

City of Lakefield Land Use Plan with Active Living Component

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Introduction and Purpose

The Lakefield Land Use Plan is an official public document. Adopted by the Lakefield City Council as a policy guide to decision-making, it presents a general concept for the future land uses and active living within the incorporated boundaries of Lakefield.

This Land Use Plan represents a renewal of a process and a belief that began nearly 30 years ago and resulted in Lakefield's first Land Use Plan which was completed in 1983 by the Southwest Regional Development Commission.

Now, as in the early 1980's, the City of Lakefield recognizes the need to plan for the future; reduce, update, and/or correct any conflicts in the public and private use of land and property; and provide for the orderly growth of the town. The City of Lakefield also recognizes a need to incorporate active living into the current Land Use Plan.

Upon adoption by the City Council, this Plan becomes a legal document. It then serves as an official means to facilitate the orderly, planned development of the community. It thus acts as a guide for local officials and decision makers who are actively involved in the physical growth of the City. It also provides a reference to answer questions arising as to what, when, where, and how development should occur. Therefore, the Land Use Plan provides the basis for the implementation of planning activities such as zoning and subdivision regulations, the annual budget and work program, the Capital Improvements Plan, and any related grant or loan programs. Most notably, in the case of zoning and subdivision regulations, a Land Use Plan is recognized as the basis for enactment of such regulations by identifying where and what types of development can and should occur within the community. Above all, this publication is intended to provide the City of Lakefield with the tools it needs to guide future development in an efficient and orderly manner.

Incorporated into the Plan are elements relating to land use and include: demographics, housing, economy, transportation, parks and recreation, physical features, community facilities, infrastructure, and existing and future land use. Increasingly these elements are being incorporated with active living. Incorporating active living into this Land Use Plan is a fundamental change in the way planning has been traditionally considered. This new vision of planning provides a unique opportunity for new partnerships between planning staff and engineers with advocates for active transportation and health related organizations. Through the adoption of this plan the City of Lakefield wants to strengthen the link between planning and health and foster an environment that enables people to lead healthy lives.

The stated goals in this plan reflect the aims and desires of the citizens of this community and correlate with the policies that establish direction for decision making. Together, the goals and action steps form a general framework around which the plan was developed. In both narrative and graphic forms, this Land Use Plan charts a course for development within the City of Lakefield.

The purpose of this Land Use Plan with active living component is to bring together the community around a vision of resource management, housing, economic development, public infrastructure, transportation, parks and recreation, community facilities, and public health.

Ultimately, it is recommended that the Land Use Plan remain as an ongoing process subject to periodic review and that it undergo revision and updating every five to ten years. It is a goal of the City of Lakefield to ensure that future development remain in conjunction with the goals and policies in this document. To act otherwise would cause this document to lose its validity - allowing it to serve little, if any, purpose.

Active Living

“Active living is a way of life that integrates physical activity into daily routines.”¹ Active living is about fostering an environment that makes it safe and convenient for children and adults to walk, bike and be physically active on a daily basis. Creating a healthy community depends on the design of the community, along with a number of other variables. A smart design can make it more convenient to walk and bike in the community, which can create a positive health impact along with a positive environmental impact. The overall goal is to create an environment that offers opportunities to integrate physical activity into daily life.

It is recommended by the Center for Disease Control and Prevention (CDC) that children and adolescents should get one hour or more of physical activity every day.² The CDC recommends that adults get 30 minutes of activity a day. These activity goals can be achieved in a number of different ways, from walking or bicycling to school or the corner store to playing or gardening in a neighborhood park.

Active living policy, goals, and action steps are going to be integrated into this plan through each individual section.

Planning and Zoning Board

The Planning and Zoning Board in Lakefield encompasses four community members and one member from the City Council. The Council appoints the Board as well as approving variances and zoning code amendments. The Planning and Zoning Board meets monthly on the last Tuesday of the month at 9am. Refer to Appendix A for Zoning District Map.

Geographic Location

The City of Lakefield is located in the geographic center of Jackson County, in southwest Minnesota. The county's boundaries are joined by Cottonwood to the north, Martin County to the east, Nobles County to the west, and the Minnesota/ Iowa border to the south. Lakefield is situated along Minnesota Highway 86 and the intersection of County State Aid Highway (CSAH) 14. Jackson County lies on the edge of what is known as the Coteau des Prairies, and the topography of Lakefield is typical of flat prairie.

The community was originally established along the route of the Chicago, Milwaukee, St. Paul, and Pacific Railroad. Later, Minnesota Highway 86 was built from the Iowa border through Lakefield to Minnesota Highway 60, one of the principle thoroughfares in southwest Minnesota. Trunk Highway 86 also provides access to one of the major expressways in the Upper Midwest, Interstate 90, with the interchange only two miles south of Lakefield.

Therefore, Lakefield's location places it within reasonable driving distance of several metropolitan areas in the Upper Midwest, as well as several important smaller cities:

Highway Miles to Lakefield

Minneapolis/St. Paul	170
Sioux City, IA	110
Sioux Falls, SD	80
Mankato	85
Fairmont.....	38
Spencer, IA.....	36
Worthington.....	23
Jackson.....	11



Demographics

A community's vitality and progressivism is directly linked to the dynamics of its citizenry. Therefore, a municipality's population is arguably its most important asset. Population is also among the most fundamental and significant elements to be addressed in the development of a Land Use Plan. The Land Use Plan will explore the existing characteristics and expected changes within the population base. By studying the population, Lakefield's future land use needs and potential planning problems can be identified and addressed. This section will examine and document population data for the City of Lakefield, Jackson County, and Region 8.

Historic Trends

Over the years the population of the area has undergone numerous changes, as the percentage of the population in the agriculture has declined. The City of Lakefield had an established growth record from 1960 - 1980; however, since the 1980s there has been an overall decline in population. Table P-1 illustrates the population trends from 1970 to 2010. Table P-1 shows that the population loss in both Jackson County and Region 8 were greater than in the City of Lakefield. Considering Jackson County's 28.47 percent loss, the City of Lakefield's population remained relatively stable.

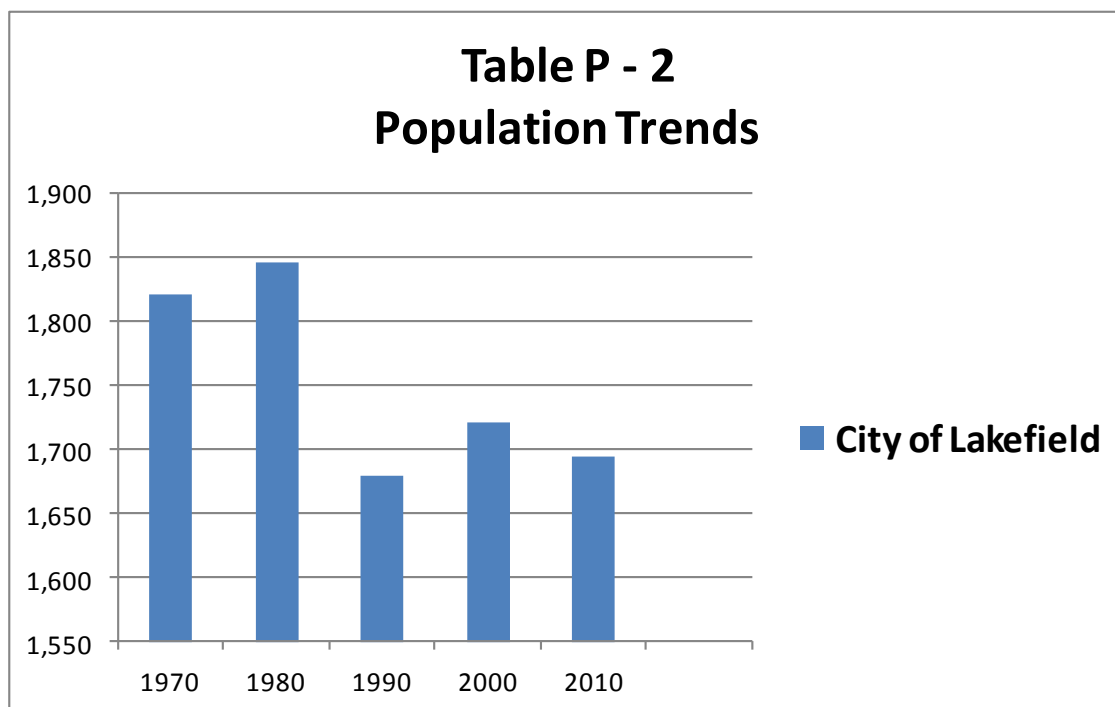
Table P - 1						
Population Trends: 1970 - 2010						
Type	1970	1980	1990	2000	2010	Percent Change 1970 - 2010
Lakefield	1,820	1,845	1,679	1,721	1,694	-6.9
Jackson County	14,352	13,690	11,677	11,268	10,266	-28.5
Region 8	141,532	137,039	123,400	121,717	119,151	-15.8

Source: U.S. Census Bureau

Lakefield's population decreased during the 1980s and stabilized thereafter. The decrease over the 1980s may be related in part to the 1980's farm crisis. During the 1980's thousands of family farms were lost.³ This population shift from rural America to urban areas has taken place over the last century.

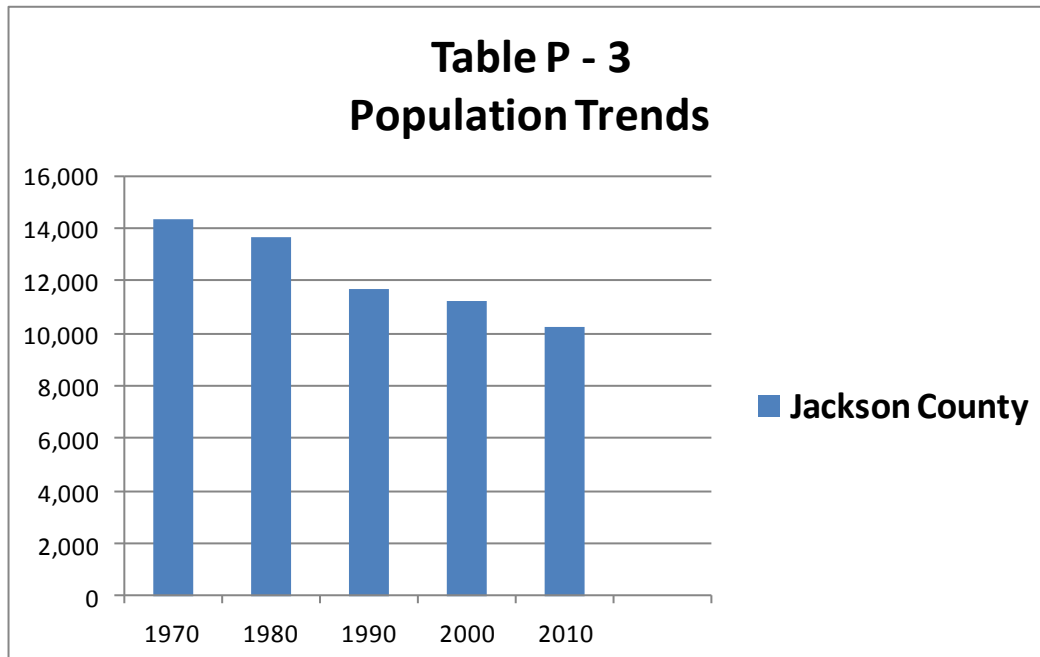
The decrease in the percentage of the population in agriculture is the most significant factor causing population declines throughout southwestern Minnesota and other rural farming communities during this time period. To put the population decline during the 1980s into perspective, the population decline in Jackson County was 18.64 percent from 1970 through 1990. Lakefield's population decline during the 1980s was significantly lower at 7.75 from 1970 through 1990.

From 1990 through 2000, Lakefield experienced a population increase of 2.50 percent. From 2000 through 2010, Lakefield experienced a population decrease of 1.57 percent.



Source: U.S. Census Bureau

Since 1970, Lakefield has seen a population decrease of only 6.92 percent while Jackson County has seen a population decline of 28.47 percent. Jackson County also had a significantly high population loss during the 1980s, which was 14.70 percent or approximately 1.47 percent per year.



Source: U.S. Census Bureau

Agriculture is a competitive industry and is often used in economics as an example of a perfectly competitive market. Competition in the agriculture industry has led agricultural businesses to specialize and exploit economies of scale to stay competitive in the marketplace. Innovation, specialization, and economies of scale have resulted in an agriculture industry that has been able to supply our agriculture needs with less workers.

Populations in rural farming communities, like Lakefield, are interconnected to the agricultural economy. There were population gains in Jackson County between 1950 and 1960, and losses between 1980 and 1990. Many rural communities across Minnesota and the nation, if examined, would reveal similar trends and characteristics.

Lakefield has been able to maintain a relatively stable population when compared to Jackson County and Region 8. This may be due in part to Lakefield being a commuter city or bedroom community.

Median Age

In Lakefield the median age of its citizens has remained relatively stable. In 1980 the median age was 41.5 years and in 1990 that figure dropped slightly to 39.7 years. In 2010 the median age rose to 41.4 years. Lakefield's population has not experienced or undergone any dramatic shift towards an older population base. Other rural communities have seen a shift to a higher median age. This shift in many rural communities is due to the relative inactivity of local economies and new younger residents not moving to town.

Age by Cohort

The general age distribution for Lakefield is presented on Tables P-4 through P - 8. Age distributions will help the City plan for future needs based upon the demands of specific age groups; for example, schools for the young and long-term care facilities for the aged.

Table P - 4 1980 Age Distribution: Lakefield		
Age	Number	Percent
0 - 4	119	6.4
5 - 14	244	13.2
15 - 18	84	4.5
19 - 24	149	8.1
25 - 34	239	13
35 - 44	135	7.3
45 - 54	158	8.6
55 - 64	226	12.3
65 and Over	491	26.6
Total Population	1,845	

Source: M.A.P.S.

Table P - 5 1990 Age Distribution: Lakefield		
Age	Number	Percent
Under 5	96	5.7
5 - 16	279	16.6
17 - 18	34	2
18 - 20	56	3.3
21 - 24	66	3.9
25 - 44	407	24.3
45 - 54	125	7.5
55 - 59	58	3.4
60 - 64	90	5.4
65 - 74	227	13.6
75 and Over	239	14.3
Total Poulation	1,677	

Source: M.A.P.S.

Table P - 6 2000 Age Distribution: Lakefield		
Age	Number	Percent
Under 5 years	85	4.9
5 to 9 years	103	6
10 to 14 years	120	7
15 to 19 years	127	7.4
20 to 24 years	64	3.7
25 to 34 years	180	10.5
35 to 44 years	229	13.3
45 to 54 years	222	12.9
55 to 59 years	80	4.6
60 to 64 years	67	3.9
65 to 74 years	160	9.3
75 to 84 years	186	10.8
85 years and over	98	5.7
Total Population	1,721	

Source: U.S. Census Bureau

Table P - 7
2010 Age Distribution: Lakefield

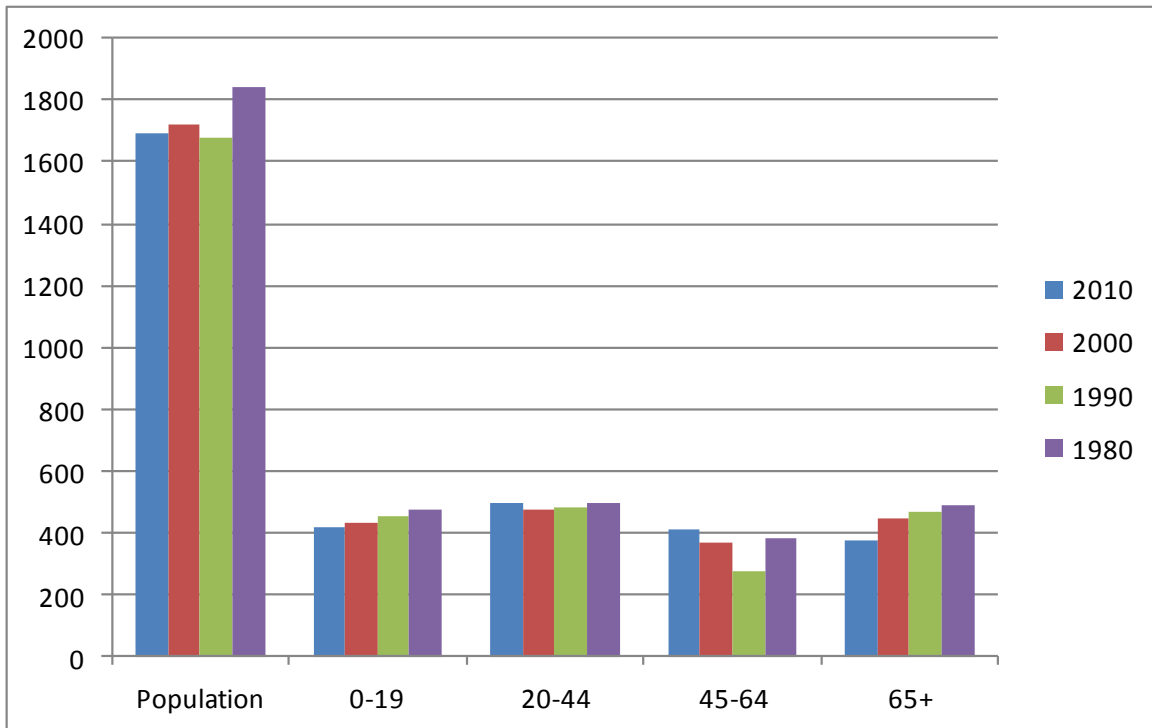
Age	Number	Percent
Under 5 years	113	6.7
5 to 9 years	108	6.4
10 to 14 years	96	5.7
15 to 19 years	97	5.7
20 to 24 years	93	5.5
25 to 34 years	212	12.6
35 to 44 years	188	11.1
45 to 54 years	197	11.6
55 to 59 years	118	7.0
60 to 64 years	79	5.7
65 to 74 years	135	8.0
75 to 84 years	140	8.3
85 years and over	100	5.9
Total Population	1694	

Source: U.S. Census Bureau

The tables show the three largest population groups are 25 – 34, 35 – 44 and 45 – 54. These three groups comprise 35.3 percent of the total population and are the only groups that encompass more than 10 percent of the total population. These three population cohorts help to validate the median age, which is 41.4.

The age distribution in Lakefield partially resembles a standard distribution. The distribution is in the shape of a bell curve, with a large percentage of the population clustered around the mean. During the development of the plan there were several comments made by community residents regarding the median age and how they thought the median age would be higher than what it actually is.

Table P - 8
City of Lakefield Population Trend by Cohort



Source: U.S. Census Bureau

Table P - 8 shows that there has been a small steady decline in the age cohort 0 – 19 even though the childbearing cohort of 20 – 44 has remained relatively constant. There was a zero percentage change for the age cohort 20 – 44 from 1980 through 2010. Over this same 40 year time period the age cohort 0 – 19 had a decrease of 13.2 percent.

The age cohort 45 – 64 had a dramatic decline of 27.6 percent from 1980 through 1990. This cohort did have an overall increase of 7.3 over the 40 year time period of 1980 through 2010.

The age cohort of 65 plus had a dramatic decline of 23.6 percent over the 40 year time period of 1980 through 2010. This decline in population may be explained by seniors leaving Lakefield and retiring in southern states.

Race Distribution

Race distribution questions have traditionally been unimportant and largely absent from municipal planning in the City of Lakefield. Many communities in southwest Minnesota have started to see an increase in minority populations and now must now plan for the influx of minority populations. The 1990 Census shows that Lakefield has yet to see a growth in minority populations. Only 3/10 of 1 percent of Lakefield's population classifies themselves as minorities, which is seven persons. Table P-9 shows the 1990 race distributions.

Table P - 9		
1990 Race Distributions: Lakefield		
Race	Number	Percent
White	1,672	99.7
Black or African America	0	1.1
American Indian and Alaska Native	1	Less then 1/10 of 1%
Asian	2	0.1
Native Hawaiian Pacific Islander	0	0.0
Some Other Race	0	0.0
Not Hispanic or Latino	1668	99.8
Hispanic or Latino	4	0.2

Source: U.S. Census Bureau

The 2000 and 2010 Census also shows that Lakefield has yet to see a growth in minority populations. In the year 2000, the race distribution was overwhelmingly white, with 99.2 percent. The race distribution became only slightly more diverse by the 2010. In the year 2010, the race distribution was 98.4 percent. In 2000 there was zero Black or African Americans populace living in Lakefield, and by 2010, there was 18 Black or African Americans populace living in Lakefield. The tables P - 10 and P - 11 show the 2000 and 2010 race distributions.

Table P - 10
2000 Race Distributions: Lakefield

Race	Number	Percent
White	1,707	99.2
Black or African America	0	0.0
American Indian and Alaska Native	5	0.3
Asian	3	0.2
Native Hawaiian Pacific Islander	1	0.1
Some Other Race	7	0.4
Not Hispanic or Latino	1721	99.1
Hispanic or Latino	16	0.9

Source: U.S. Census

Table P - 11
2010 Race Distributions: Lakefield

Race	Number	Percent
White	1,667	98.4
Black or African America	18	1.1
American Indian and Alaska Native	0	0.0
Asian	4	0.2
Native Hawaiian and Pa- cific Islander	0	0.0
Some Other Race	12	0.7
Not Hispanic or Latino	1657	97.8
Hispanic or Latino	37	2.2

Source: U.S. Census

Demographic Projections

Predicting any future event is always a calculated risk, noting a degree of uncertainty. The Minnesota Department of Employment and Economic Development computed projections based on Census data for the year 2017. The Minnesota State Demographer's office has projections for Jackson County for every five year increment from 2015 through 2040. This Land Use Plan will use Minnesota Department of Employment and Economic Development projections and Minnesota State Demographer's office projections. Population projections are based on Census data. Population projections illustrate plausible courses of future population changes. These projections serve as a guide and indirectly help to determine future land use needs.

Jackson County has seen a steady decline in population while Lakefield's population stabilized after the 1980s. Lakefield has a good local economy and a large number of working persons, as well as a large group of seniors who are mainly retired farmers. Lakefield is also partially a commuter city for other neighboring communities. This has results in Lakefield having a more stable population than Jackson County.

The large cohort of residents 20 - 44 will influence Lakefield's Population over the next few decades. This age cohort is having children and establishing roots in Lakefield. Tables P - 12 shows population projections for Lakefield. Tables P - 13 through P - 16 show the population projections for Jackson County. One would expect that Lakefield's population will fall within a range similar to Jackson County, but will be more stable with less outliers.

Future Growth in Lakefield will probably come from two sectors, economic growth and affordable owner-occupied housing. Refer to sections Housing and Economy for more information.

Table P - 12
Lakefield Demographic Projections: 2017

	Total 2012	Percent 2017	Total 2017	Percent 2017
<i>Population</i>	1,678		1,642	
Male	787	46.9	782	47.6
Female	891	53.1	860	52.4
<i>Age Distribution</i>				
0 - 4	140	8.3	177	10.8
5 - 9	103	6.1	117	7.1
10 - 19	181	10.8	164	10.0
20 - 29	200	11.9	224	13.6
30 - 39	195	11.6	172	10.5
40 - 49	169	10.1	139	8.5
50 - 59	219	13.1	181	11.0
60 - 64	107	6.4	117	7.1
65 +	363	21.6	352	21.4
<i>Race Distribution</i>				
White	1,627	97.0	1,551	94.5
Black or African American	22	1.3	41	2.5
American Indian	0	0	2	.1
Asian	3	0.2	5	.3
Pacific Islander	0	0	0	0.0
Other	0	0	1	.1
Multi-race	26	1.6	42	2.6
Hispanic	51	3.0	69	4.2

Minnesota Department of Employment and Economic Development

The population in Lakefield is projected to decline 2.5 percent from 2012 to 2017. The population is also projected to become more racially diverse. In 2012, 97.0 percent of the population was white and for the year 2017, 94.5 percent of the population is projected to be white.

Table P - 13

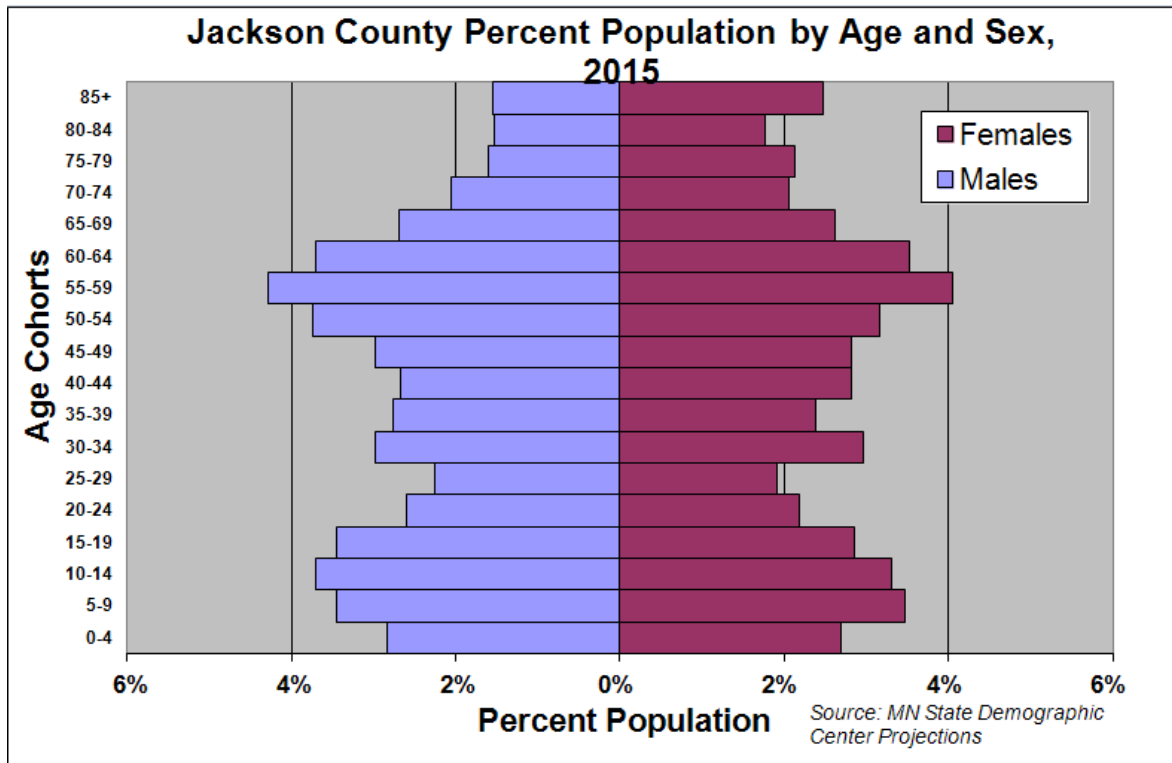


Table P - 14

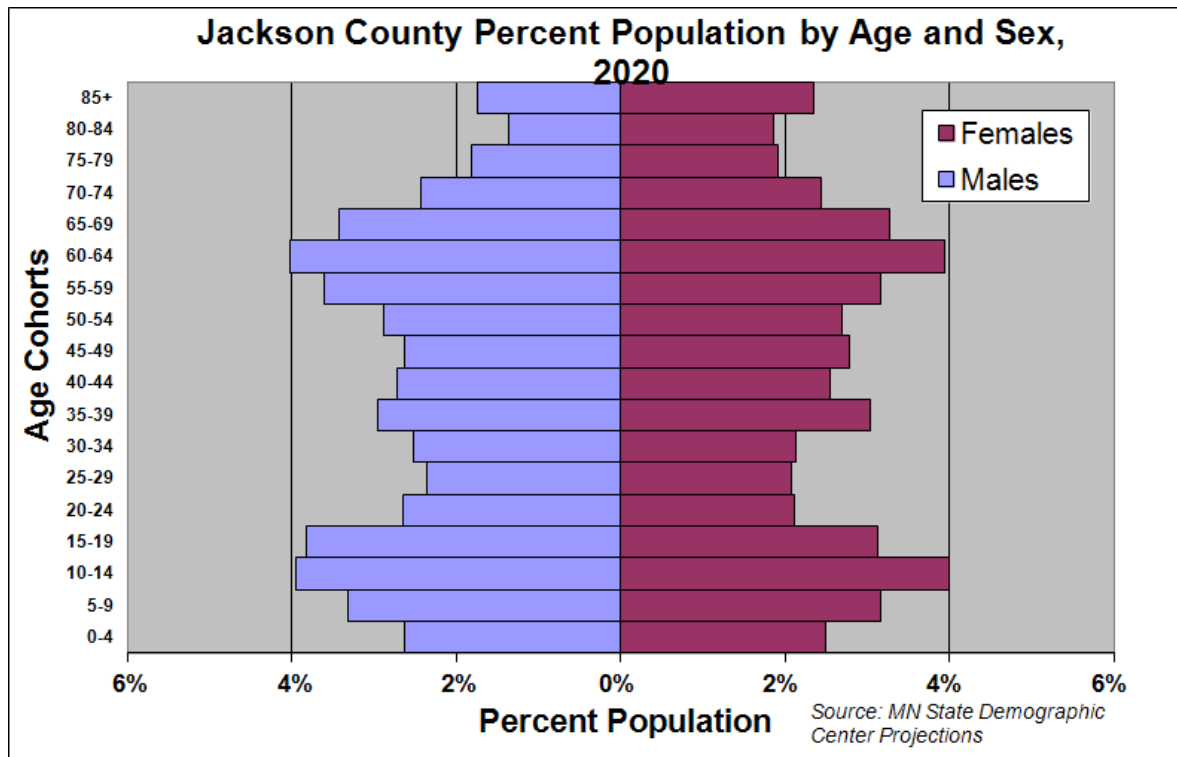


Table P - 15

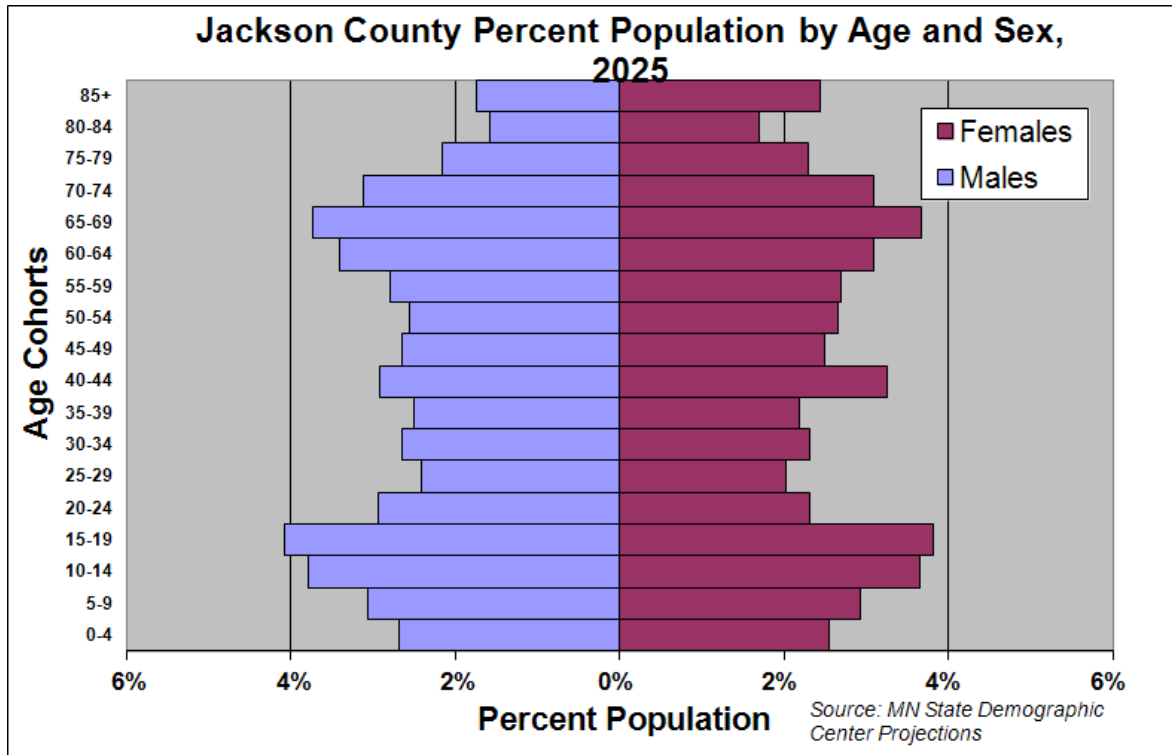
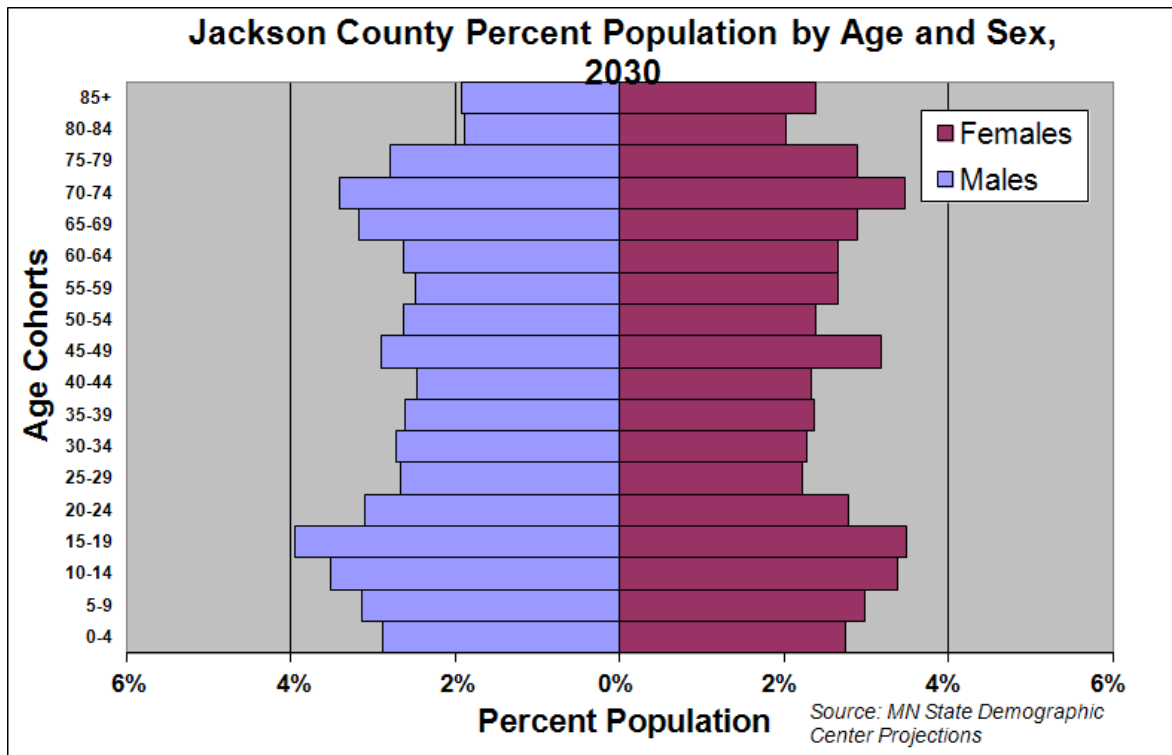


Table P - 16



Demographics

Goals and Action Steps

- Retain more of the population age cohort 65 plus
The population age cohort 65 plus has been declining since the 1980s. This age cohort can be a driving force in the local economy. This age cohort is generally retired, but the age cohort has resources to spend.
- Encourage population growth as part of an economic development strategy
Attracting businesses is not the only strategy for economic development. It is important to develop community facilities that will help to attract people to Lakefield. People will move and settle in Lakefield and this will create demand. Increasing demand will allow for established businesses to expand and for new businesses to be established. Maintaining and growing the population in Lakefield is a key component in our economic development strategy.
- Maintain a family friendly atmosphere to continue to sustain the age cohort 20 – 44
The cohort 20 – 44 has remained relative constant since 1980. Attracting and retaining this cohort will help to insure youth in the community and will help to insure a stable population in Lakefield.
To help maintain a family friendly atmosphere, active transportation options should be expanded. A number of streets in Lakefield are Complete Streets meaning, people feel safe to walk and bicycle on the street. Of the 14.11 miles of streets in Lakefield, 47.27 percent have a sidewalk on one side of the street or the other. A large number of Complete Streets and this network of sidewalks helps to create a family friendly atmosphere.
- Encourage a shift in the way the community thinks about health, wellness, and physical activity
Promote active living in community development and policies as a way to encourage healthier living.
Use the TV station to run ads regarding healthy living and things they can do to promote health. The City of Lakefield will post a weekly Health Bulletin on the City's TV station.

Housing

Residential housing is generally the predominant land use within a community. This Land Use Plan will take into account these aspects: past trends, types of housing, age and condition of housing stocks, housing costs, and future needs. These housing elements will bring together and present sufficient information to understand the existing land uses. It will also enable the city to avoid conflicting land uses, as well as plan for future growth.

Housing Types

There are two major housing types, owner-occupied and renter-occupied. Owner-occupied housing units are most often single detached dwellings, occasionally duplexes. Renter-occupied housing units are generally associated with multi-family dwellings such as apartment buildings and occasionally duplexes or quads.

Tables H-1 and H-2 will show the number of housing units by types, as well as the number of vacancies. These numbers will show the amount of housing units available for growth, however, it will not reveal the condition of those vacant units.

Table H - 1 2000 Housing Tenure: Lakefield		
Type	Number	Percent
Owner - Occupied	621	79.21
Renter - Occupied	110	14.03
Vacant Units	53	6.76
Totals	784	100

Source: U.S. Census Bureau

Table H - 2 2010 Housing Tenure: Lakefield		
Type	Number	Percent
Owner - Occupied	593	70.76
Renter - Occupied	169	20.17
Vacant Units	76	9.07
Totals	838	100

Source: U.S. Census Bureau

Table H - 3 Housing Tenure Difference: Lakefield			
Type	Number 2000	Number 2010	Percent Change 2000 - 2010
Owner - Occupied	621	593	-4.51
Renter - Occupied	110	169	53.64
Vacant Units	53	76	43.40
Totals	784	838	6.89

Source: U.S. Census Bureau

Lakefield gained approximately 54 housing units from 2000 to 2010. The gains were made in renter - occupied units and vacant units. There was a decline of 28 owner occupied housing units from 2000 to 2010. The gain of housing units shows that Lakefield has the capacity to retain its population and facilitate growth. The number increase in renter- occupied units may be related in part to the Lakefield Wind Project and other related projects.

The number of vacant units did increase to 76 in 2010, which is a 43.4 percent increase from 2000, and may create an overall condition of housing units in Lakefield to decline. The Census definition of a vacant unit is if no one is living in the unit at the time of the interview, unless its occupants are only temporarily absent. Units that do not meet the definition of a housing unit, such as those under construction, unfit, or to be demolished, are excluded from the figures.

Housing Costs

Table H - 4 shows that owner - occupied housing units values in Lakefield increased from 2000 to 2010. In 2000 the median value of an owner - occupied housing unit in Lakefield was \$44,666 and increased to \$76,000 in 2010. The change in percent from 2000 to 2010 of the median value of an owner - occupied housing unit in Lakefield was 70.2. This 70.2 percent increase in value may be attributed to an active real-estate market, immigration, and the economy in southern Minnesota being more stable than the state and national economy. The trend towards higher values for long-term owner - occupied housing is positive, especially for the governmental units which depend upon a strong tax base.

There has been a dramatic shift from housing units with a value of less than \$50,000 to housing units with a value of more than \$150,000. This may be related in part to an increase in the input costs for housing and property values increasing in Lakefield.

Table H - 4 2000 and 2010 Owner - Occupied Unit Values: Lakefield				
Type	2000	Percent	2010	Percent
Less than \$50,000	338	58.7	151	25.5
\$50,000 - \$99,999	221	38.4	281	47.4
\$100,000 - \$149,999	13	2.3	92	15.5
More than \$150,000	4	0.7	69	11.6
Totals	576		593	
Median (dollars)	\$44,666		\$76,000	

Source: U.S. Census Bureau

Table H - 5 shows that Jackson County's owner - occupied housing units values increased from 2000 to 2010. In 2000 the median value of an owner - occupied housing unit in Lakefield was \$56,800 and increased to \$97,000 in 2010. The change in percent from 2000 to 2010 of the median value of an owner - occupied housing unit in Jackson County was 70.8. This 70.8 percent increase is extremely consistent to the increase in Lakefield, which was 70.2. This consistency shows that there are similar input costs for housing in southwest Minnesota.

It is less expensive to own a home in Lakefield compared to Jackson County. The median value of an owner - occupied housing unit in Lakefield was \$76,000 in 2010. In Jackson County the median value was \$20,000 higher. This may be related in part to property values being more expensive in Jackson County than in Lakefield.

Table H - 5 2000 and 2010 Owner - Occupied Unit Values: Jackson County				
Type	2000	Percent	2010	Percent
Less than \$50,000	1,100	42.2	587	16.5
\$50,0000 - \$99,999	1,118	42.5	1,259	35.4
\$100,000 - \$149,999	246	9.3	612	17.2
More than \$150,000	158	6.1	1100	31.0
Totals	2,632		3558	
Median (dollars)	\$56,800		\$97,000	

Source: U.S. Census Bureau

Table H - 6 shows that renter - occupied housing units values in Lakefield increased from 2000 to 2010. In 2000 the median value of a renter - occupied housing unit in Lakefield was \$345 and increased to \$671 in 2010. This 94.5 percent increase in the cost of renting is dramatic. This increase affects low income earners disproportionately and may be pricing a number of low income individuals out of the market in Lakefield.

The cost of owner - occupied housing units in Lakefield increased 70.2 percent from 2000 to 2010. This cost is most likely passed onto the renter but a 94.5 percent increase in the cost of renting is significantly higher than the median cost of a owner - occupied housing units . The median cost of a renter - occupied housing unit in Lakefield in 2010 is high. Not having access to affordable housing units to rent may create a strain on the local economy. Demand is one variable impacting the cost of renting in Lakefield and demand for rental units has increased due to the Lakefield Wind Project and other related projects.

Table H - 6 2000 and 2010 Renter - Occupied Unit Values: Lakefield				
Type	2000	Percent	2010	Percent
Less than \$200	8	7.1	0	0.0
\$200 - \$299	30	26.5	0	0.0
\$300 - \$499	44	38.9	46	28.8
\$500 - \$749	18	15.9	45	28.1
\$750 - \$999	3	2.7	42	26.3
\$1,000 - \$1,499	0	0.0	6	3.8
More than \$1,500	0	0.0	21	13.1
Totals	113		160	
No cash rent	10	8.8	0	0.0
Median (dollars)	\$345		\$671	

Source: U.S. Census Bureau

Table H - 7 shows that renter - occupied housing unit values in Jackson County increased from 2000 to 2010. In 2000 the median value of a renter - occupied housing unit in Jackson County was \$357 and increased to \$493 in 2010. This 38.1 percent increase in value is high but not as dramatic as the increase for Lakefield.

The difference in the median value of a renter - occupied housing unit for Jackson County and Lakefield was only \$12 in 2000. In 2010, the difference in the median value of a renter - occupied housing unit was \$178. This is a significant difference in the cost of renting. Low income earners may choose to live in a neighboring community or the county and not in Lakefield.

Table H - 7 2000 and 2010 Renter - Occupied Unit Values: Jackson County				
Type	2000	Percent	2010	Percent
Less than \$200	94	11.6	76	9.7
\$200 - \$299	140	17.3	105	13.3
\$300 - \$499	331	41.0	218	27.7
\$500 - \$749	85	10.5	184	23.4
\$750 - \$999	21	2.6	143	18.2
\$1,000 - \$1,499	23	2.8	22	2.8
More than \$1,500	3	0.4	39	5.0
Totals	808	13.7	787	
No cash rent	111	(X)	181	(X)
Median (dollars)	\$357		\$493	

Source: U.S. Census Bureau

The cost of housing in Lakefield is not very consistent with Jackson County. The median value of an owner - occupied housing unit is higher in Jackson County than in Lakefield. The median value of an renter - occupied housing unit is lower in Jackson County than in Lakefield.

Table H - 8		
Lakefield: Householder Characteristics		
	2010	Percent
Total Population	1,694	
In Household	1,662	98.1
In Group Quarters	32	1.9
Householder Living Alone	273	35.8
65 + Male	29	3.8
65 + Female	123	16.1

Source: U.S. Census Bureau

There is a large number of residents 65 plus living alone. These residents are not living in group quarters as defined by the census. The Census Bureau classifies all people not living in housing units as living in group quarters. There are two types of group quarters: institutional group quarters (correctional facilities for adults, nursing homes, and hospice facilities) and noninstitutional group quarters (for example, college/university student housing, military quarters, and group homes). There are multiple concerns of having a large number of residents 65 plus living alone ranging from feasibility of the high costs of living alone to safety of falling or having a health emergency.

Housing Projections

The Minnesota Department of Employment and Economic Development computed projects based on Census data for the year 2017. Predicting any future event is always a calculated risk, noting a degree of uncertainty. In general, these projections may serve as a guide and indirectly help to determine future land use needs. Tables H - 8 and H - 9 shows projections for housing for the year 2017.

The total number of dwellings is projected to decrease. In 2012, the total number of dwellings in Lakefield was 838. The Minnesota Department of Employment and Economic Development estimate that the total number of households in Lakefield will be 829 by 2017. This decrease of nine dwellings is significant for a town the size of Lakefield.

The availability of housing helps to attract people and businesses to Lakefield. Having nine fewer dwellings will impact the competitiveness of Lakefield to attract new residents. This decrease will also impact the property tax income of the City of Lakefield.

Table H - 9				
Lakefield: Housing Unit Projections				
	Total 2012	Percent 2012	Total 2017	Percent 2017
Total Dwellings	838		829	
Owner-Occupied Dwellings	568	76.96	525	76.09
Renter-Occupied Dwellings	170	23.04	165	23.91
Housing Units Occupied	738	88.07	690	82.23

Minnesota Department of Employment and Economic Development

The different cohorts for the size of households are all projected to decrease. This decrease corresponds to the projected decrease in population. The Minnesota Department of Employment and Economic Development estimate that single occupancy households are going to decrease from 261 to 247 from 2012 to 2017.

The total number of single occupancy and double occupancy households are projected to decrease by 33. The total for cohorts of occupants or more is only projected to decrease by 17. These projections may confirm the stable population cohort of 20 - 44. This age group tends to be in the cohorts of three occupants or more since this age group generally has children at home. Since the 1980s the population cohort of 20 - 44 has remained relatively constant.⁴

Table H - 10 Lakefield: Size of Household Projections				
	Total 2012	Total 2012	Total 2017	Percent 2017
1 Person	261	35.37	247	35.8
2 Person	262	35.5	245	35.51
3 Person	90	12.2	84	12.17
4 Person	81	10.98	75	10.87
5 Person	30	4.07	26	3.77
6+ Person	9	1.22	8	1.16

Minnesota Department of Employment and Economic Development

Housing

Goals and Policies

- Increase the number of multi-family housing units in Lakefield

The age cohort 65 plus has been declining since the 1980s and may be in part due to the relatively high cost of renting in Lakefield and the availability of rental units in Lakefield.

The Lakefield Economic Development Authority (EDA) has been researching multi-family housing units, but a separate committee may be needed to concentrate on this goal of increasing the number of multifamily housing units.

It is being proposed to locate new multi-family housing units within 1 - 2 blocks of the Central Business District. There are two main reasons for this proposal. First, they are utilized as a buffer between the commercial district and single-family residential areas. Second, they are located in this area because the residents may be elderly or low to moderate income and not have access to transportation. This will make walking or bicycling to the CBD a convenient option.

Walkability should be one of the variables to consider regarding the location of a new multi-family housing unit.
- Encourage development to take place on vacant lots

There are 12.1 acres of vacant lots within the city limits of Lakefield. These properties should be cataloged in regards to development possibilities. A number of these properties could be turned in into pocket parks and green space.

Vacant lots can become an eyesore, so partnerships should be created with local volunteer organizations to help maintain these lots.
- Decrease housing blight

Create programs to incentivize property owners to maintain their buildings and lots.
- One possible program would be to have the curb appeal of a home be graded. A community organization could be created to grade the curb appeal on a scale of 1 to 5. A letter will be sent to the homeowner sharing the concerns of the property and information regarding possible assistance programs. The letter will list some specifics of what is unsightly.
- Sustain older developments community character

Emphasize the connectivity of the older developments in Lakefield and encourage projects in these older developments that help maintain that community neighborhood feel.

Emphasize the importance of maintaining existing structures.

Housing

Goals and Policies

- Allow more elderly residents stay in a home by decreasing homes with a household size of one and increasing homes with a household size of two or more
Help facilitate the process to have elderly residents move in with one another. In 2012, there were 261 households with only one occupant. Having the elderly live together will decrease living costs, help make the home safer, and will allow both residents to stay independent.
- Encourage the elderly to stay in their homes by offering snow removal, lawn care, and other maintenance services
In 2010, the median rent in Lakefield was \$671 while the median rent in Jackson County was only \$493 dollars. In 2010, the median home value in Lakefield was only \$76,000 while the median value in Jackson County was \$97,000. It is more affordable for the elderly to stay in their home since renting costs in Lakefield are high compared to Jackson County.
Affordability and accessibility are two issues that may be affecting the decline in the population age cohort 65 plus. Retaining more of this population age cohort will help to grow the local economy. It is important to work with the elderly population to promote programs that help to keep the elderly in their home and in the City of Lakefield.
- Create a development policy to encourage active transportation
Older developments in Lakefield generally are in a grid system with sidewalks on both sides of the road. Newer developments have moved away from having sidewalks. It is important for connectivity and active transportation to be considered when developing a new area or redeveloping an existing area. Having sidewalks or having other Complete Streets elements will help to make Lakefield a more pedestrian friendly city.
- Maintain and improve the community character within Lakefield
Emphasize quality design, environmental protection, and aesthetic appeal buildings in Lakefield by adoption and use of site design standards, guidelines, and other criteria
Use property values as a driver to defend against blight. Curb appeal is critical to a potential buyers first impression. Without curb appeal, sellers may lose buyers who choose not to look at a home based on outside appearance, even if the inside is exactly what they are looking for.
Have yearly assessments of properties that are becoming rundown. This list could be publicized so people would not want to have their property on the list.

Housing

Goals and Policies

- Market the current inventory of the vacant lots in Lakefield
The present land use map has identified all the vacant lots in the city. Use this inventory to create a listing of all the properties.
In the listing, market what lots are compatible for various land uses.
For lots that are city owned, discuss various programs to incentive the sale of the lots. In the past a dollar lot program was implemented to help incentive the sale of lots within a development.

- Establish a new housing development on the east side of Lakefield
The future land use map identifies areas on the eastside of town that are suitable for development.
Create a joint development plan between the city, utilities, and EDA for a proposed site. The proposed development plan will document the phases of the project and a timeline for completing the different phases. Cost is a factor, so having a development plan ready will help speed up the process when funding becomes available.

Economy

Knowledge of structure and functioning of a community's economy is fundamental to all land use planning analysis. The destiny of a city is controlled by the extent and character of its productive and incoming-producing activity, and by its general vitality. Studies of the economic bases for this activity hold the key to how the city has developed to where it is today, and what its future prospects are. In other words, most communities flourish because they serve as centers for the production and distribution of goods and services. Therefore, production and distribution functions create jobs and employment opportunities that attract people.

Cities will not exist if all workers and land are equally productive and there are constant returns to scale in exchange and production. There are two common scenarios how cities develop. A trading city develops when individuals specialize in the production of the good they have a comparative advantage in and trade for other goods. Transportation costs influence where a trading city will develop. To maximize the gain from trade producers will want to take advantage of economies of scale in transportation. A trading point will develop and producers will move there and the population density around the trading point goes up relative to surrounding area and you have a city.

A factory city develops when commuting costs are high and there are gains to be made by trading with the factory. To minimize commuting costs workers will move closer to the factory. This competition bids up the price for land so workers economize on land leading to higher population density. Also, individuals move closer to the factory to gain from trade with the factory. These scenarios are in part why the City of Lakefield developed and why the city's population has maintained relative to Jackson County.

“Anders R. Kilen, an early Jackson County pioneer who had homesteaded in Belmont Township in 1867, was a young man very interested in the growth and development of Jackson County. Mr. Kilen felt that a tract of land within the southwest quarter of section 33, Heron Lake Township, would make an excellent location for a town. The area chosen by Anders Kilen for a town site was higher in elevation than the surrounding area and the land here was well drained on all sides. For many years the earliest trappers who passed through the area had known of this beautiful piece of ground called “The First Mound” by the Indians. The lakes in the area were abundant in fish and waterfowl which provided early residents a source of food. There were also many muskrats to be trapped for fur.”⁵ Lakefield developed as a trading city and trade expanded as the Southern Minnesota Railroad (later known as the Milwaukee Railroad) established a rail through the city.

Lakefield has maintained its population relative to Jackson County. This may be the result of Lakefield being centrally located in Jackson County and having established businesses in town. Being centrally located allows Lakefield to be competitive by keeping commuting costs down for families that may work in two different cities in southwest Minnesota. Lakefield is in part a commuter city, but the city also has basic and non-basic employment.

To fully understand the economy of a city, it is necessary to first identify its important "basic" industries. Employment in any city can be divided into either "basic" or "non-basic" employment. Basic employment provides goods and services to persons living beyond the immediate area, whereas non-basic employment provides good and services to the local area. Basic employment laborers are workers that produce output for export out of the local economy. For example, a person engaged in the manufacturing of a product that is to be sold outside the area is employed in a basic occupation. Agriculture is a good example of a basic industry.

Non-basic employment laborers are workers that produce output for local consumption. Individuals working for a local unit of government or most retail establishments, such as drug stores, restaurants, grocery stores, or barber shops, are employed in non-basic occupations. Nevertheless, many times economic activity cannot be neatly categorized into either basic or non-basic activities.

Ideally, a local economy would want to have more basic employment than non-basis employment. The potential for a community's economic growth depends on the strength of its basic sector. Basic employment brings money and jobs in, which grows the local economy. Exporting goods helps to bring in money from outside the community which finances the importing of goods that the area doesn't produce for itself. A non-basic employment activity circulates money that is already found within the area. An exception to this simulation would be money spent by tourists or others who reside outside Lakefield's general vicinity. Nevertheless, a general rule is that for any one person employed in a basic occupation, approximately 1.5 new jobs will be generated. In short, the future of a municipality is heavily dependent upon the ability of the city to bring in money from outside areas.

There are a number of different strategies that can be tried to increase export employment (basic) that include the following. If labor productivity can be increased then costs will decrease per unit and output will increase. A lower business tax will shift the supply curve to the right resulting in increased output. Improved public services may attract a more qualified workforce. Having a pro land build industrial park will make it convenient for companies to establish themselves. Time will not have to be spent developing the lot.

The State of Minnesota collects economic and employment data by county and for individual communities over 2,500. This plan will utilize Jackson County economic data as well as data from the Department of Employment and Economic Development.

Employment Characteristics

In 2012, the average number of persons employed in Jackson County were 5,246. Of this category, the largest employer by industry was "Education and Health Services" which employed 1,645 people in 2012. A complete breakdown of Jackson County's employment is listed on Table E-1.

Total employment in all industries in Jackson County was 5,246 in 2012. The average wage per week in 2012 was 611 dollars. In 2012, the highest paid industry was manufacturing, while the lowest paid industry was leisure and hospitality.

Lakefield has seen a dramatic increase in the number of workers in Lakefield. There was a 138.9 percent increase from 2007 to 2008. Before 2008 the numbers of workers remained relatively constant, with only a 3.6 percent increase from 2001 to 2007. The majority of the dramatic increase from 2007 to 2008 can be explained by the Lakefield Wind Project. EnXco, an EDF Energies Novelles company, completed this wind project in October of 2011. The project consisted of 137 General Electric 1.5 MW turbines with the capacity to generate renewable energy for more than 68,000 homes, according to EnXco.

The average wage per week for Lakefield is significantly lower than Jackson County. In 2012, the Average wage per week for Jackson County was \$611 while Lakefield's quarter two was only \$360. Lakefield's Average wage per week has remained relatively constant between \$306 and \$409. There has been only 2.4 percent decline from 2001 through quarter two of 2011.

* NOTE regarding tables E - 1 and E - 2: Does not include self-employed persons, forms employing less than four persons, railroad employment, persons working solely on commission, employees of religious organizations, minor children, elected officials, student employees at schools.

Table E - 1
Jackson County Employment and Wages 2012

Industry	Number of Workers	Average Establishments	Average Annual Wage	Average wage per week
Total, All Industries	5,246	351	\$166,902,195	\$611
Natural Resources and Mining	134	19	\$5,340,259	\$769
Construction	130	47	\$3,839,264	\$565
Manufacturing	1,378	13	\$66,203,729	\$924
Trade, Transportation and Utilities	818	94	\$27,638,336	\$649
Information	45	4	\$1,039,850	\$447
Financial Activities	119	26	\$4,780,141	\$771
Professional and Business Services	250	28	\$8,336,727	\$640
Education and Health Services	1,645	38	\$36,598,774	\$428
Leisure and Hospitality	321	29	\$2,508,798	\$150
Other Services	97	26	\$1,358,981	\$271
Public Administration	308	28	\$9,257,336	\$578

Department of Employment and Economic Development

* NOTE: Does not include self-employed persons, firms employing less than four persons, railroad employment, persons working solely on commission, employees of religious organizations, minor children, elected officials, student employees at schools.

Table E - 2
Lakefield Employment and Wages: Totals, All Industries

Year	Number of Workers	Average Establishments	Average Annual Wage	Average wage per week
2012 Q2	1,404	70	(X)	\$360
2011	1,413	66	\$28,397,437	\$386
2010	1,414	65	\$27,788,657	\$377
2009	1,429	64	\$27,,459,556	\$369
2008	1,436	70	\$27,053,529	\$362
2007	601	71	\$12,764,334	\$409
2006	639	70	\$13,295,264	\$402
2005	588	67	\$12,212,660	\$339
2004	559	59	\$11,708,518	\$405
2003	556	61	\$11,755,103	\$409
2002	578	65	\$11,868,902	\$396
2001	580	67	\$11,126,822	\$369

**Table E - 3
Unemployment Trends**

Year	Jackson County	Region 8	State of Minnesota	United States
2012	4.2	5.2	5.7	8.1
2011	4.4	5.7	6.4	8.9
2010	4.7	6.5	7.4	9.6
2009	5.6	7.2	8.1	9.3
2008	4.2	5.2	5.4	5.8
2007	3.9	5.7	4.6	4.6
2006	3.9	3.9	4.1	4.6
2005	3.5	4.0	4.2	5.1
2004	3.7	4.4	4.6	5.5
2003	4.1	4.6	4.9	6.0
2002	3.7	4.1	4.5	5.8
2001	3.3	3.8	3.9	4.7
2000	3.1	3.3	3.9	4.0

Department of Employment and Economic Development & Bureau of Labor Statistics

The unemployment rate in Jackson County was 4.2 percent in 2012, while the State of Minnesota had an unemployment rate of 5.7. From 2000 through 2012, the average unemployment rate was 4.0 for Jackson County, 4.9 for Region 8, 5.2 for Minnesota, and 6.3 for the United States.

During the economic downturn of Obama's first term as President (2009-2012), the average unemployment rate was 4.7 for Jackson County, 6.2 for Region 8, 6.9 for the State of Minnesota, and 9.0 for the United States. Jackson County fared significantly better during Obama's first term than Region 8, the State of Minnesota, and the United States. One explanation for Jackson County not seeing significantly higher unemployment rates was the agriculture industry. The agriculture industry partially insulated Jackson County during the downturn. From 2007 through 2010, the industry encompassing agriculture, forestry, fishing and hunting had a 24.3 percent increase in wages in Jackson County.

Major Employers

Major employers are the economic backbone of the community along with agriculture. Major employers, in Lakefield, are composed primarily of manufacturing, education, and healthcare. Tables E - 4 lists major employers in Lakefield.

Table E - 4 Major Employers 2013 Quarter 2		
Employer	Type	Employees
Hussong Manufacturing, Inc.	Manufacturing: Kozy Heat Fireplaces	100
Colonial Manor Nursing Home	Outpatient Care Centers	70
Jackson County Central Schools	Pleasantview & JCC Middle School	60
Hi Lo Club & Catering	Restaurants and Catering	47
Habilitative Services Inc.	Serves individuals with challenges that currently limit their domestic, employment, educational and leisure opportunities.	35
Crop Production Services	Crop Services: Crop Protection, Seed, Fertilizer, Turf and Ornamental, Vegetation Management, and Wholesale	30
Hage Oil & Bowlers Inn Inc.	Gas Station, Convenience Store, Freshway Deli, Auto Garage, Bulk Fuel Delivery, Wrecker Service, Restaurant, Bowling Alley, Pool Hall, and Meeting Room	24
Maynard's Grocery	Grocery Store	23
Hanson Concrete	Concrete & Gravel Services	20
Extended Ag Services	Ag Services: Agronomy, Environmental, Risk Management	17
EDF Renewable Energy	Wind Energy	15

Lakefield has a number of employers who have been serving the community for a number of years and are locally owned. Hage Oil Company is a family owned business that has been serving the community for over 80 years. Bowlers Inn is a family owned business that has been serving the community for 65 years. Hussong Manufacturing, Inc (Kozy Heat) is the largest employer in Lakefield and has been serving the community for over 30 years. The Hi-Lo Club was established in 1984 and has been a serving southwest Minnesota and northwest Iowa ever since.

Table E - 5 Region 8: Household Income Levels 2011		
County	Median Income	Mean Income
Cottonwood	43,111	52,730
Jackson	47,455	59,590
Lincoln	46,270	57,343
Lyon	47,254	58,821
Murray	47,833	57,001
Nobles	45,552	56,576
Pipestone	42,217	55,082
Redwood	45,177	58,269
Rock	44,510	54,802
Region 8	45,487	56,690
State of Minnesota	58,476	75,432

Department of Employment and Economic Development

Household Income Levels

The average median income for Region 8 was \$45,487 in 2011. When comparing Jackson County to Region 8, Jackson County had a higher median income. The difference between Jackson County's median income and Region 8's average was 1,968 dollars or 4.3 percent.

When comparing Jackson County to the State of Minnesota, Jackson County had a 19 percent lower median income than the state average. The cost of living in Lakefield is 20.7 percent less than the Minnesota average.⁶ After adjusting for the cost of living Lakefield fares 1.7 percent better than the state average when analyzing median income levels.

The highest mean income in Region 8 was in Jackson County, while the lowest mean income was in Cottonwood County. Murray County had the highest median income of \$47,833, while Pipestone County had the lowest median income of \$42,217.

Table E - 6 Lakefield: Household Income Levels 2011		
Income	Households	Percent of Total
Under \$10,000	37	4.9
10,000 - 14,999	64	8.5
15,000 - 24,999	113	15.0
25,000 - 34,999	83	11.0
35,000 - 49,999	165	21.9
50,000 - 74,999	148	19.7
75,000 - 99,999	99	13.1
100,000 - 149,999	24	3.2
150,000 - 199,999	12	1.6
\$200,000 or more	8	1.1
Median	41,438	(X)
Mean	48,197	(X)

Department of Employment and Economic Development

In Lakefield, 65.7 percent of households have an annual income between \$25,000 and 99,999. The income range that had the highest percent of households was \$35,000 – 49,999 with 21.9 percent. The difference between the median and the mean is \$6,759. The difference between the median and the mean is high due to outliers.

There are 37 households making less than \$10,000 annually. Jackson County does have a lower poverty rate than the state average, but 28.4 percent of households are making less than \$25,000. The poverty rate in Jackson County for all ages was 9.1 percent in 2010. The state average in Minnesota was 10.6 in 2010.

Analysis

Diversifying the economy is important for small rural communities like Lakefield. Lakefield does depend heavily on agriculture, but Lakefield has been able to branch-out into other industries. Manufacturing, education, and health services make up 57.6 percent of the workforce in Jackson County. Hussong Manufacturing, Inc. (Kozy Heat) has expanded in recent years and the Lakefield Wind Project construction also helped to diversify the local economy.

Agriculture will continue to dominate the local economy however, Lakefield's economic health will depend on its ability to attract persons from other areas. Jackson County did have a lower unemployment rate than Region 8, the State of Minnesota, and the United States. This lower unemployment rate for Jackson County along with a lower cost of living in Lakefield than the state average, makes Lakefield an attractive place to live and work.

When an economy provides opportunities, the population grows. As the population grows, more demands will be placed on goods and services, thus, creating employment opportunities for more persons. Lakefield has made the commitment to pursue a strong local economy through its Economic Development Authority, Municipal Incentives, Active Living Plan, and especially its citizens.

Economic Projections

The Minnesota Department of Employment and Economic Development computed projects based on census data for the year 2017. Predicting any future event is always a calculated risk, noting a degree of uncertainty. In general, these projections may serve as a guide and indirectly help to determine future land use needs.

Table E - 7				
Lakefield: Labor Force Projections				
	Total 2012	Percent 2012	Total 2017	Percent 2017
In Labor Force	844	63.5	787	63.4
Employed	778	92.2	726	92.3
Unemployed	66	7.8	61	7.8
Not in Labor Force	485	36.5	454	36.6

Minnesota Department of Employment and Economic Development

The population is projected to decrease by 2.2 percent by the year 2017. This is going to impact the population in the labor force projections. There is a significantly higher decline in the number of persons in the labor force (6.8 percent), employed (6.7 percent), unemployed (7.6 percent), and not in the labor force (6.4 percent).

Table E - 8				
Lakefield: Household Income Projections				
	Households 2012	Percent 2012	Households 2017	Percent 2017
Under \$10,000	41	5.56	34	4.93
10,000 - 19,999	119	16.12	106	15.36
20,000 - 29,999	86	11.65	80	11.59
30,000 - 39,999	112	15.18	84	12.17
40,000 - 49,999	84	11.38	86	12.46
50,000 - 59,999	61	8.27	47	6.81
60,000 - 74,999	73	9.89	67	9.71
75,000 - 99,999	105	14.23	97	14.06
100,000 or more	57	7.72	90	13

Minnesota Department of Employment and Economic Development

The cohort with a household income of under \$10,000 is projected to decrease by 17.1 percent from 2012 to 2017. The cohort with a household income of \$10,000—\$19,999 is projected to decrease by 10.9 percent from 2012 to 2017. This decrease in the number of households living in the lowest two household income cohort is positive.

There were two cohorts from in the household income projections table that had positive growth, and they were the \$40,000 - \$49,999 and 100,000 or more. The population is projected to decline, so this will impact the number of persons in each cohort. There was an overall positive growth of 21.5 in household incomes greater than \$40,000.

Table E - 9 Lakefield: Education Projections				
	Total 2012	Percent 2012	Total 2017	Percent 2017
Population Age 25+	1144		1057	
< Grade 9	36	3.15	33	3.12
Grade 9-12	116	10.14	108	10.22
High School	398	34.79	368	34.82
Some College	275	24.04	254	24.03
Assoc Degree	172	15.03	158	14.95
Bach Degree	122	10.66	111	10.5
Grad Degree	26	2.27	25	2.37

Minnesota Department of Employment and Economic Development

The population of Lakefield in the age group 25 plus is projected to decrease by only 1.1 percent from 2012 to 2017. This decrease is small so the percent in each cohort is relatively unchanged from 2012 to 2017. Having an educated workforce is critical in attracting businesses to your community. Lakefield is a competitive community due to its educated workforce, a relatively diverse economy, and access to major transportation routes. The next section will focus on transportation.

Economy

Goals and Policies

- Create a new all inclusive development strategy
 - Work with local organizations to market everything Lakefield has to offer from excess water storage and water treatment capacity to excellent transportation options in the area.
 - The development policy should include
 - Parks and green spaces for families for after work activities
 - Schools
 - Leagues and clubs
 - Leisure activities and the close proximity to Okoboji and other area destinations
 - Housing and the availability of lots and multifamily housing for new residence
 - Curb appeal and maintaining a neighborhood feel
- Make sure all businesses are recognized as a Google place
 - Research by Ben Winchester with University of Minnesota has shown that 30 to 49 year olds are moving to rural settings in Minnesota. To narrow their search for a new community amenities are researched. It is important that recreational options, parks, camping, golfing, pool facilities, bowling, and other amenities in Lakefield are searchable.
 - This does not mean that all businesses have to have a webpage. Simply having a Google place allows the businesses to advertise their hours, location, and basic summary of services. Parks and community facilities also should be searchable and have a Google Place.
 - Perform a search of all businesses, parks, and community facilities to see which places are searchable. Places that are not searchable can be contacted and asked to register with Google.
- Work with area workforce development organizations
 - Local jobs can be posted with the Southwest Minnesota Workforce Council and the Iowa Lakes Corridor working with Iowa Workforce Development. These organizations can help market Lakefield and show current job offerings in the area.
- Create partnerships with local employers
 - Work with local employers to create public/private partnerships to address the employment needs of the employer. The population cohort 25 plus is projected to decline from 1144 to 1057 from 2012 to 2017 according to projections made by the Department of Employment and Economic Development. This 7.6 percent decline will impact demand and local businesses.

Economy

Goals and Policies

- Retain more residents that grew up in the area
A number of alumni of the area schools leave for college after high school graduation. A small percentage of the alumni return to the area after graduating from college. This leaves the area with a less educated workforce. Lakefield needs to work with local industries and businesses to attract these alumni back to the area.
- Provide incentives for existing businesses to expand and for new businesses to startup
Work with the different levels of government from regional to state to federal to create partnerships to expand business opportunities. The JOBZ program is soon to be replaced with a new economic development program. Lakefield needs to stay connected to community resources that can inform the City when new programs become available. Organizations that can help with this are the Southwest Regional Development Commission (SWRDC) and Department of Employment and Economic Development (DEED).
- Utilize the increase in the average daily traffic volumes on Highway 86
From 2008 to 2010 average daily traffic volumes increased on Highway 86 according to traffic counts done by the Minnesota Department of Transportation (MnDOT). Average daily traffic volumes on Highway 86 in Lakefield are predicted to increase as the highway project to redesign the curves on Highway 86 on the Minnesota Iowa border is completed. This will make traveling the roadway safer and more convenient.
This increase in the average daily traffic volumes can help to bring in new revenues to Lakefield. Lakefield needs to work with businesses along Highway 86 and on Main Street to utilize this increase in traffic.
Increase the curb appeal of Highway 86. People traveling on Highway 86 could be potential residents. Market current services and infrastructure the city has to offer.
- Promote tourism and the recreation opportunities within the city
Partner with Jackson County Parks and Recreation, Community Education, and other organizations to help market programs more effective. Use the Lakefield TV station and the City of Lakefield Website as medium to get the word out regarding community activities and programs. This would help to consolidate the information regarding community activities and programs and make it easier to access.

Economy

Goals and Policies

- Develop new industrial areas

The future land use map identifies areas targeted for future industrial development. The locations need to be developed and marketed as shovel ready. This will help the city maintain competitiveness during the site selection process.

Work with local and regional development organizations to market Lakefield's industrial areas. Local community resources include: the Jackson County Loan fund, the local Economic Development Authority, revolving loan funds at the Southwest Regional Development Commission and other organizations, and economic development programs through the State and Federal Government.

Transportation

A transportation system is the mover of people and goods, and it can be used to direct or shape municipal growth. There is a very close relationship between transportation and land use, and both must be considered in the planning process. There is also a close relationship between transportation and promoting an active Lifestyle. A balanced multi-modal transportation network is essential for strong economic growth. Transportation planning in the City of Lakefield will include active transportation along with traditional transportation. Key issues for all modes of transportation are efficient use of financial resources, providing access and mobility, relieving congestion, and protecting the environment. This section will examine these modes of transportation: active transportation, surface roads, public transportation, rail, and aviation.

Active Transportation

Active transportation refers to the modes of transportation such as walking, bicycling, and taking public transit. This multimodal transportation solution tries to connect people to where they need to go through sustainable means. Active transportation tries to bring together related programs and coordinate transportation projects to promote efficiency and an active lifestyle.

The availability of sidewalks in Lakefield is a positive infrastructure feature. Of the 14.11 miles of streets in Lakefield, 47.27 percent have a sidewalk on one side of the street or the other. This network of sidewalks make walking and bicycling in the community safer, but newer development areas in Lakefield have less pedestrian infrastructure than older parts of town. A well developed network of sidewalks and paths throughout the entire city will make it convenient and safer to walk and bicycle in the community.

Sidewalks do make it safer for pedestrians by separating pedestrian traffic from vehicle traffic, but a Complete Street does not need to have a sidewalk. Complete Streets are streets that are designed for everyone. The design and operation of a Complete Street is a street that enables safe access for pedestrian, bicyclists, motorists, and transit riders of all ages and abilities.

Having a Complete Street makes it safer to cross the street, walk to shops, and bicycle throughout the community. A Complete Street has no singular design prescription. A Complete Street in a rural community may be any street that pedestrians feel safe to walk and bicycle on due to lower traffic speeds, the width of the road, and other features that make the street safe. Features that make a street safer for pedestrians to walk and bicycle on include: sidewalks, bike lanes, a wide road or shoulder, traffic calming devices, narrow travel lanes for vehicles, and other engineering and safety plans designed to make the street safe for all users.

Access may be limited to some users to increase safety for other users. Lakefield along with a number of other communities restrict riding your bicycle on certain sidewalks. In Lakefield you are prohibited from riding your bicycle on the sidewalk on Main Street. This policy encourages walking by making it safer for pedestrians going in and out of stores.

There is infrastructure supporting bicyclists in Lakefield. There is one bicycle rack on Main Street located by the Middle School in the parking lot along the south side County Road 50/ 4th Avenue North. During summer months this bicycle rack is relocated to the Public Library, which is across the street on Main Street. Additional bicycle racks could be installed on Main Street to encourage riding a bicycle to Main Street and walking.

The city pool has a separate parking area designed for bicycling parking. The lot has a curb

separating the bicycle lot from motor vehicle parking. The bicycle lot has a number of bicycle racks, which makes parking a bicycle at the pool convenient and safe.

There are two bicycle racks on school property at the Middle School. The first rack is by the main entrance on the south side to the Middle School. The second rack is across the street from the first rack in the parking lot along the south side County Road 50/ 4th Avenue North. There are also two bike racks on the north side of Pleasantview Elementary by the sidewalk that parallels Broadway Ave. There were no other bike racks by Pleasantview, but overflow bicycle parking next to the rack has not been an issue.

There are no other bicycle racks around town. This discourages bicycling around town. Offering bicycle parking by the post office, City Hall, grocery store, and other select locations around town would make bicycling a more convenient option. There are also no painted bicycle lanes in Lakefield. Bicycle lanes would help separate vehicle traffic and pedestrians. Bicycle lanes help to inform drivers of their responsibility to share the road with bicyclists.

To help pedestrians with crossing intersections there are a number of crosswalks and signage around town. There are two locations on Highway 86 where there are crosswalks along with signage identifying the crosswalk and signage identifying that a crosswalk is upcoming. On Main Street and around the schools there are also a number of crosswalks and signage.

Risk to pedestrians can be minimized by having policy in place to reduce traffic congestion along with having sidewalks, painted crosswalks and bicycle lanes, and effective signage. A number of these are in place around Lakefield , but improvements can be made

to increase the safety of pedestrians walking and bicycling in the community.

Pleasantview Elementary and the Middle School both have well developed school zone signage. Identifying a school zone provides important information to drivers about the vehicle speed limits, that there is increased pedestrian traffic, and children are in the area. Children may not use proper crossing techniques, so school zones are higher risk areas.

The City of Lakefield sees their responsibility in transportation planning to consider active transportation when resurfacing an existing street or when designing a new street. It is important to promote active living through transportation policy so physical activity can be integrated into daily routines. Increasing daily activity levels will help to increase the health of the community, which positively impacts a number of different sectors ranging from the economy to the environment.

Surface Road Classifications

The classification of roads and highways can be done in several ways. The easiest to understand and explain is jurisdiction or ownership of the road. Several jurisdictions have ownership of the roads in the planning area. Each jurisdiction maintains their roads at different design standards and must build and maintain the roads at minimum specifications that have been developed by the State.

Another method of identification of the roads is through functional classification or classification by its use. The Federal Highway Administration and the Minnesota Department of Transportation have established definitions for the categories in the Functional Classification System. The following are the categories and their definitions:

Principal Arterial - Provides statewide and interstate travel, links larger urban areas, and services inter-county travel.

Minor Arterial - Provides travel between counties linking cities and larger towns, they are spaced to serve major trip densities, and are capable of serving longer trips.

Major Collector - Provides service to large communities within counties as well as county seats and larger towns not on arterial roadways.

Minor Collector - Provides travel to smaller communities.

Local Road - Provides travel and access to the local residents.

The following is a brief description of the roads owned by each jurisdiction in the planning area, identifies the road segments that are classified as Arterials and Collectors by the Minnesota Department of Transportation (MnDOT) and the Federal Highway Administration (FHA).

Federal

Interstate 90 (I-90), a Principal Arterial, is arguably the most often used transportation route serving the City of Lakefield. I-90 is located two miles south of town on State Trunk Highway 86. I-90 runs east and west across the Upper Midwest, serving as the main principal artery. Traffic counts conducted by the Minnesota Department of Transportation (MnDOT) show that I-90 has an annual average daily traffic volume ranging from 6,000 to 11,999. This includes both semi truck traffic and regular vehicle traffic.⁷

State

State Trunk Highway 86, a Minor Arterial, travels through the City of Lakefield in a north-south direction. This highway provides an avenue for both domestic and commercial traffic and is a 10 ton road. Highway 86 comes north from the Iowa border and ends when it intersects State Trunk Highway 60, which is approximately 11 miles north of Lakefield. MnDOT, 2008, the average daily traffic volumes coming into or leaving Lakefield on North Highway 86 was 1450 and in 2010 was 1550. In 2008, the average daily traffic volumes coming into or leaving Lakefield on South Highway 86 was 2800 and in 2010 it was 2950.⁷

This large average daily traffic volume on Highway 86 is due to the I-90 connection and Highway 86 connection to the Iowa Great Lakes recreation area. From the north, Highway 86 also connects to State Highway 60. The increase in average daily traffic volumes on Highway 86 creates a safety issue for students walking or biking to school from the west side of town. There are painted crosswalks crossing Highway 86 on 3rd Ave and 4th Ave. Crosswalks help address safety, but traffic volumes and speeds may still be an issue.

Other area highways include State Highway 60, which is approximately 11 miles north of Lakefield and U.S. Highway 71, which is located approximately 10 miles east of Jackson. Highway 60 is classified as a principal arterial.

The City of Lakefield is in Minnesota Transportation District 7, headquartered in Mankato with a Maintenance District Office in Windom. The District is responsible for road maintenance, signage, and snow removal on Highway 86.

County State Aid Highways

Lakefield is served by three County State Aid Highways (CSAH): 20, 14, and 50. CSAH's are maintained by Jackson County with funds from the State. CSAH 14, also known as Mill Road, travels east and west passing through the southern part of the City. The average daily traffic volumes on the Mill Road a block west of Pleasantview Elementary were 950 in 2004 and 890 in 2008.⁷ There was a decrease in the average daily traffic volume, but having a average daily traffic volume of 890 is still relatively high since the road is adjacent to an elementary school. This high volume of traffic along with no sidewalks on Mill Road makes traveling to Pleasantview from the southern section of Lakefield more difficult and less safe. Students from the southern section of Lakefield have to go out of their way to avoid having to walk or bicycle on Mill Road, which can add number of blocks to their trip.

CSAH 20, a Major Collector, originates in the City of Lakefield and travels northwest to Okabena, where the road ends. CSAH 20 connects to Highway 86 in the northern section of Lakefield. On CSAH 20 in Lakefield, the average daily traffic volumes were 1400 in 2004 and 1250 in 2008.⁷

CSAH 14 and CSAH 20 provide local citizens direct access to Lakefield. Area farmers use the two CSAH's to transport goods to and from the elevator in Lakefield; These two CSAHs are vital links in the area transportation system, since they are farm to market routes. CSAH 14 from Highway 86 to the east is classified as a Major Collector, to the west of Highway 86 it is a Minor collector.

CSAH 50, a Minor Collector, connects CSAH 14 with the Jackson County Central Middle school and later Highway 86. The majority of CSAH 50 is adjoined with Main Street and later with 4th Avenue North.

County and Township Roads

Both County and Township roads are designed mainly to serve local citizens, providing them direct access to a community or larger highway. These roads are maintained by Jackson County and individual townships within the County. The surface may be either paved or gravel. Jackson County has a majority of the county roads paved, with a plan to continue to make upgrades. These roads do not normally see heavy daily usage, however, seasonable agricultural traffic on these roads sometimes becomes heavy.

A number of these County and Township roads were improved for the Lakefield Wind Project by the project developer to accommodate semis hauling wind turbine blades and equipment for assembling the towers. Fill was also added to the roads to accommodate for the increased traffic volume and weight of the loads.

Municipal Streets

Within the corporate boundaries of Lakefield exists 14.11 miles of municipal streets maintained by the City. The vast majority of streets in Lakefield are paved and have curb and gutter. However, some city streets, primarily on the southern, eastern, and western borders of Lakefield are gravel.

Maintenance policy

The maintenance policy for the City of Lakefield streets is a fix as needed policy that combines with forecasting. Lakefield relies on a combination experience and knowhow to forecast down the road when street are going to have to be seal coated, resurfaced, or just patched. The City has its own hot mix system for filling in cracks and potholes.

Whenever a street is dug up for resurfacing the water, sanitary sewer, and storm sewer are checked. If the street still has old vitrified clay pipes, the pipes are replaced. The City has replaced around 80 percent of the old vitrified clay piping, but there is still some that remains.

Planned resurfacing

The City of Lakefield plans to seal coat all of the city streets every seven years. The seal coating takes place periodically with different areas of Lakefield being seal coated at different times. The City watches the price of seal coating and when the price is good a number of streets will get seal coated. There may be multiple years between seal coating projects, but the plan is to have all the city streets a seal coated every seven years.

Most recent projects

During the 2012 – 13 resurfacing season Main Street, Milwaukee Street, and Menage Avenue were resurfaced.

Planned projects

The next proposed project is on the west side of Lakefield. Fourth and 5th street on the west side of town are going to be resurfaced and the water, sanitary sewer, and storm sewer are going to be updated.

Existing Conditions

The existing street conditions of municipal streets in Lakefield were ranked on a scale of one to five by Dennis J. Johnson & Associates, Inc. The ranking of one has a condition of poor and the ranking of five has a condition of excellent. A map of the existing street conditions in Lakefield can be found on page 56.

Pavement Conditions

CITY OF LAKEFIELD





Public Transportation

Western Community Action serves residents in Jackson County and provides transit services for everyone who needs a ride. Public transit buses are lift accessible and available for residents of all ages in Jackson County. Volunteer Drivers also operate their own personal vehicles and are available for trips within our primary area (Cottonwood, Jackson, Lincoln, Lyon, and Redwood Counties) and to other locations such as the Twin Cities, Rochester, Sioux Falls, SD, Willmar, Mankato, and Worthington. The transit service does what it can to provide rides or assist with connection to those that can provide the ride.

Rail

The railroad transportation infrastructure that helped to establish Lakefield was discontinued in the late 1970's. The railroad tracks were torn out, and in the rural areas, the railroad right-of-way was returned to the farming community. Within Lakefield, most, if not all, of the former railroad land has been sold to commercial interests or private individuals. Perhaps the largest owner of ex-railroad land is the Farmer's Coop Elevator. At one time the elevator relied primarily on railroad transportation to take its products to market. Over time the elevator, and similarly the rest of Lakefield, has made the transition over to reliance on the trucking industry to transport large volumes of goods and commodities.

Rail transportation does still exist in the area. The Union Pacific operates a line running parallel to Highway 60, north of Lakefield.

Aviation

Lakefield does not have an airport of its own; however, the area is served by two nearby facilities. The closest airport is in Jackson, approximately 12 miles away. The Jackson Municipal Airport offers a full range of recreational flying services. The airport is equipped with two runways. Runway 13/31 is 3,600 feet long with an asphalt surface, which is in good condition. Runway 4/22 is a turf runway and is 2,300 feet long; this runway is closed during winter months.

Services at the Airport include: self service fuel 100LL and jet A, with full service upon request; full service aircraft maintenance is available at the airport five days a week with 24 hour emergency service available thru PS Aviation, Inc.; arrival/departure building has MNWas weather station computer available; this building is also equipped with a pilots briefing room, conference room, and restrooms; a tie down area and hangar space is available to those needing short term and long term aircraft storage; a courtesy car is also available upon request.

Worthington Airport, approximately 25 miles away, was built to handle air traffic ranging from general aviation to commuter airlines. The airport can easily accommodate business jets and corporate travelers, as well as medical emergency flights and general aviation enthusiasts. The airport is equipped with an Instrument Landing System (ILS), which enables operation and landing of aircraft during Instrument Meteorological Conditions (IMC), such as low ceilings or reduced visibility due to fog, rain, or blowing snow.

The airport is equipped with two asphalt grooved runways, which are in good condition. Runway 11/29 is 5,506 feet long and 100 feet wide. Runway 11/29 is equipped for ILS, NDB or GPS approach. Runway 11/29 is equipped for VOR or GPS approach. Runway 17/35 is 4,200 foot long and 75 feet wide. Runway 17/ 35 is also equipped for VOR or GPS approach.

There is a variety of hanger space available including a 14,000 square foot maintenance facility that is used for aircraft maintenance and repair, as well as, offering ample space for hangar transient aircraft. The hanger facilities can serve everything from small aircraft trainers to King Airs to corporate jets. 100LL and JETA aviation fuels are available 24-hours with the credit card automated fueling system. For travelers taxi services and rental cars are available.

The Sioux Falls Regional Airport is the largest airport in the area. Sioux Falls, South Dakota is approximately 75 miles west of Lakefield on Interstate 90. The Sioux Falls Regional Airport is served by Delta, United, American, Allegiant and Frontier. The Airport serves Sioux Falls, southeast South Dakota, southwest Minnesota and northwest Iowa. The airport offers a modern and efficient passenger terminal, overnight cargo, complete general aviation facilities, and an international port of entry. Parking is easily accessible, located across the street from the terminal with national car rental counters available inside the airport.

Transportation

Goals and Policies

- Make walking or bicycling more convenient and safe on Highway 86.
 - Establishing a pedestrian path or sidewalk between the VFW and the Shed.
 - Install a flashing beacon to the crosswalk signs on Highway 86.
- Increase the safety of the main transportation routes to and from the city pool and Sparks Park
 - Menage Avenue and Highway 86 are both wide streets so sharing the road would be safer if bicycle lanes were established. Bicycle lanes would help separate vehicle traffic and pedestrians. Currently, a number of children ride their bike down Menage Avenue and they do not establish a lane. This makes it difficult for vehicles and pedestrians to share the road safely.
 - Highway 86 has relatively high average daily traffic volumes, but Highway 86 is the only route connecting Lakefield to Sparks Park, which is on the northwest corner of Lakefield. Sparks Park has a natural setting with a number of trails winding their way through the woods, over a creek, and around a pond. Establishing a bicycling lane on Highway 86 would increase the connectivity of Lakefield and would make the route to Sparks Park safer.
- Reestablish the partnership between the local elementary schools and local volunteer organizations
 - In the past the Lakefield Lions Club would help put on a bicycle rodeo at Pleasantview Elementary. The rodeo was typically right after school was let out and students from other elementary schools were invited to come. Pleasantview Elementary is working on implementing a new bicycle safety curriculum for the 2013-14 school year but adding a bike rodeo along with the new curriculum will help strengthen the pedestrian safety skills of Lakefield's youth.
- Increase the safety of crossing Highway 86
 - Currently there are two crosswalks on Highway 86 with signage by the crosswalks and signage informing you that a crosswalk is upcoming. With the high average daily traffic volumes on Highway 86, it has been proposed that a blinking light be attached to the crosswalk signage. This will make the crosswalk more visible and will help to encourage more walking and bicycling.

Transportation

Goals and Policies

- Improve street and intersection design to accommodate active transportation options
When resurfacing a street or creating a new development, Complete Streets should be considered by Lakefield. A Complete Street is any street that pedestrians feel safe to walk and bicycle on. This Complete Street design could include just making the street wide enough so pedestrian and vehicles can share the street safely, having sidewalks on one side of the street, or having sidewalks on both sides of the street. Traffic calming devices should also be considered as part of the project.

Older developments in Lakefield tended to use a traditional neighborhood development of a grid street network. These older developments followed a grid street network that consists of having sidewalks on both sides of the street, garages facing the alleyway behind the house, and similar sized lots. This older neighborhood design promotes interconnectedness within the community and walking and bicycling. Newer developments in Lakefield have moved away from having sidewalks on both sides of the street, having garages facing the alleyway behind the house, and having similar sized lots. This creates a disincentive to walk and bicycle and decreases the interconnectedness of the community.

- Expand the current trail committee into a pedestrian, bicycle, or multimodal transportation committee
Expanding the responsibilities of this committee will help to insure active transportation options are included in city projects. This group will be a voice for trying to make project designs more pedestrian friendly and more esthetically appealing.
This group should meet regularly to discuss upcoming projects and who on the committee can attend planning meetings.
The committee will also assist the City and School District in actively pursuing grants to improve the walk and bike-ability of the community and grants for Safe Routes to School.

- Educate public regarding active transportation, proper street crossing, using crosswalks, and pedestrian safety (educate, inform, and increase the amount of “buy-in” for active living).
Post the educational handouts, “Tips for Walking Safely” and “Tips for Parents and Other Adults for Teaching Pedestrian Safety to Children” on the Lakefield TV station. Multiple informative advertisements can be routing at one time. The Lakefield TV station is a effective medium for getting information out to the public regarding pedestrian safety.
Children and adults in Lakefield often do not use proper street crossing technique. Often times on Main Street you will see pedestrians cross at mid block. Parents need to be role models for children. This education campaign will educate and reinforce the importance of leading by example.

Transportation

Goals and Policies

- Before new infrastructure projects are implemented actively discuss how pedestrian friendly the project is.
This discussion should force the planning committee or city council to consider other options and if the project is going to make the City more connected and pedestrian friendly.
Hopefully through this process the City will be able to work with MnDOT, county engineers, and municipal planners to incorporate active transportation into upcoming projects.

Parks and Recreation

Parks and Recreation is an important aspect of a community's social development, environmental stability, and economic development. As vital as parks and recreation are to a community's quality of life, they are often underestimated or neglected. Open spaces should be an integral component of future developments within a city. The responsibility for planning these facilities rests with municipal officials, community leaders, and local residents. Current demand needs to be considered during the planning process along with growth projections and future demand. Parks and recreational facilities must be maintained and enhanced to accommodate changing demands within the community.

“Historically, state and local policymakers have put their energies into trying to attract existing firms from somewhere else, either to relocate to a particular area or to build new facilities there.”⁸ State and local policymakers have tried to attract firms by offering tax breaks or other financial inducements. Having states, cities or localities create policy to encourage firms to locate new plants or headquarters in their region results in competition which is a positive economic driver. Attracting businesses is only one approach to economic development. Newer economic development theory focuses on attracting people to your community and these people will in turn create businesses.

For a city to help shift the supply of labor, there are various actions that can be undertaken. Attracting new residents to a city can be done by promoting the existing amenities in the area. Amenities are anything that increases the attractiveness of a city. This can simply be advertising the miles of trails in the area to promoting events and recreational activities the city has. A city can partner with local businesses and organization to accomplish common goals. These new residents start businesses and increase demand for existing businesses.

Entrepreneurship is local because new firms must start somewhere. Individuals launch firms and if these local firms are successful, they expand and attract more people to the area. “Policymakers at local and state levels increasingly recognize that entrepreneurship is the key to building and sustaining their economies’ growth.”⁸

It is important for a city to think of parks and recreation facilities are tools to attract people to your community. There is an upfront cost for building a new park or trail but the return could be two fold. First, the amenity increases the quality of life for the city’s current residents. Second, the amenity may attract more people to your community. Attracting more people to your community will increase demand for current products and services and will, hopefully, result in additional businesses being established.

There are general rules of thumb that apply to land use planning for parks and recreational facilities. When planning to update or build a park, all population groups should be considered. This will help to maximize the usage of the park by appealing to a wide range of citizen interests. As an example, small playground parks are necessary for residential areas which have multi-family housing units. Community parks are usually large areas which include facilities for numerous activities like ball fields, tennis or volleyball courts, shelters with grills, horseshoe pits, picnic areas, and publicly accessible restrooms. Semi-public recreation facilities may be open to the public at certain times and include facilities like school grounds or buildings, historical buildings, libraries, and golf courses.

There are two planning guidelines relating to parks and green space. First, municipalities should generally allocate at least ten percent of its land acreage to parks and open spaces. According to the United States Census Bureau, the City of Lakefield has an area of 681.2 acres.

Lakefield currently has 26.4 acres dedicated to municipal parks and green space. The open space of Emerald Valley Golf Course, 46.1 acres, is part of the developed land of Lakefield, but is not counted with municipal park land. Emerald Valley Golf Course is privately owned but when the golf course is included, the City more than meets the ten percent planning suggestion.

The second planning guideline is based upon population. General park and recreation planning suggests that ten acres of park land be dedicated for every 1,000 people in population. In 2010, Lakefield had a population of 1,694; therefore, the guideline would require 16.79 acres of park land. Lakefield more than meets this planning suggestion. Maintaining a well developed park and recreation system is not only a tool to retain and attract residents, but parks and recreation activities should also be viewed as a tool to maintain a health community.

Municipal Parks and Open Spaces

Figure PR-1 shows the location of Lakefield's municipal parks and open spaces. These facilities are found throughout the City, thus providing open space facilities, within reasonable walking distance (1/4 mile) to most sections of the City. The largest site is approximately 9.95 acres and is a joint facility owned and operated by the City and the school district. This site encompasses the Lakefield pool, football field, baseball and softball diamond, tennis courts, sand volleyball courts, picnic area with picnic tables, and open green space. There are also two public restrooms on this site. The football field, diamond, tennis courts, and sand volleyball courts are equipped with lighting. There is also a 2.47 acre athletic field on the east end of Funk Ave that has two softball diamonds that doubles as a soccer field.

North City Park encompasses an entire city block (approximately 2.33 acres) and has playground equipment, a tee ball diamond, a lighted skate park, lighted basketball court, picnic tables, barbecue grill, gazebo, and a shelter house with modern restroom facilities and kitchen facilities. North City Park also has green space with a number of mature trees providing shade and ambiance. The remaining areas are smaller parks and playgrounds.

West City Park makes up 1.74 acres and is relatively open green space. There is a tee ball diamond, playground equipment, horseshoe pits, and a shelter house with modern restroom facilities. This park also has some mature trees, which makes the green space a great location for picnics.

The South City Park is the smallest of the city parks with .55 acres. This park has a lighted basketball court, playground equipment, picnic area, and has opens green space. In the past the blacktop court in this park was used as a roller hockey rink.

In addition to these municipal sites, there is a school playground located by Pleasantview Elementary that is open to the public. This location offers a track for walking and running, playground equipment, blacktop recreation area, and open green space. There is also a blacktop recreation area at the JCC Middle School, which has is equipped with a basketball hoop and backstop for kickball or other recreation activities.

County and State Parks

Jackson County has an impressive park system for both the traveler and the local resident. The county parks are an integral part of the recreational facilities available in and around Lakefield. Figure PR-2 is a map of Jackson County showing the locations of the County and State Parks.

Kilen Woods is a state park located nine miles northeast of Lakefield and features year-around recreational facilities. Kilen Woods is nestled in the wooded hillsides and grassy ravines along the west bank of the Des Moines River. The state park is 200 acres of nature and tranquility. There are a number of all season trails winding through the park's dry oak forest, sunny river bottom meadows, cool floodplain forest, and brightly flowered oak savanna and prairie. Wildlife can be observed throughout the park while spectacular prairie sunsets can be enjoyed from the campground. Amenities at the state park include: 32 semi-modern campsites with tables, water, showers, toilets & fire rings (11 campsites have electric hookups); 4 walk-in campsites; picnic area; multipurpose year-round shelter building with water, and kitchen; 5 miles of hiking trails; and public canoe access to the Des Moines River.

County parks in Jackson County include: Sparks Park, Anderson Park Campground, Brown Park Campground, Robertson Park Campground, Sandy Point Campground, Community Point, Belmont Park, and Obie Knutsen Park. These county parks offer a wide variety of amenities ranging from camping facilities with viewing towers to paved trails for walking and bicycling. Fishing is an activities that residents and tourists enjoy at a number of the county parks. Boat launches and dock space is also available at a number of locations.

Sparks Park is a 40 acre parcel located partly within the municipal boundaries of Lakefield, in the northwest section of the city. Sparks Park is the home to the Prairie Ecology Bus Center, which offers environmental education for both children and adults. The park is an outdoor theatre equipped with walking trails through the woods and around a pond where one can view wildlife in a natural setting. For more information regarding Sparks Park and the other county parks refer to Jackson County Parks on the county webpage (www.co.jackson.mn.us).

Points of Historical Significance

According to the National Register of Historical Places, there are several points of historical interest that exist within Jackson County, however, there are no registered buildings or sites in Lakefield. According to the Minnesota Register of Historic Places, there are seven sites registered in the county and one within Lakefield. They are listed as the following:

1. Church of the Sacred Heart (Catholic), Heron Lake
2. District School No. 92 (AKA: Middletown Town Hall), Middletown Township
3. Jackson Commercial Historic District, Jackson
4. Jackson County Courthouse, Jackson
5. George M. Moore Farmstead, Middletown Township
6. Robertson Park Site, Minneota Township
7. Heron Lake Public School, Heron Lake
8. Winter Hotel (AKA: Lakefield Hotel), Lakefield

Many points of interest in and around Lakefield exist, but have not been specifically mentioned in this plan. Some other points of interest include: Heron Lake Watershed Nature Area, Clear Lake, Loon Lake, the Loon Lake Cemetery, Lakefield Public Library, and many others.

Lakefield has a wide variety of recreational activities available for all age groups. Recreational activities also include numerous community sponsored activities. Community organizations, churches, and businesses sponsor a variety of events to help make Lakefield the active community it is. There are also a variety of social organizations for the young and old. These organizations cover a variety of interests and activities. These social and community organizations help to bring the community together and range from scouts and 4-H to Lions Club and Kiwanis.

Trails

- Nature trails throughout Sparks Park, which is located partially in Lakefield
- The Old Mill Trail in Lakefield, which will be completed in 2014
- There are also a number of trails in Jackson County. Refer to figures PR - 4 and PR - 5.

Within Lakefield there is a proposed trail project connecting the southern section of Lakefield to the northern section of town. The project will consist of constructing a 10-foot pedestrian/bicycle trail extending south from the existing sidewalk in front of Pleasantview Elementary on the east side of Milwaukee Street down to Mill Road. The trail will head west along the south side of Mill Road within the county right-of way. Then the trail will head south through a city-owned park area crossing a stream and connecting with 1st Avenue. Refer to figure PR - 3 for the proposed trail map of Lakefield.

Building this trail and connecting south Lakefield to the northern section will improve the safety and convenience of pedestrian walking and bicycling to and from south Lakefield. Currently, students in the southern section of Lakefield who want to walk or bicycle to Pleasantview Elementary have to travel 3-6 blocks out of their way to get to school safely.

Figure PR - 1
City Parks

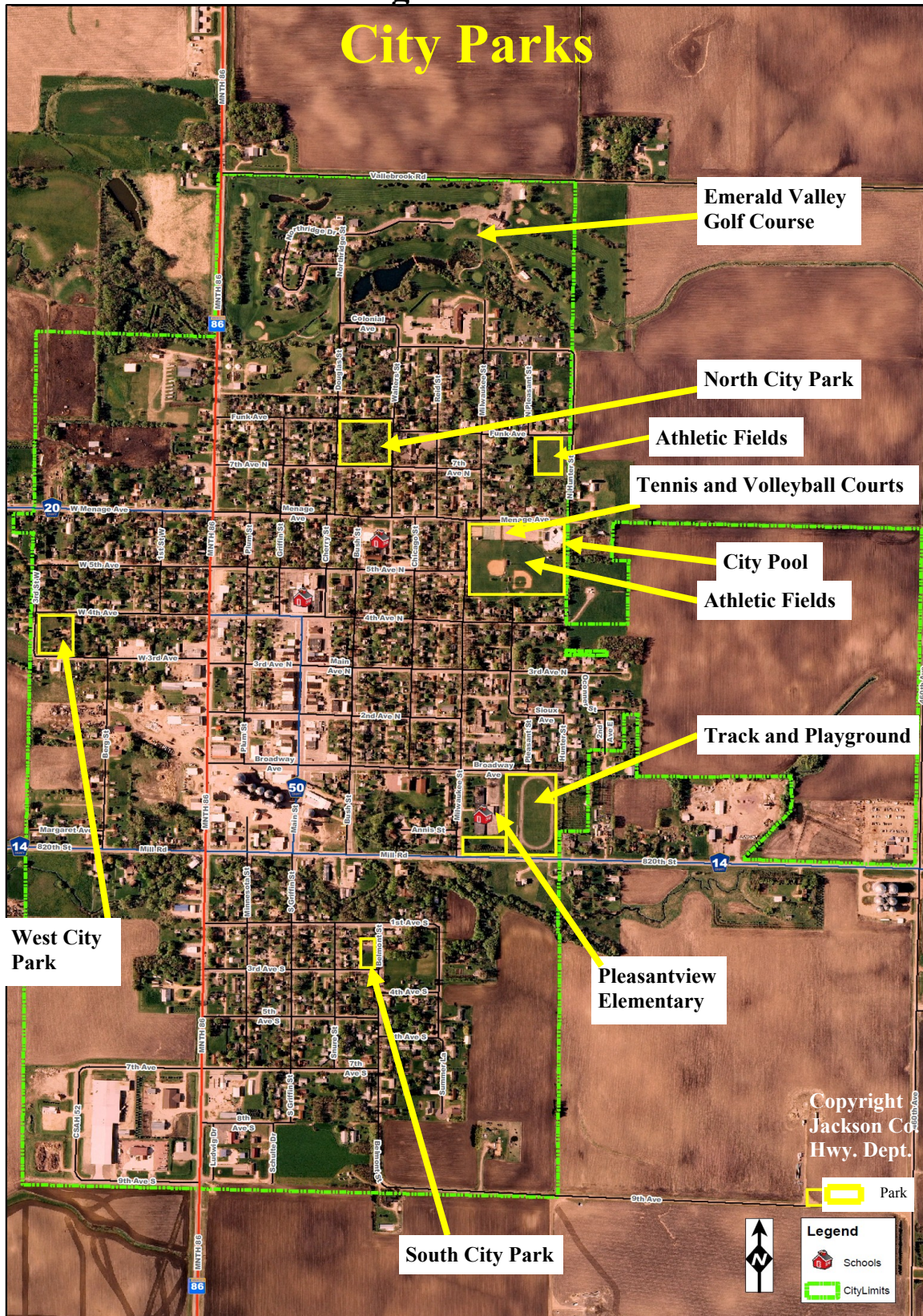
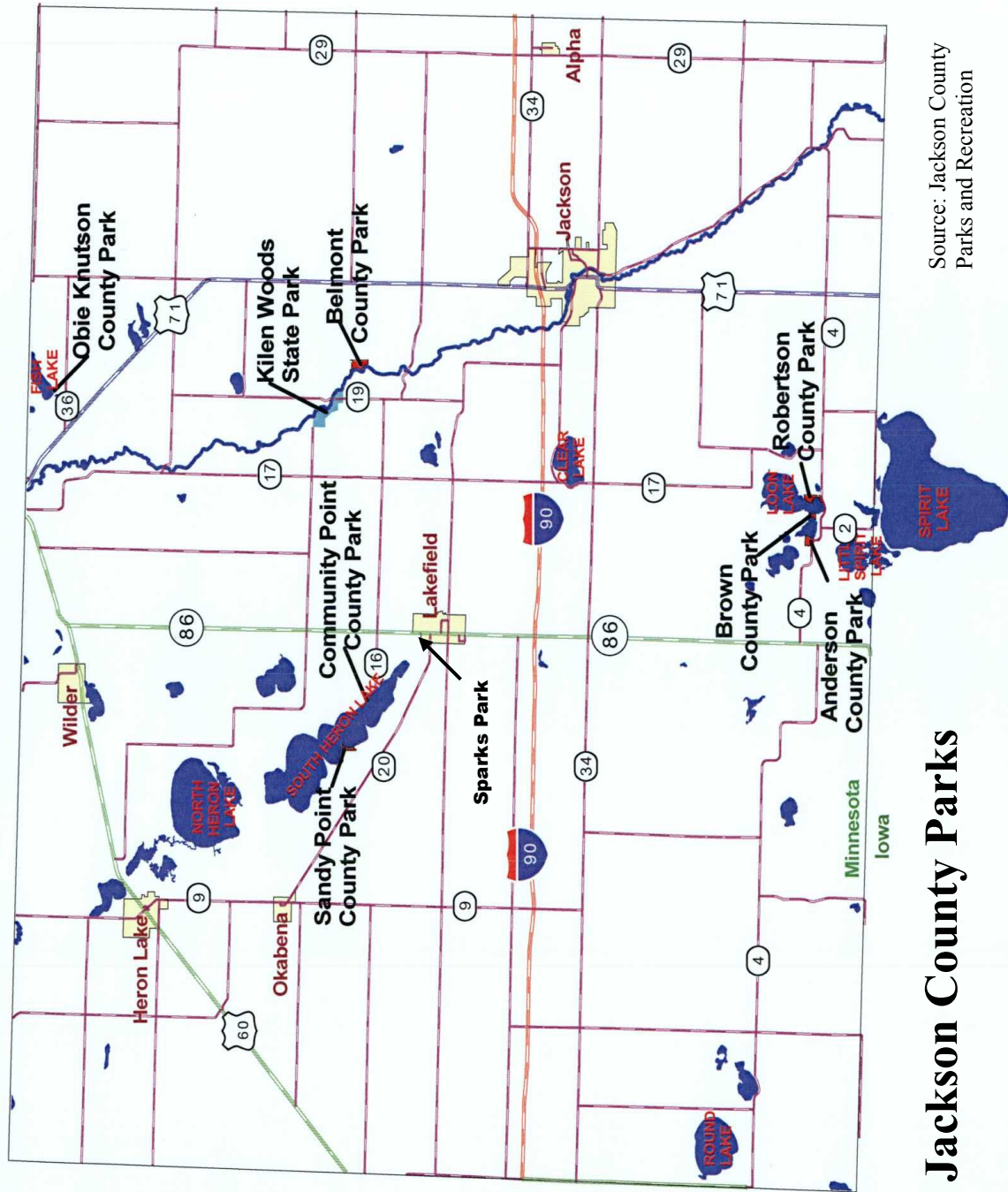


Figure PR - 2



Jackson County Parks

Source: Jackson County
Parks and Recreation

Figure PR - 3

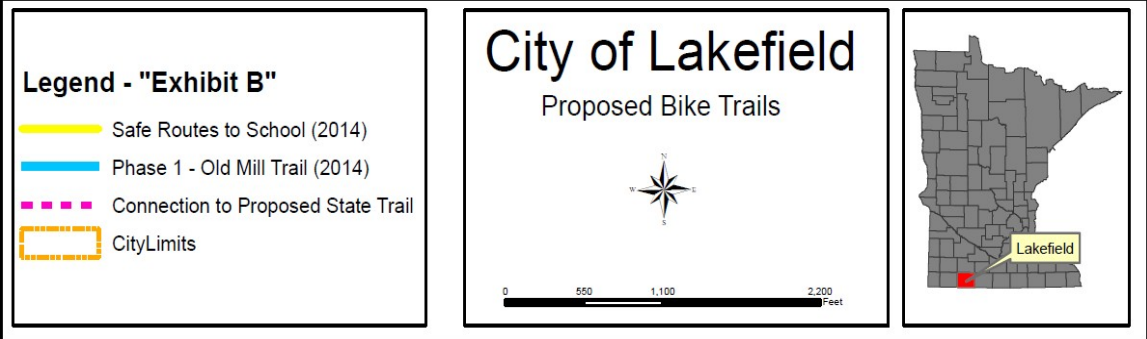
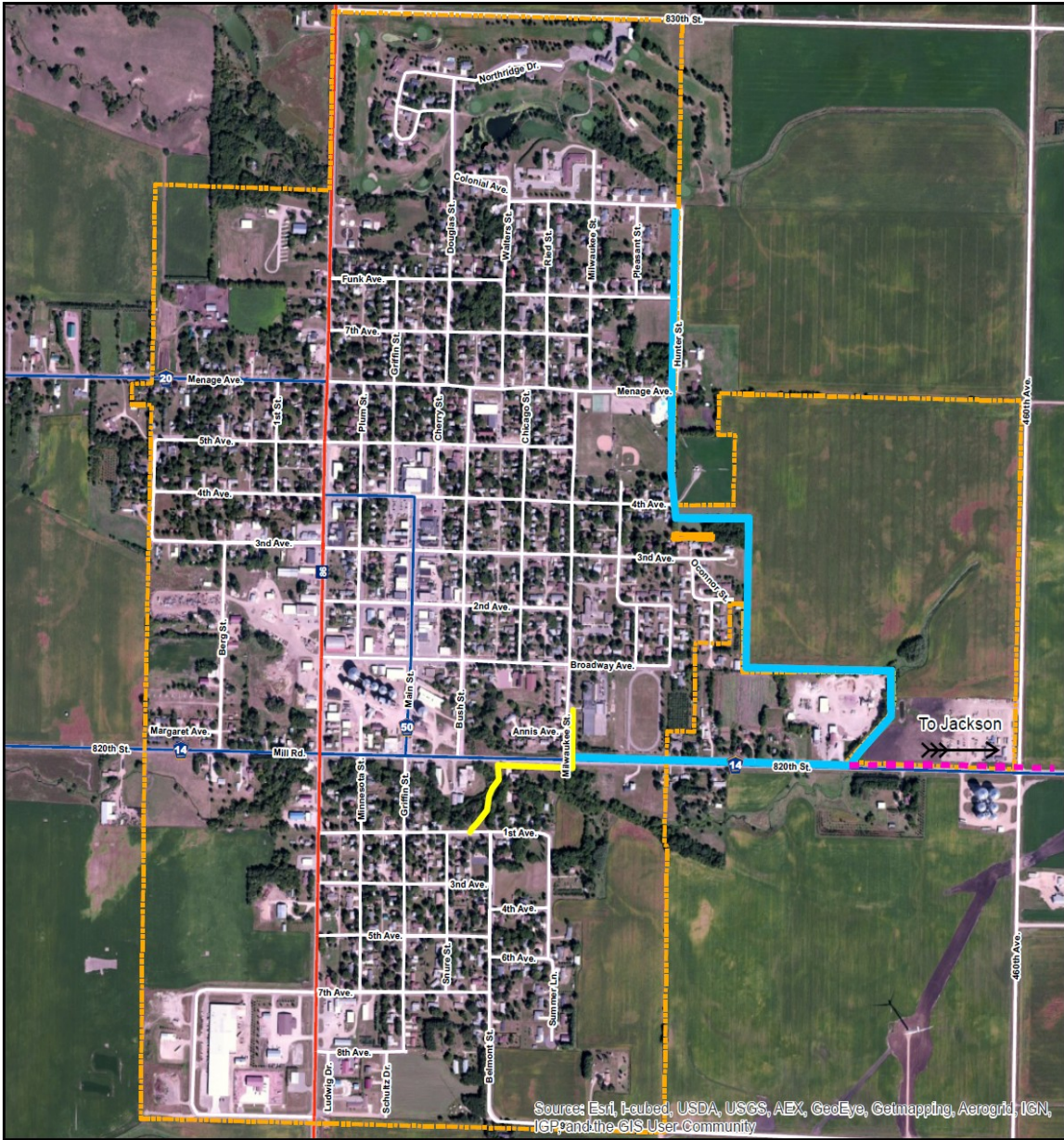


Figure PR - 3

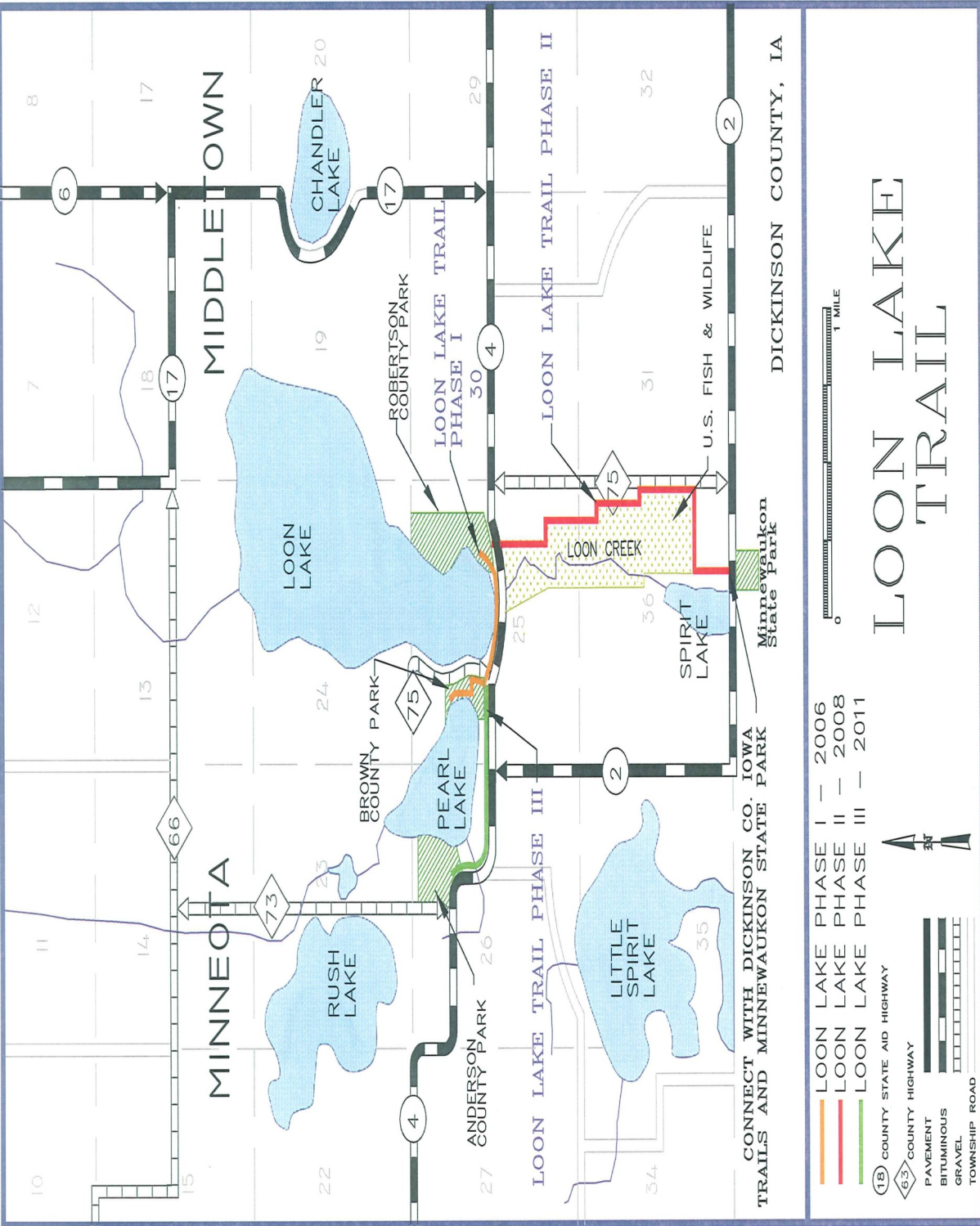
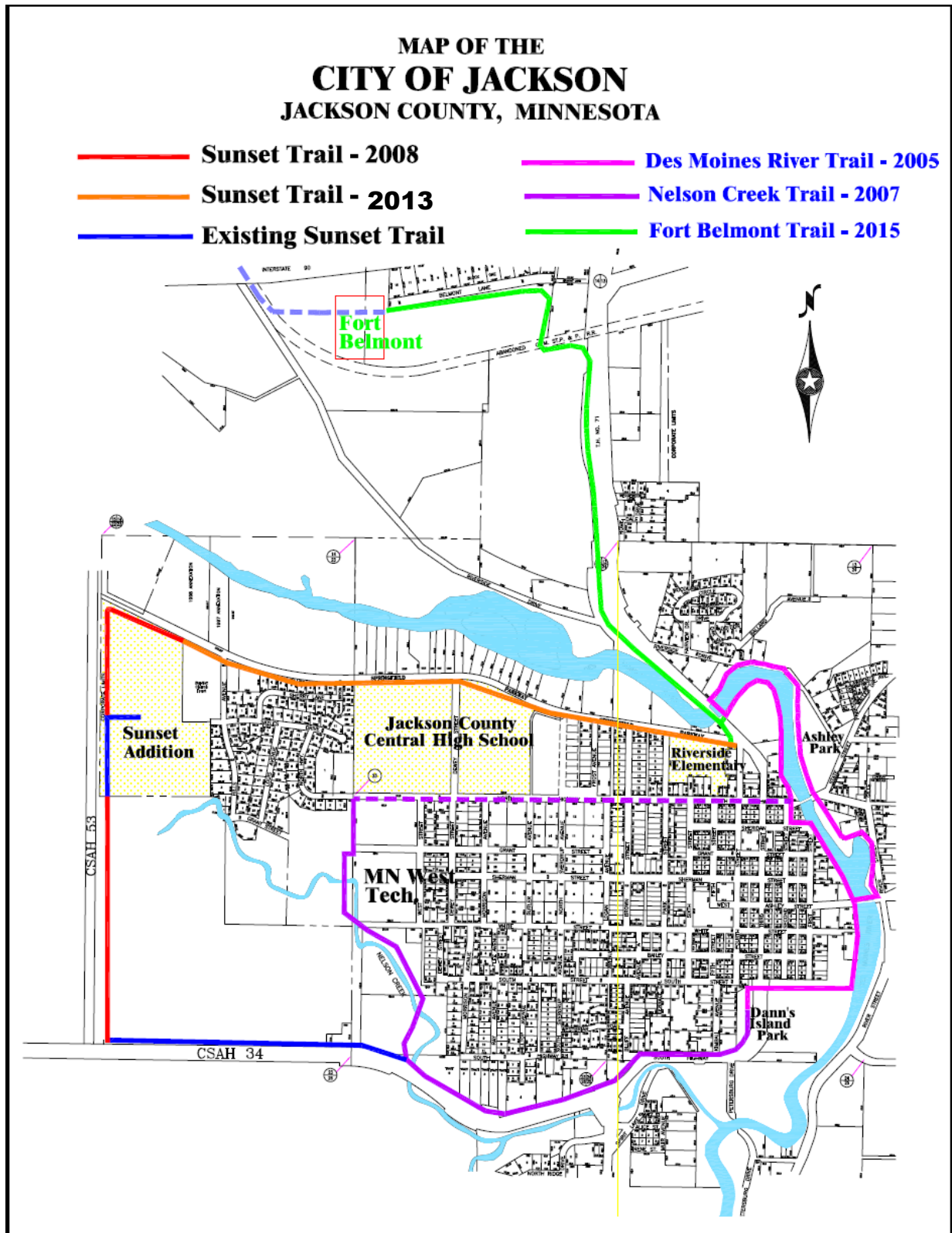


Figure PR - 3



Parks and Recreation

Goals and Policies

- Market parks, green space, recreation opportunities, and the city pool on Lakefield's webpage
This will make more of the amenities searchable online.
Research by Ben Winchester with University of Minnesota has shown that 30 to 49 year olds are moving to rural settings in Minnesota. This age cohort is looking for communities that have recreational opportunities for their children and themselves. Posting this information online is not only for current residents, but is part of a development strategy to attract new people to the community.
- Improve the maintenance of the recreation area by the tennis and sand volleyball courts
In recent years the nets have been left up over the winter. This dramatically decreases the lifespan of the nets. These courts are owned by the JCC School District
A partnership between the City and the JCC School District should be established to schedule yearly routine maintenance of this area. This includes, but is not limited to, taking down the nets over the winter, tilling the sand volleyball courts, and painting the lines on the tennis courts. Having routine maintenance done to this area will help to increase usability of the courts and to increase the lifespan of the nets.
Make sure parks and green spaces are kept up to date for current improvements or amenities.
- Improve the picnic area by the city pool
Have picnic tables brought over from the North City Park and place them on the west south side of the city pool.
Play ground equipment should also be researched as a possibility at the city pool.
- Promote existing opportunities to be physically active
Use community calendar on the City of Lakefield's webpage to help promote community events. The Lakefield TV station can also be used to highlight events in the community.
A weekly update and check of the community calendar should be scheduled. This will help to insure that updates and taking place and that issues regarding the webpage are resolved.
- Promote walking in the middle school
Currently people can walk in the middle school after school has been let out. Promote this amenity more and market the times that are available on Lakefield's webpage and TV station.

Parks and Recreation

Goals and Policies

- Partner with Ecology Bus Center to maintain and promote the community gardens and educational activities at Sparks Park.

The Prairie Ecology Bus offered a variety of classes designed to educate school children and adults about the environmental and natural sciences. For more information refer to the Community Facilities Section and specifically the write-up on the Prairie Ecology Bus or visit www.ecologybus.org/.

- Promote a more active trails committee

The trails committee currently only meets when a meeting is organized by the city council or a trails committee member.

Creating a more regimented meeting schedule could help the trails committee expand their reach to other active living activities in Lakefield.

- Establish an Active Living Committee to advocate for pedestrian considerations in regards to street projects and other public projects in Lakefield

This committee could be formed immediately to research options to resurface or repurpose the track in Lakefield and surrounding green space. The Active Living Committee could partner with the school district and together could research project options and funding options.

The current trails committee could be expanded and renamed the Active Living Committee. Responsibilities would be expanded to cover pedestrian safety and trying to insure that new public projects discuss pedestrian safety and walkability.

Trails would still be one of the issues that the Active Living Committee advocates for.

- Have a satellite office for community education in Lakefield

Currently, the community education programs are organized out of Jackson.

This requires residents of Lakefield to drive to Jackson for Tee Ball and other activities.

Having a satellite office and activities in Lakefield would help to increase the activity levels and connectivity of residents within Lakefield.

- Add pocket parks on Main Street

The future land use map identifies two locations on Main Street where pocket parks could be established. Both of these locations are currently vacant lots. Adding pocket parks on Main Street would make Main Street more of a destination and would promote walking in this area.

The first pocket park could be located next to Thronset's Pharmacy to the south. The second location could be located on the north side of the Legion.

- Encourage the Lions and/or Kiwanis to host a bike rodeo

In the past the Lakefield Lions Club hosted a bike rodeo for area youth. This event could be coordinated with school pedestrian and bike safety curriculum.

The police department and school districts should be asked to participate at the bike rodeo.

Physical Features

Physical features such as soils, topography, water, and floodplains play a significant role in land use planning. Virtually every development which occurs is affected by the natural environment, which in turn affects our social and economic environments. Planning with these physical features in mind is essential for the effective and orderly use of land in Lakefield. If one pays little heed to the characteristics of the community's physical make-up, unwise land uses may cause physical, social, and economic hardships.

The most valuable tool available, when studying physical features, is the soil survey. Soil surveys have been prepared by the United States Department of Agriculture, Soil Conservation Service, for all 87 Minnesota counties. The date of these soil surveys vary, however, soil characteristics and physical features change very little naturally. A glossary of geologic terms is available in Appendix B.

Parent Material

The soils in Jackson County formed in the glacial drift and related sediments of the late Wisconsin Glaciation. These mineral materials were transported to this region by the Des Moines lobe of the continental ice sheet, which buried previous glacial material. They occur as glacial till, glacial outwash, and glaciolacustrine sediments, any of which can dominate a geomorphic region. Post-glacial sediments can be locally significant. They include alluvium, colluvium, and organic and limnic deposits. The county has six geomorphic regions, each of which is characterized by different kinds of parent material and topography.

The Altamont moraine, a recessional moraine of the Des Moines lobe, trends north and south through the central part of Jackson County. The soils in this region formed mainly in

glacial till and in local deposits of material sorted from till by water. The glacial till is high in content of shale and calcium carbonate. It is dominantly loam or clay loam. Clarion and Delft are the major soils in this region.

The Des Moines River Valley is on the east edge of the Altamont moraine. It has the steepest terrain in the county and has nearly level flood plains. The soils on the steeper slopes formed in glacial till and colluvium. Swanlake and Terril soils are on these slopes. Alluvium on the flood plains is Post-glacial and is indicative of upstream erosion. Coland and Spillville soils formed in this alluvium.

The part of Jackson County east of the Des Moines River is a ground moraine made up of clay loam glacial till. Canisteo, Glencoe, and Nicollet are the dominant soils on this nearly level to gently rolling moraine.

The voluminous sediment-laden glacial meltwater was often dammed by ice and superglacial till. As a result, temporary glacial lakes formed. Sediments were deposited in these basins. The coarser particles settled from the water first and then were covered by silty and clayey material. Eventually, the dams were broken and most of the water drained, exposing fine textured sediments. The soils in the northwestern part of the county formed in these glaciolacustrine sediments or in exposures of glacial till. They are nearly level or gently undulating and generally are poorly drained or very poorly drained. Lura and Waldorf soils are examples.

The southwestern part of the county also is characterized by extensive glaciolacustrine deposits, but these sediments were deposited in much smaller lakes that formed in disintegrating glacial ice. As the glacier melted further, these ice-walled lakes became

flat-topped hills. Fine textured sediments were deposited on the nearly level hilltops, clay loam glacial till or sandy outwash on the side slopes, and fine textured sediments in the draws and drainageways between the hills. Clarion, Lura, and Collinwood are the dominant soils in this region.

Rapidly moving glacial meltwater removed fine textured particles from the glacial till and deposited coarse textured material in areas where the current slowed. Sand and gravel deposits are along the present-day streams and rivers and along former glacial streams and beaches. They also occur as local deposits within the glacial till. Estherville soils formed in gravelly outwash deposits, and Dickman soils formed in sandy outwash deposits.

The Post-glacial landscape had numerous closed depressions that were filled with water. As plants and animals recolonized the landscape, shallow bodies of water began to fill with organic detritus. If the water level dropped far enough, soils formed in these organic or limnic deposits. Palms soils formed in the organic deposits, and Blue Earth soils formed in the limnic material.

Topography

Topography influences soil formation through its effects on drainage, runoff, erosion, and deposition. The Post-glacial landscape of Jackson County generally is nearly level or gently undulating but has hilly or steep areas of lesser extent. It also has numerous closed depressions or potholes. Soil profile development is more extensive in the nearly level or gently sloping soils than in either the steeply sloping soils or the depressional soils, mainly because the rate of water infiltration is higher on the gentle slopes. On the steeper slopes, the runoff rate is high, and in the depressional areas, saturated soils are subject to ponding.

Time

Soil formation in Jackson County began anew about 12,000 years ago, when the glacier retreated and plants recolonized the new landscape. Some soils are younger than others because of subsequent drainage or additions of new parent material. Geologically, the landscape of the county is very recent, but sufficient time has elapsed for well developed soils to form.

Climate

Jackson County has a sub-humid, continental climate characterized by cold winters and hot summers. Temperature and precipitation help to determine the kind of vegetation on the soil, the length of the growing season, the soil moisture regime, and the freeze-thaw cycle.

Temperature affects the soil in several important ways. It largely determines the rate of chemical reactions within the soil, from the decaying of organic matter and other biological activity to the weathering of mineral components. It significantly influences the type of plant and animal life on and in the soil through its limiting effect on the growing season of macrophytes and its effect on the metabolic rate of micro-organisms. The freeze-thaw cycle also affects soil formation. This cycle plays a part in the formation of soil structure and the physical weathering of soil minerals. Frost action helps to mix the soil material.

Precipitation affects the soil in many ways. All biological activity in the soil depends on water. Water dissolves minerals. Some mineral salts can then be transported to the surface and deposited as water evaporates, or they can be leached to lower horizons. As it moves through the soil, water transports plant nutrients, which can then be absorbed by plants or by soil colloids or leached from the root zone.

Soil microclimates result from the landscape position, texture, water content, and vegetative cover. Soils on south- and west-facing slopes are generally warmer and drier than those on north- and east-facing slopes. Wet, depressional soils are generally colder than other soils. Local factors that affect soil microclimates are drainage, infiltration rate, and hydraulic conductivity.

The native vegetation of a region is, to a large extent, attributable to the climate. Prairie vegetation and cold winters promote the accumulation of organic matter in soils. Most of the soils in Jackson County have a high organic matter content, which results in a dark surface layer.

Soil Characteristics

The area in which the City of Lakefield is located contains a variety of soil types. These soils have unique individual potentials and constraints, regarding building development, agricultural use, and other land use activities. The soil types found in the area will be listed by name, and each soil type will be described as to its composition, drainage, and development potential.

Within the incorporated area of Lakefield there are two major soil associations, Clarion and Delft. The Clarion-Delft soil associations have sub-characteristics which are presented on Figure PF-1.

These two soil associations will be discussed in this section in detail, please refer to geological definitions in Appendix B. First, the Clarion Soil Series. The Clarion Series consists of deep, well drained, moderately permeable soils. These soils formed into loamy glacial till on the uplands of the Midwest. Typically the slope of Clarion soils range from

two to 18 percent. A typical sample of Clarion loam, 2 to 6 percent slope, contains the following characteristics at the corresponding depths. From 0 to 8 inches in depth the soil is black or very dark gray in color, generally dry and consisting of fine and very fine subangular blocky particles. The sample from this depth usually contains approximately three percent coarse grained particles. At depths of 8 to 12 inches the soil is very dark gray or very dark brown in color, also generally dry and consisting of fine or very fine subangular blocky particles. This sample, too, reveals approximately three percent coarse grained particles. The soil between 12 and 27 inches in depth is a dark yellowish brown color, dry, and consisting of medium or moderate subangular blocky in structure. Once again the sample contains approximately three percent coarse materials. At depths of 27 to 42 inches the soil turns a light olive brown in color with strands of a distinct light brownish gray. The sample is weak fine and moderate blocky subangular in nature along with approximately three percent coarse material. The soil at this depth becomes moderately alkaline in chemical composition. The soil 42 to 60 inches in depth is very similar to that found in the 27 to 42 inch depth.

In Clarion the thickness of the solum and the depth to free carbonates range from 18 to 50 inches, and the content of the coarse fragments ranges from 2 to 10 percent, however, the fragments only range in size from 2 to 25 millimeters.

The second major soil association is Delft. Delft soils generally consist of deep, poorly drained, moderately slow permeable soils on glacial moraines. These Delft soils formed in loamy glacial till, sloping between zero and two percent, or nearly level. The soil characteristics will be presented by depth. From zero to nine inches the soil is colored black and generally dry in composition. The soil particles range from moderate fine to medium, including approximately two percent coarse fragments. Soil between 9 and 28 inches deep is very similar to that found above. At 28 to 38 inches deep the soil changes color

to a grayish brown decorated with distinctive olive brown mottles. The soil particles at this depth are moderate subangular in nature, and contain approximately three percent coarse material. Soil 38 to 60 inches in depth becomes a grayish brown in color featuring many olive brown mottles. The soil particles are slightly larger than the ones directly above and contain approximately three percent coarse materials. At this depth the soil becomes mildly alkaline.

The thickness of the Delft solum ranges between 30 to 55 inches in depth. Delft soil generally contains between two and ten percent coarse fragments, where these fragments range in size from 2 to 25 millimeters.

Individual Veins

Throughout the Clarion-Delft soil association there are individual veins of specific Clarion and Delft soils. These soil veins have their own characteristics and limitations. The following list identifies the soil type with the identification number.

Identification Number	Soil
1. 27B	Dickinson Sandy Loam, Slope 1 - 6%
2. 24B	Terril Loam, Slope 2 - 6%
3. 102B	Clarion Loam, Slope 2 - 6%
4. 102B2	Clarion Loam, Slope 4 - 8%, eroded
5. 130	Nicollet Clay Loam
6. 313	Spillville Loam, occasionally flooded
7. 336	Delft Clay Loam
8. 887C	Clarion - Swanlake Loam, Slope 6 - 12%
9. 887D	Clarion - Swanlake Loam, Slope 12 - 18%
10. 921C2	Clarion - Storden Loam, Slope 6 - 12%, eroded

A specific soil description has been included in Appendix B which presents the individual soil vein characteristics. This information is directly from the Soil Conservation Service Soil Survey Report.

These individual veins have their own engineering specifications, which are presented in Appendix D. The engineering specs will show the usefulness or limitation of each soil type. This information is especially useful when new developments are considered or changes to existing land uses are proposed.

Geothermal

Geothermal is a heating and cooling system that utilizes the earth as a heat source during the winter and a heat sink during the summer. The system takes advantage of the relatively constant temperature within the earth. The earth's temperature in Minnesota ranges from 40 to 50 degrees Fahrenheit at a depth of 50 feet throughout the year.⁹

There are two types of geothermal heating and cooling systems. "A closed-loop system consists of piping installed in the earth and which circulates a heat-transfer fluid through the piping to a heat exchanger and, then, returning the fluid to the earth in a completely closed-loop system."⁹ "An open-loop system is a system that typically pumps groundwater from a water-supply well through a heat exchanger and, then, discharges the water to the ground surface, a drain field or infiltration gallery, a surface water (lake/river), or an injection well. Open loop systems, especially when the water is discharged to the ground surface or surface waters, have the potential for adverse environmental impacts, including general warming of surface waters, reduction of lake oxygen levels, and damage to lake ice (a safety concern)."⁹

Solar

The measurement used to evaluate solar energy resource potential is referred to solar insolation. Solar insolation refers to the amount of solar radiation that hits a particular surface for a given period of time and the unit of measure is watts per square meter. Minnesota has the potential to generate more solar energy than New Jersey and Pennsylvania, yet Minnesota only generates a fraction of solar energy compared to those states.¹⁰ Currently, there are no solar farms in Jackson County. Small scale on-site solar installations for homes and businesses can be used for thermal energy (heating water) or converted to electrical use and help offset electrical use.

Wind

Jackson County is a favorable location for wind farms due to the locations average annual wind speeds. Jackson County has a average annual wind speed of between 7.93 and 8.51 meters per second (17.74 - 19.04 miles per second) according to a study done by Wind Logics.¹¹ Currently, there are multiple wind farms in Jackson County. Small wind generators can help offset power for homes and businesses, if the location is appropriate.

Solar technology and wind turbine technology has been evolving rapidly over the past few decades and this advancement in technology will help to make solar and wind more economically feasible in the future. As solar and wind become more viable options for alternative energy, Lakefield will likely see requests for installations. As a municipal utility, installations of household or commercial alternative energy can reduce the City's peak load.

Surface Water

In Jackson County there is approximately 13,440 acres of surface water, including streams, rivers, lakes, and ponds. This surface water represents about three percent of Jackson County's land use. A large glacial lake was once in the western part of Jackson County,

both Heron Lake and South Heron Lake are remnants that exist today. The west fork of the Des Moines River flows through the county and the City of Jackson. Around Lakefield the nearest lakes are South Heron Lake, about one and a half miles to the northwest and Boot Lake, approximately two and a half miles directly east of the City.

Watershed

Jackson County watershed is divided between the Missouri and Mississippi Rivers. The West Fork of the Des Moines River and its small tributaries drain the north and eastern parts of the county, and flows into the Mississippi River. The southwestern corner of the county is drained by the Little Sioux River, which flows into the Missouri River. Lakefield is situated between these basins, with surrounding areas flowing into either watershed.

In 2008, the U.S. Environmental Protection Agency (EPA) conducted a complete review of the Total Maximum Daily Loads (TMDLs) for the West Fork of the Des Moines River watershed. TMDL's address the Aquatic Recreation Use and Aquatic Life Use impairments due to excessive fecal coliform, turbidity, and phosphorus. The EPA found that the 32 TMDLs for fecal coliform, turbidity, and phosphorus, with compliance allocations met the requirements of Section 303(d) of the Clean Water Act.

Floodplain

At this time the City of Lakefield does not participate in the Flood Insurance Rate Program. Lakefield may not participate because the City is not adjacent to any large waterways, such as a lake or river. Even though the City is not adjacent to surface water, flooding may still occur. The City of Lakefield's sewer system outlet may be a tributary which could cause flooding. The most likely case for flooding in Lakefield would occur after very heavy rainfall or prolonged periods of precipitation.

Community Facilities

Community facilities have traditionally been defined as public and semi-public structures and/or services which provide for the community's well being. These facilities help create a desirable environment for the overall functioning of a city. Community facilities include the social, religious, recreational, and governmental aspects of a community; despite their importance, they are often neglected or underestimated in the planning process. This document will address this area so that the health, safety, and general welfare of Lakefield's citizens will be foremost.

The following descriptions of the various community facilities will be stated briefly, however, the overview will reflect the location and function of these individual structures or services.

1. Schools

There are a number of educational options in Lakefield including both private and public. The gymnasiums in these educational facilities are also utilized for community education programs and community functions like Ag Day, Banquets, and trade shows.

Immanuel Lutheran School is a private coed school, in Lakefield, serving 103 students in grades pre-school to 8th grade. Immanuel is a religious school affiliated with Missouri Synod. According to greatschools.org, Immanuel received a 5 Star rating. A post regarding Immanuel from a parent on greatschools.org reads, "Immanuel Lutheran School is a great school. It is Christ centered with a great curriculum. The after school activities are great. Sports are top notch. There isn't much more you can ask for in a school. I love this school!"

The Jackson County Central (JCC) School District is a rural district encompassing the majority of Jackson County. The JCC School District includes Jackson, the county seat along U.S. Highway 71, along with the towns of Lakefield, Alpha, Petersburg, and Sioux Valley. The school district is cut in half by U.S. Interstate - 90, which travels east-west directly through the middle of the district. The Jackson County Central School District encompasses 440.03 square miles within Jackson County and has a Pre-K – 12th Grade Enrollment of 1,213 students in 2012-13 school year. The district also has superior quality extra-curricular programs including 2013 State Championships in FFA teams, Wrestling, Cheerleading, and Robotics.

The district includes: JCC High School, JCC Middle School, Pleasantview Elementary, Riverside Elementary, and Early Childhood Family Education. JCC High School is located at 1128 North Highway in Jackson Minnesota. The JCC Middle School is located at 205 4th Ave North in Lakefield Minnesota, which is 12 miles from Jackson. Pleasantview Elementary is located at 110 Milwaukee Street in Lakefield Minnesota. Riverside Elementary is located at 820 Park Street in Jackson Minnesota.

Southwest Star Concept School

Independent School District #330 is a rural school district that spans Jackson, Nobles and Cottonwood counties and runs along historic North and South Heron Lake. The pre-k through 6th grade elementary is located in Heron Lake at 321 Stearns Ave. The enrollment is 144 students and has a 10:1 student-to-teacher ratio. At the elementary school the district maintains an indoor swimming pool, gymnasium, and softball field. The baseball and football fields are also located in Heron Lake, conveniently along highway 60. Southwest Star High School is located four miles to the South in Okabena at 124 N. Minnesota Ave. The high school

enrollment is 205 students in grades 7-12, and the student-to-teacher ratio is 12:1. The high school has a progressive up-to-date multi-media center and an agricultural center consisting of classrooms, a greenhouse, and a shop large enough to house modern farm equipment.

HL-O Elementary
321 Stearns Ave.
PO Box 378
Heron Lake, MN 56137
[507] 793-2307

Southwest Star High School
124 N. Minnesota Ave
PO Box 97
Okabena, MN 56161
[507] 853-4507

2. Churches

The following is a list of the churches within the immediate Lakefield area and their addresses:

A.	Belmont Lutheran	320 Fourth Avenue West
B.	Bethlehem Lutheran	401 Seventh Avenue North
C.	First United Methodist	520 Cherry Street
D.	Holy Trinity Lutheran	76084 460th Ave
E.	Immanuel Lutheran	620 Bush Streets
F.	St. Joseph's Catholic	410 Broadway Avenue
G.	St. Paul Lutheran	38886 800th St
H.	St. Peter Lutheran	87977 Minnesota 86

3. Lakefield Community Library

The Lakefield Library is part of the Jackson County Library System and a member of the Plum Creek Regional Library System. A library card allows you to check out such items as bestselling books, movies, magazines, eBooks and more. Plus, you are able to access the collection online from your home or office computer. Public access computers with internet access and Wi-Fi are available free of charge. The Lakefield Library is located at 410 Main Street. The library is housed in a newer building which is in excellent condition and provides ample space for its patrons.

4. Lakefield City Pool

Lakefield has an excellent outdoor pool with amenities for children and adults. The pool is equipped with a zero entry pool for young children, slides, a climbing wall, a diving board, and lounge chairs and green space for adults. The deep end of the pool is 12 feet, which offers a great place for children to learn how to drive. The pool offers swimming lessons and two hours per week of adult only activities which may include water aerobics, water Zumba, and lap swim. The Lakefield City Pool is a great place to have a picnic, relax by the pool or in green space around the pool, and have fun with the entire family.

5. Municipal Liquor Store

The Lakefield Municipal Liquor Store has a good location, 309 North Highway 86. This facility services the community needs and generates revenue for the city government. Current facilities are meeting the existing needs, however, expansion and relocation is being considered. Reasons for expansion or relocation are related to parking, traffic at the current location, and the availability of space for product. The new location shall work to address parking as well as space for an expanded selection of wine and beer .

6. Southwest Minnesota Broadband Services

Southwest Minnesota Broadband Services (SMBS) is a consortium of eight communities (Jackson, Lakefield, Round Lake, Bingham Lake, Brewster, Wilder, Heron Lake and Okabena) that will leverage the initial success of the Windomnet network, a fiber-to-the-premise network serving the community of Windom, Minnesota. By leveraging the expertise and initial capital expenditures of the Windomnet network, SMBS will be able to provide high-speed internet, voice and cable television services to the communities in the SMBS network without some of the initial capital outlays required for a new project. Lakefield is an active member of the Joint Powers Board governing the SMBS.

7. Lakefield American Legion Post

The American Legion's building is located at 413 Main Street. Meetings, fundraising events, and public events are held at this site in conjunction with the Legion. A mainstay of the community are pancake breakfasts held at the legion on a regular basis. The facility has a kitchen and a large dining space, which is available for public rental.

8. Lakefield Veterans of Foreign Wars (VFW)

The Hanson Ward VFW in Lakefield is located at 405 North Highway 86. The facility is a gathering place for local residents and has space available for public rental. There is a menu for lunch and dinner and there is a Friday night steak and shrimp dinner once a month.

9. Multi-Purpose Center

The multi-purpose center is located at 112 South Main Street in Lakefield. It serves as both a senior citizen center and community center. The center is utilized as a senior meal site and has activities for seniors to participate in. As a community center, the facility is used for family reunions, community meetings, high school graduations parties, and for other events where a dining hall or meeting room is needed. Local residents and community groups are charged a very nominal charge for the use of the space. It is open and available to all area residents.

10. Jackson County Historical Society

The Jackson County Museum is located at 307 North Highway 86 Lakefield. This facility serves as the museum and historical society for the county. Numerous exhibits are housed within this structure featuring local history and geology. Current exhibits include: early settlement displays, the Indian Conflicts of 1857 & 1862, Jackson County Forts, the story of Heron Lake, the story of the witches of

LoonLake, early housekeeping and homemaking exhibits, manuscripts, books, photos, biographical library, newspaper microfilm from 1870, census microfilm from 1857, and microfilm naturalization papers from 1870. The museum is open Monday through Friday 9:30 am to 4:30 pm and Saturdays from 8am to Noon. Contact number for appointments for all other times: 507-662-5505.

11. Health Care Facilities

Colonial Manor is a 37 bed skilled nursing home facility located on Emerald Valley Golf Course in Lakefield at 403 Colonial Ave. Colonial Manor's Mission is to provide dignity, comfort, and quality care to our residents in an environment that promotes a person's independence. Colonial Manor provides a number of services that include 24 hour licensed nursing care (Medicare and Medicaid Certified), IV therapy, physical therapy for inpatient and outpatient needs, hospice, adult day/respite care, daily activities, three nutritious meals, spiritual activities, beauty shop services, and admissions 7 days a week.

Valley View Assistant Living overlooks Emerald Valley Golf Course and offers one bedroom and one bedroom deluxe apartments. Each apartment has a spacious kitchen, living room, bedroom, and private bathroom, ample closet space, telephone hookup, air conditioning, and 24-hour emergency response system. Valley View offers a comfortable and secure environment, combining the privacy and independence of your own apartment with the peace of mind that comes with the on campus support services.

Doman-Rose Place is a 21 unit assistant living facility that features both single and double rooms with a shared or private bath with tub or shower. Doman-Rose is only three blocks from downtown and provides comfortable and affordable living

arrangements. Residents can live maintenance free since they do not have to worry about shoveling snow, buying groceries, lawn care, cooking, or being alone. Doman-Rose provides 24-hour awake staff to offer warm, comfortable environment. For more information visit Doman-Rose Place online at www.habsvinc.com/domanrose.asp.

12. Minnesota Board on Aging

The Minnesota Board on Aging (MBA) is the gateway to services for Minnesota seniors and their families. MBA listens to senior concerns, researches for solutions, and proposes policy to address senior needs. In addition, MBA administer funds from the Older Americans Act that provides a spectrum of services to seniors, including Senior LinkAge Line®, Insurance Counseling and more. The Senior LinkAge Line® can be reached by calling 1-800-333-2433 or going online to www.minnesotahelp.info. The Regional Office for the Board on Aging Ombudsman is located at 307 Bush Street. The Minnesota River Area Agency on Aging local office is located in Slayton.

First established in 1956, the MBA is one of the pioneers in the field of aging policy, information and assistance. It works closely with its Area Agencies on Aging, which are located throughout the state, to provide services that seniors need. The Board's 25 members are appointed by the governor.

The Minnesota River Area Agency on Aging®, Inc. serves the 27 counties of southwest Minnesota and has offices in Slayton, Willmar and Mankato. For more information, go to www.mnraaa.org. Work plan focuses for 2013 include, but are not limited to the following: Live Well at Home, Home and Community Based Services expansion and Communities for a Lifetime.

13. Jackson County Extension Service

Offices for the University of Minnesota Extension Service, for Jackson County, are located at 607 South Highway 86 Lakefield. This service functions as an informational and assistance center for the 4-H clubs, area residents and farmers. Consumer questions can be answered ranging from yard and garden questions to nutrition. The extension service is very active in both community and county activities like the annual county fair.

14. Jackson County Development Achievement Center (DAC)

The mission of the Jackson County DAC is to provide community integration, social and emotional support, and occupational opportunities to the people we serve. The Jackson County DAC is a private nonprofit 501(c)(3) corporation, licensed by the Department of Human Services to provide Day Training and Habilitation (DT&H) services to individuals diagnosed with intellectual/developmental disabilities. The DAC also has its own bus which is used to transport these individuals to local activities and functions. The DAC is located at 304 North Second Avenue Lakefield.

The DAC owns and operates a thrift store in downtown Lakefield which provides quantity and quality for amazing prices. The thrift store also offers great employment opportunities for individuals served by the DAC. The thrift store is located at 220 Main Street Lakefield.

15. Soil and Water Conservation District (SWCD)

The State of Minnesota operates a SWCD office at 603 South Highway 86 Lakefield, which serves Jackson County. The SWCD provides technical assistance to all Jackson County private and public land owners regarding environmental issues and geographical information. SWCD provides voluntary, incentive driven approaches to landowners for better soil and cleaner water in the State of Minnesota. Private landowners with financial and technical assistance from local SWCDs are implementing a wide variety of conservation practices including restoring wetlands, planting shelterbelts and buffers, and preventing soil erosion.

Another way SWCDs address local needs is by serving as an efficient and effective delivery provider of state programs. These programs include Reinvest in Minnesota (RIM) Reserve, Wetland Conservation Act, Local Water Planning, Clean Water Partnership grants and Feedlot Water Quality Cost-Share, among others. Private landowners trust districts to provide needed technology, funding, and educational services because SWCDs are established in each community, are governed by local leaders, and are focused on conservation of local soil and water resources.

16. Farm Service Agency (FSA)

The mission of the Farm Service Agency is to equitably serve all farmers, ranchers, and agricultural partners through the delivery of effective, efficient agricultural programs for all Americans. The office serves Jackson County farmers and collects agricultural data. This U.S. Government office is located at 601 South Highway 86 Lakefield.

17. City Hall

Lakefield's City Administrative Offices are housed in a centrally located building within the Central Business District located at 301 Main Street. The building is in good condition and is a traditional historical building on Main Street.

Housed within this building are the offices of the City Clerk, City Superintendent, Utilities Clerk, Finance Manager and Police Chief (see Law Enforcement Section). These persons conduct the day to day operations of the community, including utility collections. This location is also where the council chambers are located, with regularly scheduled meetings the first Monday, after Sunday and two weeks later at 7:00 p.m.

18. Law Enforcement

Lakefield's Law Enforcement Offices and facilities are located in the City Hall building at 301 Main Street. The department consists of a full-time police chief, two full-time officers, and one-part time assistant. The Jackson County Sheriff's Department is also on-call and available for use in Lakefield. The County Law Enforcement Center, in Jackson, houses the Sheriff's Department, Jail, and 911 Communications Center. Lakefield's Law Enforcement Department has 2 vehicles which are used for patrolling and other transportation needs.

19. Fire Hall and Ambulance Garage

Lakefield has a volunteer fire department which is housed at 111 Main Street, a block from the City Hall. The fire station is currently only one block from Minnesota Highway 86 and Jackson County Road 14, which provides easy access to all parts of the community and surrounding area. The building contains fire equipment storage, vehicle storage, a meeting area, and maintenance room. Lakefield has

pumper units, a tanker, a rescue truck, and a grass rig which are all utilized for fire fighting and emergency situations.

Lakefield Ambulance garage houses two ambulances and a small meeting room for the volunteer service providers.

20. Public Works Garages

These facilities are located at 309 North Highway 86. The garages house city street and maintenance equipment, a shop, and vehicle storage. Lakefield has two backhoe units, a dump truck, two snowplow trucks, and several smaller vehicles which are utilized by street and maintenance personnel.

21. Minnesota State Highway Truck Station

A truck station is currently located in Lakefield on Minnesota Highway 86, which houses three trucks. These trucks are used for snow removal and highway maintenance. Other city maintenance equipment is also housed in this facility.

22. Waste Treatment and Disposal Plant

Lakefield's wastewater is treated by a sewage treatment plant located on the north side of the city, at 932 North Highway 86. This facility handles the effluent from the municipality and discharges filtered water. The facility began construction in 1987 and came on-line in September, 1990. The facility operates well within State of Minnesota Pollution Control guidelines. In 2011/2012 a study was done to adapt the plant to meet possible phosphorous allowance reductions in future MPC guidelines. This study showed a potential \$10 million cost to the needed upgrade. The study included replacing aged equipment in the plant that is reaching the end of its life. For more information refer to the section on infrastructure.

23. Public Utilities

The City has a number of public utilities services offered to its citizens. The municipal power plant building is located on Mill Road, in central Lakefield. The power plant has two generators which are only utilized during peak load periods or for emergencies. A pole building in the industrial park is also owned and used by the Public Utilities Department. Currently, the City operates the electric power and the water and sewer utilities.

24. Jackson County Highway Station

Jackson County maintains a highway station in Lakefield, which is located one block west of Highway 86 on Third Avenue North. This building will become the property of the City of Lakefield, replacing the city's current street shop facility. Jackson County will be relocating to a new site at 45930 820th Street. At this site the county will house some highway maintenance equipment including a mower, truck, and snow plows. There is also a pile of sand on site which is used seasonally to de-ice the roads. The sand is also used by the City of Lakefield for city streets.

A new county shop is being constructed in 2013. This shop will be located on the east side of Lakefield along the Mill Road. The facilities will house five snow plows, one grader, and other maintenance equipment. There will also be a separate shed for salt and sand on the site.

Infrastructure

The availability and adequacy of Lakefield's infrastructure is a vital element necessary for the achievement and maintenance of a quality community environment. For the purposes of this document, infrastructure will be defined as the basic facilities, equipment, and installations needed for the functioning of a city. Such facilities would include streets, water, sewer, electricity, gas, etc. (Although streets are part of a city's infrastructure, they are addressed in detail within the transportation section.) Conformance to high standards of economy and service should always be encouraged in every aspect of the infrastructure system whether public or private.

Water System

The original water distribution system in Lakefield was built more than 80 years ago, although the exact date is unknown. Since the original construction many upgrades and improvements have been continuously made throughout the years. The following is a brief description of the water system in Lakefield, divided into four categories (supply, storage, treatment and distribution).

1. Water Supply

The water supply in Lakefield is procured by a series of two wells.

Well #4 was built in 1987 and has a depth of 205 feet. This well has a 12 inch casing which runs down 186 feet. Well #4 has the capacity to pump 220 gallons/minute through 19 feet of screening.

Well #5 was built in 2004 and has a depth of 205 feet. This well is in the same location as Well #4. Well #5 has also has 12 inch casing which runs down 186 feet. Well #5 has the capacity to pump 220 gallons/minute through 19 feet of screening.

Well #1, #2, and #3 are no longer in use. Before Lakefield updated their water treatment facilities in 2004 the city had two water treatment plants. One plant was located in the downtown area and the other was located on the west side of the city. The two locations had slightly different raw water quality, making each facility its own unique situation and complicated to operate.

Lakefield wanted to simplify its water supply system and one larger capacity central facility made the most sense. The City began to evaluate building sites in addition to evaluation the existing well water quality. Bolton & Menk Inc reviewed various treatment process and location options. The decision was made to build a new treatment facility near downtown and use the existing adjacent well, which is Well #4. The other wells on the west side of the city, Wells #1, #2, and #3 are no longer used.

Lakefield is currently in the planning stage of adding another well to their water supply system. This new well will be named well #6. Well #6 will be located in the parking lot next to the public library. This location is less than a block away from well #4 and #5. This new well will be at a depth of depth of 205 feet and will act as a reserve well for the water supply system.

2. Water Storage

Currently existing in the City is an elevated water storage tank, situated in the approximate center of town. The tank has a storage capacity of 300,000 gallons, which is adequate for the system needs. The storage tank was built in 2003. There is also a 150,000 gallon ground storage reservoir (clearwell). Lakefield has a storage capacity of 450,000 gallons.

3. Water Treatment

The City of Lakefield is fortunate to have access to an adequate, largely uncontaminated supply of water. The treatment plant consists of aeration/detention and a three cell gravity sand filter. The water is pumped from the two wells located adjacent to the facility site.

The oxidation process begins with an induced draft aerator. The aerator introduces oxygen to the water through a system of small waterfalls cascading over a series of PVC tubes. The dissolved iron in the water oxidized with contact to the oxygen form small particles that can be filtered out. The aerator is followed by chemical addition of chlorine and potassium permanganate which completes the iron oxidation, and also oxidizes the manganese in the water. These reactions occur in the 12,000 gallon detention tank where the water is held 40 minutes prior to filtration.

The gravity filters consist of three, 5-foot by 10-foot filter beds that are approximately 16-feet tall. Within the filter is filtration media that captures the oxidized iron or rust particles and the oxidized manganese particles. The media consists of 18-inches of filter sand and 12-inches of anthracite. Polymer is also added prior to the filter to catch the oxidized iron and manganese and develop large particles called floc, which are more easily filterable.

Trapped iron and manganese particles in the filter media are removed through a process called backwashing. Backwashing is accomplished by pumping water and air through the media from the bottom up. The lighter iron and manganese particles are carried out of the filter in the backwash while the heavier sand and anthracite filter media settles back down once the process ceases.

The filtered water flows to a 150,000 gallon ground storage reservoir (clearwell). Water from the clearwell is pumped into the distribution system using service pumps. These pumps are capable of pumping 300 gallons per minute (gpm) into the distribution system during normal operations. There is a fire/backwash pump which can pump up to 1,000 gpm during emergency fire conditions. Chlorine, fluoride, and polyphosphate are added to the water as it is pumped into the distribution system.

The chlorine added at this point is for disinfection and to prevent bacteria growth out in the distribution system. Generally, this is a small dose of chlorine intended to maintain the high quality of water leaving the facility. Fluoride is added to enhance public dental health. Polyphosphate is added to prevent lead and copper corrosion. Lakefield's water has a hardness rating of 634 ppm. No iron treatment or water softening is currently done for the water.

Backwash water reclamation facilities were included to recycle the backwash water from the filter back to the water treatment plant. The backwash water holding tank holds approximately 50,000 gallons. In the tank, the iron and manganese particles removed during backwashing settle to the bottom of the tank. These solids are pumped into the city sewer system. The clear water is pumped back through the treatment process. It is estimated that the recycled water will save 2 to 3 million gallons per year in ground water pumping.

The facility is designed to be monitored when the operators are not present. A computer operating system is used to monitor the various motors and equipment, and can also be assessed by computers at remote sites. An alarm is also part of the system and. Should anything fail an computer animated call will be made to the operators

informing them there is a problem.

4. Water Distribution

Lakefield's system currently has the ability to meet the demands which are placed upon it daily. The average daily demand is 200,000 gallons per day, with a peak demand capacity of 400,000 gallons per day.

Overall, the water distribution system consists of approximately 12 miles of water main varying in size from 4 inches to 10 inches. The system is comprised of mostly 4 inch mains, which is fairly common for older neighborhoods in most cities. The majority of mains are cast iron, with the newer ones (post 1960's) being ductile iron, polyvinylchloride (PVC) or asbestos cement (AC). The condition and flow characteristics are mostly unknown, however, the unlined cast iron pipes are assumed to have poor characteristics and the PVC and AC, fair to good characteristics.

The following list is an approximate breakdown of the existing water mains by size.

<u>Main Size</u>	<u>Percent of System</u>
10 Inch	1%
8 Inch	25 %
6 Inch	15%
4 Inch	59%

The water distribution system has served the community well for a number of years, however, upgrades and improvements are always necessary. Currently the system has 12 dead ends, which should be eliminated by looping the system. Looping the system would improve the overall distribution. Also, by looping the water distribution system, stagnant water would be reduced, thus reducing any health risks which may exist. Refer to Appendix B for the Water Mains Map.

5. Fire Flow Requirements

The Insurance Services Office (ISO) is an independent ratings organization which rates fire protection services for communities and rural properties.

A municipal water distribution is considered adequate if it can deliver either the maximum hour flow rate or the required fire flow rate with peak daily demands, whichever is greater. The minimum ISO recognized fire flow is 500 gallons/minute and the maximum for a single fire is 12,000 gallons/minute. Lakefield's water system currently only has the capability to pump 500 gallons per minute, which would not meet the minimum ISO fire flow while still meeting daily demand.

Lakefield has an ISO rating of 7. ISO ratings range from 1 to 10, with 10 being the worst. An ISO rating of 10 means, there is no fire protection available. Receiving a rating of 7 rating is not too bad, very few communities in Region 8 rank higher. Only the very largest cities in the area rate higher than Lakefield.

Future Needs and Recommendations

Apart from occasional fire flow shortfalls, the water distribution system in Lakefield is adequate and serves its population well. To insure that the system maintains the quality and efficiency it has in the past, the City should consider some basic recommendations.

When assessing storage needs there are two basic rules of thumb which can be used to determine storage adequacy.

1. Minimum storage should be at least 40 gallons/capita. (40 gallons x 1,694 persons = 67,760 gallons)

2. The municipal water supply should have a minimum water storage capacity equal to the average daily water usage. (450,000 storage vs. 200,000 usage)

It is necessary to maintain these standards in order to provide adequate fire flow demand, stabilize the system, and provide emergency storage in case of failures occurring in the municipal wells or during power outages. Currently, the City of Lakefield meets both of these guidelines.

Sanitary Sewer System

The exact date Lakefield's original sewer collection system was constructed is unknown. The original sanitary sewer system has been improved and expanded upon to the present system.

Sanitary Sewer Collection

Today, the system consists of 179 manholes, which are approximately 313 feet apart, and 11.71 miles (61,819 feet) of mains which range in size from 15 inches to 8 inches. The following is a brief size description of the existing sewer mains in Lakefield.

<u>Diameter</u>	<u>Number of Feet</u>	<u>Percent of System</u>
15 inches	2,454	4.0%
12 inches	5,848	9.5%
10 inches	8,329	13.5%
8 inches	45,188	73.0 %

Sanitary sewer service is generally available to all sections of the city. The older sewer mains in Lakefield are made of a vitrified clay, which has served the city well for a number of years. Since 1981, the city has commissioned a study of selected sewer mains when

street projects were undertaken. This study was conducted by sending a small television camera through the mains. The results generally showed some areas which were cracked and in need of repair. A plan to repair the cracks was approved and the work was completed on a section by section basis.

Newer sections of the city and recent additions or expansions to the sewer system use PVC plastic mains. These mains are designed to be longer lasting and better able to withstand the freezing and thawing process.

Sanitary Sewer Treatment

Lakefield's sanitary sewer system utilizes a new treatment plant which was placed on line in September, 1989. The facility is located on the east side of N. Highway 86, just south of Emerald Valley Golf Club. The National Pollutant Discharge Elimination System (NPDES) permit number for Lakefield is MN0020427, and has requirements for maximum discharge allowed for fecal coliform, turbidity, and phosphorus. The sewer system was designed for Lakefield's present and future needs. For Lakefield Public Utility rates as of January 20, 2013 refer to figure I-1.

The Facility consists of a bare screen grit removal system followed by a flume, a lift station, two channel oxidation ditches, two secondary clarifiers, and finally a chlorination station and de chlorination station. The facility is designed for an average wet weather design flow of .582 million gallons per day (mgd). Lakefield's current demand flow is .290 mgd. The facility discharges treated wastewater to an unnamed stream that drains into South Heron Lake. Biosolids treatment consists of a rotary drum thickener, AutoThermal Thermophilic aerobic digestion (ATAD) reactor, and an aerobic underground storage tank. Biosolids produced by the facility are Class A biosolids. The biosolids are land applied at approved land application sites.

Sanitary Sewer Infiltration/Inflow

Infiltration/Inflow exists to some degree in all sanitary sewer systems. Infiltration is a result of either groundwater entering the sanitary sewer system through leaking pipes and manholes or rainfall percolating through the ground and entering the sewer system through foundation drains and/or coming through poorly constructed service connections.

Infiltration/Inflow can have a number of negative effects on a sewer system. Grit can be carried into the system, dilution can hinder treatment, and overloading can damage processing equipment. Extensive inflow can quickly cause a system to exceed capacity of the sewer system and cause wastewater to backup in basements.

Elimination of excess infiltration/inflow in addition to saving tax dollars, can lower the costs of operating the system, reduce the threat of basement flooding, eliminate grit from the system and eliminate the need for bypassing.

Sanitary Sewer System Strengths and Weaknesses

The sanitary sewer system has two significant strengths. The first is the treatment plant. The facility utilizes up to date treatment techniques and operates efficiently. The second strength is that the system has been designed with excess capacity. This large capacity allows Lakefield to grow and pursue industry without the additional expense of expanding the facility.

One main weakness in Lakefield's system exists. There is a high level of infiltration and inflow into the system. Infiltration and inflow can cause problems and be costly, as outlined in the previous section. Refer to Appendix C for the Sanitary Sewer System Map.

Electric Utility

The electric utility comprises a large part of Lakefield's infrastructure. It is a publicly owned and operated utility. Maps which show the electric lines in Lakefield are available for viewing at the City Hall, in the Public Utilities Office.

Lakefield's electric system efficiently serves its customers by providing reliable power at reasonable rates. Rates are kept reasonable by effectively purchasing power from a larger power generating station. The power is then resold to the individual residential and industrial users. A power generation plant does exist in Lakefield; however, it is only used in times of emergency. Lakefield does receive income for keeping the local power generation plant online for emergencies.

At this time, the electric utility serves users in and around the municipality. There are 813 residential users and 149 commercial users currently on the system. For Lakefield Public Utility rates as of January 20, 2013 refer to figure I-1.

Natural Gas

The City of Lakefield is served by one natural gas company, Minnesota Energy Resources. The mission of Minnesota Energy Resources is to provide customers with the best value in energy and related services. Minnesota Energy Resources operates in 51 counties and 165 communities throughout Minnesota. This utility has 853 users in the immediate Lakefield area, 735 residential and 118 commercial.

At present, the natural gas system in Lakefield provides adequate service to its users and there is no need for significant expansion or improvements. Minnesota Energy Resources has provided safe, reliable natural-gas distribution to Minnesota residents for more than 80

years. Minnesota Energy Resources purchases services and materials through Supply Chain Services at our parent company, Integrys Energy Group.

Gopher State One Call (811) is a one call notification system established to inform all Minnesota underground facility operators of intended excavation. The service is no cost to Minnesota residents in locating utility lines (electric, sewer, water, gas, telephone, etc). They notify the utilities in the area who come out and mark the location of the buried lines. If an individual citizen is going to do any digging, whether the placement of trees or a construction project, it is their responsibility find the location of the lines before any digging occurs.

Refuse Collection

The City of Lakefield service contract is with Schaap Sanitation. Schaap Sanitation and Waste Management both offer services in Lakefield. Residential and business waste disposal is left up to each individual or business to contract for their service. The rates for garbage collection are based upon a volume system and size of the container. The rates can be found by visiting schaapsanitation.com and wm.com.

The recycle services in Lakefield are managed under the authority of Jackson County. Currently, residential recycling service is contracted to Waste Management. The residential recycling service is a single sort service with curb side pickup on alternating Fridays. Commercial recycling services are left up to each business to contract with a provider.

2010 Drinking Water Report: City of Lakefield

City of Lakefield 2010 Drinking Water Report

The City of Lakefield is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2010. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

Source of Water

The City of Lakefield provides drinking water to its residents from a groundwater source: two wells ranging from 195 to 205 feet deep, that draw water from the Quaternary Buried Artesian aquifer.

The Minnesota Department of Health has determined that the source(s) used to supply your drinking water is not particularly susceptible to contamination. If you wish to obtain the entire source water assessment regarding your drinking water, please call 651-201-4700 or 1-800-818-9318 (and press 5) during normal business hours. Also, you can view it on line at www.health.state.mn.us/divs/eh/water/swp/swa.

Call 507-662-6363 if you have questions about the City of Lakefield drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.

Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The table that follows shows the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2010. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detections occurred.)

Key to abbreviations:

MCLG – Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL – Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL – Maximum Residual Disinfectant Level

MRDLG – Maximum Residual Disinfectant Level Goal

AL – Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

90th Percentile Level: This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. (For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples.) Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

pCi/l – PicoCuries per liter (a measure of radioactivity)

ppm – Parts per million, which can also be expressed as milligrams per liter (mg/l)

ppb – Parts per billion, which can also be expressed as micrograms per liter (µg/l)

nd – No Detection

N/A – Not Applicable (does not apply)

Contaminant (units)	Level Found				Typical Source of Contaminant
	MCLG	AL	90% Level	# sites over AL	
Alpha Emitters (pCi/l)	0	15.4	N/A	7.2	Erosion of natural deposits.
Arsenic (ppb) (05/31/2006)	0	10	N/A	3.82	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Fluoride (ppm)	4	4	N/A	1.2	State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth; Erosion of Natural deposits; Discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen) (ppm)	10.4	10.4	N/A	.68	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
THM (Total trihalomethanes) (ppb) (09/08/2008)	0	80	N/A	3	By-product of drinking water disinfection.

* This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

Contaminant (units)	MRDLG	MRDL	****	*****	Typical Source of Contaminant
Chlorine (ppm)	4	4	.1–1.42	.5	Water additive used to control microbes

**** Highest and Lowest Monthly Average

***** Highest Quarterly Average

Contaminant (units)	MCLG	AL	90% Level	# sites over AL	Typical Source of Contaminant
Copper (ppm) (06/17/2009)	1.3	1.3	.54	0 out of 10	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb) (06/17/2009)	0	15	nd	0 out of 10	Corrosion of household plumbing systems; Erosion of natural deposits

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. City of Lakefield is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Some contaminants do not have Maximum Contaminant Levels established for them. These unregulated contaminants are assessed using state standards known as health risk limits to determine if they pose a threat to human health. If unacceptable levels of an unregulated contaminant are found, the response is the same as if an MCL has been exceeded; the water system must inform its customers and take other corrective actions. In the table that follows are the unregulated contaminants that were detected:

Contaminant (units)	Level Found		Typical Source of Contaminant
	Range (2010)	Average /Result	
Sodium (ppm) (11/18/2009)	N/A	24	Erosion of natural deposits
Sulfate (ppm) (11/18/2009)	N/A	410	Erosion of natural deposits

Compliance with National Primary Drinking Water Regulations

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

(May 5)

Figure I - 1

LAKEFIELD PUBLIC UTILITIES

301 Main Street
P.O. Box 1023
Lakefield, MN 56150

Rates as of January 20, 2013

6.875% tax charged on electrical and commercial water.
All electrical 6.875% tax for summer months only.

Residential Electric	In Town	.090/kwh + \$8.50 base charge per meter
“	“	Out of Town .090/kwh + \$15.00 base charge per meter
Commercial Electric	In Town	.090/kwh + \$12.00 per electric meter
“	“	Out of Town .090/kwh + \$20.50 per electric meter
“	“	In Town 80% Tax Exempt .090/kwh + \$12.00 base per electric meter
“	“	In Town 90% Tax Exempt .090/kwh + \$12.00 base per electric meter
“	“	In Town 100% Tax Exempt .090/kwh + \$12.00 base per electric meter
All Electric Winter		.090/kwh + \$8.50 base – In Town, \$15.00 base – Out of Town, No Tax.
All Electric Summer		.090/kwh + \$8.50 base – In Town, \$15.00 base – Out of Town, 6.875% Tax.
Electric City Rate		.090/kwh + \$12.00 base charge.
Street Lights		.100/kwh + \$12.00 base charge.
Water Commercial Sewer		\$4.50/1,000 gal. of water + \$8.00 base charge & \$3.81/1,000 gal. of water used + \$12.00 base charge.
Water Commercial		100% Tax Exempt with no sewer charge. \$4.50/1,000 Gal. of water + \$8.00 base.
Water Commercial Sewer		In Town - \$4.50/1,000 gal. of water + \$8.00 base & \$3.81/1,000 gal. of water used + \$12.00 base.

Figure I - 1

LAKEFIELD PUBLIC UTILITIES
301 Main Street
P.O. Box 1023
Lakefield, MN 56150

Rates as of January 20, 2013

Water Commercial Sewer	Out of Town - \$6.65/1,000 gal. of water + \$18.00 base & \$6.65/1,000 gal. of water used + \$22.00 base.
Water Commercial Sewer	In Town 80% Tax Exempt \$4.50/1,000 gal. of water + \$8.00 base & \$3.81/1,000 gal. of water + \$12.00 base.
Water Commercial Sewer	In Town 100% Tax Exempt \$4.50/1,000 gal. of water + \$8.00 base & \$3.81/1,000 gal. + \$12.00 base.
Water Commercial	In Town – No sewer. \$4.50/1,000 gal of water + \$8.00 base.
Water Commercial	Out of Town – No sewer. \$6.65/1,000 gal. of water + \$18.00 base.
Water Residential Sewer	In Town \$4.50/1,000 gal. of water + \$8.00 base & \$3.81/1,000 gal. of water + \$12.00 base.
Water Residential Sewer	Out of Town \$6.65/1,000 gal. of water + \$18.00 base & \$6.65/1,000 gal. of water used + \$22.00 base.
Water Residential	Out of Town – No Sewer \$6.65/1,000 gal. of water + \$18.00 base.
Water Residential	In Town – No Sewer \$4.50/1,000 gal. of water + \$8.00 base.
Water/Lawn Meters	\$5.65 per 1,000 gal. of water

Energy

The section on energy is primarily going to focus on personal energy units and renewable energy within the City of Lakefield. Personal energy units are small scale energy producing devices designed to power a specific device or something as large as a home. This section will address policy regarding solar panels, wind turbines, and geothermal energy units installed within city limits.

Solar

Solar energy can be harnessed in two ways, solar thermal or photovoltaic. Solar thermal technology uses the sun's energy, rather than fossil fuels, to generate low-cost, environmentally friendly thermal energy. This energy is used to heat water or other fluids, and can also power solar cooling systems. Photovoltaic (PV) is a method of generating electrical power and can be used to power a water pump or light in a garden to larger panels powering a house and contributing to the power system. Both thermal and PV require a solar panel to collect the energy.

The Planning and Zoning Code in Lakefield requires proper permitting for solar panels to be installed. Solar panels that require permits are any kind of solar panel used to power anything other than itself. These are generally solar panels that are permanently fixed in position. The size of the solar panel is not specified policy. Landscaping lights and other similar solar panel products are allowed without permits. These solar panels are classified as providing power for itself and would not require a permit. Contact the City of Lakefield to get information regarding the permitting process.

Wind

Wind turbines also come in a variety of sizes. Small turbines can be used to power aeration

systems on ponds and lakes and larger turbines have been installed within city limits to power schools and other public facilities. The Planning and Zoning Code in Lakefield requires proper permitting for wind turbines. Wind turbines requiring permits are any kind of wind turbine used to power anything other than itself. Small Wind mills can be used for decoration as long as they are not used as a power source. Contact the City of Lakefield to get information regarding the permitting process.

Geothermal

There are some legal issues raised by geothermal energy resources that include questions of ownership and allocation of the resource. Other concerns arise in regards to emissions as a result of fluids being drawn deep within the earth. These emission may result in unpleasant smells.

There are both open and closed loop geothermal systems. Open-loop systems allow the mixture of gases, notably carbon dioxide (CO₂), hydrogen sulfide (H₂S), methane (CH₄) and ammonia (NH₃), to be released into the air.¹² There is often a notable smell of rotten eggs that can exist in an open-loop systems emit.

Closed-loop systems are more common and better for the environment. Closed-loop systems contain all of the gases and fluids it extracts from a well and re-injects them after it removes the heat.¹² In this system essentially nothing is lost and there is no odor in the air. The drawback is the closed-loop system is more expensive than an open-loop.

Present Land Use

The livability and viability of a community are largely dependent on the pattern of its many, varied land uses. Transportation efficiency, the accessibility of various activities, and the quality of life for the City's residents are determined in many cases by the urban land use arrangement. The classification of a specific land use affects how a community using that area of land. The classification of land uses in turn affects activity levels and health. It is important to consider the health impact of different land use classifications.

An analysis of the existing land uses in Lakefield will enable one to evaluate the geographical elements of the community with the purpose of identifying both assets and deficiencies. Once this information has been analyzed and quantified, it can be coordinated with future land use goals and policies, and the suitability of future growth areas for various types of development. Also, the information gathered and analyzed will be utilized to determine and facilitate the evolution of a realistic and viable Land Use Plan for the City of Lakefield. Existing land uses in Lakefield will be analyzed within the following classifications:

Residential - land utilized for single and multiple family dwellings

Multi-family Residential – land utilized for multifamily dwellings such as duplexes and apartment complexes

Mobile Home Park – land utilized for residential that also allows for mobile homes

Commercial - land utilized for the sale and/or distribution of goods or services

Industrial - land utilized for the manufacturing, assembling, or warehousing of goods

Public / Semi-Public - land utilized for schools, churches, museums, community centers, utilities, and all governmental or institutional buildings, structures or facilities

Parks and Green Space - land utilized for the purpose of providing recreation and open space, including uses such as tennis courts, ball fields, picnic areas, etc.

Agricultural - land utilized for agricultural purposes

Vacant Land - unoccupied lots or parcels

Golf Course - land utilized for a golf course

Table ELU-1 shows the types of existing land uses within the municipal boundaries of Lakefield. The figures are based off of the parcel map for the City of Lakefield and were calculated using GIS.

Table ELU - 1		
Present Land Use: Lakefield		
Category	Acres	Percent
Residential	248.5	36.5%
Commercial	49.8	0.3%
Industrial	22.8	0.8%
Public / Semi Public	38.8	7.3%
Parks and Green Space	26.4	3.3%
Golf	46.1	5.7%
Industrial	22.8	3.9%
Agricultural	228.9	33.6%
Vacant	12.1	1.8%
Total	681.2	6.8%

Residential

Lakefield is a small rural city and like most small rural cities in the United States, the city is dominated by one type of land use - residential. In 2012, there were approximately 738 single family households and nine multi-family buildings in Lakefield. Single family households include detached single family homes and mobile home trailers, whereas, multi-family households are usually found within apartment complexes, quads or other attached arrangements.

There are three types of residential densities in Lakefield's urbanized area. These densities are commonly referred to as "low", "medium", and "high". The general rule used to determine an area's density is outlined as follows:

Low Density	2.6	Dwelling Units per acre
Medium Density	7.0	Dwelling Units per acre
High Density	12.0	Dwelling Units per acre

The majority of low density development in Lakefield is located around the outskirts of town. In Lakefield these lower density areas are around the golf course, on the Okabena Road in the western section of town, and in the southern section on the east side. These areas are identified by the uniform lot sizes, wide widths, and relatively large lot sizes. Normally sized lots in Lakefield are generally 100 by 100. In the newer developments the lot size is generally bigger, ranging from approximately 100 feet or wider and at least 135 to 150 feet deep. Low density residential housing areas are commonly the newer housing development areas in a community.

Medium density residential developments are found throughout the City of Lakefield. This density type is associated with older neighborhoods or original plat areas of a community. Typically the lot sizes in this area are 50 to 75 feet wide and 135 to 150 feet deep, depending upon the block size. The majority of Lakefield's residential housing units are in the medium density areas, which surround the central business district.

High density residential development usually occurs in areas where multi-family structures are dominate. Apartment complexes, duplexes and older homes converted to apartments comprise this type of residential land use. In Lakefield, there are relatively few structures of multi-family housing units. The multi-family housing structures in Lakefield are scattered

throughout the city, not located in one specific area.

Historically, residential development in Lakefield produced a regular growth pattern. Lakefield's growth has been influenced by the municipal boundaries, which range north and south more than east to west, resulting in a rectangular shape. Development has occurred within the City limits, for the most part. Generally, a city will develop around a central focal point, like the central business district, and continue to expand in all directions outward. This is the case in Lakefield, where development was centered around the central business district and Highway 86. The City's development pattern has traditionally and consistently pushed north and south, because of the highway 86.

Overall, Lakefield's residential neighborhoods are adequate and well kept. In 2012, there were two older houses in Lakefield that were destroyed. These two houses fell into disrepair and were not worth salvaging. The majority of residential structures show no significant need of repair. There are number of housing units in Lakefield that are pre-1940 and could benefit from increased maintenance and/or rehabilitation. Ultimately, a sound, quality residential area will reflect the attitudes of the individuals, their neighborhoods, and lastingly the attitude of the entire City.

Commercial

In most communities there are different types and levels of commercial activity. Lakefield's commercial activity can be divided into three areas: limited, general and retail. Limited activity offers office space for professionals, civic groups, etc. General activity normally refers to a variety of service oriented businesses such as gas stations, restaurants, etc. Retail activities are usually clustered in retail developments, or the central business district. These types of businesses include clothing, pharmacies, furniture, banking, etc. Many of these activities are considered compatible within the same area, while others are not.

Nevertheless, similarly oriented businesses should be encouraged to locate near each other to promote clustering and discourage strip commercial developments.

Localization economics is the study of firms in the same industry and why they often locate close together. Firms in the same industry locate close together so they can take advantage of economies of scale in intermediate inputs. Multiple firms can support an input supplier and the cost can be spread across multiple businesses.

Urbanization economics is the study of firms in different industries and why they locate close together. Firms in different industries locate close together so they can benefit from sharing intermediate inputs, large labor pool to draw from, and positive externalities from shopping. Positive externalities from shopping happen when an individual goes shopping for one specific item and the shopper see something nearby and purchases that are well.

The City of Lakefield has relatively strong and vital central business district (CBD), which is the main focus of downtown. Lakefield and its businesses have made efforts to maintain a strong retail core by locating in the CBD, rather than locating along the City's fringes. To maintain this strong CBD the City must encourage and assist existing businesses with expansions, as well as helping to locating future businesses in the downtown area.

Helping to promote clustering of businesses not only makes economic sense in some cases, but helps to promote an active lifestyle. If the majority of businesses are located on Main Street then it would be manageable to walk from shop to shop. This would increase the communities activity levels and would be another positive externality from shopping. Having a compact business district will help to make the community healthier and more sustainable.

Development along Highway 86 is not as compact and as the CBD on Main Street. Development has occurred along Highway 86 due to the high average daily traffic volumes compared to Main Street. These highway businesses have traditionally been pushing strip development further from the center of Lakefield. In a number of incidences there are gaps in the business district along Highway 86. Having businesses more spread out along with faster vehicle speeds make walking and bicycling from one business to another on 86 less convenient and safe.

Compact commercial development along Highway 86 should be encouraged and promoted as an efficient use of public utilities (water, sewer, roads, etc.), an efficient use of land (highway frontage), and to promote a more active lifestyle. This may be accomplished through enactment or enforcement of zoning regulations and through the annexation of land. Controlling the land use around the City would help keep development contained and planned.

Industrial

There are three areas in Lakefield where industrial type businesses are located. The first and oldest industrial area is located on the south end of Main Street. This area is part of the Central Business District, but industrial type businesses would not ideally be located in this area. The grain elevator and the feed mill occupy land in this area. These businesses were established at the present locations many years ago along the old railroad line, before zoning and the industrial park were established.

The appearance of the businesses are currently adequate, however, the types of traffic and emissions they generate are sometimes hazardous. CSAH 20 is a farm to market route that intersects Main Street. CSAH 20 and south Main Street has a large volume of grain trucks

going to and from the elevator. Traffic volumes in this area make walking and bicycling less safe for pedestrians on Main Street and on CSAH 20 (refer to the section on Transportation for traffic volumes on CSAH 20).

There are also health hazards from the elevator. The elevator is located near residential housing and there is a corn dust that accumulates during the drying process. This health issue is a call for concern. Actions to reduce dust from the elevator should be pursued.

There is limited room for additional development in this area and current zoning regulation would prohibit industrial expansion. This will help to minimize the traffic and health risks in this area.

The second industrial area is located on Berg Street on the west side of Lakefield. This area has two industrial business located there. These industrial businesses are currently not an issue. There are vacant lots to the north which acting as a buffer between the industrial area and residential housing. To the east there is business development. To the west there is agricultural land. To the south there is residential development, but there is open green space between the residential development and the industrial business. The southernmost industrial business in this area is also less intrusive than the metal industrial business on the northern section of the industrial area on Berg Street.

The third industrial area is the Lakefield Industrial Park, which is located in the southwestern corner of town along Highway 86. Development has occurred in the park over the years, and current occupants include: Hussong Manufacturing, Tyson Fresh Meats, EDF Renewable Energy, and International Transmission Company (ITC). This is the preferred location for industrial businesses to be located.

Residential development is separated by Highway 86 and business development in this area. Highway 86 and business development acts as a buffer to separate non compatible land uses. Expansion or development in this area is likely to occur because of the proximity to Interstate 90. Continued efforts should be made to locate industrial businesses in the industrial park. The park's excellent infrastructure and transportation availability to Interstate 90 should have a positive effect in attracting industrial businesses to this Industrial Park.

Public and Semi-Public

A good percentage of the developed land in Lakefield is controlled by public or semi-public facilities. These facilities include schools, churches, museums, community centers, parks, cemeteries, utilities, and all governmental or institutional buildings, structures or facilities. These facilities comprise a large part of the community and their governing bodies can exert a tremendous influence on the development of a community.

Community expansion can be influenced by the construction of public or semi-public facilities. Housing development along the golf course is an example. The placement of this semi-public facility affected the residential development of Lakefield. The importance of coordinating some of these public or semi-public facilities rests in the fact that future use or expansion must be anticipated. The development of churches, schools, streets, etc. must be coordinated to ensure maximum efficiency of every public investment.

Efficiency not only refers to a maximum return on investment, but there are environmental efficiencies as well. These efficiencies refer to the return Lakefield will have by maintaining a healthy workforce. There is a substantial loss of productivity in the workplace due to illness.

“In 2007, the average direct cost of employee absence due to sickness was \$730 per employee which included the cost of lost production and the expense of covering the absence with temporary staff or overtime.”¹³

There are a number of potential benefits of regular physical activity for children that include: builds and maintains healthy bones, muscles, and joints; helps control weight, build lean muscle and reduce fat; improves sense of self-image and autonomy; fosters healthy social and emotional development.¹⁴ Research conducted by James B. Grissom has shown a positive relationship between overall fitness and academic achievement. The relationship is as fitness scores improved, achievement scores also improved.¹⁵

Being active and walking and bicycling have a variety of health benefits as well as social benefits. These societal health benefits include a higher degree of community coherence, increased social support, reduced local crime and violence, reduced traffic congestion, and improved environmental health.¹⁶ Designing our neighborhoods and cities to match the needs of pedestrians, not just motor vehicles, is critical in promoting an active lifestyle and a sustainable community.

It is also important to plan public and semi-public facilities based on the current infrastructure that includes water, sewer, streets, and electricity. The acquisition of public right-of-ways through the subdivision regulation procedure is a public-oriented land use function, and the start of a well organized community begins with the proper planning of public easements and right-of-ways. There are various institutions such as churches and funeral homes that have special needs such as parking that must be coordinated in order to avoid land use conflicts.

Parks and Recreation

Lakefield's overall recreation system includes municipal parks, county parks, Kilen Woods State Park, school playgrounds, trails, municipal swimming pool, and Heron Lake and other surrounding lakes. These facilities are scattered throughout Lakefield and the immediate area and contain a wide variation of activities for public use. Sparks Park is partially within the municipal boundaries of Lakefield and the facilities are currently being expanded. The Prairie Ecology Bus Center is currently pursuing funding for an indoor restroom facility, with showers, at the current location. In the future, the development of more trails will enhance the recreational opportunities available to Lakefield residents.

Like other public and semi-public facilities, Lakefield's recreational areas and parks should not be overlooked in the planning process. In some areas of Lakefield, where parks are not present, effective use is being made of public school grounds. It is in the best interests of Lakefield to maintain and expand parks and recreational activities in their community as part of their economic development strategy. Attracting people or entrepreneurs is a new model for increasing economic growth in a city (refer to Parks and Recreation Section for more information).

Agricultural

The majority of the city limits of Lakefield border agricultural land. There is also a large portion of agricultural land within city limits. The City of Lakefield acquired 113 acres to the east of town in the fall of 2004. This acquisition of agricultural land took place so planned expansion to the east can occur in the future. This adds to the approximate 115.9 acres of agricultural land already within city limits for a total of 228.9 acres. The other large portions of agricultural land within city limits are in the southeast and southwest sections of Lakefield. There is also a smaller section in the northwest section of town and the

the middle, west section of town. Agricultural land within city limits and bordering the city can easily be used for development when the need arises.

Vacant Land

There is 12.1 acres of vacant land within the city limits. Some of this land acts as a buffer between different types of land uses and for water drainage. Other areas are not being developed due to demand for property in Lakefield.

There are a number of vacant lots which are ready for residential development. There are lots available along the golf course, in the newer development area by North Pleasant Street, and a few lots scattered throughout the city. Lakefield is in an advantageous position for expansion. The city has planned for expansion. The water supply system and water treatment plant both have excess capacity. This will allow Lakefield to grow without having to expand their infrastructure. There are also a number of amenities to offer to people and businesses looking to relocate.

Golf Course

Golf courses can be public, semi-public, and private. A public golf course is a course that is owned by a municipality and is open to the public. This type of golf course is often included as part of the land dedicated to parks and open space for a city. Public golf courses are more readily used for other recreational activities than semi-public and private golf courses.

A semi-public golf course is privately owned and is open to the public. Emerald Valley Golf Course in Lakefield is a semi-public golf course. Semi-public golf courses are sometimes included as part of the land dedicated to parks and open space for a city. Emerald Valley Golf Course in Lakefield was given this separate section to show that

Lakefield does have a variety of parks and open spaces for recreational activities other than a golf course which may skew the numbers.

A private golf course is a course that is private owned and is not open to the public. This type of golf course is not included as part of the land dedicated to parks and open space for a city.

Summary

Lakefield's existing land uses are patterned in an efficient way, allowing for quick access to Highway 86, CSAH 14 and CSAH 20. The existing land uses help to maintain a neighborhood environment where walking and bicycling is safe. Manage Ave, Milwaukee Street, Broadway Avenue, Cherry Street, Main Street, and South Griffin Street are connectors to Highway 86, CSAH 14 and CSAH 20. This allows the majority of streets in Lakefield to be Complete Streets.

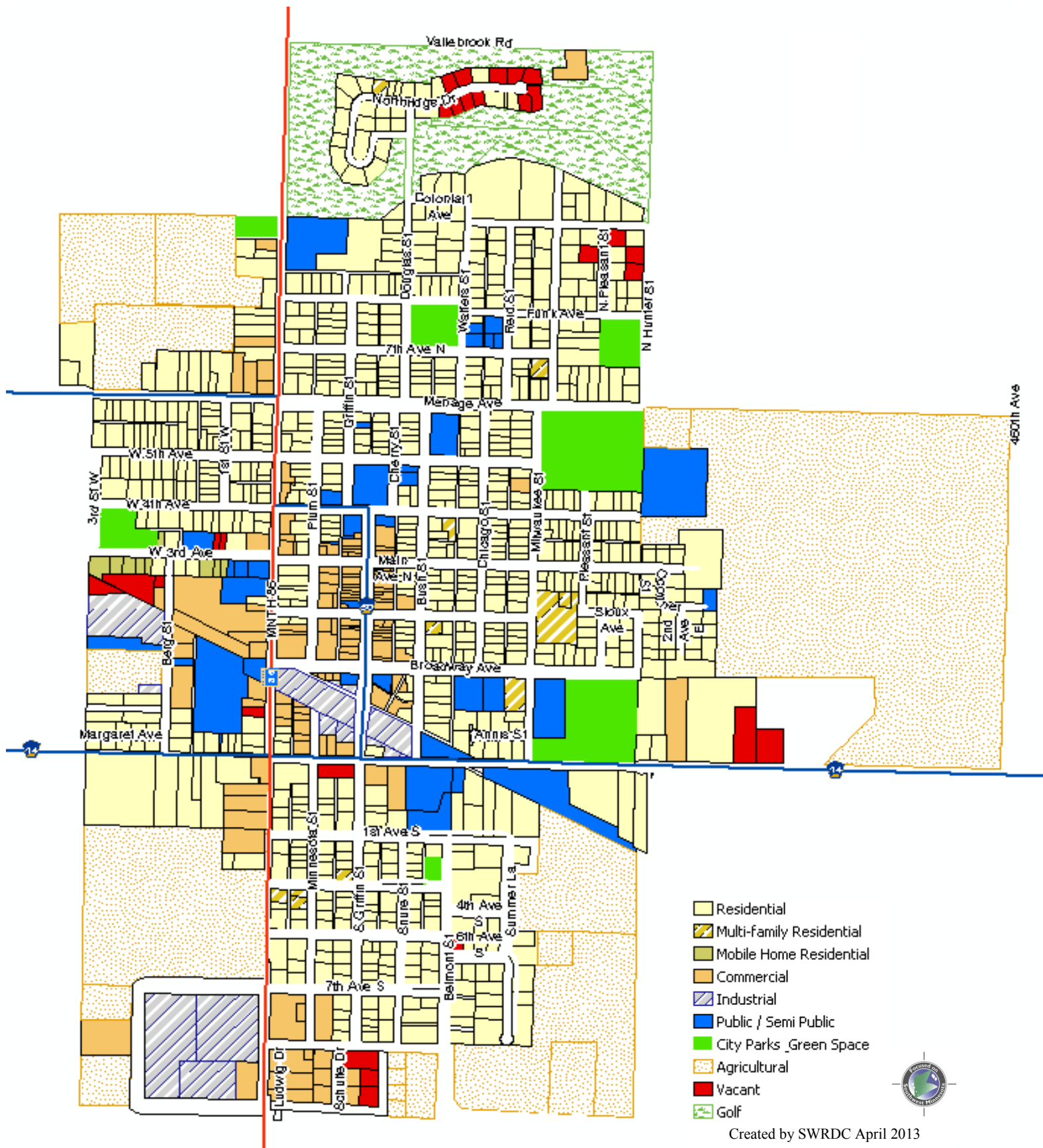
A Complete Street in a rural community may be any street that pedestrians feel safe to walk and bicycle on due lower traffic speeds, the width of the road, and other features that make the street safe. Of the 14.11 miles of streets in Lakefield, 47.27 percent has a sidewalk on one of the street or the other. Low traffic volumes, sidewalks, and other features make walking and bicycling. Improvements can be made, especially along CSAH 20 which has not sidewalk, high traffic volumes, and higher traffic speeds.

In some older areas of town there are a few conflicting land uses or areas. Around the southern portion of Main Street there is a mix of residential housing and industrial type businesses. The elevator is an industrial business that creates an increased hazard in the area. There is a large volume of grain trucks going to and from the elevator and during dry-ing process, the elevator emits a corn dust in the air. This corn dust is a serious health

issue that should be addressed.

The City of Lakefield has simple city boundaries, which allows for development in areas surrounding the Central Business District and Highway Business District. There are also several locations for industrial businesses to locate. Refer to the Future Land Use Section for more information regarding areas for expansion. At present, sufficient land exists in the City to handle residential, commercial, and industrial development needs.

City of Lakefield - Present Land Use Map



FUTURE LAND USE

The section on Future Land Use is often considered the most important element of the Land Use Plan. This is, in part, due to the planning process that goes into the section on Future Land Use. In the planning process, residents, city administrators, city staff, and elected officials review the current conditions and plan for the future. Land uses are debated and a future vision for the city is agreed upon. This planning process itself is valuable and engages people to address issues that have been growing over time.

The ideas and concepts which are derived from each specific area of the plan are used to determine the most appropriate spatial distribution of land within the City and surrounding area. The Land Use Plan and municipal zoning ordinances are not only used as a means for developing land on the City's fringes; it is also used as a way of achieving stability and orderly land use transactions in established areas of the City.

If the focus of any new development is completely aimed at open space and vacant areas around the City's outskirts, it will become more likely that private sector dis-investment and blight will occur in the older areas of the community. The main idea of the Land Use Plan is to simply direct the general arrangement of land uses which the City should seek to achieve over the long term. In order to address the land uses in Lakefield this document has divided the uses into categories. The following sections will contain brief descriptions of the current status and suggest recommendations if they are warranted.

The final portion of this Future Land Use Section will be a narrative discussing the findings of the planning committee which relate to future land uses within Lakefield. Recommendations and action steps will be included in this narrative so the desired goals can be accomplished in the near term.

Residential

Residential land use is the largest zoning classification within the City of Lakefield. In 1992, approximately 66 percent of the developed land in the City of Lakefield was residential. In 2013, approximately 36.5 percent of the developed land in Lakefield was residential. The population change from 1990 to 2010 was less than one percent. This change is largely due to the annexation of land in Lakefield. Lakefield's city limits have expanded and this has resulted in new areas that can potentially be developed for residential uses.

There are three residential classifications within Lakefield that include: low density residential, medium density residential and mobile home residential. Low density residential is mostly on the outskirts of Lakefield. Medium density is spread out throughout Lakefield. Mobile home residential is only allowed on the east side of Lakefield on 3rd Avenue West.

Additional low density residential housing is proposed on the east side of town. There is a need to expand multi-family housing units within the community. There are currently nine multi-family housing units in Lakefield that include apartment buildings, and duplexes. Walkability to Main Street should be one variable impacting future multi-family housing development. One of the most influential variables impacting additional multi-family housing units are construction costs.

The Lakefield Economic Development Authority has been and will continue to research possible locations and funding sources for additional multi-family housing units. Construction costs have been the main variable why additional units have not been developed. Multi-family housing is important in retaining the elderly population in Lakefield since home maintenance is an issue for the elderly. Continued research is needed to explore all possible options so additional multi-family housing can be development.

Future residential development in Lakefield should be encouraged to take place on vacant lots and within the city limits of Lakefield. Lots are available in most sections of the community where public utilities are already in place and can be easily accessed. Developments that desire to locate in areas where public utilities and municipal streets are not currently in place will be more costly to the City. Lots where public utilities and municipal streets are currently in place should be promoted before other development locations are discussed.

A variety of housing development and rehabilitation programs are available through the State of Minnesota, Southwest Regional Development Commission, and Southwest Minnesota Housing Partnership. Funding for housing projects in the community should be sought through these, and other, agents to address Lakefield's needs.

Commercial

Lakefield's commercial businesses are separated into two distinct areas. First, the Central Business District (CBD) which is located on the south end of Main Street. This downtown CBD consists of retail and a few service oriented businesses. Along Main Street there are only a couple of the buildings that are vacant or unused, the majority are occupied which is a good economic sign for the community. New or expanding downtown businesses should be encouraged to make use of the buildings which are unoccupied.

To enhance the ascetics of the CBD a downtown beautification project may be considered. Two locations have been identified where pocket parks could be established on Main Street. The first location is along the north side of the Legion. The second location is along the south side of the drug store. Adding these pocket parks along with benches and amenities would help to make Main Street a destination to walk and bicycle to.

The second commercial area is located along Minnesota Highway 86, which runs north and south through Lakefield. A number of service oriented businesses have developed along this section of highway to service the vehicle traffic. Businesses in this area have developed in no established pattern, just developing on vacant land which fronts the highway. Development is good for a community, however, gaps in development coupled with faster traffic speeds and high traffic volumes make it less than ideal to walk and bicycle on Highway 86.

Lakefield should consider extending a sidewalk in some areas along Highway 86 to make walking and bicycling more convenient and safer. The first priority for a sidewalk would be between the VFW and the Shed. These two bar restaurants have a number of patrons who walk between locations on a regular basis. Extending a sidewalk in this location would be done to protect pedestrians and to encourage development in this area.

Industrial

As stated in the existing land use section of this document, industrial land use is located in three areas which are the south end of Main Street, on Berg Street on the west side of Lakefield, and the Highway 86 Industrial Park. Industrial development on the south end of Main Street should be limited to the existing businesses. Industrial development should also be limited to the existing businesses on Berg Street. Industrial type areas generally create conditions which are best separated from residential and commercial areas.

Any new industrial development or expansions should occur in the Industrial Park along Highway 86, where space is available and also be promoted on the Mill Road on the east side of town known as the Mill Road Industrial Park. Accessibility to Highway 86 and Interstate 90 is an advantage to any businesses which locates in one of the two industrial parks.

Parks and Green Space

In 1992, Lakefield had approximately 16.8 acres of municipal parks. In 2013, Lakefield had approximately 26.4 acres of parks and green space. A detailed description can be found in the Parks and Recreation section of the document. According to general planning guidelines, Lakefield passes one of two guiding principles pertaining to parks and green space. Adding additional pocket parks would help to bring the City into compliance with both general planning guidelines. The probable location of a new park may be on Main Street, in the south-central, or in south-eastern section of the City.

Agricultural

Including portions of agricultural land within the city limits of a rural community helps to keep development contained and planned. The agricultural land along the city limits insures that zoning requests are made to the city before new development occurs. This helps the city keep development planned and compatible with other land uses.

Golf Course

At present, there are no plans to expand Emerald Valley Golf Course. The course will continue to play a vital role in attracting and retaining residents.

Planning Committee Report

The Lakefield Land Use Planning Team consists of eight local citizens, which was comprised of business persons, city officials, and private citizens. This group of individuals has been involved in the land use planning process since February, 2013.

Land use planning for the future is essential for a community's well being and growth. Existing land uses are the product of the planning and zoning discussions which occurred

over the past few years. Future Zoning District changes should be based off of Lakefield's Land Use Plan with a focus on future land use direction provided. Goals and needs change, periodic updates to the Plan are needed to reflect changes in the community.

A number of land use issues were discussed by the Planning Committee over the last four months; the following recommendations mirror these discussions. Five areas of concern were established and they include: multi-family housing, vacant properties and housing blight, non compatible uses, parks and green space, and annexation.

Multi-family Housing (refer to housing Goals and Action Steps for more information)

Vacant properties and housing blight (refer to housing Goals and Action Steps for more information)

Non-Compatible Uses

Non-compatible uses pertain to two areas of industrial activity in Lakefield. The first area is more troublesome than the second. The first area is the industrial area on the south end of Main Street. The elevator creates a dust during the drying process, which is a health hazard to people in this area. Refer to the section on present land use and the segment on industrial for more information.

This industrial area on the south end of Main Street should not be expanded and current zoning does limit expansion. Additional measures should be taken by the City to encourage the elevator to update their technology to limit dust emissions.

The second non compatible area is the industrial area on Berg Street on the west side of Lakefield. There are two industrial businesses in this area. This area is less troublesome

due to buffers between these industrial businesses and residential development. There are vacant lots to the north which acts as a buffer between the industrial area and residential housing. To the east there is business development. To the west there is agricultural land. To the south there is residential development, but there is open green space between the residential development and the industrial business.

The land that acts as a buffer in this area is privately owned and is zoned residential. If this land was developed, this would create an issue pertaining to non compatible uses. It would be advisable for the City to purchase some of this land that acts as a buffer or expand the zoning regulation to require more of a buffer around industrial businesses than what is currently required. This requirement could set forth a specific yardage of green space the industrial business has to have between industrial businesses and residential development.

Parks and Green Space

There are two planning guidelines relating to parks and green space. The first planning guideline is municipalities should generally allocate at least ten percent of its land acreage to parks and open spaces. Second, park and recreation planning suggests that ten acres of park land be dedicated for every 1,000 people in population. Lakefield currently meets the second planning guideline but not the first planning guideline. Refer to the section on parks and recreation for more information.

The Planning Team has outlined four locations for new municipal parks. With these parks and green space additions, the City would add 10.1 acres of parks and green space. There are two pocket park proposals for Main Street. The first location is on the north side of the Legion located at 413 Main Street. The second pocket park is located at south the Drug-store located at 326 Main Street. These two pocket parks would make Main Street more appealing to walk and bicycle to and would make Main Street more aesthetically pleasing.

The other two park proposals are where the majority of the new acres dedicated to parks and green space will come from. The first location is south of Bowlers Inn at 103 Main Street. This location is .57 acres and is along a stream. This location would be ideal for picnics and relaxing in a nature setting. The second location is located by Sparks Park. This parcel was agricultural and is approximately 9.5 acres. Planning should take place to make these four potential locations a reality.

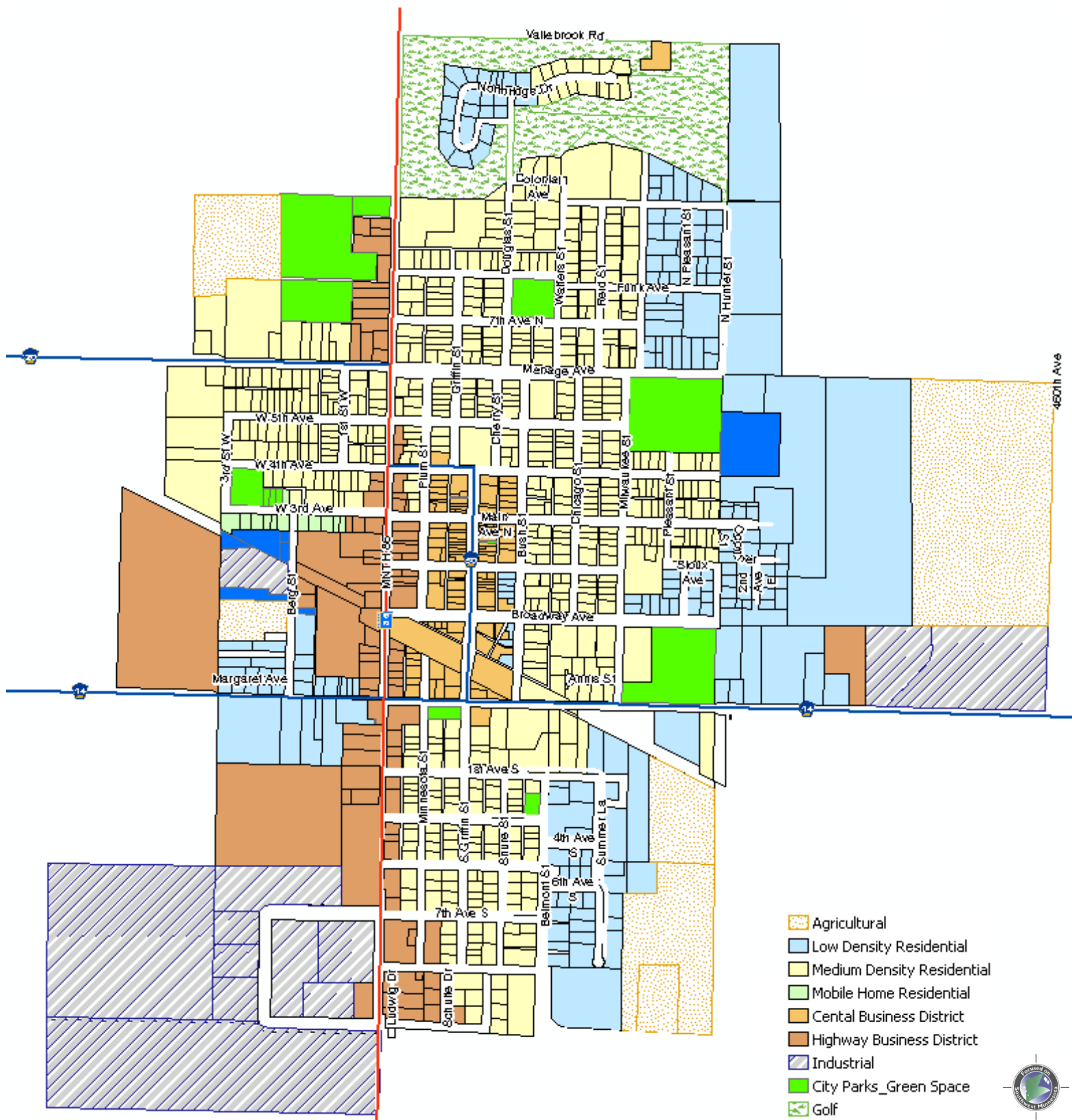
Annexation

The City of Lakefield is surrounded primarily by agricultural land. Annexing portions of this agricultural land will help the City keep development compact and efficient. There are two identified areas for annexation. The first area is south of the Highway 86 Industrial Park. Annexing this agricultural land would allow for industrial expansion to take place. This location would be easily developed.

The second location is along North Hunter Street. This location could be easily developed for residential use. Both of these locations would not have to be bought by the City, but the City could trade agricultural land they own on the east side of Lakefield for these new locations. The utilization of vacant lots and properties currently within municipal boundaries should be explored before annexation is pursued.

As the Planning Committee has outlined in this section, there are many land use issues which can be addressed easily and quickly. Some of the suggestions contain specific proposals while others are dependent on outside action. The Future Land Use Map is a guide for planning and zoning for the City of Lakefield. Amendments to the current Zoning District Map should reflect land uses represented in the Future Land Use Map.

City of Lakefield - Future Land Use Map



Conclusion

It is the goal of Land Use Plan with Active Living Component to help the City of Lakefield to cultivate an environment that enables people to lead healthy lives. Hopefully through the implementation of the plan the link between health and other policies will be strengthened.

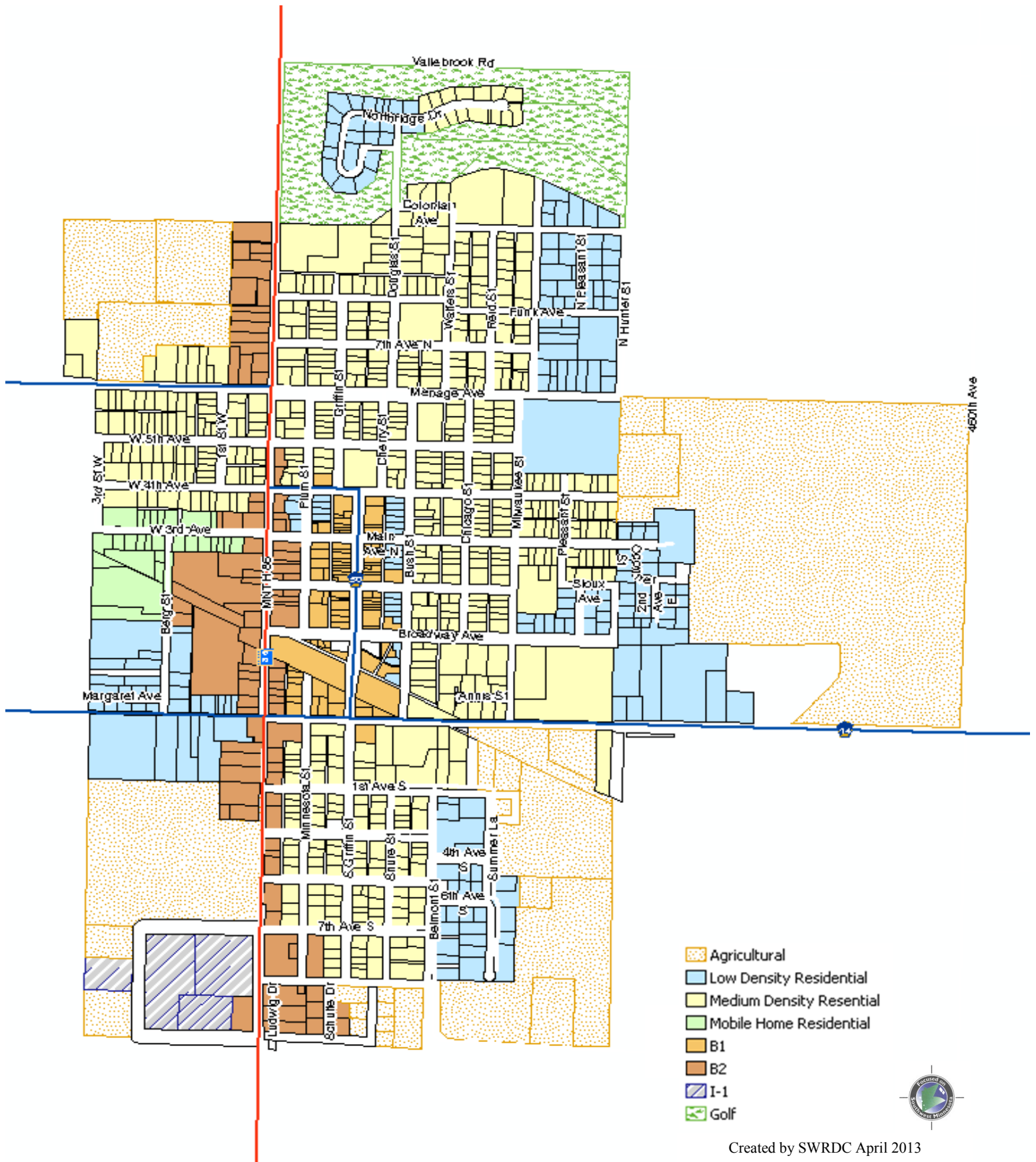
This plan would not have been possible without participation from residents of Lakefield, city employees, local elected officials, and funding from Statewide Health Improvement Program (SHIP) and the City of Lakefield.

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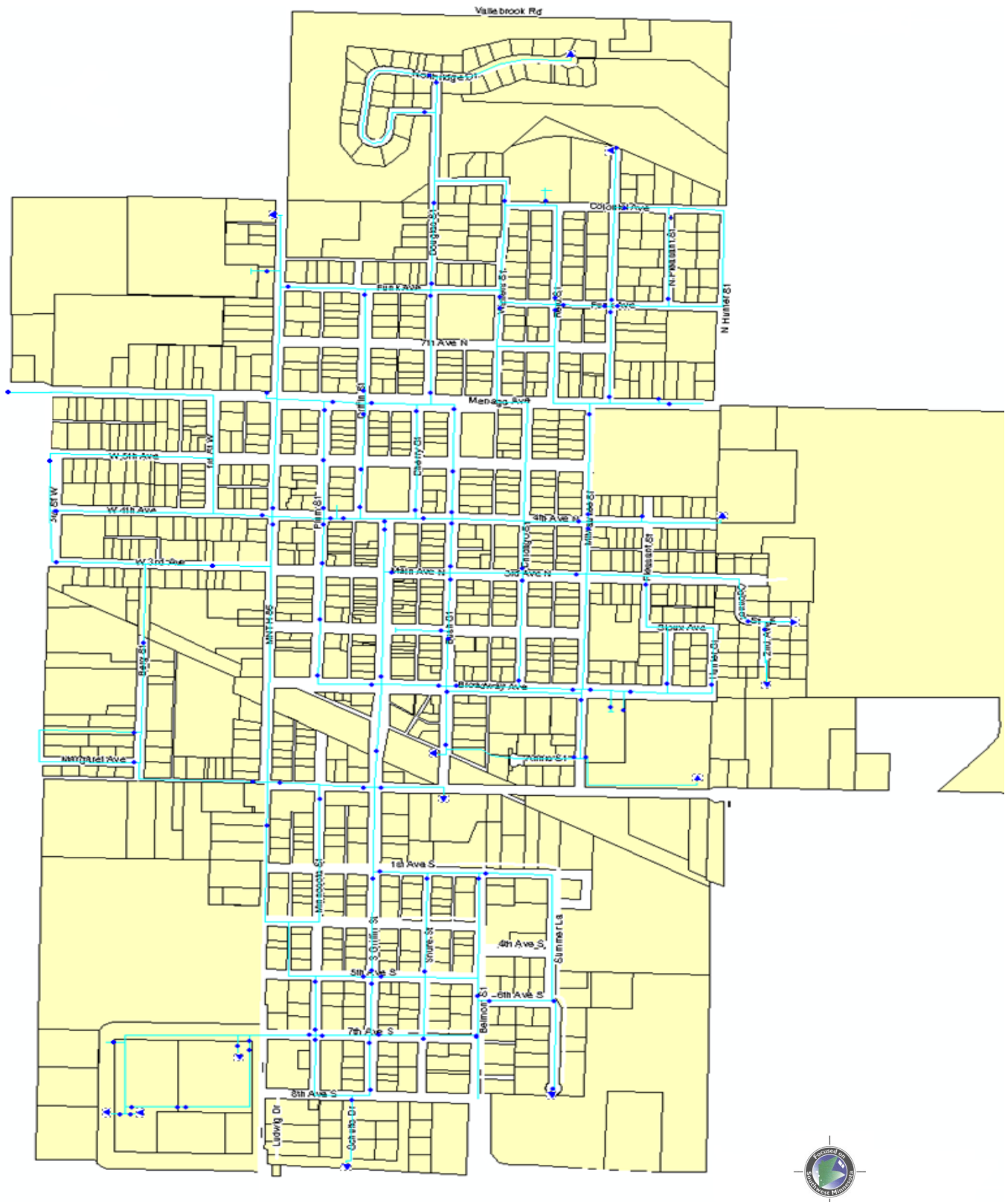
Appendix A

City of Lakefield - Zoning District Map



Appendix B

City of Lakefield - Water Mains Map

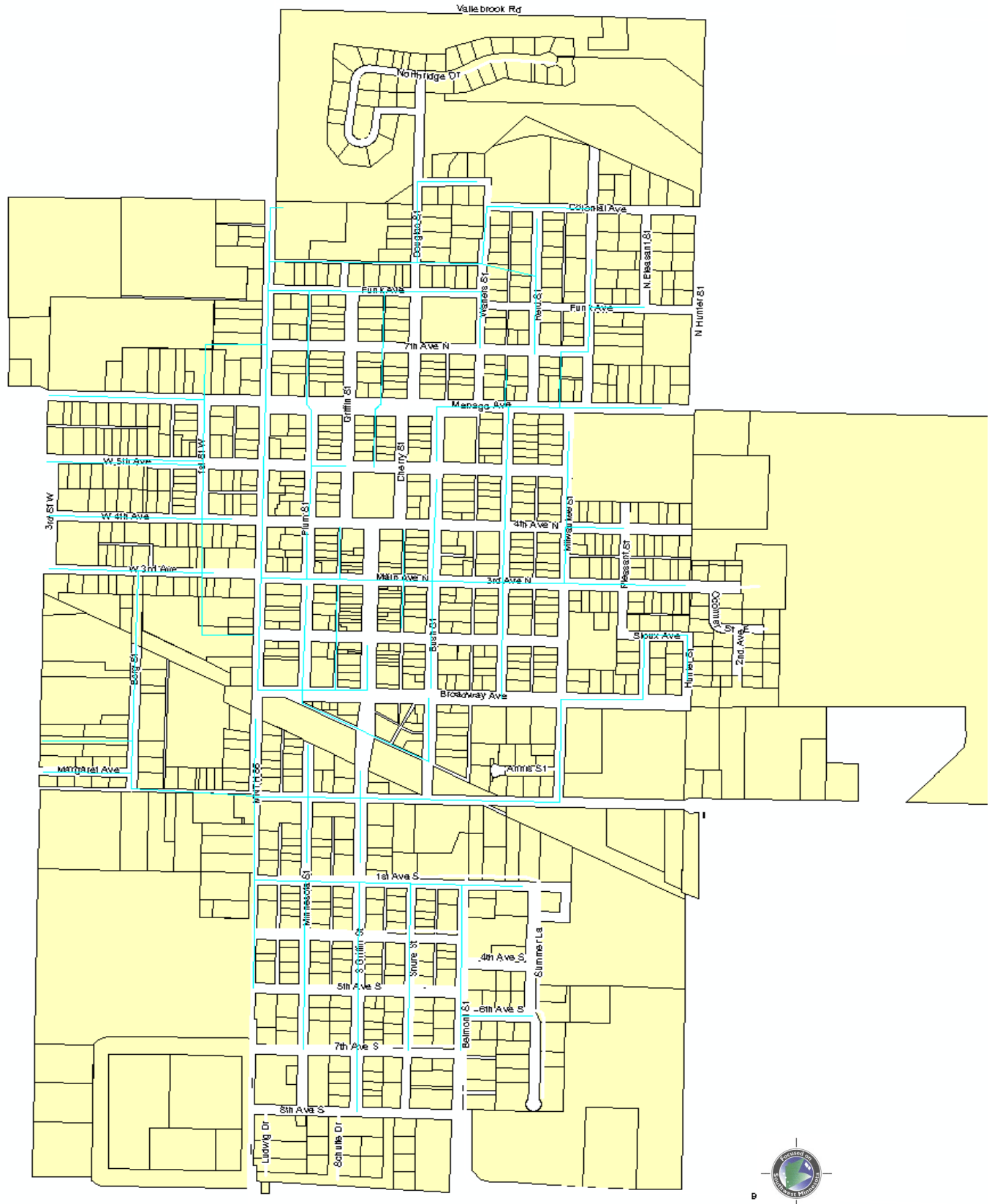


Created by SWRDC April 2013

Note: Not to Scale

Appendix C

City of Lakefield - Sanitary Sewer System Map



Created by SWRDC April 2013

Note: Not to Scale

Appendix D

Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low.....	0 to 3
Low.....	3 to 6
Moderate.....	6 to 9
High.....	9 to 12
Very high.....	more than 12

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

- Friable.**—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.
- Firm.**—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.
- Plastic.**—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.
- Sticky.**—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.
- Hard.**—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.
- Soft.**—When dry, breaks into powder or individual grains under very slight pressure.
- Cemented.**—Hard; little affected by moistening.
- Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.
- Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.
- Corrosive.** High risk of corrosion to uncoated steel or deterioration of concrete.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Drainage class** (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:
- Excessively drained.**—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.
- Somewhat excessively drained.**—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
- Well drained.**—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.
- Moderately well drained.**—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.
- Somewhat poorly drained.**—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.
- Poorly drained.**—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.
- Very poorly drained.**—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.
- Drainage, surface.** Runoff, or surface flow of water, from an area.
- Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
- Erosion** (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the

- building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
- Erosion** (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.
- Excess fines** (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.
- Fertility, soil**. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Field moisture capacity**. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fine textured soil**. Sandy clay, silty clay, and clay.
- Flood plain**. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Foot slope**. The inclined surface at the base of a hill.
- Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.
- Glacial drift** (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also the sorted and unsorted material deposited by streams flowing from glaciers.
- Glacial outwash** (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.
- Glacial till** (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.
- Glaciofluvial deposits** (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.
- Glaciolacustrine deposits**. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.
- Gleyed soil**. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.
- Grassed waterway**. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel**. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material**. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter.
- Ground water** (geology). Water filling all the unblocked pores of underlying material below the water table.
- Horizon, soil**. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons are as follows:
- O horizon*.—An organic layer of fresh and decaying plant residue.
- A horizon*.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, any plowed or disturbed surface layer.
- E horizon*.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.
- B horizon*.—The mineral horizon below an O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) granular, prismatic, or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.
- C horizon*.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.
- Cr horizon*.—Soft, consolidated bedrock beneath the soil.
- R layer*.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.
- Humus**. The well decomposed, more or less stable part of the organic matter in mineral soils.
- Hydrologic soil groups**. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow

infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Moraine (geology). An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15

millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it is generally low in relief.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Perce slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow.....	less than 0.06 inch
Slow.....	0.06 to 0.2 inch
Moderately slow.....	0.2 to 0.6 inch
Moderate.....	0.6 inch to 2.0 inches
Moderately rapid.....	2.0 to 6.0 inches
Rapid.....	6.0 to 20 inches
Very rapid.....	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipeline cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability the soil may not adequately filter effluent from a waste disposal system.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid.....	below 4.5
Very strongly acid.....	4.5 to 5.0
Strongly acid.....	5.1 to 5.5
Medium acid.....	5.6 to 6.0
Slightly acid.....	6.1 to 6.5
Neutral.....	6.6 to 7.3
Mildly alkaline.....	7.4 to 7.8
Moderately alkaline.....	7.9 to 8.4
Strongly alkaline.....	8.5 to 9.0
Very strongly alkaline.....	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the

soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millime- ters
Very coarse sand.....	2.0 to 1.0
Coarse sand.....	1.0 to 0.5
Medium sand.....	0.5 to 0.25
Fine sand.....	0.25 to 0.10
Very fine sand.....	0.10 to 0.05
Silt.....	0.05 to 0.002
Clay.....	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from about 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons. It includes all subdivisions of these horizons.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Till plain. An extensive flat to undulating area underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsail. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.