zoning.

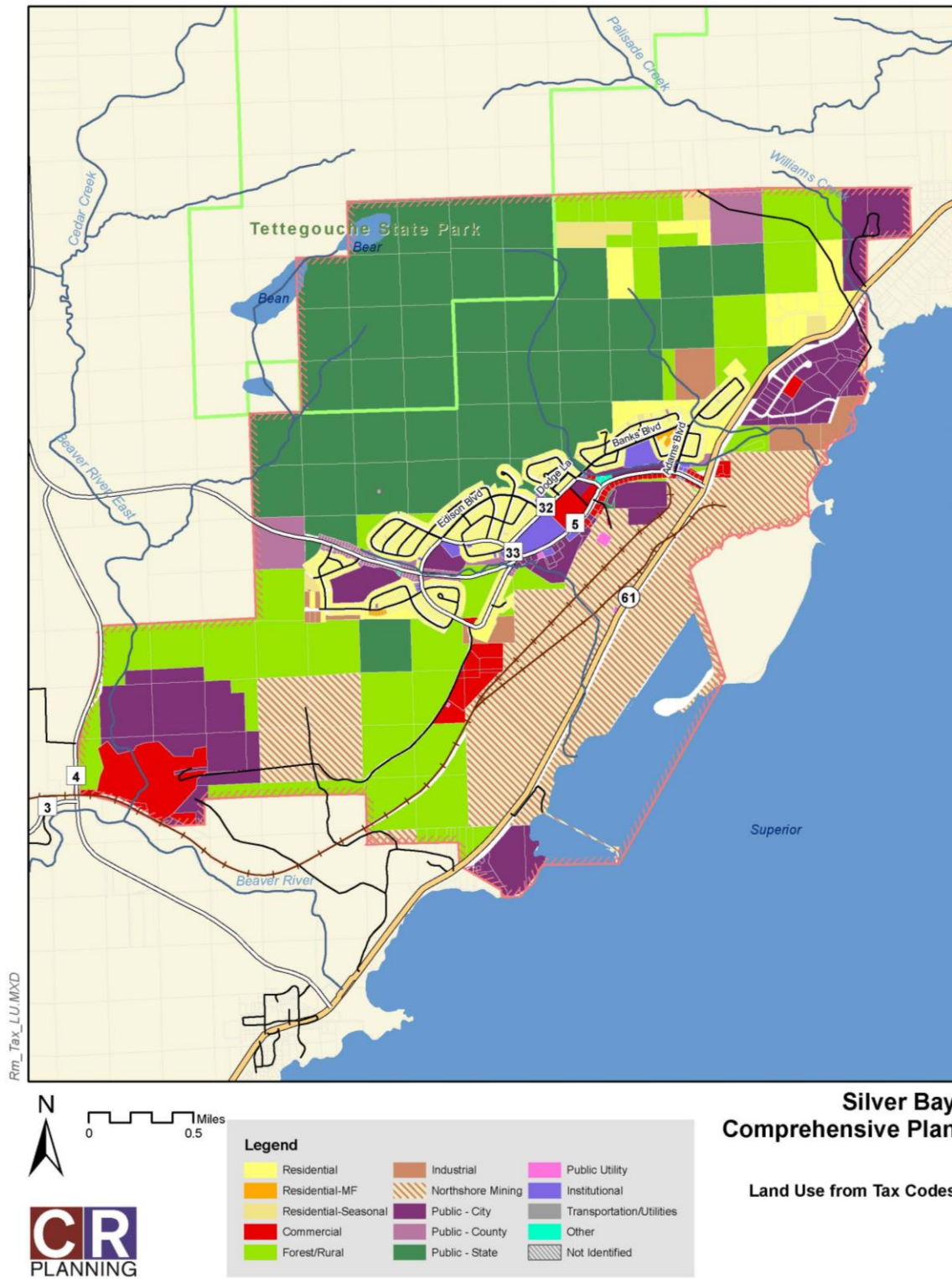


Figure 9 Sources: Lake County Assessor, CR Planning

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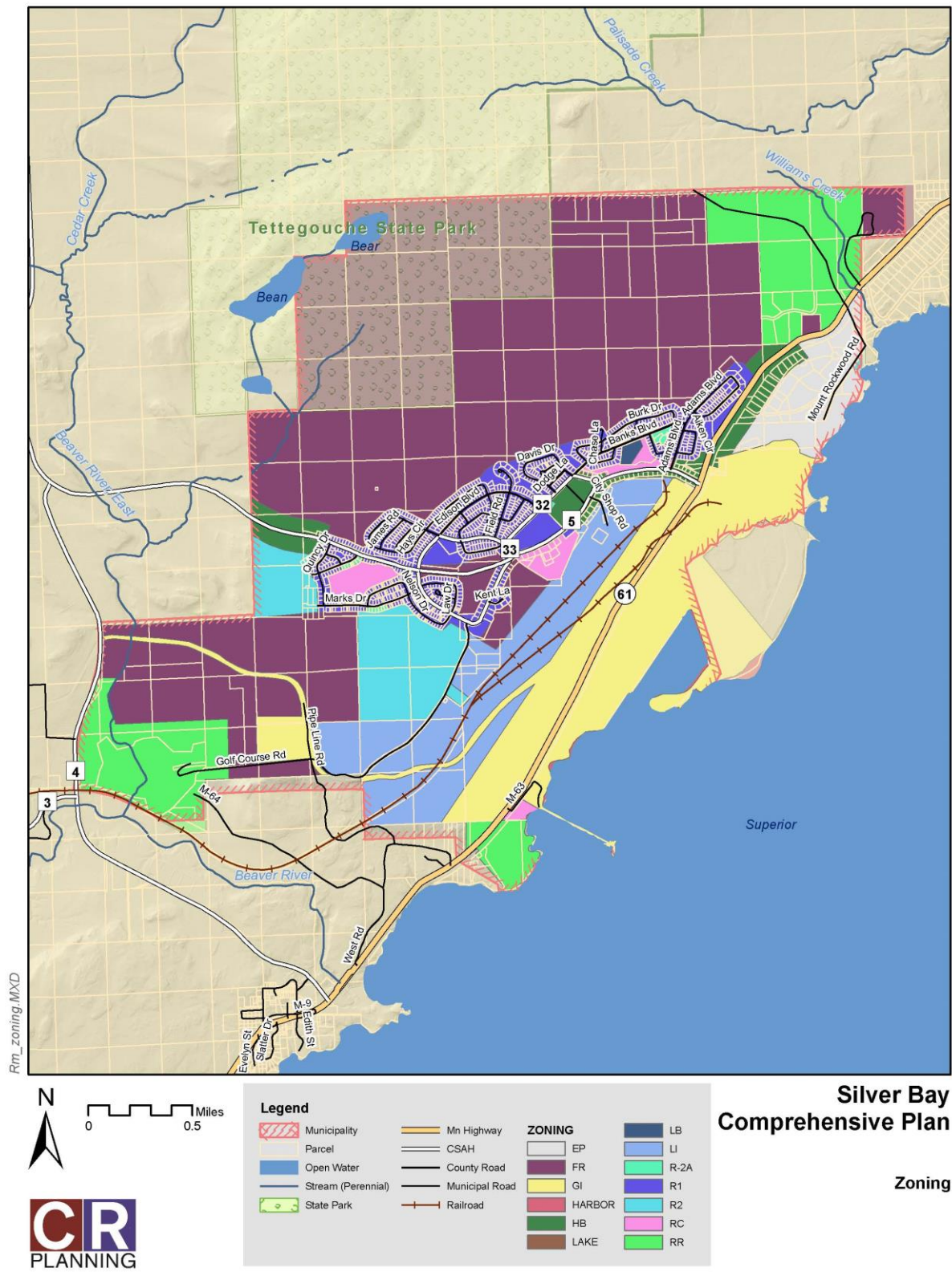


Figure 10 Sources: City of Silver Bay

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Grey Infrastructure (Wastewater and Water Utilities)

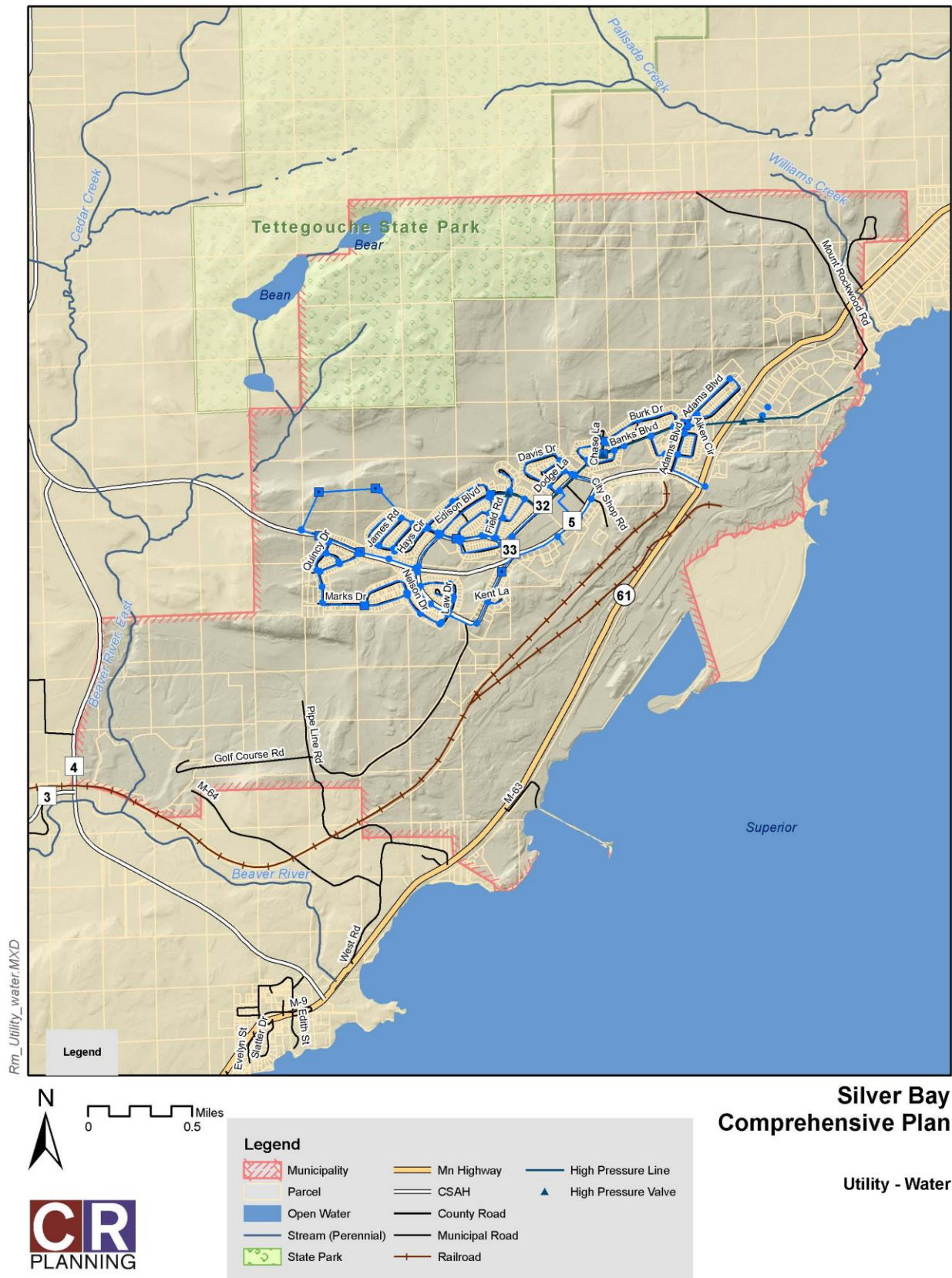
Silver Bay has both a centralized water and wastewater system that provide service to most of the City's population and businesses on a fee-for-service basis. Wastewater and water utilities allow development at an urban scale, on much smaller lots than would be needed if septic and wells provided these services. The water system draws in Lake Superior water at the intake and treatment plant in the northeast corner of the City's business park. The plant treats the water to Department of Health potable standards, and distributes it via a high pressure line into the developed portion of the City (see Figure 11, Utility-Water). Water is pumped to two storage water towers just to the Northwest of the developed portion of the City.



The wastewater system is laid out very similarly to the water system. The system is primarily a gravity-fed system that brings wastewater down to the treatment facility adjacent to Lake Superior and Northshore Mining. The extent of the wastewater system is shown in Figure 12, Utility - Sanitary.

Both the water and wastewater systems have adequate capacity for meeting new development. However, the City's topography, geology, and land ownership patterns pose significant limitations to cost-effective expansion of these utilities except in a few locations.

City of Silver Bay Comprehensive Plan



City of Silver Bay Comprehensive Plan

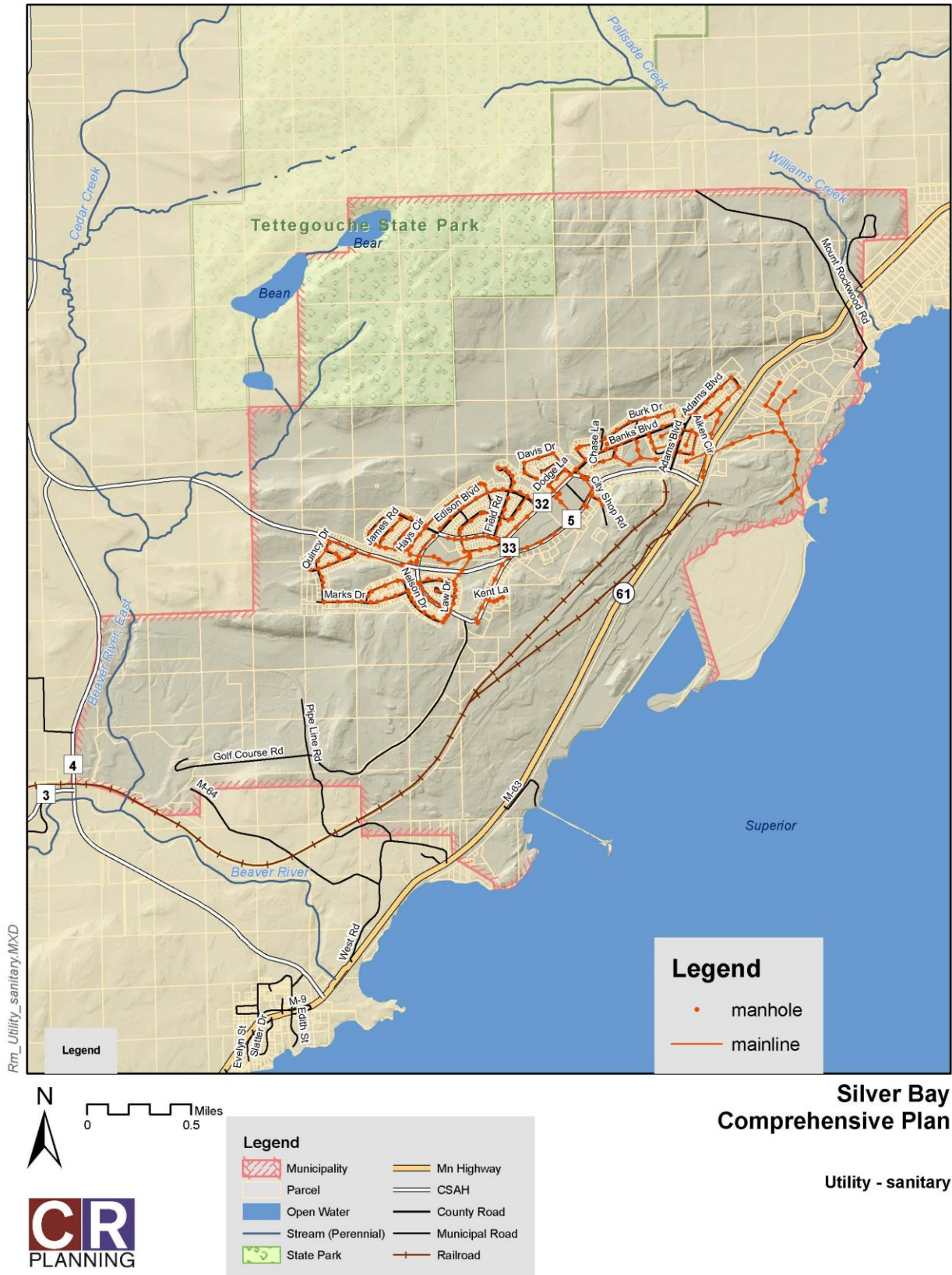


Figure 12 Sources: City of Silver Bay

City of Silver Bay Comprehensive Plan

Economic Base and Activities

The City of Silver Bay was created as a “company town” in the 1950s when the Reserve Mining Company built the taconite processing and shipping facility on Lake Superior. Silver Bay’s economic base and that of the surrounding area was almost solely dependent on the mining, processing, and shipping operations associated with the taconite industry. As noted in other sections of this Plan, Silver Bay’s land uses, housing, demographics, natural systems, and social and cultural characteristics were greatly affected by the fortunes of this single industry since the 1950s. The closure of the Reserve Mining operation in the 1980s resulted in sharp constrictions in other economic activity, in addition to severe drops in property values, population, and support for public sector operations.

The re-opening and subsequent continued operation of the taconite industry operations has helped provided a stable economic base for the City for the past two decades. Silver Bay currently has a strong economic base and stable public sector operations. While the taconite industry still dominates economic activity, with the growth of other industries such as the tourism economy, the area’s economic base has become more diverse. Also, the tie between the plant’s workforce and the city’s housing and commercial economic base is much less pronounced today than in the past, as workers are increasingly likely to live outside of Silver Bay. The economic support the plant provides to municipal operations is substantial but also somewhat indirect, as the taconite industry is largely exempt from property taxes and instead pays the State a production tax, which is then redistributed to local governments. These trends continue to shape the city’s opportunities and risks as Silver Bay plans for the next 20-30 years.

Economic Base Summary

Much of the data on Silver Bay’s economic base is drawn from the Quarterly Census of Employment and Wages (QCEW). For communities of Silver Bay’s size that also have employers with multiple locations or facilities, the QCEW data is likely to over-report the job numbers. Moreover, the QCEW data includes jobs that are not located in Silver Bay, but for which the businesses address might be Silver Bay. Thus, the data is a good indicator of local and regional economic activity and strength, but should not be considered a census of jobs and wages within the City. The QCEW data does not include self-employment or agricultural employment, but generally captures over 95% of jobs (jobs for which the employer carries unemployment insurance).

Due primarily to the Northshore Mining plant, Silver Bay is a regional economic engine. Data from the Quarterly Census of Employment and Wages (QCEW) shows employment in and around the City of Silver Bay to be high relative to the City’s population. The annual average number of jobs is over 1,100, while the city’s population is only 1,800. Approximately one quarter (25%) of all the jobs in Lake County are associated with Silver Bay businesses; Lake County has approximately 4,300 jobs that are reported by the QCEW.

The QCEW data (see data on following page) shows a stable history of employment in and around Silver Bay. The effects of the 2008 – 10 recession are clearly evident with a noticeable drop in local employment. In 2011, however, the local economy clearly rebounded and has since exceeded the level of employment for the entire previous decade including prior to the recession.

City of Silver Bay Comprehensive Plan

Private sector jobs are much more abundant in the Silver Bay area than are public sector jobs. However, this is fairly typical; public sector employment is approximately 16% of total employment in Silver Bay, compared to 13% in Minnesota.

Average Annual Jobs in and around Silver Bay

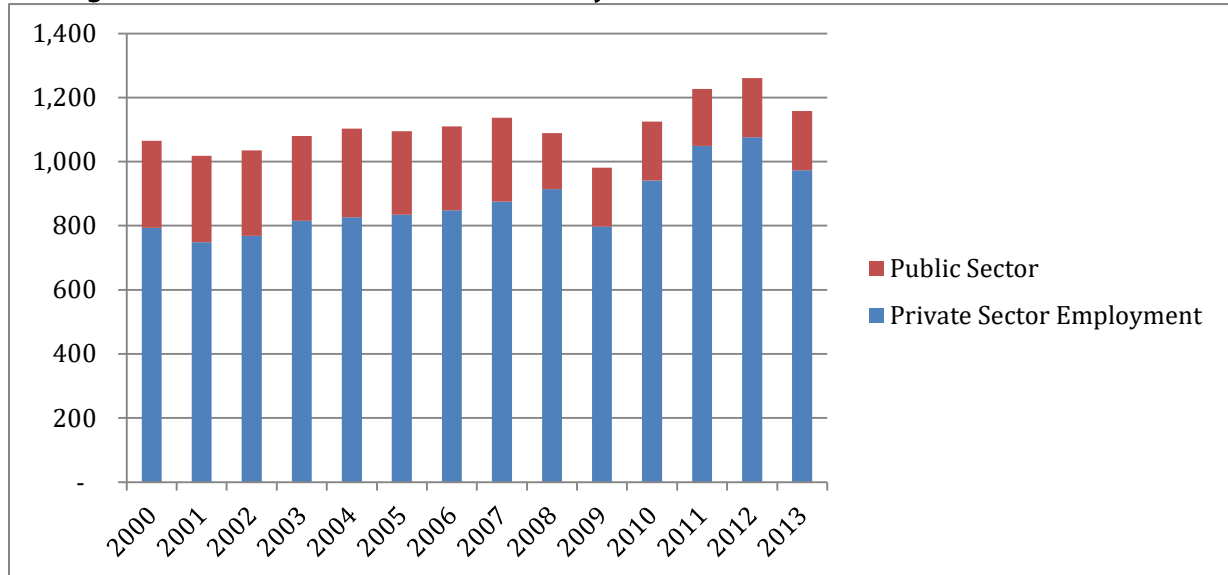


Figure 13 Source: Quarterly Census of Employment and Wages

Total wages paid for jobs by companies in and around Silver Bay is quite high for a community of Silver Bay's size, again reflecting the industrial employment at Northshore Mining. The wage data also shows the effects of both the 2001 and the 2008-2010 recession, and the significant rebound at the end of the recession. This significant increase starting in 2010 is likely due to increased production at the Northshore Mining facility, where the average wages paid are significantly higher than other industries in Lake County.

Total Wages Paid by Year

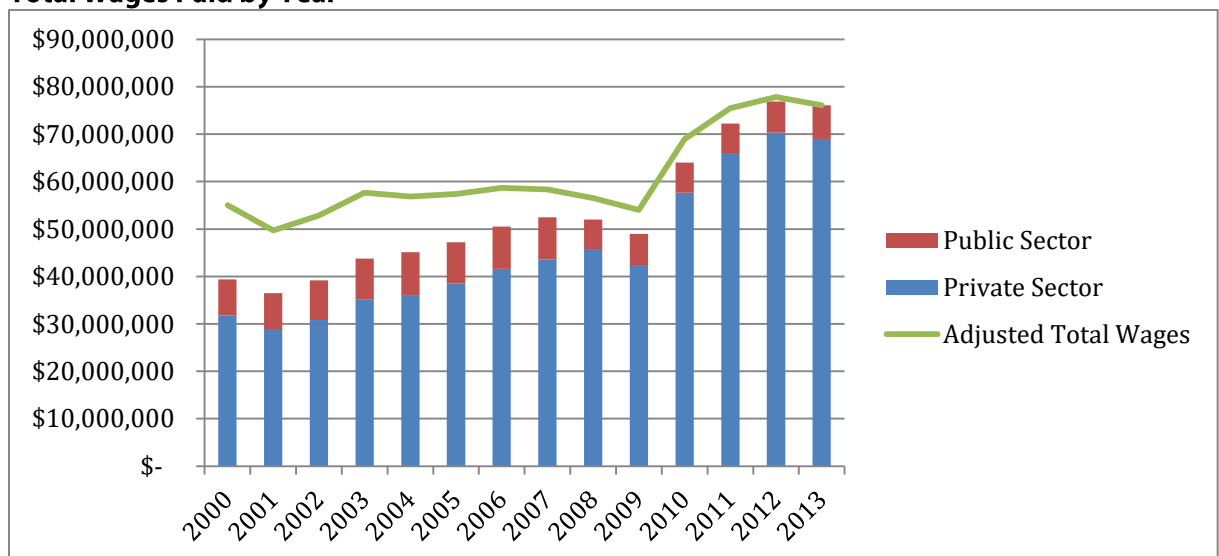


Figure 14 Source: QCEW data, covered employment only

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The Adjusted Total Wages line shows the “real” wage numbers for the private sector, correcting for inflation. The line is set to show the data in 2013 dollars. This shows a level or slight upward trend for most of the previous decade until a significant increase in total wages, attributable entirely to private sector wages, starting in 2010.

Employment of Residents

The types of industries and businesses in the area also affect the economic opportunity of residents. Based on a five year annual sample, the American Community Survey (ACS) conducted by the Census Bureau estimates the types of employment for geographic populations. ACS data shows Silver Bay residents are much less likely to work in management positions, and much more likely to work in service or production jobs than other places in Minnesota. While the margin of error is large for such a survey in a small community, the results appear to be in sync with the types of jobs that are available in the region.

Types of Occupations for Residents

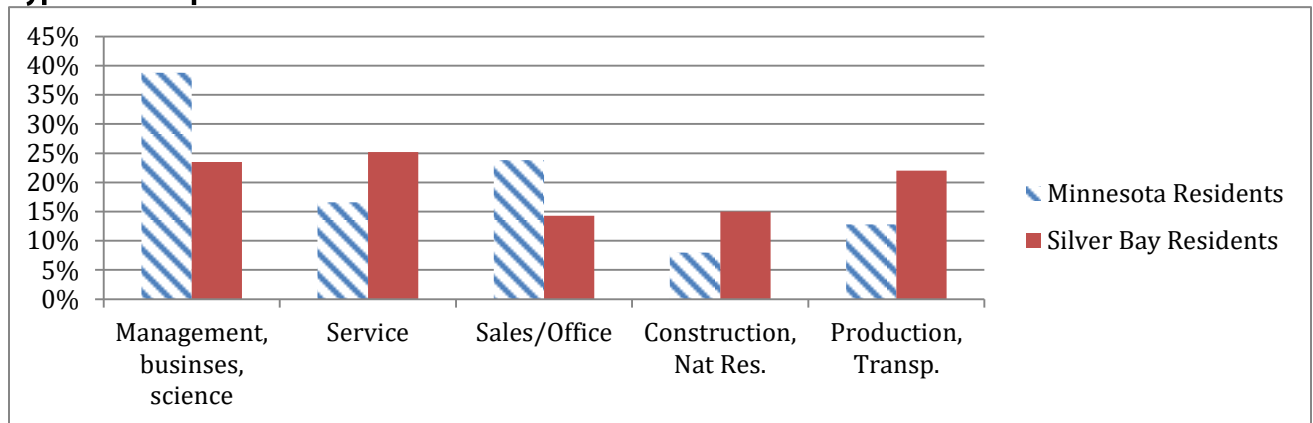


Figure 15 Source: 2013 American Community Survey, U.S. Census Bureau

City Revenues and Tax Base

The City provides a variety of services to residents and visitors, including municipal utilities, community services, regulatory services, emergency services, and general administration. The city's general budget (excluding enterprise funds - utility and liquor store operations) is approximately \$3.7 million per year. City revenues supporting the general budget (excluding utility revenues) come from a variety of sources, including property taxes, state aid and revenue sharing, fees, service charges, and grants and donations.

City of Silver Bay Comprehensive Plan

City of Silver Bay Source of Revenue

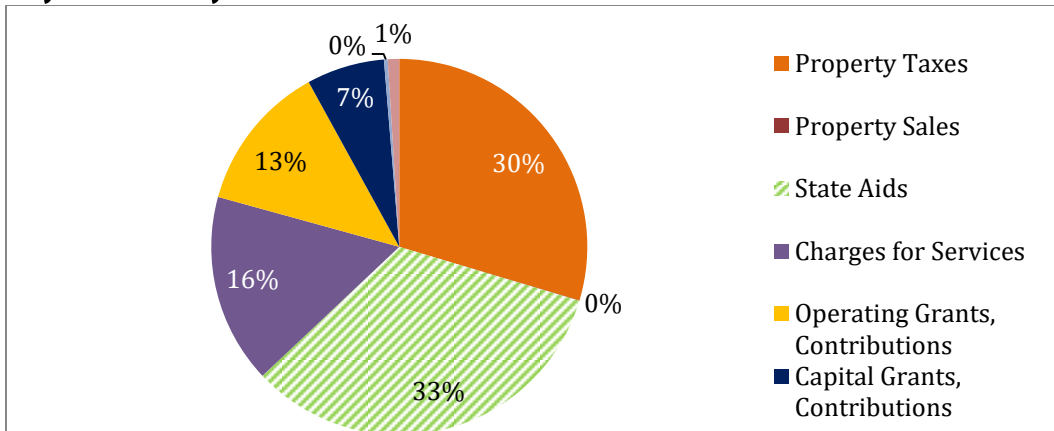


Figure 16 Source: 2013 City Financial Statement

Property tax revenues, at 30% of the City's general revenues, are a significant portion of the City's revenues, but are not the largest source (contrary to much of public opinion). However, the taconite production tax (paid by Northshore Mining) and the homestead credit are in lieu of property taxes, although these revenues are shown as part of State Aid. Taconite facilities are, under state law, primarily exempt from local property taxes.

The single biggest category of municipal revenue, State Aids (33% of the City's total revenue) is a revenue category that includes a number of sources, including Local Government Aid, Taconite Production tax distribution, and other intergovernmental transfers. Of these, the Taconite Production tax distribution that goes to all Iron Range communities, is the largest component of State Aids (15% of total revenue and 43% of State aid revenue). Local Government Aid is the next biggest component, and comprises 14% of total revenue and almost 40% of State Aid revenue.

Breakdown of State Aid Revenue by Type (2013)

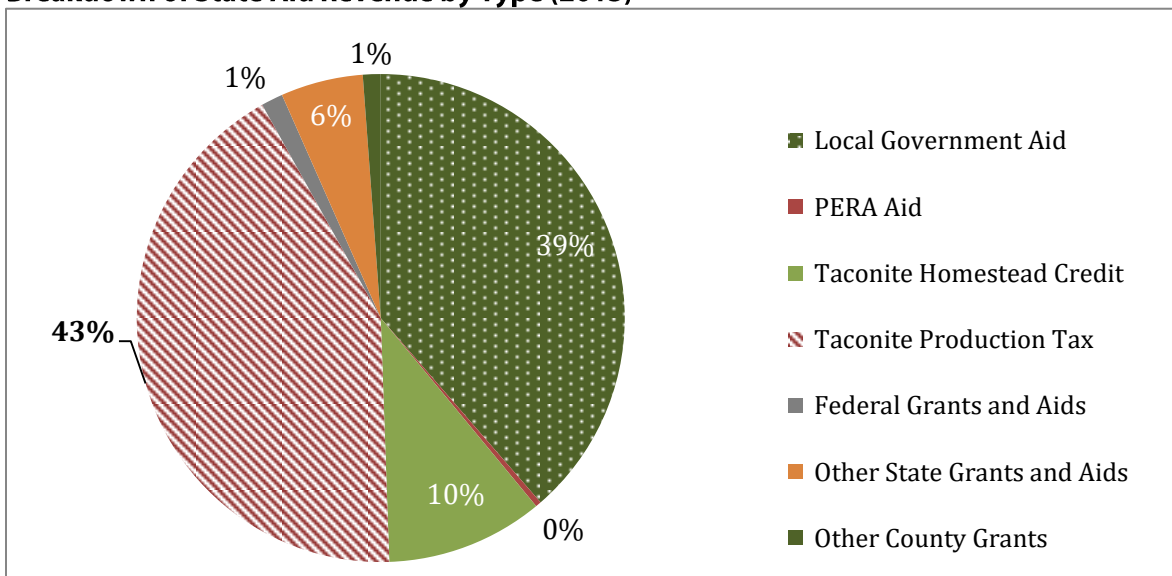


Figure 17 Source: 2013 City Financial Statement

City of Silver Bay Comprehensive Plan

Housing

Types of Housing

The U.S. Census reports that there are currently (based on statistical estimates) 1,170 housing units in Silver Bay, which is 15% of housing units in Lake County. The majority of these units – 1,076 – are single-family detached homes. Additionally, there are 91 units in two multi-family buildings and three mobile homes.

| Location | Single Detached | Single Attached | Multi Units | Mobile Home |
|-------------|-----------------|-----------------|-------------|-------------|
| Lake County | 6,885 | 151 | 457 | 178 |
| Silver Bay | 1,076 | 0 | 91 | 3 |

Table 4 Source: U.S. Census Bureau, 2008-2012 American Community Survey. NOTE: Numbers vary from 2010 Census.

Silver Bay was founded in the 1950s as a planned community that was designed to provide primary housing for the employees of the nearby Reserve Mining taconite processing plant. As a result, many of the existing housing units date from the 1950s and 60s, with relatively little activity since the scaling back of employment after the initial construction boom. The graph below illustrates the dominant era of housing construction that took place in the 1950s.

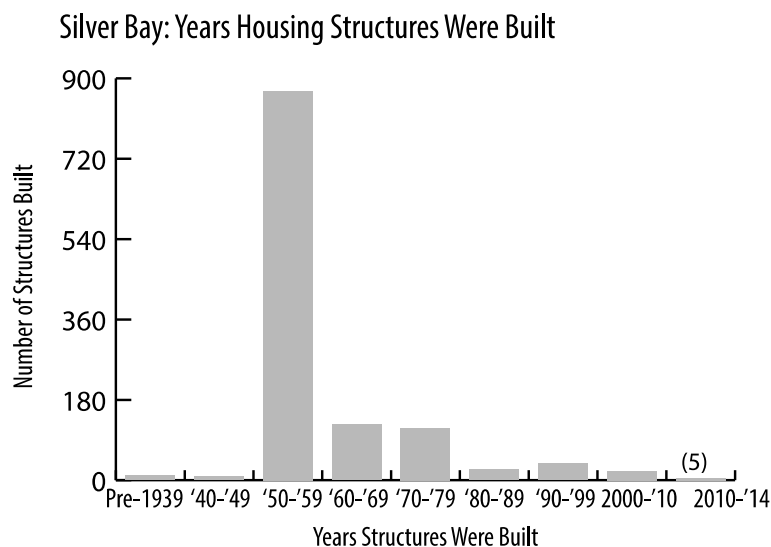
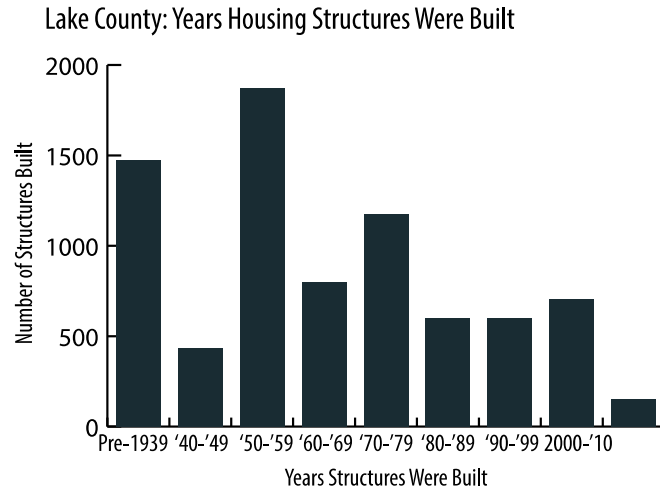


Figure 18 Source: U.S. Census Bureau, 2008-2012 American Community Survey

Lake County data shows a similar housing boom in the 1950s, likely due to the homes being built in Silver Bay – and a subsequent decline in construction of new units, consistent with the Silver Bay data. The major difference between the County and Silver Bay was construction of housing in Lake County prior to 1939, likely to have occurred in Two Harbors and outlying communities.

City of Silver Bay Comprehensive Plan

Figure 19 Source: U.S. Census Bureau, 2008-2012 American Community Survey



The median value of homes in Silver Bay in 2012 was \$92,400, significantly less than the Lake County median home value, \$147,100 (American Community Survey 2008-2012). Much of this difference is likely attributable to the age of the Silver Bay housing stock relative to the newer construction that has occurred elsewhere in Lake County. Moreover, the style and size of the 1950s housing stock that typifies Silver Bay is distinct from more recent market trends in housing, leading to lower demand and prices in the Silver Bay market relative to the County.

Heating Sources

Nearly half of Lake County residents have natural gas as their primary heating fuel. Currently, natural gas is one of the cheaper fuel sources and is less volatile in price as are alternative delivered fuels. Propane and fuel oil make up about a quarter of housing fuel sources, and electricity is a little over 16% – these sources can be the most expensive heating options.

Lake County Household Heating Fuel

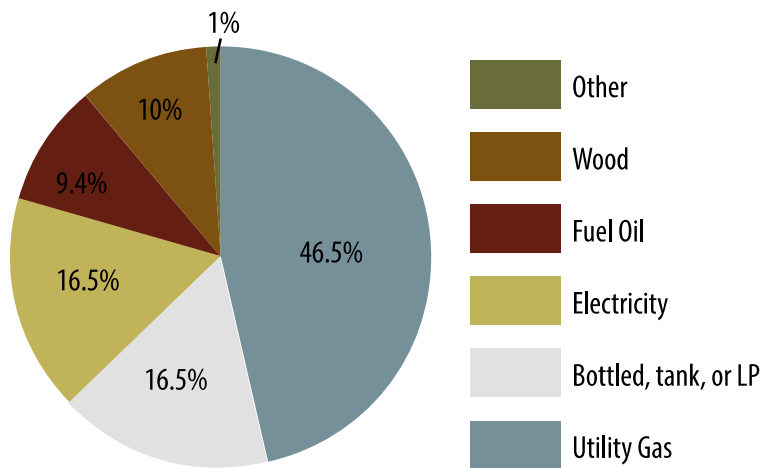


Figure 20 Source: U.S. Census Bureau, 2008-2012 American Community Survey

City of Silver Bay Comprehensive Plan

In Silver Bay, nearly 90% of residents get their heat from natural gas. The remaining homes primarily depend on propane and electricity. As the community looks into the future, consideration of existing infrastructure and what it would take to expand is important. Building new structures near the existing natural gas line would have lower associated costs than expanding the pipeline beyond the built environment.

Silver Bay Household Heating Fuel

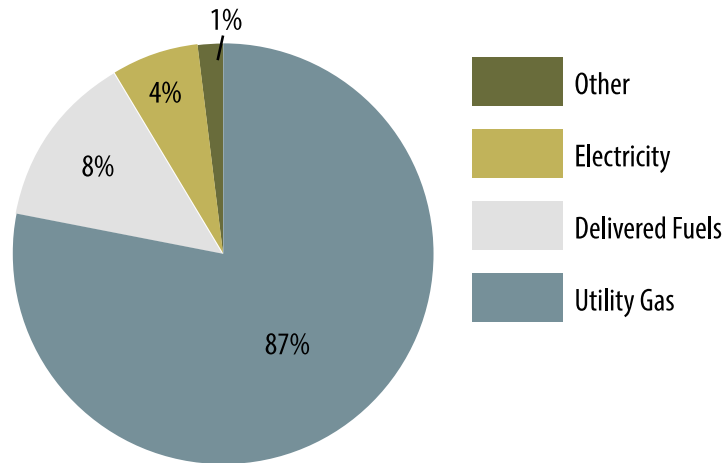


Figure 21 Source: U.S. Census Bureau, 2008-2012 American Community Survey

Housing Programs

There are a number of housing programs available to assist Silver Bay and Lake County residents through the Arrowhead Economic Opportunity Agency.

- **Energy Assistance:** Energy Assistance provides grants that can be used towards energy costs for residential heating bills. Assistance is available October 1st through May 31st each year.
- **Foreclosure Prevention:** AEOA works with homeowners to determine options when they are facing foreclosure. The program offers financial counseling, access to community resources, help working with the mortgage company, and information about the foreclosure process.
- **Homeless Services:** AEOA helps families and individuals keep their current housing or find new stable housing.
- **Home Ownership Program:** AEOA conducts Homestretch Workshops for anyone interested in learning how to buy a home.
- **House Rehabilitation** – AEOA assists with homeowners accessing the Fix-Up-Fund programs that provide low interest loans to make home improvements.
- **Weatherization Assistance** – The Weatherization Assistance Program assists low-income qualifying households with home energy improvements that help make
- **Rental Rehabilitation** – The Rental Rehabilitation Deferred Loan Program provides funding for landlords to improve the condition of rental units for low-income tenants.

City of Silver Bay Comprehensive Plan

Lake County Housing and Redevelopment Authority (LCHRA): LCHRA provides affordable housing and redevelopment programs and services to Lake County residents. Programs offered include rental assistance, property rehabilitation, and first time homebuyer loans as well as down payment assistance. The LCHRA primarily receives funding through a Lake County tax levy on an annual basis. Additional funding comes from AEOA, Minnesota Department of Employment and Economic Development, Minnesota Housing and Finance Agency, and Minnesota Housing Partnership.



City of Silver Bay Comprehensive Plan

Recreation and Cultural Arts

The Silver Bay Area offers an abundance of recreational opportunities. Both residents and visitors have access to a variety of trails, Tettegouche State Park, and Lake Superior. In the community survey, residents ranked the natural environment as one of the primary reasons they live in Silver Bay. There is no shortage of outdoor recreational opportunities in and around the City. Many visitors come to hike, view fall colors, enjoy the shores of Lake Superior, utilize ATV and snowmobile trails, go hunting, and many more activities.

Recognizing the value of recreational activities and the cultural events is crucial in identifying the character of the community. The following is a compilation of recreational activities and cultural events in the Silver Bay Area that highlight the collaboration between local governments and other organizations to identify and guide the future development, preservation, and enhancement of all the recreational and cultural uses in the area.

Parks

There are a number of municipal parks and recreation fields within the City of Silver Bay. The City's Parks and Recreation Department maintains baseball and softball fields; a horseshoe court; the Rukavina Hockey Arena; a skate park; tennis courts; an outdoor skating rink; and the Recreation Building. Beyond the municipal recreational amenities, Silver Bay is in close proximity to three major state parks (Tettegouche, Split Rock, and Gooseberry), lakeshore opportunities, and the city's golf course. Each is described in more detail below.

Tettegouche State Park extends into the City's boundaries. The park is open year round and allows visitors the opportunity to take part in a number of outdoor activities including rock climbing, hiking, skiing, and snowmobiling, among others. The scenic park recently opened its new visitor center, which boasts environmentally friendly features that include a rain garden and other storm water management improvements, energy efficiency design, and a 24.3 kW solar electric array.

Black Beach is located on Lake Superior shore land that is owned by Northshore Mining Company. In 2014, an agreement was reached that allowed the land to be co-leased by the City and the Minnesota DNR, and improved and maintained by the City. Ore residue left over from tailings of past mining activity give Black Beach characteristics unique to this part of the Lake. Kayakers using the Lake Superior Water Trail, developed by the Minnesota Department of Natural Resources, are able to use Black Beach as a rest area. The unique characteristics of Black Beach will allow it to become a community treasure, appealing to both residents and visitors as a place to go to enjoy the Lake Superior shoreline.



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Bayside Park is located along the shore of Lake Superior and includes a boat landing, picnic tables, fire pits, a scenic vista, a beach, and the Marina. The Silver Bay Marina provides full service facilities, boat slips for temporary and long-term storage of sailboats and motorboats. The marina is owned by the Minnesota Department of Natural Resources and managed by the City of Silver Bay. This park can serve as a major attraction for the community as it is one of few such marinas along the north shore. Improved and increased signage may benefit the park with increased awareness of its presence.



Mariner Mountain Park is located off Penn Boulevard on the west end of town. The park provides trails for hiking, general recreation, and scenic views. The park has been recognized as an underutilized community amenity and may need additional consideration for its future use.

The Municipal Golf Course is a 9-hole course southwest of the Silver Bay's center. Reserve Mining Company originally built the course in 1959 as a company amenity. In 1993, the City acquired the golf course and currently maintains and operates it. The long-term plan was to expand the golf course to an 18-hole course, though market conditions for golf are currently not favorable and the Park Department's 5-year plan does not include resources to expand the golf course.

Trails

There are over 100 miles of snowmobile and ATV trails within a few miles of Silver Bay. The trails extend into Tettegouche State Park and connect to the CJ Ramstad/North Shore State Trail, which is a 146 miles surface trail from Duluth to Grand Marais. The trail permits snowmobiles, ATVs, hiking, mountain biking, and horseback riding.

The Superior Hiking Trail follows Lake Superior from Duluth to the Canadian border. Hikers can take day hikes or go backpack camping. The hiking trail has campsites along the way to provide respite for overnight hikers. A trailhead is located just on the edge of Silver Bay providing the opportunity for Silver Bay to serve as the beginning or end of a hike, as well as a resting location for hikers who want take a break from the trail.

The Gitchi Gami Trail is a non-motorized paved trail that, when completed, will allow people to travel from Two Harbors to Grand Marais. Currently, segments of the trail have been completed with miles of gaps between them. The longest stretch of the paved Gitchi Gami is from Gooseberry Falls to Beaver Bay. There is a .8-mile unpaved gap before the paved trail continues into Silver Bay. Completing this stretch is critical to attracting cyclists into the community.

Figure 22 on the next page illustrates the trails in the Silver Bay area.

City of Silver Bay Comprehensive Plan



Figure 22 Sources: MnDNR

City of Silver Bay Comprehensive Plan

Cultural Art

Cultural art is what takes place in a community that serves as an expression of its identity. There are a number of cultural activities that take place in Silver Bay throughout the year. Highlighted below is a list of the major events that take place in the community. This is not a complete list of all activities, but offers a summary of the more prominent events that happen in Silver Bay.

Northshore Mining. Northshore Mining offers tours of its facilities during the summer, primarily during Bay-to-Bay Days events.

Bay Area Historical Society. The Historical Society Tourism Center is located on Outer Drive in Silver Bay and is open seasonally to offer visitors information on the history of Silver Bay as well as a source of information for current happenings in town. The Historical Society will be a welcoming component of the gateway into town.

Bay Days. Bay Days is a family friendly community celebration that takes place in July. Festivities are held in both Silver Bay and Beaver Bay. Activities include a golf tournament; the Bay-to-Bay run & walk; children activities; concerts and more.

Rukavina Ice Arena. The ice arena is a community-gathering place where residents come to support the local boys and girls high school hockey teams – the Northshore Storm. Other hockey camps and tournaments are also held at the arena.

Lake Superior Community Theater: Local area volunteers founded the Lake Superior Community Theater in 2002. The first production was staged in 2003 and primarily takes place at Silver Bay William M. Kelley High School. The theater is a 501(c)(3) non-profit organization and puts on annual performances.

Northern Lake County Arts Board: The NLCAB is a non-profit organization run by volunteers that is dedicated to providing arts-based education and events to Lake County residents and visitors. The NLCAB maintains a special emphasis on youth programming for visual, practical, and performing arts.

City of Silver Bay Comprehensive Plan

Natural and Cultural Resources

Natural resources and natural systems play a critical role in Silver Bay's economy and culture. These systems are the "green" or "natural" infrastructure that, similar to built infrastructure, help sustain the City's development, economic activity, and quality of life for Silver Bay residents, businesses, and visitors. Natural systems include hydrologic systems (both surface water and ground water), ecological systems (forest systems and habitat), soils, geology and mineral systems, and renewable energy resources (wind, solar, and biomass energy). Water and ecological systems are frequently assessed by "watershed function," which recognizes the close relationship between how water moves and is used within a watershed and the health of the soils, habitat, and vegetative systems.

Natural systems are also used culturally via extraction or harvesting for economic use, recreational use, and the contribution to community character. Natural resource extraction in the form of minerals that occurs outside the community has a substantial economic impact on Silver Bay. Recreation activities that contribute to residents' quality of life and that provide economic benefits through tourism are more beneficial because these cultural resources are interconnected to resource outside the community (regional trails, state parks, etc.).

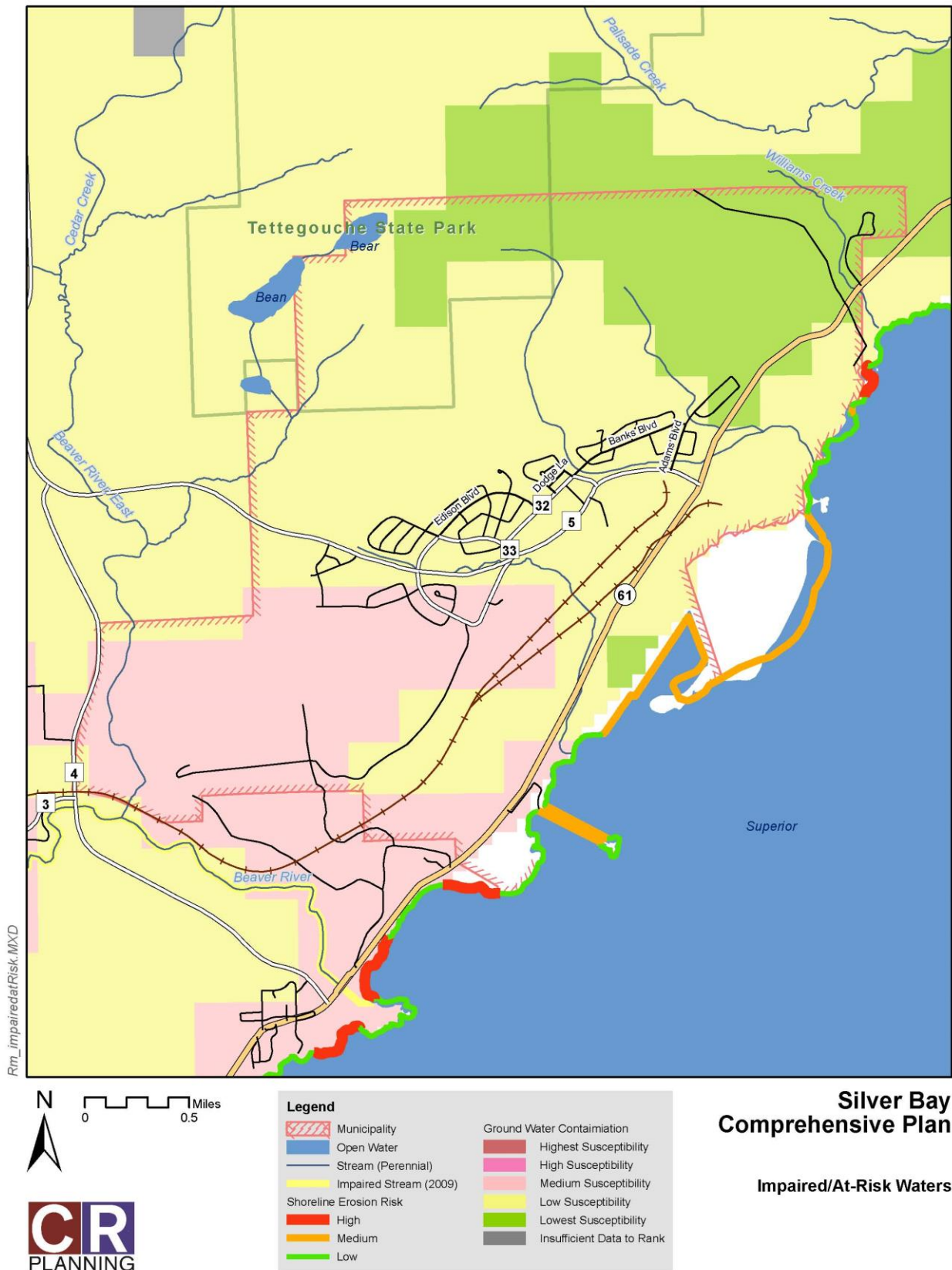
As described in the Intergovernmental Cooperation section, natural systems (or "green infrastructure") typically cross political boundaries, unlike the City's built infrastructure. In particular, many of the City's natural resources are defined by Lake Superior, and thus the City both affects and is affected by development, regulations, and programmatic efforts in other communities. Achieving the City's natural system goals will require cooperative efforts with other jurisdictions and agencies.

Watersheds and Natural Systems

Lake Superior is a high priority protected water body under State and Federal water protection standards. The Lake is also considered to be coastal water, and gets the same regulatory and programmatic attention as the salt-water coastal waters along our nation's east, west, and southern boundaries. Much of the natural system analysis that has been completed along the North Shore is defined by how watersheds are functioning. As part of this effort, the Natural Resource Research Institute in Duluth (NRRI, University of Minnesota) completed a high resolution delineation of Lake Superior watersheds (see water resource map, Figure 24). Impacts to natural systems from development or changes in land cover use due to resource harvesting should be considered within the context of these watersheds.

Watershed functions include the eco-system and habitat functions that are part of Silver Bay's natural systems. Native land cover and habitat are defined by how the watershed functions and frequently the boundaries between different types of habitat or forest systems follow watershed boundaries. The watershed is thus a critical assessment tool for forest, habitat, surface water, and ground water assets and functioning. The NRRI created a stressor analysis for a number of river watersheds and ground waters along the North Shore (see Figure 23, Impaired, At-Risk Waters).

The stressor analysis shows that the natural systems most affected by development lie in the western side of the City, in the watershed of the Beaver River tributaries. Development in this region should consider mitigation techniques for reducing risk to natural systems. Tettegouche State Park, and the nearly undeveloped forested and recreation areas owned by the State in Silver Bay's north, buffer the watershed natural systems that run through the developed portion of the community. The taconite facility (now owned by Northshore Mining) significantly modified the shore land, which also shows up as areas with somewhat elevated risk to natural systems.



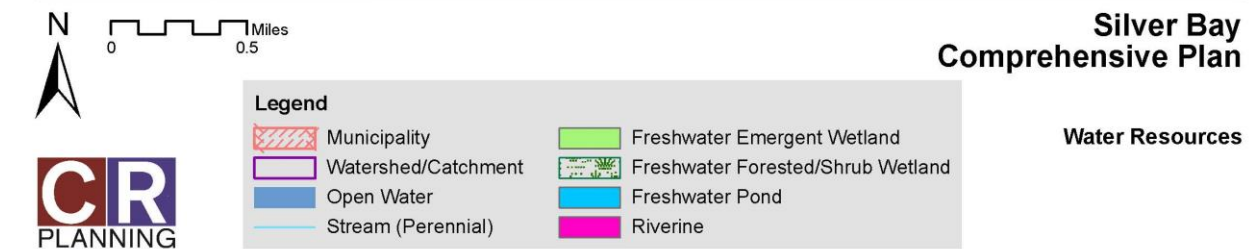
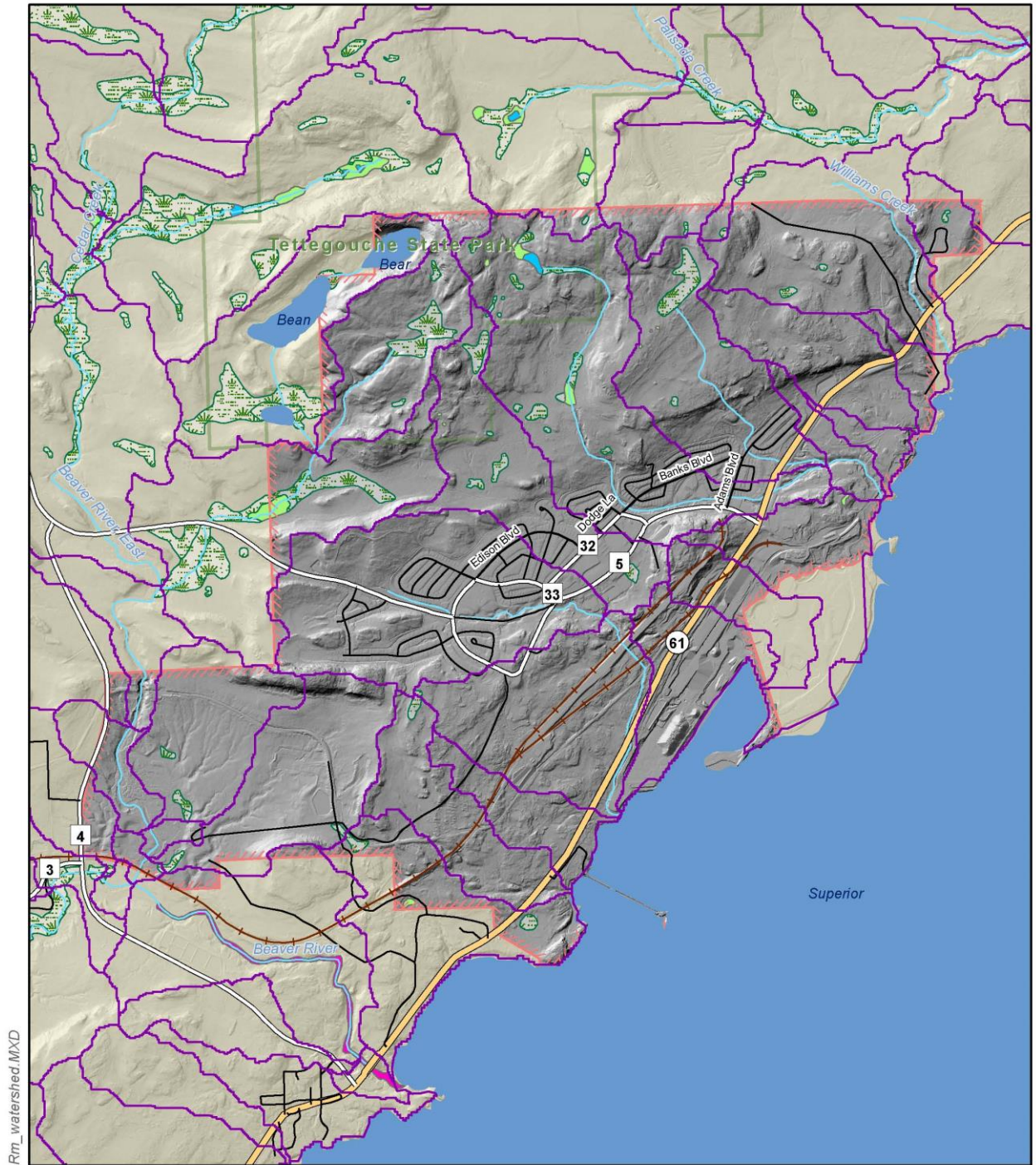


Figure 24 Sources: MnDNR

City of Silver Bay Comprehensive Plan

Soils and Geology

Silver Bay lies at the east end of the Lake Superior South watershed, which in turn lies in the eastern portion of the Northern Lakes and Forest (NLF) Ecoregion. A detailed description and assessment of the ecoregion in which Silver Bay lies was completed by the Minnesota Pollution Control Agency in 2014 (Lake Superior South Watershed Monitoring and Assessment Report, PCA, 2014). The assessment reports that the area has nutrient-poor soils supporting coniferous and northern hardwood forests, and clear lakes (see Figure 25, STATSGO Soils). Precambrian granitic bedrock outcroppings can be found between moraine deposits and has many steep, rolling hills and broad lacustrine basins. These geologic and soil features help define the carrying capacity of watersheds and natural systems as development and harvesting changes the landscape.

Silver Bay lies in a section of the Lake Superior South Watershed where the Superior Stony and Rocky Loamy Plains and Hills extend all the way to the shoreline, rather than giving way to the Lake Superior Plain. The 2014 PCA Watershed Assessment describes the soils and land resources seen in Silver Bay.

Bedrock outcrops are common in many places and the topography is gently sloping to very steep in locations (USDA/NRCS, 2006). Bogs and large wetland complexes are common in the headwaters of many sub-watersheds. Given the geologic history of the valley, some natural springs can be found throughout this watershed. These spring-fed streams, along with many other naturally cold-water streams within the watershed, support or once supported brook, brown, and/or rainbow trout populations (Beaver River, HUC10 Watershed, page 30, Lake Superior South Watershed Monitoring and Assessment Report (PCA, 2014)).

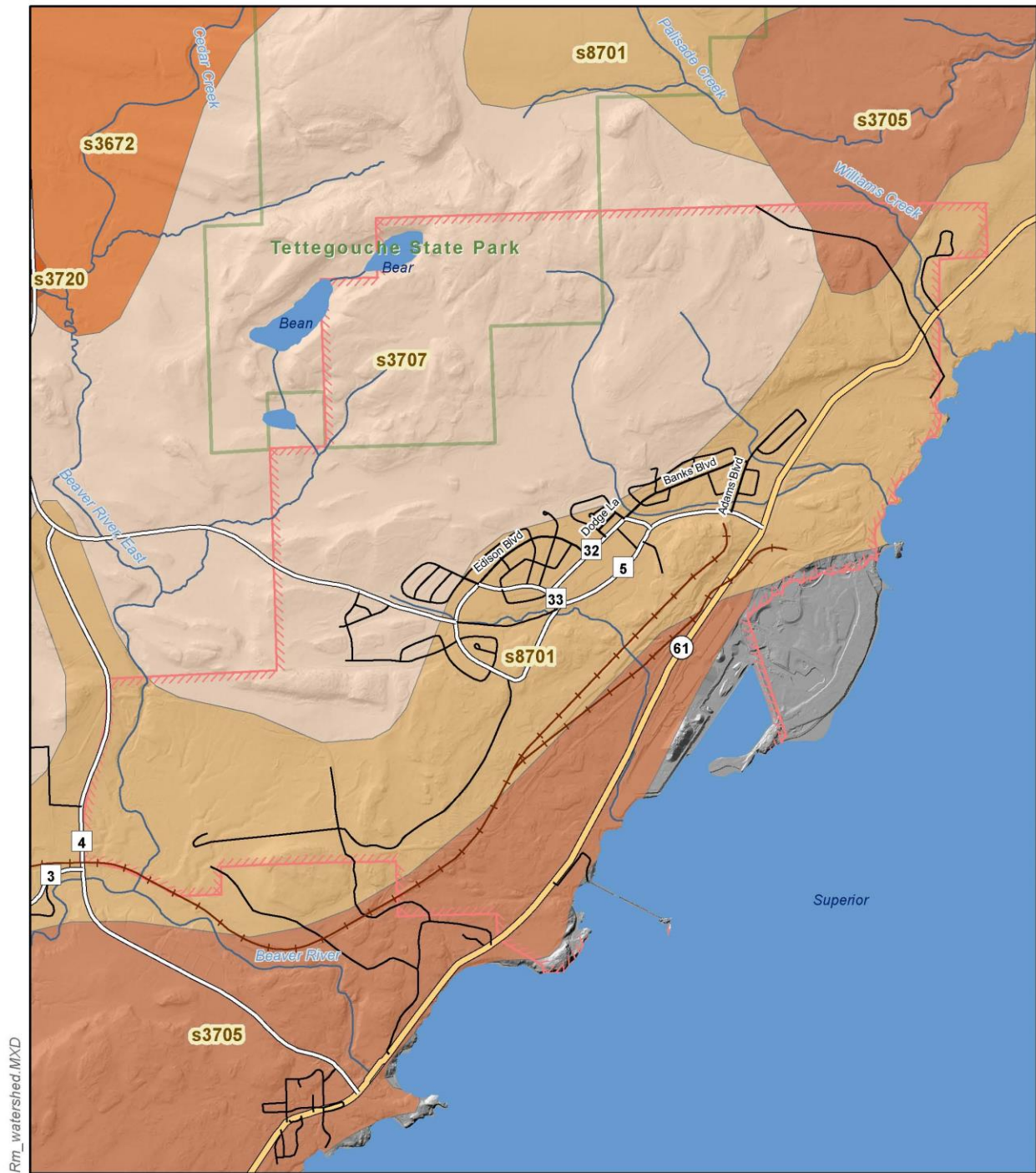
A topography map (Figure 26, Topography) showing many of these features is on page 38.

Land Cover

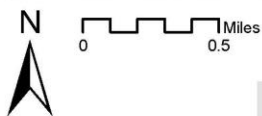
Land cover is descriptive of the type of vegetation that currently covers the land (with separate categories for developed areas). Silver Bay has a wide variety of land cover types, including several types of forest, shrub and scrub, grasslands/pasture, and wetland land cover. Satellite imagery provides a 2011 summary of land cover on generalized scale that shows where developed areas are, the approximate intensity of development, and the locations and types of non-developed or natural land cover (see Figure 27, 2011 National Land Cover). While the scale of the data is too general for identifying land cover on specific parcels, the data do allow for a relatively accurate portrayal of the variety and size of different land cover types.

The most prominent land cover is undeveloped deciduous forest, including both State Park and State owned lands to the north of the developed area, and Northshore Mining lands that are not actively used for mining operations. Northshore Mining lands also have some significant area of cover categorized as woody wetland. Evergreen forests are located off the highland areas near the golf course. Scrub area and bedrock areas are also a scattered land cover throughout the city.

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Rm_watershed.MXD



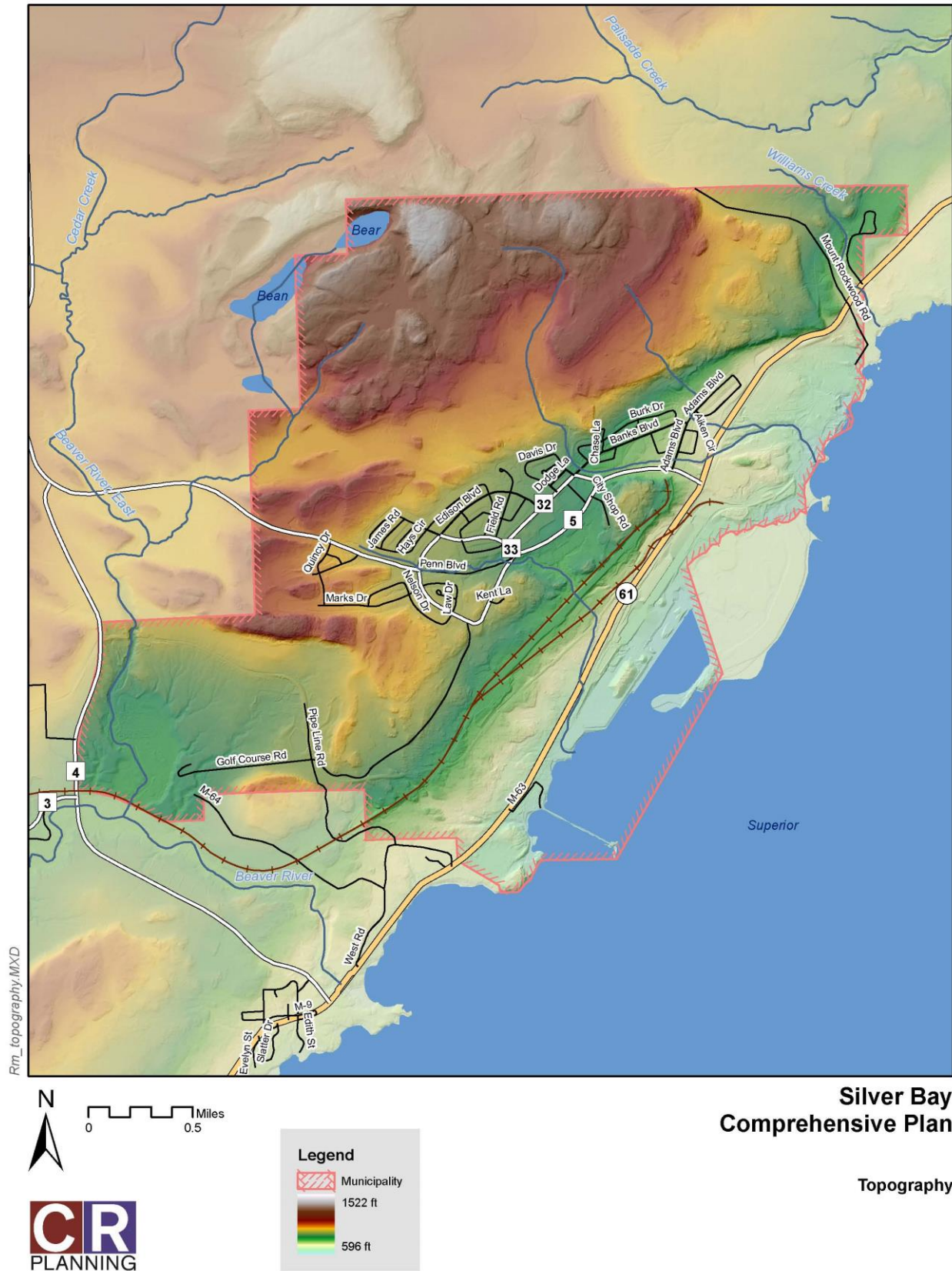
| Legend | |
|--------|------------------------------------|
| | Open Water |
| | Stream (Perennial) |
| | Municipality |
| | Hermantown-Finland (s3672) |
| | Mesaba-Barto (s3707) |
| | Ontonagon-Mesaba-Barto (s3705) |
| | Rifle-Greenwood (s3720) |
| | Rudyard-Ontonagon-Bergland (s8701) |

Figure 25 Sources: MnDNR

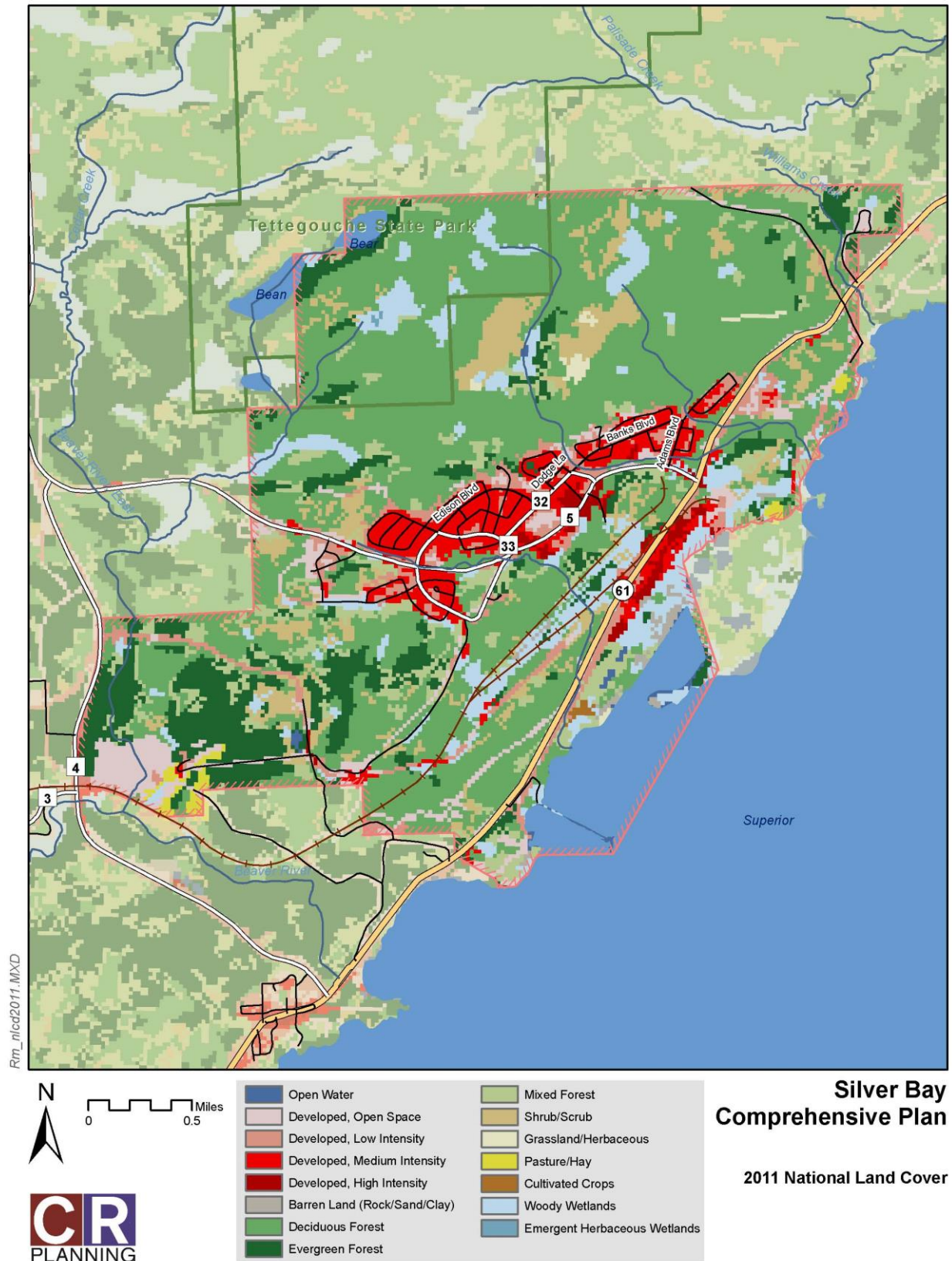
Silver Bay Comprehensive Plan

STATSGO Soils

City of Silver Bay Comprehensive Plan



City of Silver Bay Comprehensive Plan



City of Silver Bay Comprehensive Plan

Local Energy Resources

Silver Bay has local energy resources in the form of solar, wind, and biomass (primarily wood). Economic use of these resources is currently very limited in Silver Bay. However, technologies for harvesting these resources have declined rapidly in cost in the last decade. Market barriers to local energy development are also diminishing as utility companies, contractor, and financing companies become familiar with integrating local energy development into their business models. A number of communities in Northeastern Minnesota are currently exploring ways to capture the local economic and environmental benefits of local energy resources. Documented cost and market trends demonstrate that local energy resources have or will soon have substantial economic development potential in addition to environmental benefits to offer local communities.

Biomass - Silver Bay has evaluated community-scale biomass potential in the past and decided not to invest in that option at that point in time. The U.S. Department of Agriculture has financial assistance programs to help companies and communities explore and test new applications for community or industry-scale biomass. Home or business-scale biomass (primarily residential wood heaters) are used in the community, although air quality regulations are still evolving for this technology. The U.S. Environmental Protection Agency published new performance standards to address this potential nuisance and health hazard in 2015, which may enable expanded use of these technologies. In the Silver Bay region, substantial biomass resources, in the form of wood products and wood waste streams, remain a potential economic development opportunity as technologies and operational experience within the industry continue to evolve.

Wind – The utility scale wind industry has reached a maturity level where it now competes economically with other forms of energy generation. However, Northeast Minnesota has no utility-scale wind resources, given the combination of the area's topography, forest cover, and land use priorities. The Minnesota Department of Commerce has produced wind energy resource maps that document the lack of utility scale wind opportunities. Silver Bay may have economic distributed wind (small scale turbines sized to serve primary on-site electric load) resources. The small scale wind industry has not evolved as quickly as other technologies, and are usually somewhat limited in small lot development that characterizes the majority of Silver Bay homes and businesses. Visual impacts also limit opportunities in those areas near to recreational areas. Market development will, therefore, be somewhat limited in Silver Bay, but the City is likely to see some interest by land owners in capturing the wind resources on their lot.

Solar – Solar energy is currently the fastest growing renewable energy industry in Minnesota and the nation. Market forecasts are for continued acceleration of solar development and “electric grid parity” in the near future. Silver Bay does have a significant solar resource in its developed areas. The University of Minnesota developed a high-resolution solar resource map that is detailed enough to assess solar resources on individual buildings (see Figure 28, Solar Resources). As shown on the map, distributed solar development on rooftops and yards is readily available in Silver Bay. Some industrial areas where trees have been cleared have opportunities for “solar garden” development, a small solar farm connected directly to the local grid that provides electricity to local residential and business subscribers. A number of Minnesota utilities are developing solar garden programs or tariffs. Silver Bay's electric utility, Minnesota Power, is investigating possibilities for developing solar gardens, but does not yet have an operational solar garden tariff or program.

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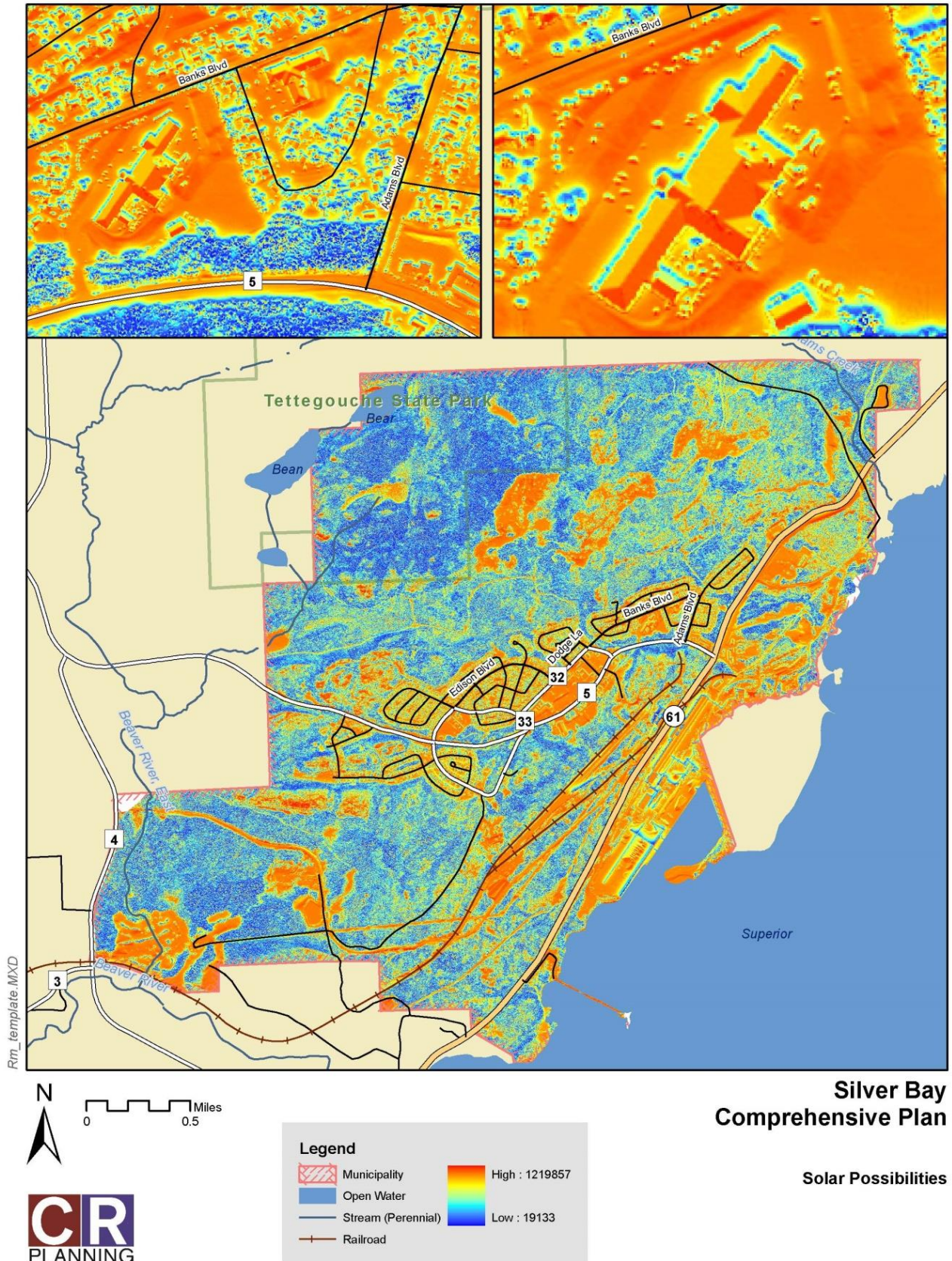


Figure 28 Sources: University of Minnesota Spatial Resources

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Transportation

Although Silver Bay residents are primarily auto-dependent, there are a number of other modes of transportation available in the area: State and County highways take travelers to and from the City; trails allow for numerous recreation opportunities; rail and shipping move goods; and the City-owned airport allows for travel by plane. There is great opportunity for the community to improve its non-motorized transportation as well as assistive and car-sharing options. The following summarizes the various modes of transportation that are found in Silver Bay or have the potential to benefit the community. Where relevant, plans to guide the future development of various modes of transportation are described.

Highways

Highways are an important part of Silver Bay's transportation network. State Highway 61 runs along Lake Superior just east of the town center. Highway 61 carries virtually all traffic to Silver Bay and is maintained by the Minnesota Department of Transportation (MNDOT). Currently, according to [MNDOT's District 1 10-year work plan](#) there are no plans to repair or alter the road before 2023.

Lake County Highway 5 (Penn Boulevard) runs through the heart of Silver Bay, connecting State Highway 61 from the east to County Highway 4 to the west. According to the Lake County Highway Department, as part of the [5 year Plan](#), the County will improve Highway 5 at the school crossing in Silver Bay with better signage and accessibility in 2016.

State Highway 1 is 5 miles north of Silver Bay off of Highway 61. This road takes travelers towards Finland and Ely as well as numerous wilderness recreation opportunities.

Road System

Silver Bay's street network is primarily a small internal set of local streets and several minor collectors connected to a single major collector (County 5) that connects to State Highway 61. A separate network serves the business/industrial park and there is a spur off Highway 61 serving a subdivision in the far eastern end of the City.

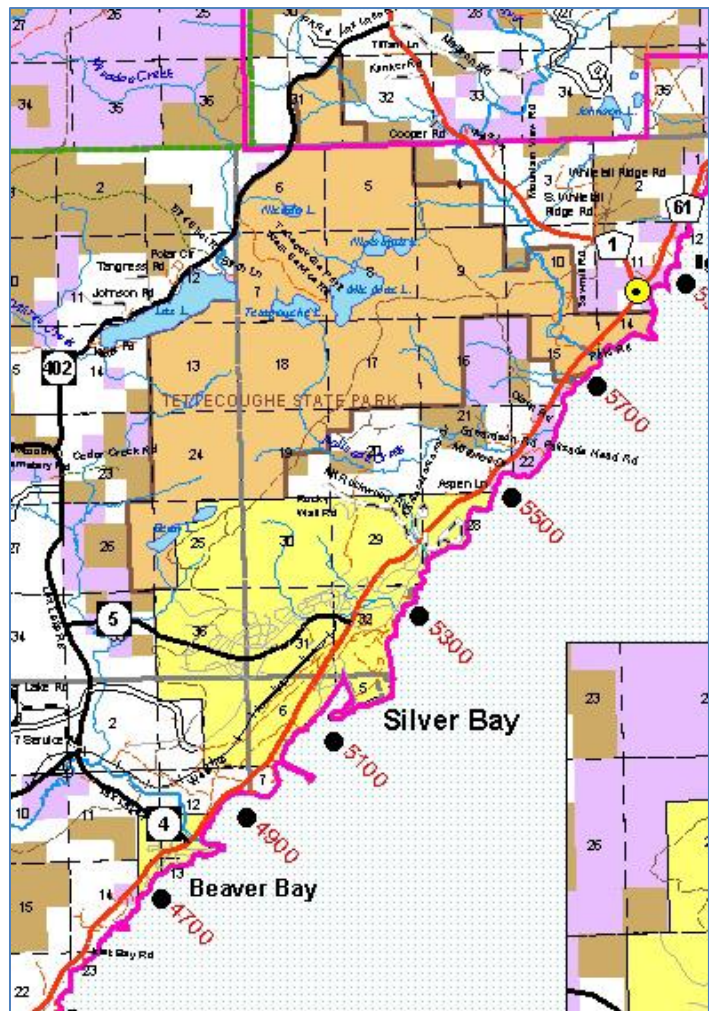


Figure 29

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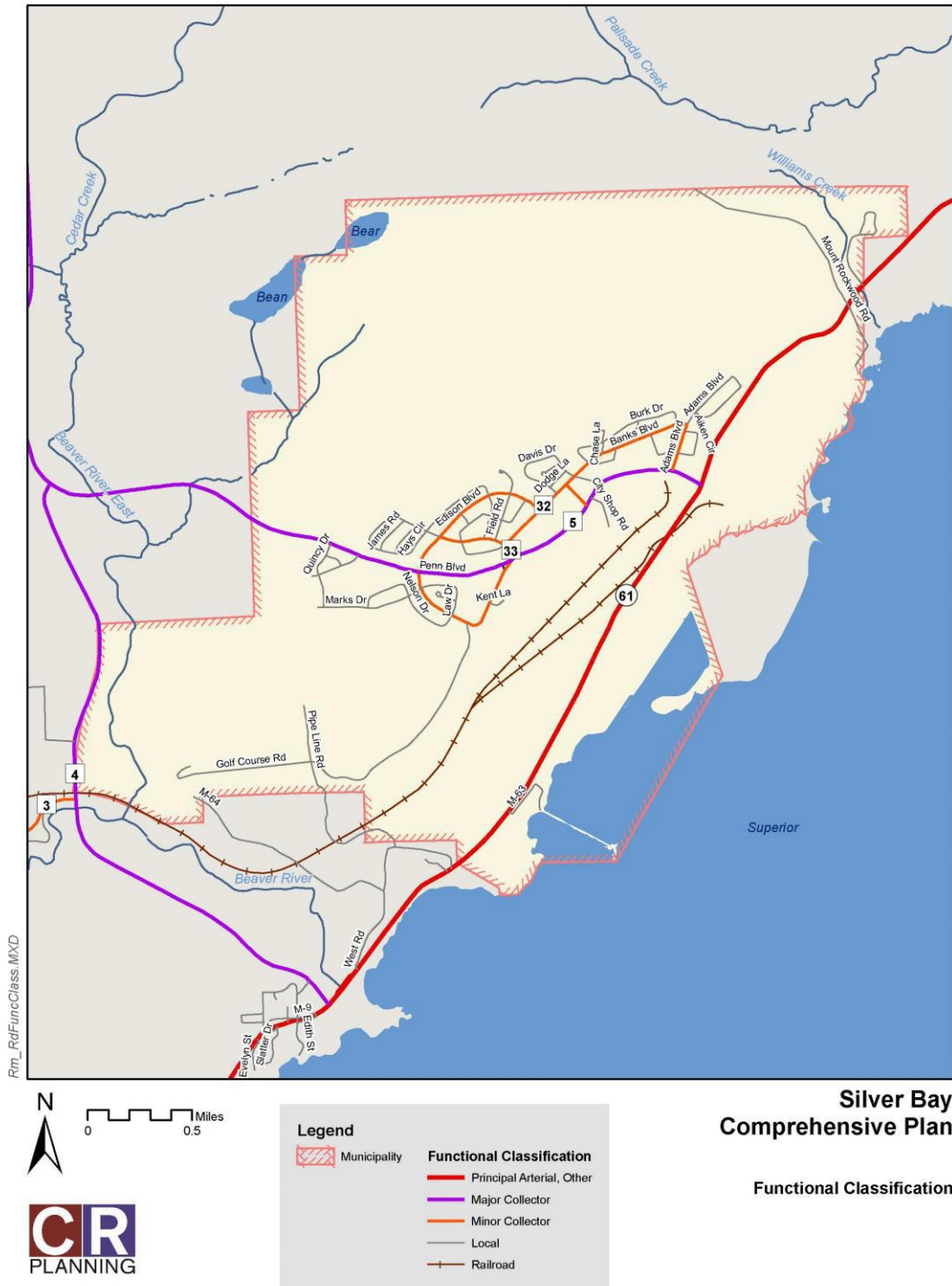


Figure 30 Sources: MnDOT

Traffic Volume

The Minnesota Department of Transportation (MnDOT) counts vehicle traffic on Minnesota roadways each year. The data are used to better understand how the roads are used and to inform traffic forecasts, reports, maps, and other analysis. The Average Annual Daily Traffic (AADT) identifies the

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average daily vehicle traffic volume of a particular road or road segment. The AADT is an estimation of travel based upon an actual traffic count and other factors including historic counts, weather, and construction, and various events among other influences. MNDOT uses traffic counters who are stationed at specific locations to count the number and types of vehicles that pass by in each direction. These counts are then recalculated using the influencing factors mentioned previously and averaged out over a year (365 days). The AADT for the Silver Bay Area roads included in the official count are provided in the table below.

| Street Name | Year | AADT |
|---------------------|------|-------|
| Davis Drive | 2010 | 395 |
| Edison Boulevard | 2010 | 500 |
| Adams Boulevard | 2010 | 1,000 |
| Davis Drive | 2010 | 920 |
| Edison Boulevard | 2010 | 970 |
| Horn Boulevard | 2010 | 1,500 |
| Outer Drive 1 | 2010 | 3,600 |
| Outer Drive 2 | 2010 | 1,800 |
| MN Trunk Highway 61 | 2012 | 4,450 |

Table 5 Average Annual Daily Traffic in Silver Bay, MN Source: Minnesota Department of Transportation.

Transit

There are currently no transit options for Silver Bay residents. However, as the population ages, the City will need to consider different options to meet the community's needs. In particular, shuttles or ride share vans may benefit the older residents, while car sharing services could help ease the cost of driving for those taking frequent trips to neighboring communities.

Bicycles

Silver Bay does not have any existing on-road bicycle infrastructure within city limits. However, the City is part of the planned route for the Gitch-Gami Trail (GGT). The GGT is a non-motorized trail that, when complete, will allow people to travel from Two Harbors to Grand Marais by bike, foot, or other non-motorized transportation. Currently, only a few segments of the trail exist; the longest segment of trail, 14.6 miles, starts at Gooseberry Falls State Park and ends just short of Silver Bay in Beaver Bay. After a 0.8-mile gap, the trail resumes for 2.3 miles in Silver Bay, where it currently ends near the downtown and ice arena. Trikes for Life is a shuttle service that takes riders to Silver Bay to begin a one-way journey, downhill, to Gooseberry Falls State Park. Additional sections farther east along the North Shore have been completed, but it is unknown when the entire 88.2 miles will be finished.

The authority to manage and construct the trail is with the Minnesota Department of Natural Resources and the Minnesota Department of Transportation. According to the DNR, land to complete the connection between Silver Bay and Beaver Bay has not been acquired despite authorization to continue its construction.

MNDOT is currently completing its statewide Bicycle Plan and the public is encouraged to contribute to its development. The lack of connection is recognized by state agencies, but it is important for Silver Bay residents who wish to see the trail completed to provide input. More information can be found at the MNDOT website: www.dot.state.mn.us/.

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Walking

The relative small size of Silver Bay lends itself to be a walkable community. However, a lack of appropriate signage, appealing streetscape, and adequate sidewalks and crosswalks make it difficult to choose walking as the primary mode of transportation for visitors and residents alike. The community is planning to update its roads and



sidewalks and it will be important to use this opportunity to make the roads and sidewalks more pedestrian-friendly to encourage an active community for all ages and abilities.

Railroads

There is one operating rail line that serves the Silver Bay Area. The Northshore Mining Company transports raw taconite and tailings from its mine in Babbitt to its processing plant in Silver Bay. The train travels 47 miles between the two locations with four trains running each way per day.

Air Transportation

The Silver Bay Municipal Airport is located approximately 7 miles southwest of the City. The Federal Aviation Agency (FAA) categorizes it as a General Aviation Airport, which is an airport that focuses on more specialized services that scheduled airlines are unable to provide. Types of flights may include personal flying, agricultural, corporate, or aerial surveying and observation. According to FAA data reported by airnav.com, the airport accommodates an average of 63 operations (takeoffs and landings) per week, 73% are local general aviation and 27% transient general aviation (airnav.com). However, the City removed the airport fuel tanks for financial reasons, and so users will need to find other places or methods to fuel planes.

Water Transportation

The Silver Bay Marina was completed in 1999 by the Minnesota Department of Natural Resources (DNR) and the U.S. Corp of Engineers. It is owned by the DNR and managed by the City of Silver Bay. The Marina is open from mid-May to mid-October, depending on weather. The facilities can accommodate boats up to 100' and has slips that are available for daily or seasonal use.

Northshore Mining Company (Cliffs Natural Resources) has its own port for loading lake vessels and shipping taconite pellets. Approximately 6,000,000 tons of iron ore pellets are shipped each year.