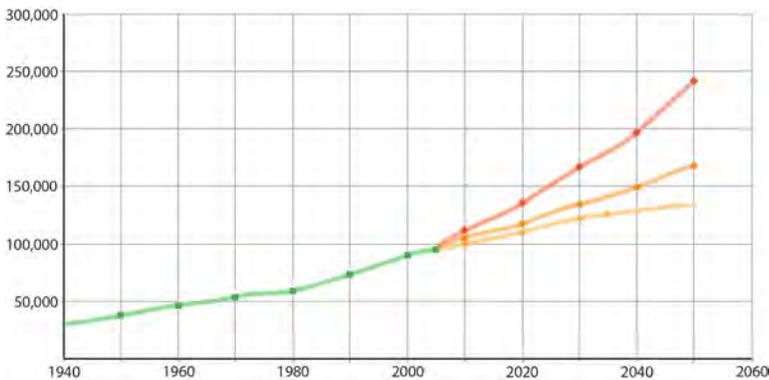


Appendix One Growth Projection Data

Demographic projections show that Fargo will continue to have a healthy rate of population, household, and job growth into the future. There are varying projections of just how much growth and how soon but broad agreement that the city will continue to grow. This appendix provides some background information about the demographics of Fargo as well as acreage consumption figures for our growing city.

Population/Households

The City of Fargo has a history of steady population growth. In 1960, the city's population was 47,000; by 1998, the Census estimate of city population was 86,718. The 2000 census data showed a population of over 90,500. The population in 2006 was over 93,000. This represents an average growth rate of over 2 percent per year. The chart below indicates the population growth from 1940 through 2006 and illustrates three separate projections of growth in the City of Fargo. The most conservative projection of the three indicates a growth rate similar to the past 70 years. The more aggressive projection shows a marked increase in the number of people residing in the city.



Population Projections for the City of Fargo

Planning for growth in the next 50 years must be done with the range of these population projections in mind. The planning assumptions listed later in this appendix are based on accommodating the highest growth projections but allowing for the slower pattern of growth without encountering sprawl and leap-frog development.

For the past 30 years the rate of households being created in the City of Fargo has been faster than the growth rate in the population. This is an indication that family size, or number of people in the household, is decreasing. In 1980 the average family size in the City of Fargo was 2.6 people per household. In 2005 that figure had dropped to 2.21 people per household. Population projection extended until 2035 indicate that the family size in Fargo will not change substantially, remaining at about 2.2 people per household. The projections show a decrease in family size in the Fargo/Moorhead metropolitan statistical area while the City of Fargo remains constant.

The type of housing being added to the city is also impacted by the degree of home ownership in the city. The City of Fargo has historically been below the national average for home ownership resulting in a larger than average number of rental units in the city. Home ownership is increasing in the city but at a very slow pace. Ownership numbers hover around 50% while the national average is closer to 65%.

Acreage Consumption

Recent development patterns in Fargo have resulted in approximately 266 acres being built on every year. This number indicates the amount of acreage being consumed in a year to build new houses, stores, schools, industry, etc. This rate of consumption has been fairly constant for several years and has been adopted by this study as a reasonable rate of consumption for the future. This rate of acreage consumption corresponds to the lower population growth projects. The number of acres consumed each year would certainly increase if faster growth projections became reality.

The growth plan identifies two tiers of future development for the city. Tier 1 is sized to accommodate 25 years of growth at approximately 266 acres a year. Growth of the city should be limited to Tier 1 until that area is largely developed. Tier 2 is sized to accommodate growth for the following 25 years. Because there is more land area, within the extra-territorial area, in the south of the city, more land has been allocated in the southern portion of Tier 1 than in the northern portion.

Density Discussions

Population density is a way to track how the land in the city is being used and how efficiently the city is being planned. Density is usually measured in people per acre, or how many people live on an acre of land. Since we can only live on a portion of the available land the most fitting density figure is people per net developable acre. Land that is dedicated to roadways, drainage, utilities, parks and other civic uses is subtracted from the total available land to arrive at an acreage that can be built on; the net developable acreage.

Density figures are significantly influenced by two counterbalancing factors: the number of housing units built per acre and the number of people occupying each housing unit. Family size has been steadily decreasing in the United States for the past 50 years. Average family size in the U.S. is approaching two people per family. That is a major decrease in family size since the 1940's. Fewer people in a house reduces the overall density.

Consequently, to build more energy efficient and sustainable cities it is necessary to build more housing units per acre than was the case in the past.

This decrease in density is felt throughout the city. In our current development model this decreased density has added to sprawl and to a dramatic increase in traffic, gasoline consumption and pollution generation. Smaller family size has also impacted our school systems. In the past a typical elementary school could be filled by the families in an area of about 640 acres (1 square mile). It now takes approximately 1920 acres (3 square miles) to fill that same size elementary school. Reductions in density are very costly and expensive to a city.

Analyzing the existing City of Fargo we find that the current average density is just under 10 people per net developable acre. This is an average. The figures vary from about 4 people per acre to almost 15 people per acre in various parts of the city. For a comparison, density figures in some urban areas in this country can top 100 people per acre. These areas are not overcrowded and offer a tremendous quality of life for their residents. Fargo is a very low density city.

In order to plan for a more sustainable city that is less expensive to operate the decision was made to increase the density goals for the ET area covered in this plan. The increase is a fairly modest one but one that extends the number of years of growth possible within the existing ET. The targeted density goal for the extra-territorial areas of Fargo has been set at 12 people per net developable acre. The accompanying

chart illustrates the potential differences as a result of this modest increase in development density.

The chart indicates that the city could continue to grow rather substantially within the current city limits. At the faster growth rates indicated on the previous page, the city could absorb all of its growth until 2020 within the city limits. At the slower growth rates that growth could be accommodated until 2040. Of course, no city utilizes 100% of its developable land and Fargo is no different.

There is however a substantial amount of land still to be developed within the city limits. The

higher density rate of 12 people per acre allows the city to handle a significantly greater amount of growth. At the higher density the City of Fargo could extend growth in the Tier 1 extra-territorial area until 2045 utilizing the faster population growth estimates and to 2060 using the slower population growth estimates. The build out of the city to include all of the extra-territorial area could be extended to 2060 at the fastest population growth estimates and well into the 22nd century at the slower population growth rates.

One current trend that might impact the overall density of the city is the increased demand for housing in the downtown. A number of condominium units have been constructed in downtown Fargo as a response to increased interest in living in an active downtown. This new housing trend will not substantially change the average housing density of the city but it does help when housing is added to existing buildings or built on existing lots in the developed portions of the city. This is a trend that the city government and planning staff should encourage and facilitate.

Section of Fargo	10 people/acre	12 people/acre
	Population	Population
Existing City Limits	134,700	134,700
Tier 1 ET Area	69,800	85,500
Subtotal (City + Tier 1)	204,500	220,200
Tier 2 ET Area	52,600	64,500
Total City	257,100	284,700

Impact of Density on Population Growth Accommodation in the ET

Growth Plan Assumptions

In addition to the increased density targets mentioned above this Growth Plan has used several assumptions to develop the approaches to planning and the standards for development for the extra-territorial areas of the city.

One key set of assumptions for the Growth Plan involves the adoption of land use designation goals for the city. These goals set the relative percentage of the city that will accommodate each use. The adjacent chart shows the various land uses being considered in this growth plan and their existing percentage of the city. These land use percentages were established by analyzing the existing use patterns in Fargo and comparing them to a series of similar cities throughout the Mid-west. The land use percentage goals were used to allocate an appropriate amount of land within the extra-territorial areas of the city to the various uses. As an example, 40% of the available land in the extra-territorial area has been designated as low to medium density residential land.

Land Use Designation	Existing	Goal
Low-Medium Density Residential	16 %	40 %
Medium-High Density Residential	4 %	8 %
Commercial	6 %	7 %
Industrial	5 %	8 %
Parks	6 %	10 %
Public/Institutional	39 %	27 %
Undeveloped Land	24 %	0 %

Land Use Goals for the Growth Plan

The changes from the existing percentages to those in the goal section are worth discussing.

- The low to medium density residential areas of the city are a relatively small 16% of the total city compared to the goal of 40% of the city. This small percentage is due to several conditions, two of which are significant. One; the fairly large amount of land that is currently undeveloped within the city limits is designated largely for residential uses and is developing in that way and two; our sister city of West Fargo has been almost entirely developed as residential land skewing the use percentages for both Fargo and West Fargo. As the metropolitan area grows these differences are disappearing.
- Fargo has a great park system but it is advantageous to increase the total amount of the city dedicated to parks and recreation from 6% to 10%. This will naturally increase as the city grows because of the need to incorporate new flood control and drainage systems throughout the city.
- The relatively high percentage of public and institutional land should shrink as the city grows. The major public and institutional uses such as North Dakota State University and Hector International Airport already exist within the city and are not expected to increase their holdings substantially in the future.

One additional planning assumption includes the adoption of mixed use as the standard for each land use category within the city. This will allow for a more efficient and livable city to develop. The assumption is that mixed use and type developments allow for a reduction of transportation and utility costs and a resultant reduction in pollution.

Appendix Two

Utility Issues for Growth

Expansion of a city, as accommodated in this growth plan, always places tremendous burdens on the infrastructure elements of the city such as water, sewer, roads and power services. The construction of new utilities is initially very expensive while the lifetime maintenance of the infrastructure is a major expenditure for the citizens of any city. Most of our cities are experiencing significant problems with aging utilities and are finding it necessary to increase budgets to provide the level of services desired by its citizens. The recent collapse of the I-35 bridge in Minneapolis is a stark reminder of the aging of our infrastructure.

Infrastructure development in Fargo is as expensive as in any other city. Besides the typical infrastructure of water, sewer, roads, and power, Fargo has a significant investment in flood protection. Since 1997 flood protection has become increasingly important to the development of this city. All of this infrastructure is expensive to maintain once it is built and is a cost to the city forever. Because of these factors, the development of utilities is closely linked to the tiered approach of the Fargo Growth Plan. Controlling the expansion of infrastructure is one way that the city can assure responsible, sustainable growth in a fiscally sound way. Limiting land development to tier one within the next 25 years is important because it allows the city to increase the density of the city, create walkable environments, and fight the onslaught of sprawl. Sprawl is expensive and demands unrealistic levels of expenditure, resource use, and pollution.

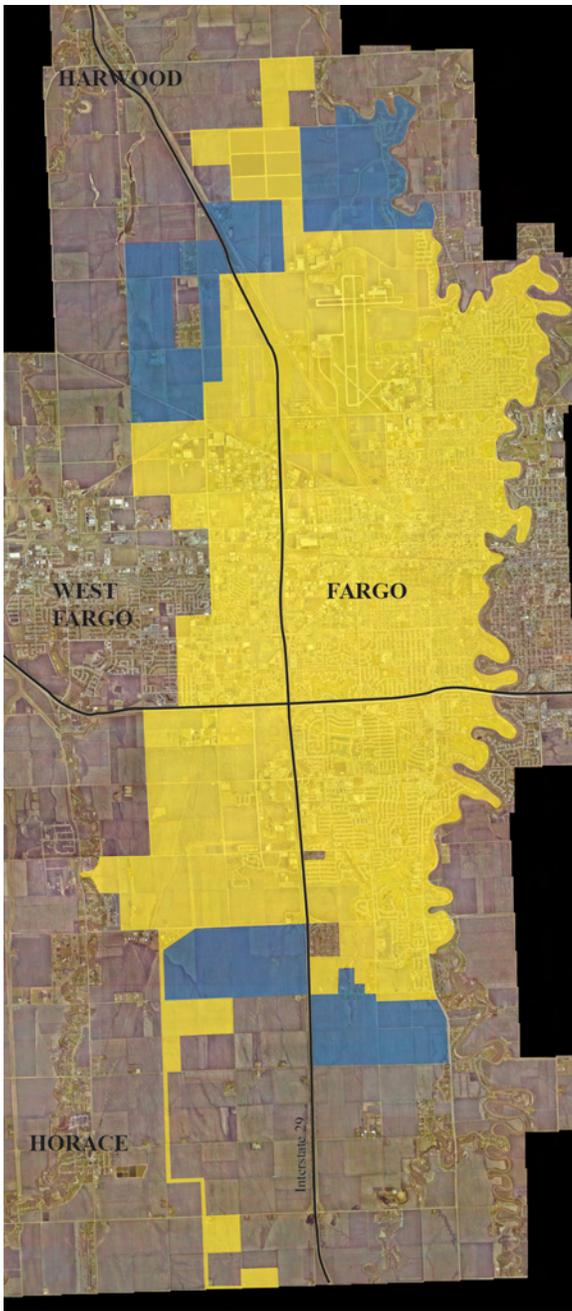
Sprawl, the continued expansion of the city in low density developments places huge financial burdens on the city. It is fiscally irresponsible for the city to allow the costs of infrastructure to rise on a per capita basis. The goal of good planning is to create healthy, efficient places to live, work and play which is not possible if we give in to the pressures of sprawl. Increasing the usage of the existing infrastructure system before expanding it is a realistic approach for city growth.

Limiting the expense of the infrastructure system while providing the services desired is an ongoing challenge for the city. Fargo has been very successful with some early attempts at developing alternative energy sources. The city is involved in generating power utilizing the wind and has a unique program for generating energy from the methane gas extracted from the city land fill. Other alternatives to the traditional infrastructure systems should be continued to be explored and developed. The city has a great start toward a more sustainable and livable future.

We will review briefly the challenges faced in developing the infrastructure of the city, particularly the water system, the sewer system and the power system. Growth in each of these utility systems has an impact beyond the physical area being developed.

Water

Development of potable water sources for the City of Fargo is an important issue being faced by the city. Planning is ongoing to extend the water system significantly to the south with new sources



Blue areas indicate the infrastructure development area for 2015.

and treatment facilities being planned south of 52nd Avenue South. These planning efforts are occurring at both the engineering level and the political level. The needs of the water systems have been assessed and now the political discussions about funding the future water system expansion are occurring.

The City of Fargo currently provides water services to all of the incorporated city and has plans to extend water service both south and north by 2015. The planned extensions are illustrated on the following map. Development of these areas is directly limited by the ability to provide water services. Careful coordination between the various departments of the city is required to provide the necessary services and to meet the standards set forth in this growth plan.

Expansion of the city to the north is fairly straightforward from a water service standpoint due to the location of existing city water infrastructure. Expansion of the city to the south, into undeveloped land is also fairly straightforward but requires additional water system development as mentioned above. Expansion of the city into rural areas that have already been developed with housing or other forms of development present a more complicated situation. All rural developments within Fargo's extraterritorial area are required to install water pipes that meet City of Fargo standards. This ensures that residents of these areas will not need to replace water pipes in the future when they become part of the City's water service area. However, these rural developments exist within the service area of the Cass Rural Water Users (CRWU) and receive their water service from them. The CRWU and the City of Fargo have been working closely together to transfer water service responsibilities as the city limits are extended.

One of the issues that has been discussed and worked on with regard to urban growth into the CRWU service area is the fact that the rural water service does not have the water capacity to provide fire protection. This requires the extension of city water service and installation of fire hydrants into areas where residents have already paid for rural water service. This is one indication of the necessity for continued collaboration between Fargo and the CRWU as the urbanized portion of the city expands.

Please refer to the Fargo Growth Plan of 2000 for a more in-depth discussion of the CRWU and the challenges encountered with existing rural subdivisions in the southern portion of the ET.

Sewer

The areas that are provided with City of Fargo sewer service at this time correspond to the city limits early in 2005. Sewer service has not been provided to the southwest annexation adjacent to the city of Horace. One of the main concerns with rural non-farm development in the City's extraterritorial area is the proliferation of individual on-site septic systems for the treatment of sewage. Some areas of rural development are served by the Southeast Cass Water Management District, via a sewage pipe that carries wastewater into the City's sewage collection and treatment system. However, property owners are only required to hood into this system if they are within 200 feet of the line.

The Fargo Land Development Code (LDC) prohibits the installation of individual septic systems within the 15 year urban

service area. In other words, if planning studies show that a particular area is likely to be supplied with municipal services within 15 years, individual septic systems and drain fields are not permitted. The reasons for this include:

- Private investment in a septic system and drain field results in opposition to the special assessments that are charged to property owners for the extension of city services. This is especially noticeable in areas where the drain fields are relatively new, and property owners have not experienced failure of the system.
- The proliferation of drain fields is an environmental concern in much of the extraterritorial area due to the heavy clay soil, which causes drain fields to fail more frequently than in porous, loamy soil.
- Individual septic systems and drain fields require lot sizes of at least 40,000 square feet. Most rural lots are even larger than this. This results in lot widths that are wider than typical urban lots. Wider lot frontages generally equate to more expensive special assessments, since these costs are assessed on either “front foot” basis (primary benefiting properties) or a square footage basis (secondary benefiting properties). This, combined with the first item listed above, generally causes property owners to oppose the formation of special assessment districts for extensions of urban services into these areas.
- The large lot sizes necessary to construct septic systems are in direct conflict with the density goals set forth for the ET area and in direct conflict with the best practices in sustainable development.

Continued southerly development will result in greater need for the installation of lift stations to move wastewater to the sewage treatment plant. This will increase the cost of providing sewer service to these areas. This cost not only affects the extension of city sewer services into annexed areas, but also the extension and expansion of Southeast Cass sewer services into rural development areas. Ultimately, the expansion of the rural sewer service affects the City of Fargo because the rural sewage is treated by Fargo’s wastewater treatment plant.

A very important aspect of this Growth Plan is the establishment of the 15 year urban service area. This tool will guide the City of Fargo as to where urban services will be provided in a short enough time frame that installation of individual systems would create future problems. Policies on handling the 15 year urban service area or its extension into the entire ET will be developed outside the parameters of this plan.

Power

Maps on pages 18 and 19 of the Growth Plan show the location of existing major power lines that exist in the extraterritorial area of the city. The most obvious issue for the Growth Plan is the proliferation of above-ground electrical lines in the southwest growth area. Development constraints are mainly associated with the transmission line facilities. These constraints generally include the prohibition of

buildings within the power line right-of-way, plant height limitations both in and adjacent to the right-of-way, and ground elevation changes under the power lines.

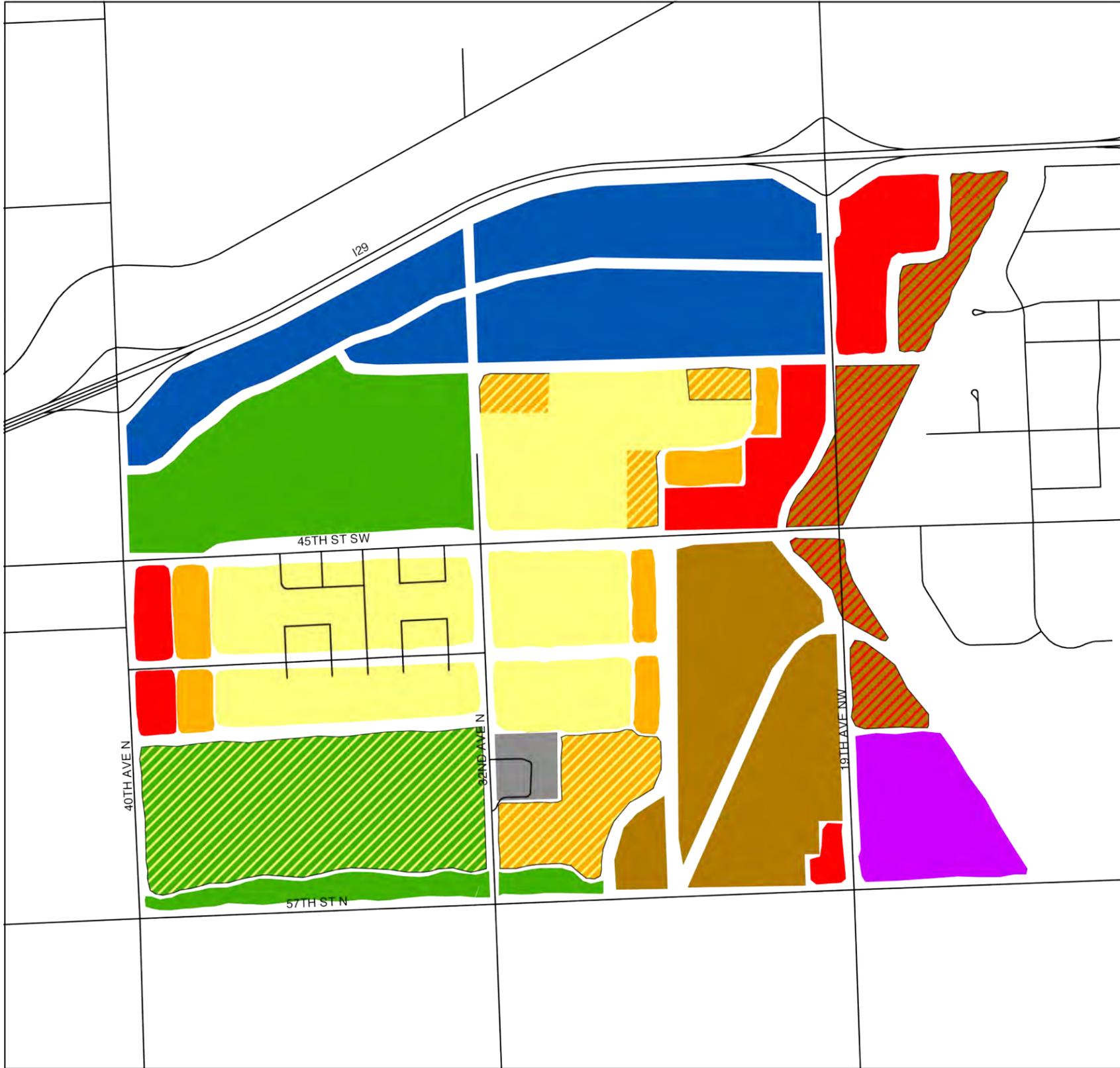
The land use plan includes greenways and bikeways within and along most of the major transmission lines. This open space use intends to take advantage of these utility corridors and helps provide a positive use with a corridor that is typically viewed as a negative physical feature. The corridors can help create connections between all of the neighborhoods of the city and provide corridors of habitat for animals that link to the natural habitat along the rivers.

Discussions with Cass County Electric Cooperative have indicated their willingness to work with the City of Fargo to place as many of their lines underground as possible as development of the area takes place.

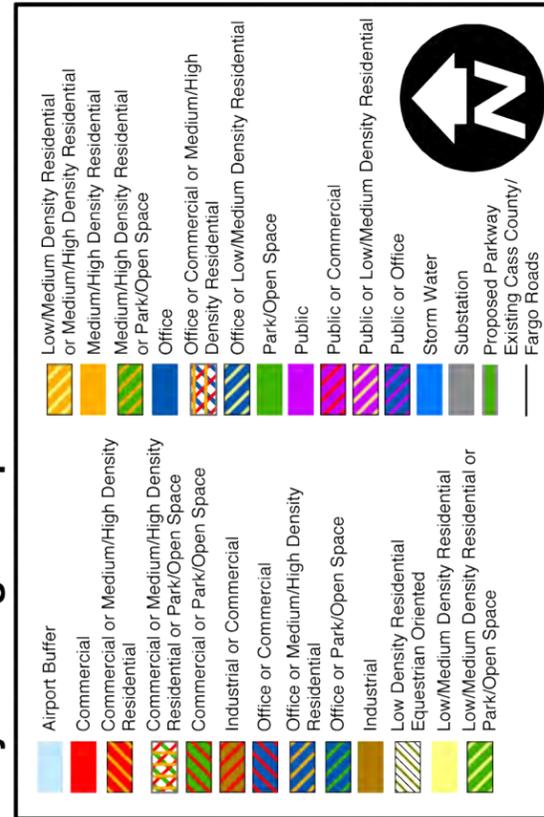
Discussions also need to take place about the possibilities and strategies for wind generation of power within the city limits of Fargo as a bold step toward the future sustainability of the city.



Northwest Area Plan



City of Fargo Proposed Future Land Uses

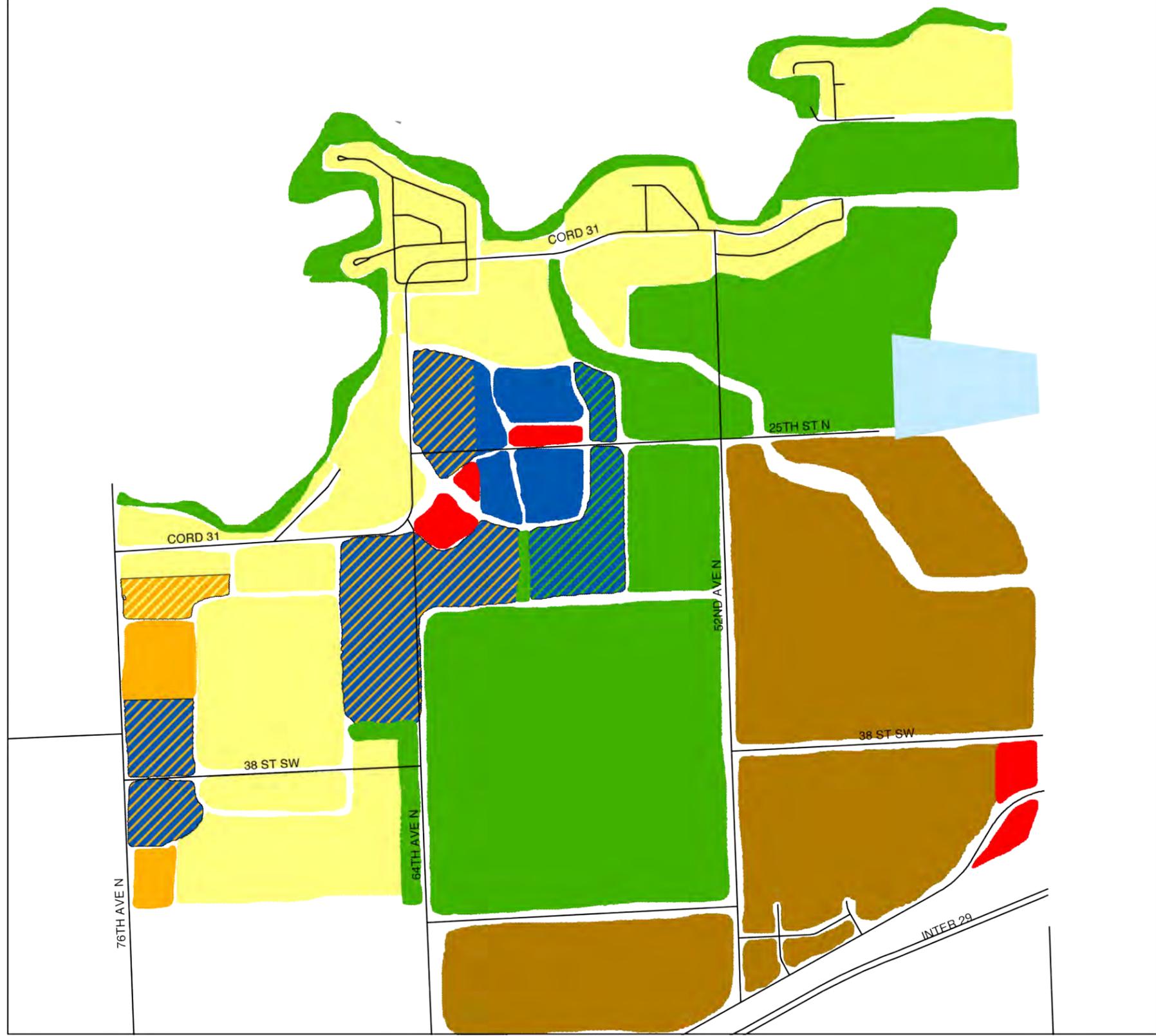


Map created by BJE, City of Fargo Planning and Development, June 2003. Based on data obtained from the City of Fargo Planning Department, June 2003.

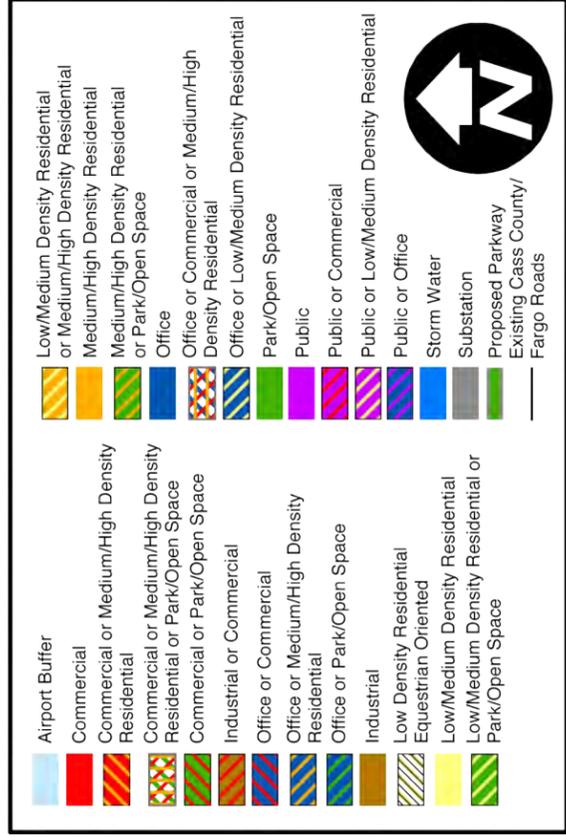
Appendix Three Growth Plan Maps from 2001

Appendix three contains the maps associated with the 2001 Growth Plan for the Urban Fringe and Extraterritorial Area of the City of Fargo. These maps are included to provide some continuity to the successive plans and to enable those interested to ascertain which, if any, changes have been made to property close to the developed portions of the city. For additional information about these maps or the standards that they refer to please see the 2001 Growth Plan.

North Area Plan



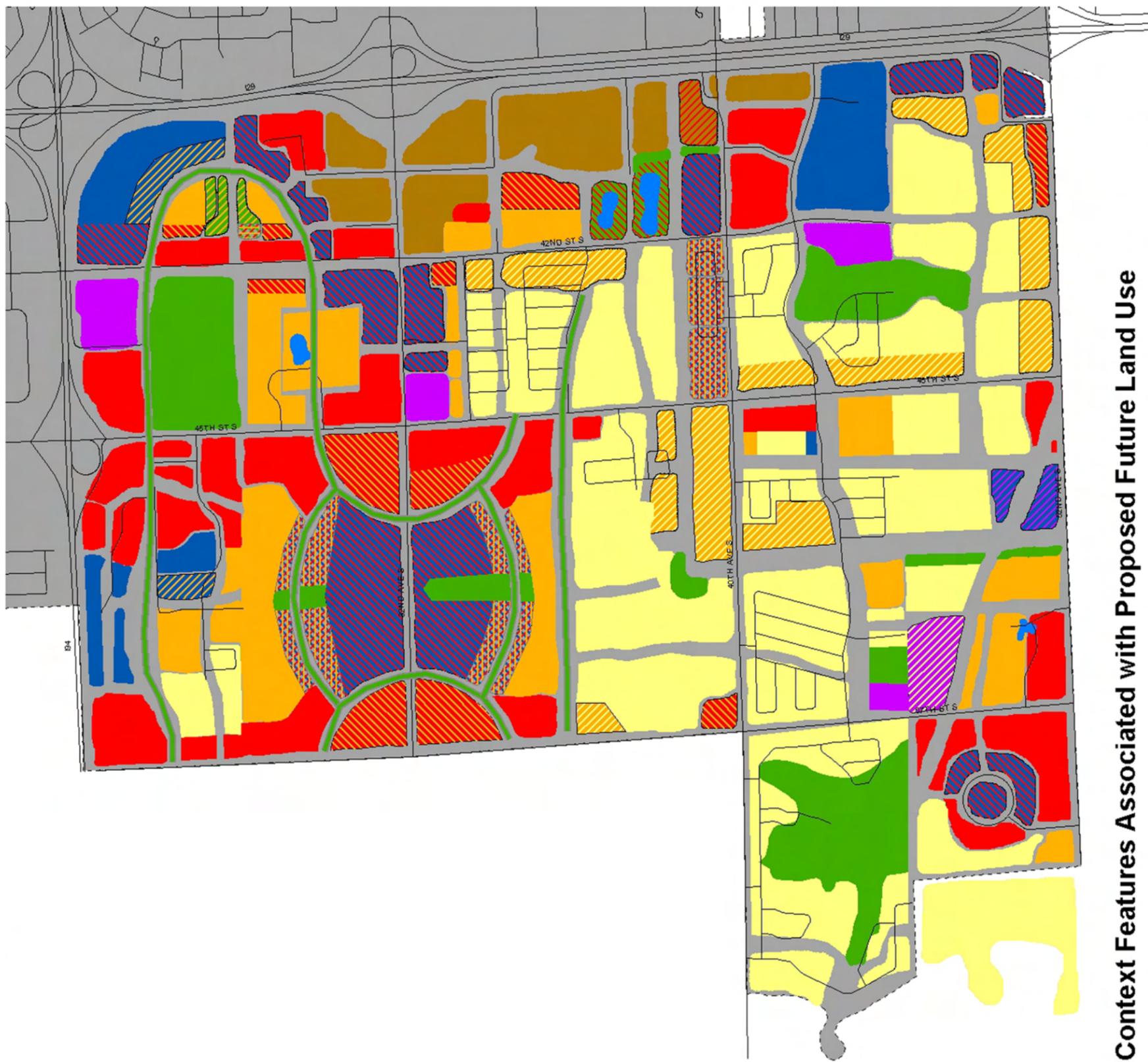
City of Fargo Proposed Future Land Uses



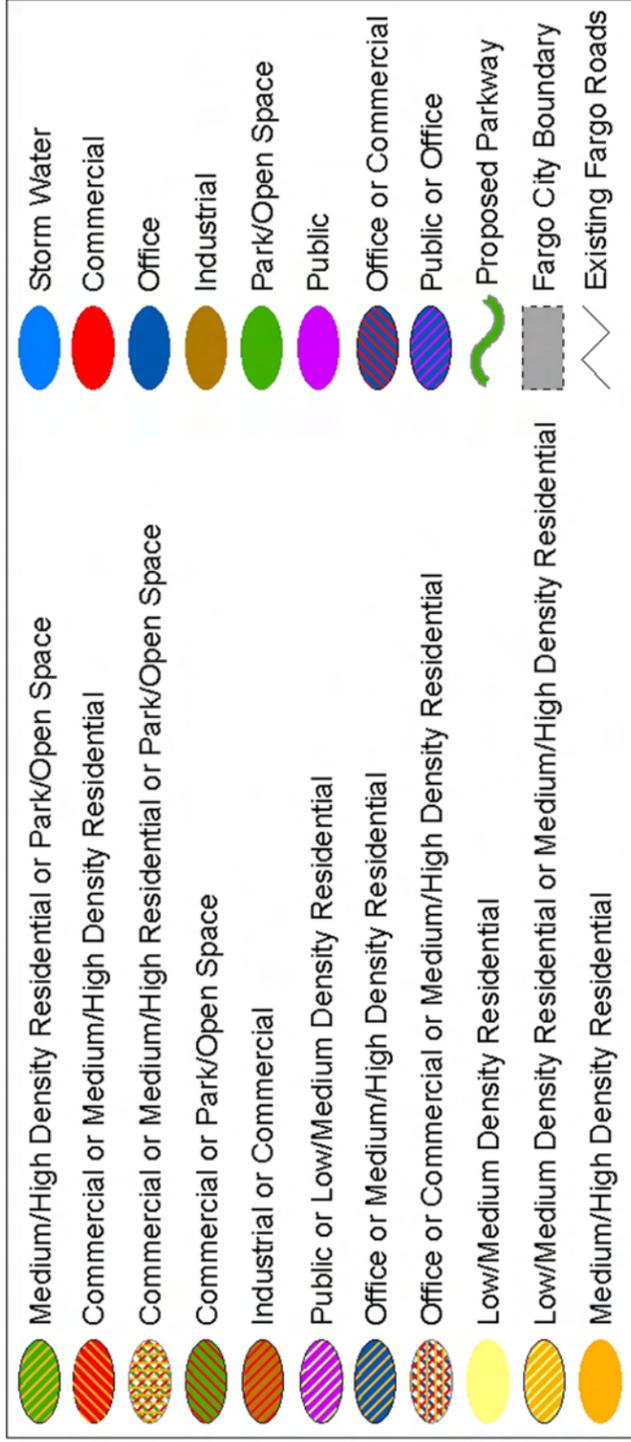
Map created by BJE, City of Fargo Planning and Development, June 2003. Based on data obtained from the City of Fargo Planning Department, June 2003.



Proposed Future Land Use in Southwest Fargo, July 2003



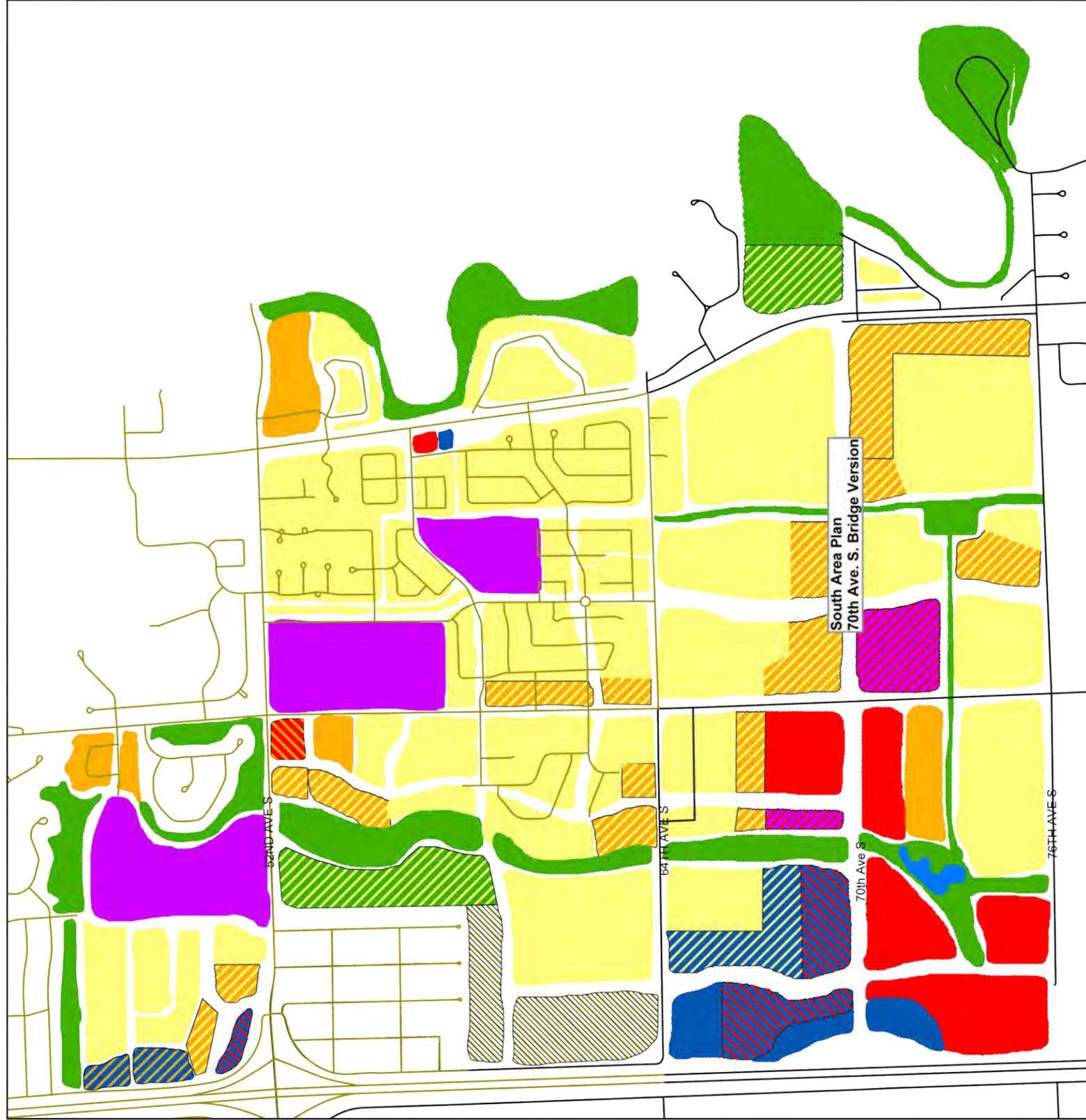
Context Features Associated with Proposed Future Land Use



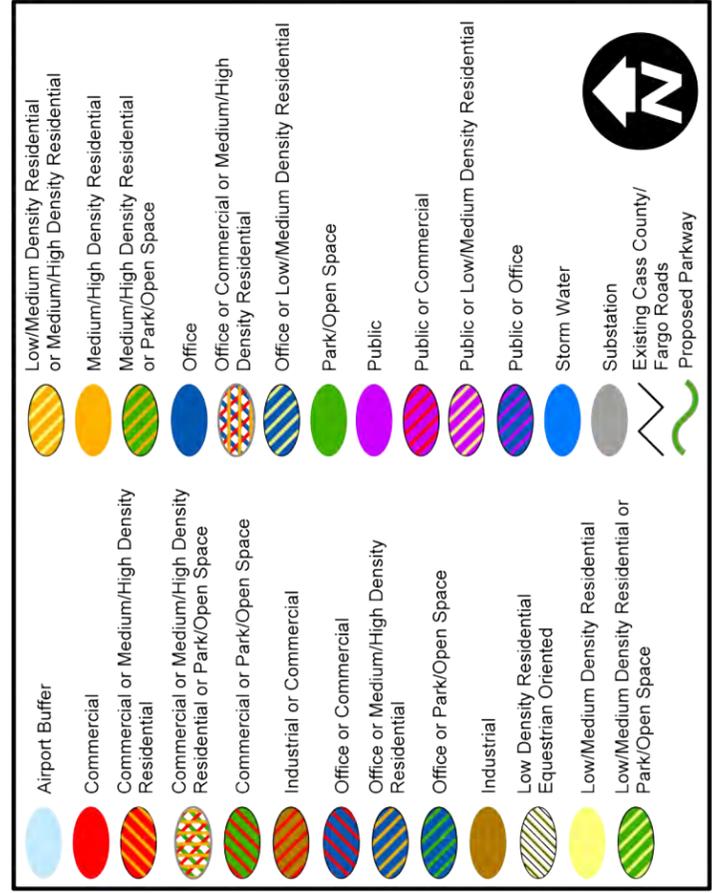
Map based on data obtained from the City of Fargo Planning and Development department.
Created by City of Fargo Planning and Development department, July 2003.

City of Fargo Proposed Future Land Uses

70th Avenue Bridge Version



Map created by BJE, City of Fargo Planning and Development, June 2003. Based on data obtained from the approved 2001 Growth Plan for the City of Fargo.



City of Fargo Proposed Future Land Uses

76th Avenue Bridge Version

