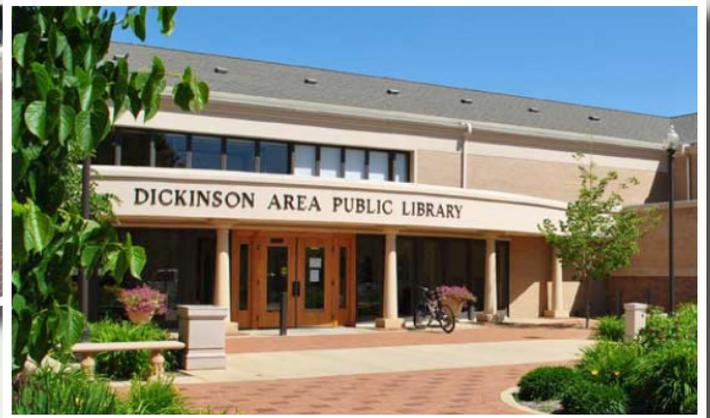




DICKINSON 2035: *Roadmap to the Future*

COMPREHENSIVE PLAN





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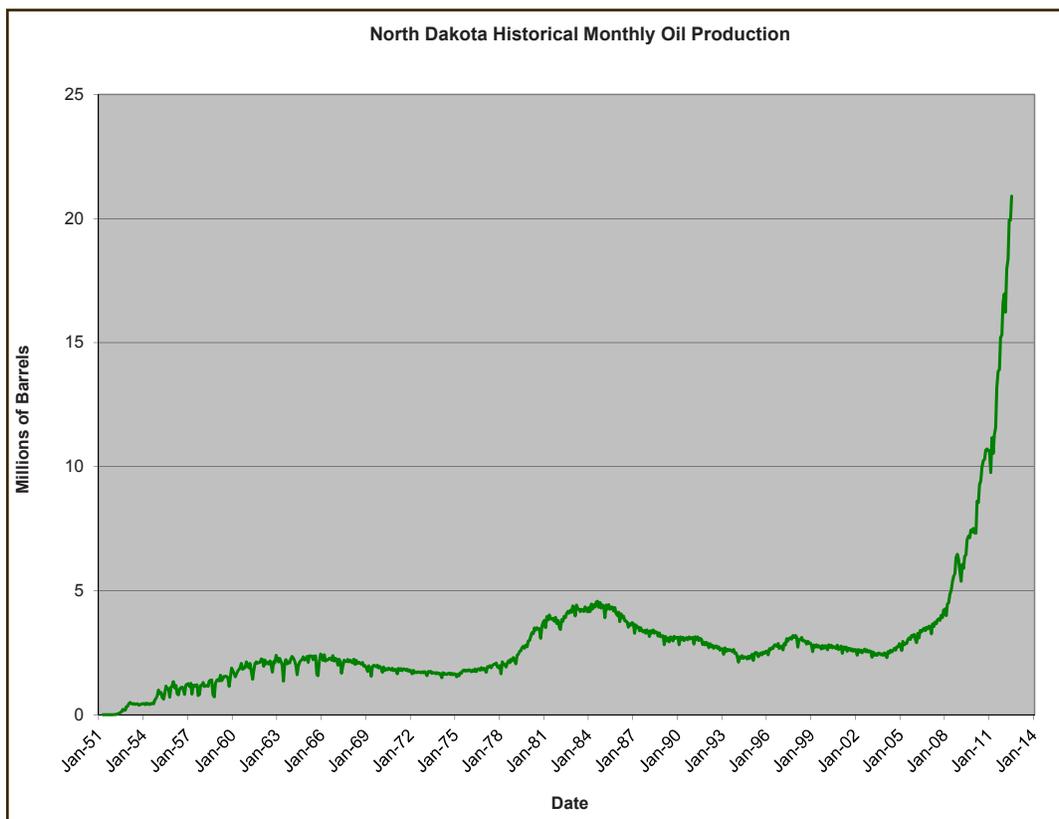
EXECUTIVE SUMMARY

The City of Dickinson 2035 Comprehensive Plan is indeed a Roadmap to the Future. All facets of the community are studied and evaluated, providing a comprehensive and detailed course of action for the future. The comprehensive plan is a community-driven, vision-based planning document from which goals, objectives, strategies and policies are provided to guide and facilitate decision making.

Influences on the City of Dickinson

The predominant influence on the city of Dickinson is the recent and rapid development of the Bakken/Three Forks formation. The highly productive development of oil and natural gas resources in the formation has created robust economic conditions throughout western North Dakota. Direct employment in the energy sector has increased dramatically as well as employment in a variety of related oil service companies. Figure 1 indicates the substantial increase in oil production in North Dakota over time.

Figure 1: North Dakota Historical Monthly Oil Production



SOURCE: ND DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION

Unprecedented growth is occurring in the region due to oil development. In 2012, Dickinson was the third fastest growing micropolitan area in the United States. The consensus view among energy experts is current levels of oil and natural gas development will be sustained for at least another 10 years as will rapid growth and development. The city has a potential to double its population in the next decade, reaching a population of more than 40,000 in 2035.

The development expected during the planning period is shown in Table 1. By any measure, the city has entered a period of very rapid growth, which will continue through the foreseeable future.

Table 1: Expected Development

Planning Period	Total Forecasted Number of Permanent Housing Units	Commercial Acres	Commercial Square Feet	Industrial Acres	Industrial Square Feet
2013-2016	3,782	375	1,633,450	146	873,840
2017-2018	2,323	145	890,850	77	495,500
2019-2035	3,649	221	552,200	130	416,900
2013-2035	9,754	741	3,076,500	353	1,786,240

SOURCE: NDSU, CITY OF DICKINSON

Impacts of Recent and Forecasted Growth

While the city of Dickinson is in a period of optimism and prosperity, it is also experiencing impacts from rapid growth related to traffic, housing and employment. The city’s traffic volume has increased, accentuated by high truck traffic associated with energy development. A severe housing shortage and resulting escalation of housing costs impact the entire community. Residents with fixed incomes are struggling to maintain their residences and employers are experiencing difficulties recruiting new workers because of limited availability and high housing costs. Local employers are seeing labor costs increase due to the increased housing cost and plentiful high-paying energy jobs. Employers are struggling to retain workers attracted by high-paying jobs in the oil patch. Wage inflation has also driven up the cost for goods and services. The combined impacts have created an underlying unease felt by many community members that conditions are changing too fast and the feel, or character of the community, is negatively impacted.

City government has also been impacted by the rapid pace of growth. Due to strong market conditions, the City has had to make a series of major land use decisions during preparation of the comprehensive plan. The City has significantly increased its staffing levels specifically for development related services. Most importantly, the City has the difficult challenge of securing financial resources for numerous major capital improvements needed to accommodate future growth. An expenditure summary is contained in the Capital Improvement Plan (CIP), and discussed in Table 2.

The vast majority of needed capital expenditures are water, wastewater and transportation system improvements. During the planning period, water system capital improvements total nearly \$115 million, wastewater improvements total more than \$45 million and transportation improvements are more than \$360 million.

Table 2: Expected Development

Planning Period	Recommended Capital Improvements
Phase 1: 2013-2014	\$193,091,000
Phase 2: 2015-2016	\$94,034,000
Phase 3: 2017-2035	\$238,610,000
Total All Phases: 2013-2035	\$525,735,000

SOURCE: KLJ

Planning Response to Growth Impacts

With regard to capital improvement planning, it is clear traditional revenue sources will be insufficient to meet the city’s capital improvement needs. The City will continue to program major capital improvement projects. The City will need significant assistance from the state to provide the infrastructure needed to accommodate forecast growth. The development community will also be expected to contribute financially to capital costs directly attributed to future development. Detailed



funding strategies are provided in the Implementation and Capital Improvements Chapters of the comprehensive plan. The strategic framework of the recommended funding strategies is represented in Table 3.

Table 3: Funding Strategy Framework

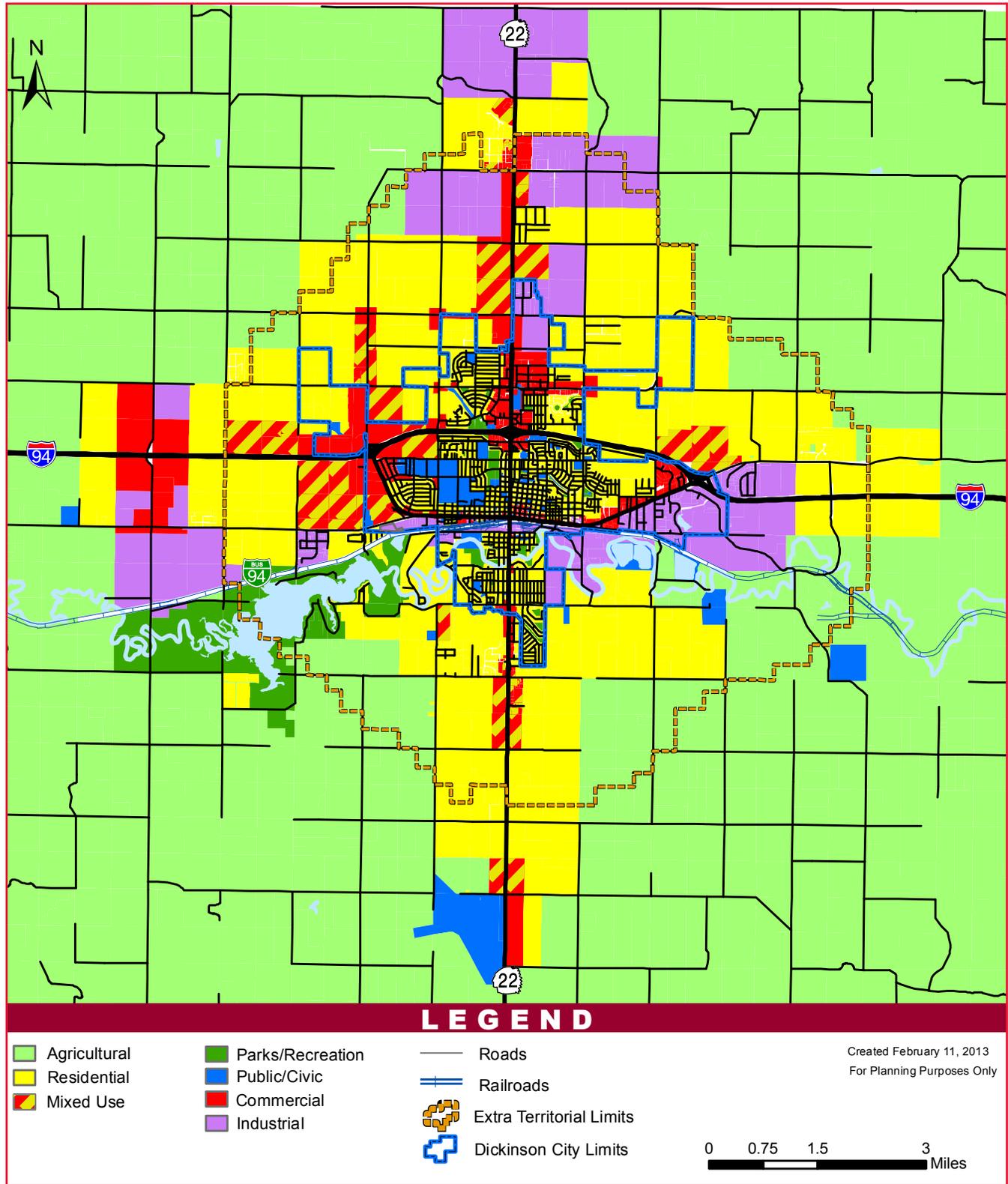
Types of Capital Improvements	Existing City Revenue Sources	New City Revenue Sources	Existing State Revenue	State Oil Tax Revenue	Federal and State Funding Programs	Developer Financial Contributions
Correct Existing Infrastructure Deficiencies	X	X			X	
Maintain Existing and New Infrastructure	X	X	X			
Major Infrastructure to Extend Services to New Development				X	X	X
Infrastructure that Directly Serves New Development				X		X
New or Expanded City Facilities	X			X	X	X

SOURCE: KLJ

The City of Dickinson 2035 Comprehensive Plan provides a series of strategies and policies to address the growth impacts on the community. Several housing, land use and implementation strategies and policies are provided to address the issue of housing affordability. A Future Land Use Map (FLUM) illustrated in Figure 2, with accompanying FLUM consistency policy, provides the City with an important tool to manage the type and location of future growth. An Urban Service Area is established to plan and program future expansions of urban services. Strategies and policies are provided in the comprehensive plan to help the City achieve its goal of maintaining and enhancing the city’s quality of life. The FLUM will be a critical planning tool to guide and facilitate city land use decisions. Following the recommendations in the comprehensive and transportation plan will allow Dickinson the ability to strategically manage growth, appropriately plan for the future and map its own Roadmap to the Future, which includes retaining and enhancing the charm of the city and quality of life.

Widely accepted smart growth principles and tested growth management techniques are provided to allow the City to proactively plan and manage future growth.

Figure 2: City of Dickinson Future Land Use Map



SOURCE: KLJ



Community Vision and Goals

A community vision statement is an expression of the community's values and interests that provides an over-arching framework for the comprehensive plan. After extensive public involvement a community vision statement was formulated. This community vision statement is supported by vision statements that were developed for each planning topic. The following statement is the result of the community visioning effort:

Future growth and development will be effectively managed to:

- Preserve existing qualities
- Provide desired amenities
- Minimize impacts of growth
- Become an All-American City

Upon establishing the community vision statement, the public was engaged in the process of formulating comprehensive plan goals, objectives and policies that would move the community nearer to its vision for the future. The vision statements and goals for each planning topic are presented in this executive summary. The accompanying objectives and policies are provided in each applicable comprehensive plan chapter.

Land Use Vision Statement

Promote orderly growth that enhances the quality of place and community appearance, meets housing, employment, civic and recreational needs and minimizes the financial burden on the city, residents and businesses.

Land Use Goals

1. Effectively manage the location, timing and fiscal impacts of future development.
2. Promote and require high quality development in the city.
3. Increase the availability of locations for retail commercial development.
4. Improve community appearance along major roadways, including I-94, that are entrances to the community.
5. Allow crew camps to meet the demand for temporary worker housing.
6. Have downtown Dickinson be a vibrant part of the community and contribute to its quality of place by being the primary center for professional business services, civic services and entertainment.
7. Provide financial and regulatory incentives for development that successfully achieve the objectives and policies of the comprehensive plan.

Transportation Vision Statement

Maintain safe, barrier-free travel with a minimum amount of congestion and trucking conflicts.

Transportation Goals

1. Minimize future traffic congestion along major city roadways.
2. Reduce the volume of truck traffic in the city.
3. Improve overall traffic safety in the city.
4. Plan for a sustainable multi-modal transportation system for the city.

Economic Development Vision Statement

Promote a sustainable economic future for the city by maintaining a diversified local economy, enhancing the quality of place and establishing a highly qualified workforce.

Economic Development Goals

1. The city of Dickinson shall remain the business hub or center for the southwest region of North Dakota.
2. Continue to enhance the quality of place to make the city of Dickinson a desired location for new entrepreneurs to live and create local jobs.
3. Downtown Dickinson will retain its role as the professional service center for the community.
4. Meet existing and future business needs for a highly qualified workforce.
5. Increase the standard of living for workers in the city.
6. Create a local economy resilient to economic fluctuations of the energy sector.

Infrastructure Vision Statement

The City of Dickinson will maintain and invest in its infrastructure to provide high quality service to existing residents and businesses and provide the means to efficiently serve future growth.

Infrastructure Goals

1. Assure city utility systems can meet capacity and environmental quality demands.
2. Efficiently maintain the quality of the city's wastewater, potable water and drainage facilities.
3. Effectively plan infrastructure improvements in coordination with future land use planning.
4. Encourage water conservation and use of alternative water sources.

Housing Vision Statement

Create neighborhoods that provide diverse housing choices, offer attractive places to live, work, play and attend school, and create a place for residents to call home.

Housing Goals

1. Create additional and improved affordable housing opportunities for residents.
2. Preserve neighborhood character and establish a sense of place.
3. Provide residents a safe place to raise a family.
4. Provide appropriate housing choices and locations for temporary and transient workers.

City Services Vision Statement

The City of Dickinson will provide high quality and cost effective services to existing residents and businesses and provide the means to efficiently serve future growth.



City Services Goals

1. Assure city public safety services protect the life, safety and general welfare of all city residents and businesses.
2. Enhance the quality of place by properly maintaining all public facilities.
3. Promote intra-governmental and inter-governmental coordination to increase the cost effectiveness of providing city services.

Recreation and Cultural Amenities Vision Statement

Preserve and enhance city parks, trails, indoor recreational facilities and cultural facilities to ensure they are accessible to all residents, safe places to recreate and are attractive, well maintained public spaces that enhance the community's quality of place.

Recreation and Cultural Amenities Goals

1. Provide high quality parks and recreational facilities to meet the needs of existing and future residents.
2. Create a connected network of trails and other pedestrian and bicycle facilities to link parks, neighborhoods and activity centers in the city.
3. Maintain a high quality of life by preserving existing historical and cultural resources in the city and encouraging public art.

Natural Resources Vision Statement

Preserve and protect Dickinson and Stark County's natural resources, including wildlife, to ensure future generations have access to high-quality land, water and air resources.

Natural Resources Goals

1. Preserve and protect natural resource corridors for open space and recreational uses.
2. Avoid waste and hazardous materials from entering the ecosystem.
3. Minimize the environmental impacts associated with energy-related extraction activities.

Implementation Vision Statement

The City of Dickinson 2035 Comprehensive Plan will be broadly supported by the community and will be used on a regular basis by elected and appointed officials, City staff and the public to guide and facilitate decision-making.

Implementation Goals

1. Use the Comprehensive Plan goals, objectives and policies as a guide for decision making.
2. Provide and obtain funding to implement comprehensive plan policies.
3. Establish a five-year Capital Improvement Plan to program community investments and infrastructure and transportation improvements to accommodate future growth.
4. Maintain a high level of coordination between neighboring municipalities, Stark County and regional, state and federal agencies.
5. Establish a monitoring program to evaluate the effectiveness of Comprehensive Plan policies and proactively identify the emergence of changing circumstances or new opportunities.

ACKNOWLEDGEMENTS

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- Gene Jackson – Vice President
- Klayton Oltmanns
- Carson Steiner
- Shirley Dukart
- Joe Frenzel (former Commissioner)

Planning Commission

- Earl Abrahamson – Chairman
- Jay Elkin – County Elected
- Jason Hanson
- Tracy Tooz
- Gene Jackson
- Larry Dockter
- Jerry Krieg
- George Nodland
- Scott Kovash – Park Board Commissioner

City Staff

- Shawn Kessel – City Administrator
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- Rich Wardner – State Senator
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- Howard Sharpe

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- Pete Kuntz
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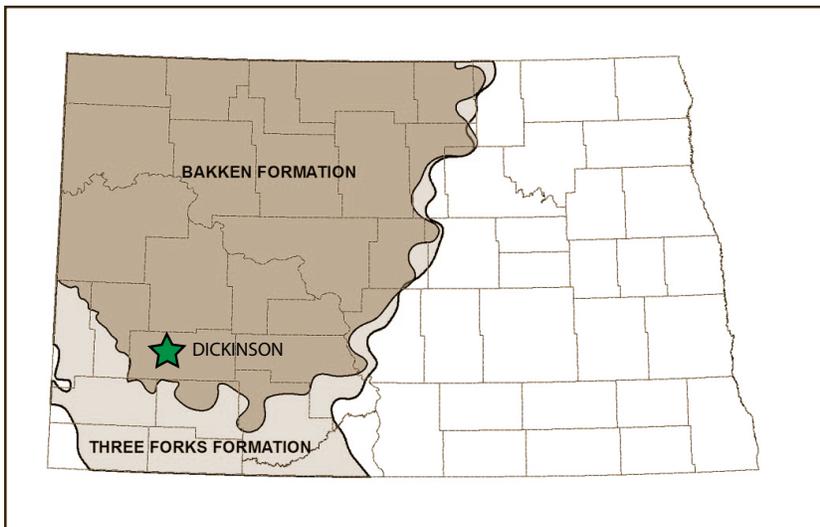
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INTRODUCTION

The city of Dickinson is in a period of optimism and prosperity. Significant private investment is driving rapid development that is increasing city revenue, creating new job opportunities and providing greater housing options for existing and new community members. The highly productive development of oil and natural gas resources in the Bakken/Three Forks formation is driving the positive economic conditions. In addition, there is the potential of oil and natural gas development in the Tyler formation located south of Dickinson. The unprecedented level of energy development in the region is largely due to the development of hydraulic fracturing (fracking) technology that has enabled oil and natural gas companies to effectively extract energy resources from the huge oil and gas reserves in western North Dakota and eastern Montana. Barring major macro-economic or geo-political disruptions, it is the consensus view among experts closely observing energy development activities in the region that current levels of oil and natural gas development will be sustained for at least another 15 to 20 years.

Bakken/Three Forks Formation Map



Motivation to prepare the Dickinson 2035 Roadmap to the Future Comprehensive Plan was based on three factors: 1) lessons learned from past boom-bust cycles in energy development, 2) current impacts of rapid growth and 3) a recognition of the need to proactively plan future growth.

Lessons Learned

The city of Dickinson, like other communities in western North Dakota, has weathered many economic changes over the years. As an agricultural hub in the region, the city's local economy has periodically been affected by price fluctuations in commodity prices. During the past 35 years, the city has experienced two energy development boom-bust cycles. One lesson learned is that the exuberance experienced during the boom phase should be tempered with the very real possibility the boom may not be sustained. During past booms the community experienced a rapid pace of residential development. When the ensuing bust occurred, the community was left with an over-supply of housing that drove down the price of real estate. During the past booms the city made significant investments in infrastructure. When the bust occurred, development halted and the City did not receive expected assessment revenue to fully recoup its investment in infrastructure. Many properties were forfeited to the City for non-payment of property taxes and special assessments.

Three general phases are in the current oil play that generate employment and sustain growth in communities in the region. The phases are well drilling, production and maintenance/operations. The well drilling phase is the most labor intensive and includes site development, transport and drilling activities. Based on well projections prepared by the North Dakota Department of Mineral Resources and others, the oil play is still in the early stage of the well drilling phase. To fully develop the Bakken/Three Forks formation it is estimated that as many as 40,000 to 50,000 new wells will need to be drilled over the next 15 to 20 years. When the well drilling phase is complete, overall energy development employment will subside. However, continued employment in the production and maintenance/operations phase moderate the loss in overall energy sector jobs. In other words, after the well drilling phase of the oil play is complete, there will be continued energy sector employment that will prevent economic bust conditions. However, the city and other communities in the region will likely experience a reduced demand for energy sector jobs which will in turn affect the city’s rate of growth. While an energy bust is not expected, the City has learned it is prudent to monitor changes in energy development to get growth policy aligned with energy development.

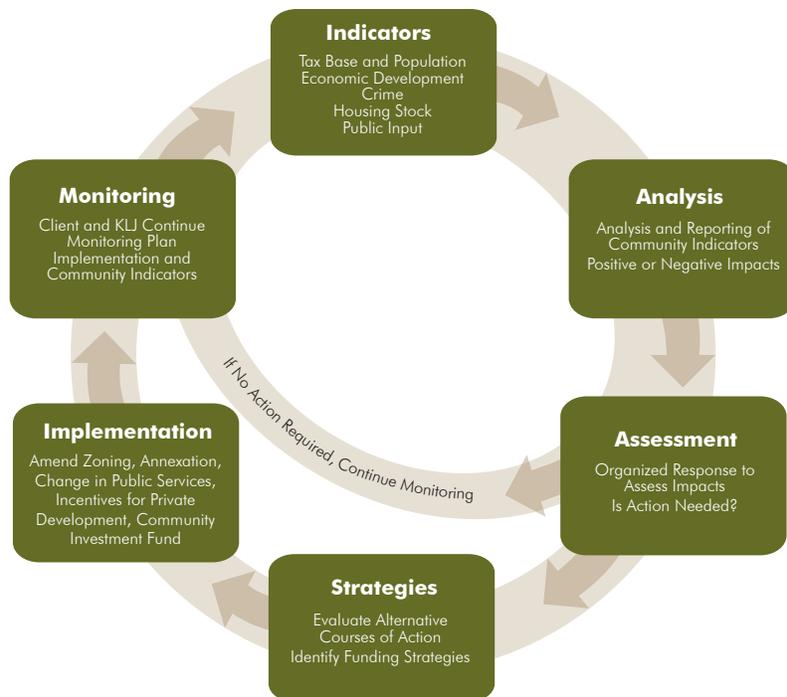
Dynamic community planning principles embedded in the comprehensive plan will enable the City to proactively monitor changing circumstances. A wide range of socio-economic factors will be used to monitor community well-being and facilitate the City’s timely response to emerging trends in the community and in energy development activities. The monitoring will enable the City to calibrate growth policy in response to significant change or slow-down in the development of regional energy resources. In the event of a slow-down of energy development, the City can quickly take actions to moderate or suspend private and public sector investments.

Current Conditions

The local economy, measured in multiple ways, is very strong. Energy companies directly involved in all phases of energy development as well as many oil-servicing companies have created hundreds of new jobs. Local businesses are flourishing as a result of increased spending from new residents and energy sector workers currently residing in the city. As a result, local non-energy sector businesses are also creating jobs. Homeowners are experiencing significant increases in the value of their homes, household incomes have increased and the City has experienced significant increase in tax revenue.

Rapid growth over the past few years has presented challenges to the community and City officials. The volume of traffic in the city has increased in some areas, accentuated by very high volumes of truck traffic associated with energy development. A severe shortage of housing and the resulting escalation of housing costs impact the entire community. Residents with fixed incomes are struggling to maintain their residency in the city. All employers are experiencing

Dynamic Community Planning Model





difficulties in recruiting new workers due to limited availability and high costs of housing. Local employers are seeing their labor costs increase due to the rising cost of housing and plentiful high-paying energy jobs. Employers are struggling to retain workers who are attracted by high-paying jobs in the “oil patch”. Wage inflation has also driven up the cost for goods and services.

The current boom has also generated less quantifiable impacts. There is an underlying unease felt by many members of the community, especially long-time residents who report that conditions are changing too fast and that the “feel” or character of the community is being negatively impacted. New residents feel there is a need for more retail and commercial services.

The comprehensive plan documents current conditions in the community. Documentation was obtained from a variety of sources, including input from the community at public meetings, responses provided in two community surveys, interviews with dozens of community stakeholders, including City officials and data collected from a variety of sources. Comments from the community and the data on various characteristics of the community were used to identify existing issues to address. Many goals, objectives, strategies and policies in the comprehensive plan directly address the existing issues identified by the community. An over-arching goal of the comprehensive plan is to maintain and enhance the quality of life in the city of Dickinson.

Widely accepted smart growth principles and tested growth management techniques are provided to allow the City to proactively plan and manage future growth.

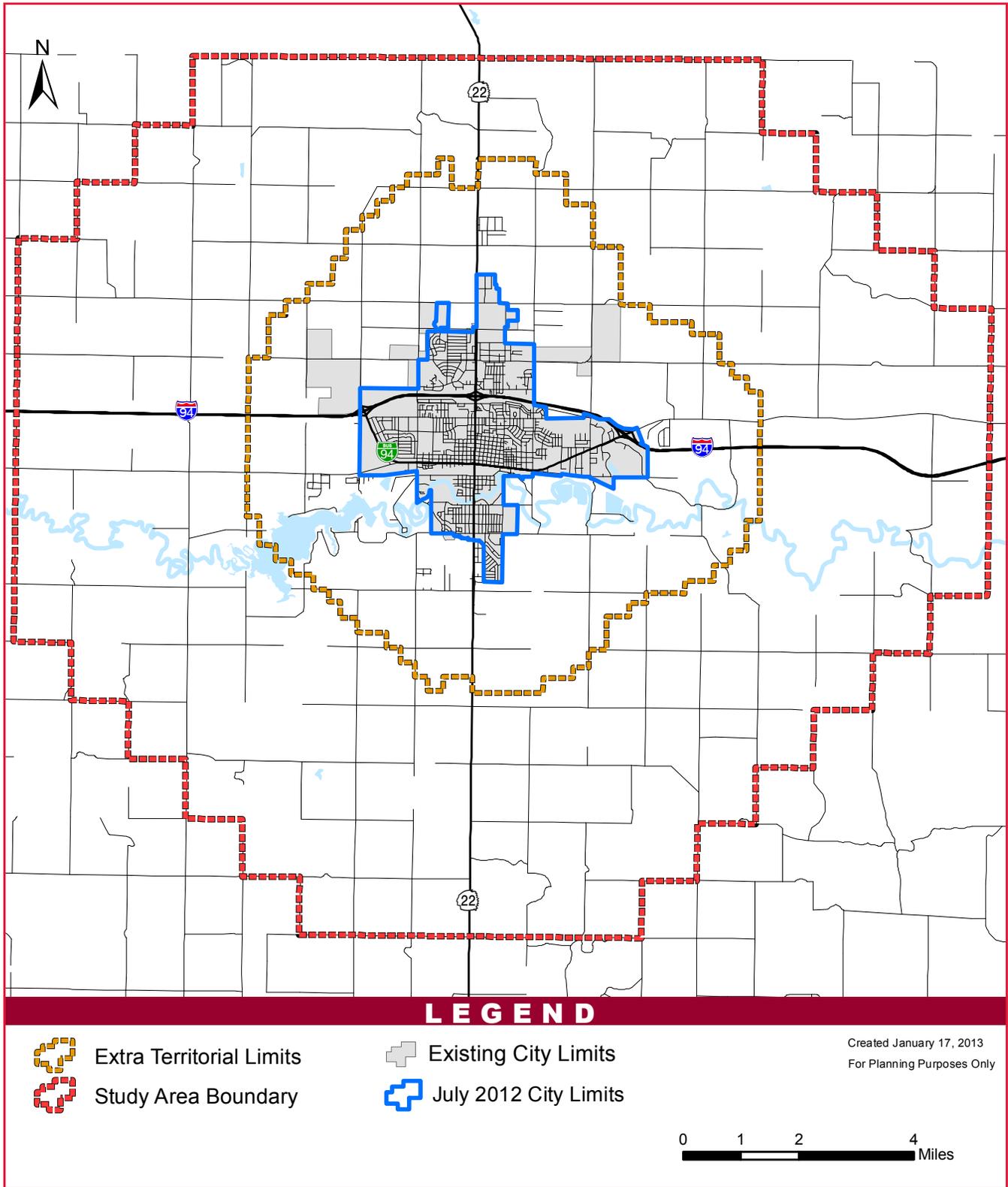
The rapid pace of growth in the city is expected to continue for several years. The comprehensive plan provides the City several planning tools to effectively manage future growth. The tools are simple to administer and strike an appropriate balance between the interests of the development community to respond to community needs, and the interests of the City to promote sustainable future growth. Widely accepted smart growth principles and tested growth management techniques are provided to allow the City to proactively plan and manage future growth.

Growth is “smart” when a community is able to create new neighborhoods and maintain existing ones that are attractive, convenient, safe, and healthy. The ten commonly-accepted principles of smart growth are:

- Mix land uses
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create “walkable” neighborhoods
- Promote distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Strengthen and encourage growth in existing communities
- Provide a variety of transportation choices
- Make development decisions predictable, fair, and cost-effective
- Encourage citizen and stakeholder participation

Numerous goals, objectives and policies found throughout the plan promote these principles.

Dickinson 2035 Comprehensive Plan Study Area



SOURCE: KLJ



Study Area

The city limits were updated in January 2013, with the previous update being July 2012. The study area includes the January 2013 city limits and extends six miles beyond the July 2012 city limits. The existing extra territorial limits extend two miles beyond the July 2012 city limits. When confirmed by a new census, the city is expected to reach a population of 25,000. When this occurs, the city will be able to expand its extra territorial jurisdiction from two miles to four miles. The six-mile study area was established to enable the City to plan for growth within and directly adjacent to the limits of its future extra territorial jurisdiction. The following study area map shows the January 2013 city limits, the July 2012 city limits, the extra territorial limits and the study area boundary.

The Role of the Comprehensive Plan

The City of Dickinson 2035 Roadmap to the Future Comprehensive Plan has two fundamental applications or purposes. The first is to facilitate City officials' decisions on future growth and budgetary matters. Secondly, through extensive public involvement in preparation of the comprehensive plan, the plan reflects the values and interests of the community. Objectives, strategies and policies are provided to realize the community's vision and goals for the future.

A Tool to Guide Future Growth and City Investments

The comprehensive plan has proscriptive elements that provide greater certainty regarding the location, type and timing of future growth. In addition, numerous policies, consistent with the community's vision for the future, are provided to promote sustainable and high quality development to enhance quality of life.

The comprehensive plan is designed to be used by City officials on a daily basis to support the review of land development applications. It will also be a useful tool for budgeting expenditures for city services and capital improvements.

The Community's Plan

The value of a comprehensive plan can be measured by the degree in which community members were actively involved in its preparation. The community was given multiple opportunities through various means to help shape the comprehensive plan. Several ideas and suggestions provided by the community have been incorporated in the comprehensive plan. The City of Dickinson 2035 Comprehensive Plan is, in fact, the community's plan. The community's strong support for the comprehensive plan will facilitate decision-making and provide a shared sense of purpose and roadmap to the future.

Comprehensive Planning Approach and Plan Content

The comprehensive plan is a vision-based planning document. It provides an overall community vision statement and vision statements for each planning topic. The vision statements provide the basis for establishment of goals and objectives and specific strategies and policies to achieve those goals and objectives. The plan is also comprehensive; all facets of the community directly or indirectly influenced by City government are studied. The planning topics contained in the comprehensive plan include population trends and forecasts, the local economy and economic development, land use, transportation, infrastructure, housing, city services, recreation and cultural resources and natural resources. The final two chapters provide an implementation plan, a comprehensive plan monitoring program and a list of recommended capital improvements. The comprehensive plan includes the following chapters:

Chapter 1: Community Vision and Goals

The chapter presents the results of the community visioning process. It includes a community vision statement and a vision and goals for each planning topic. Most information presented in this chapter was derived directly from public comment and suggestions.

Chapter 2: Population Trends and Forecasts

This chapter presents and analyzes population characteristics and trends. The demographic information provided focuses on population and household characteristics and trends. The chapter also provides population forecasts for the 2013-2036 planning period that are integral to other comprehensive plan chapters and directly support future land use, transportation and infrastructure modeling.

Chapter 3: The Local Economy and Economic Development

A profile of the local economy and how it compares to other communities and the state is provided in this chapter. Various economic data are presented and analyzed to identify economic issues and trends. This chapter reports on the industries that represent the core of the local economic, employment, occupations and income. Local economic development organizations and local, state, regional and federal economic development programs are identified. Forecasted growth industries and occupations data and data on educational attainment in the community are provided, as well as recommended workforce development and economic diversification strategies. Finally, employment forecasts for the planning period are provided that are used to support land use, transportation and infrastructure modeling and planning.

Chapter 4: Land Use

This chapter analyzes the existing land use pattern in the city. An inventory of existing vacant residential, commercial and industrial zoned properties is provided as well as an existing land use map. A future land use map shows the location and type of future land uses. Land use policy establishes a requirement that new rezone application must be consistent with the future land use map. Additional land use policies include, but are not limited to, guidelines to evaluate future land use map amendments, mitigation of land use incompatibilities, community gateway development, open space and recreation amenities for residential development and guidelines for the location and spacing of industrial and commercial projects. The intent of all land use strategies and policies is to promote a sustainable and high quality built environment.

Chapter 5: Transportation

The primary purpose of this chapter is to officially recognize that the City of Dickinson Transportation Plan is part of the comprehensive plan. The chapter summarizes objectives, strategies and policies in the transportation plan and includes the Future Thoroughfare Map and transportation improvements that are required to accommodate planned future development during each planning period.

Chapter 6: Infrastructure

Chapter 6 reports on and analyzes the city's water, wastewater and drainage systems. The components and deficiencies of each system will be identified. The future land use map is modeled to identify future water and wastewater system improvements needed to accommodate planned future development during the planning periods contained in the Capital Improvement Plan. An urban service area is established to represent the geographic extent of extensions of water and wastewater systems during the next 10 years. Finally, areas of known flooding are identified and improvements to the storm water/drainage system are recommended to mitigate the flooding.

Chapter 7: Housing

This chapter provides a comprehensive report on existing housing conditions in the city. Various characteristics of housing include, but are not limited to, types of housing and housing tenure. Housing costs are also identified and analyzed. With the existing severe shortage of housing and rapidly escalating housing costs, special emphasis is placed on promotion of affordable housing. Estimates of the number of persons and households burdened by housing costs are provided. Several strategies and policies are recommended to address this pressing issue.



Chapter 8: City Services

Chapter 8 identifies existing police, fire, library, museum and public works services. The impacts of recent rapid growth on each service are identified and policies recommended to correct existing and anticipated service deficiencies.

Chapter 9: Recreation and Cultural Resources

The chapter provides an inventory of existing recreation and cultural resources in the city. A summary profile of the characteristics of each facility is provided. Strategies are recommended to promote increased shared use of recreation and cultural facilities. A recommended minimum level of service for city parkland and policies related to private recreational facilities are provided. The existing trail system is evaluated, and recommended design standards for trails are provided. Finally, the chapter includes a Trails Master Plan for the entire city, including existing urban areas and future growth areas.

Chapter 10: Natural Resources

Chapter 10 identifies and maps a variety of natural resources in the study area. Existing zoning, subdivision and storm water regulations are reviewed to identify the extent to which natural resources are protected. Amendments to regulations are recommended to enhance natural resource protection.

Chapter 11: Implementation

This chapter establishes a program to implement the comprehensive plan. The Implementation Chapter has two functions. The first is the establishment of a comprehensive plan monitoring program. Two types of monitoring activities are established. The first is an annual review of achievement of comprehensive plan goals and objectives and the effectiveness of strategies and policies to achieve the goals and objectives. The second is an annual review of progress made implementing various recommended actions and community investments. The second type of monitoring activity involves collection and analysis of strategic information related to community well-being and economic indicators. The indicators will enable City officials to periodically ground-truth forecasts and evaluate whether assumptions made on the level of energy development have been realized. The monitoring will allow the City to make adjustments to policies if forecasts or assumptions are off-target.

The second function of the chapter is to program non-capital improvement implementation measures. The comprehensive plan contains a variety of recommended strategies that require actions by City officials. For each strategy, a City department is assigned the responsibility of leading the initiative, and a time frame for implementing the strategy is specified.

Chapter 12: Capital Improvements

This chapter provides a compilation of all recommended capital improvement projects identified in the comprehensive plan. Projects are organized by type (water, sewer, transportation or miscellaneous) and by year (2013-2014, 2015-2016, 2017-2035). The following information is provided for each project:

- General project description
- Planning-level cost estimate, with costs designated to appropriate funding sources
- Consequences of not funding
- Project prioritization

The Capital Improvement Plan will be reviewed and updated on an annual basis. The update will occur during City budget preparation.

Note: All maps and growth concepts are for planning purposes only. Planning periods vary by activity.



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Community Vision and Goals

Chapter 1

Public Participation and Visioning Process

The Dickinson 2035: Roadmap to the Future is a vision-based, community-driven plan. The vision, goals and strategies are based on Planning Advisory Committee (PAC), community stakeholder and public input. The public participation and visioning process included a variety of opportunities for involving the public including:

- The project website dickinsonplan.com
- Two community surveys
- Focus group meetings
- Five public input meetings and workshops
- Four joint meetings of the Dickinson Planning and Zoning Commission and the City Commission
- City Commission and Planning and Zoning Commission public hearings on the draft Comprehensive and Transportation Plan

A summary of the entire public involvement process, including advertisements, meeting presentations and summaries, survey questions and results and related information, is included in Appendix A of the Transportation Plan. Brief summaries of specific public involvement activities are described below.

Planning Advisory Committee

The PAC represented a broad-based planning committee for the project. The PAC provided input on policy, reviewed preliminary recommendations and provided insight on community issues and values. PAC members represented:

Dickinson City Commission	City Administration, Planning and Engineering Staff
Dickinson Planning and Zoning Commission	Stark County Commission
Roosevelt-Custer Regional Planning Council	North Dakota Legislature
North Dakota Department of Transportation (NDDOT)	North Dakota Federal Highway Administration
Dickinson State University	Dickinson Public School Transit
Trinity High School	Theodore Roosevelt Regional Airport
Stark County Development Corporation	Dickinson Chamber of Commerce
Dickinson Park and Recreation Department	Southwest Water Authority
Dickinson Convention and Visitors Bureau	St. Joseph’s Hospital and Health Center

Five PAC meetings were held at strategic milestones in the planning process.

Community Surveys

To obtain area-specific and quantitative information, two community surveys were conducted using Survey Monkey. The surveys were designed to obtain public opinion regarding community characteristics, values and issues such as travel and shopping behaviors, and opinion on a wide range of planning strategies. The surveys could be accessed online at the project website and paper copies were available at public meetings. Public notice of the surveys was provided through news releases and public meeting advertisements. Notifications were also provided through a roving display booth and flyers placed at various locations in the community including Dickinson State University, City Hall, West River Community Center and Dickinson High School.



Public Input Meetings

Public meetings were held at the following project milestones:

1. Kickoff meeting and issue identification
2. Report on existing conditions and identification of preliminary vision and goals
3. Refined vision and goals, and review of preliminary planning strategies through an all-day public workshop followed by an evening public input meeting to summarize the results of the workshop
4. Report on future growth projections and preliminary recommendations to address infrastructure impacts generated by future growth
5. Presentation of the Draft Comprehensive and Transportation Plan before the Planning and Zoning Commission and City Commission
6. A public hearing before the City Commission for adoption of the Comprehensive and Transportation Plan

Joint Planning and Zoning Commission and City Commission Meetings

Four joint meetings of the Planning and Zoning Commission and City Commission were held to provide specific policy direction. Input and policy direction was provided on preliminary planning strategies, housing and population forecasts, future growth scenarios and the impacts to the transportation, water and sewer systems generated by future growth.

Visioning Process

The visioning process focused on the following questions to establish the foundation for the Dickinson Comprehensive and Transportation Plan:

- Where are we now?
- Where are we going?
- Where do we want to be?
- Are we getting there?
- How do we get there?

Two public input meetings were devoted to working with the community in developing a community vision and broad goals to achieve the vision. The following framework was used to assess the above questions.

1. Establish a thorough understanding of the entire community (where are we now?)
2. Identify the community's values (what vision "fits" in Dickinson?)
3. Analyze existing trends and issues (where are we going?)
4. Establish a preferred future (where do we want to be and are we getting there?)
5. Produce a strategic action plan (how do we get there?)

The community vision and goals were developed by the community, not the study team. The community vision and goals provided the basis to develop preliminary planning strategies that were refined based on comments from the community and appointed and elected City officials. The planning strategies guided the development of recommendations provided in the Comprehensive and Transportation Plan.

Community Vision Statement

The City of Dickinson 2035 Comprehensive Plan is a vision-based planning document. One of the first activities in preparing the comprehensive plan was to establish a community vision statement that was an expression of the community's values and interests to provide an over-arching framework for the comprehensive plan. After extensive public involvement (see Appendix A), a community vision statement was formulated. The following statement is the result of the community visioning effort:

Future growth and development will be effectively managed to:

- Preserve existing qualities
- Provide desired amenities
- Minimize impacts of growth
- Become an All-American City

Community Goals

Upon establishing the community vision statement, the public was engaged in the process of formulating comprehensive plan goals, objectives and policies to move the community nearer to its vision for the future. The comprehensive plan vision statements and goals for each planning topic are presented in this chapter. The objectives and policies are provided in each applicable comprehensive plan chapter.

The City of Dickinson 2035 Comprehensive Plan is a road map providing direction on how to move forward to achieve a sustainable future for the community. Comprehensive plan goals provide a planning framework that further defines the community vision and provides a more refined path forward to realize the community vision statement.

Goals are general statements expressing the values and interests of the community describing desired community conditions and characteristics. The comprehensive plan goals are intended to provide local officials a reference that can be used to evaluate alternative decisions or courses of action. The goals provide a community compass to assist in determining if a specific decision or action is in the community's best interest. Due to the general nature of the term "public interest", what is in the best interest of a community can be interpreted in a number of different ways, often depending on the perspective of the decision maker. The comprehensive plan goals provide more specific meaning to the term public interest. When a decision or action is contrary to or in conflict with comprehensive plan goals, City officials and the community have a valid basis to conclude the decision is not in the public's interest. Conversely, when a decision or action is clearly consistent with stated comprehensive plan goals, City officials and the community can take comfort in making a decision that has the overall support of the community.

The City of Dickinson 2035 Comprehensive Plan goals were prepared by the community. The planning consultant role was limited to facilitating the discussion on community goals and incorporating public input and comment into written goal statements which were then endorsed by the community. The following planning topic vision statements and goals are, in fact, the community's goals.

Land Use Vision Statement

Promote orderly growth that enhances the quality of place and community appearance, meets housing, employment, civic and recreational needs and minimizes the financial burden on the city, residents and businesses.



Land Use Goals

1. Effectively manage the location, timing and fiscal impacts of future development.
2. Promote and require high quality development in the city.
3. Increase the availability of locations for retail commercial development.
4. Improve community appearance along major roadways, including I-94, that are entrances to the community.
5. Allow crew camps to meet the demand for temporary worker housing.
6. Have downtown Dickinson be a vibrant part of the community and contribute to its quality of place by being the primary center for professional business services, civic services and entertainment.
7. Provide financial and regulatory incentives for development that successfully achieve the objectives and policies of the comprehensive plan.

Transportation Vision Statement

Maintain safe, barrier-free travel with a minimum amount of congestion and trucking conflicts.

Transportation Goals

1. Minimize future traffic congestion along major city roadways.
2. Reduce the volume of truck traffic in the city.
3. Improve overall traffic safety in the city.
4. Plan for a sustainable multi-modal transportation system for the city.

Economic Development Vision Statement

Promote a sustainable economic future for the city by maintaining a diversified local economy, enhancing the quality of place and establishing a highly qualified workforce.

Economic Development Goals

1. The city of Dickinson shall remain the business hub or center for the southwest region of North Dakota.
2. Continue to enhance the quality of place to make the city of Dickinson a desired location for new entrepreneurs to live and create local jobs.
3. Downtown Dickinson will retain its role as the professional service center for the community.
4. Meet existing and future business needs for a highly qualified workforce.
5. Increase the standard of living for workers in the city.
6. Create a local economy resilient to economic fluctuations of the energy sector.

Infrastructure Vision Statement

The City of Dickinson will maintain and invest in its infrastructure to provide high quality service to existing residents and businesses and provide the means to efficiently serve future growth.

Infrastructure Goals

1. Assure city utility systems can meet capacity and environmental quality demands.
2. Efficiently maintain the quality of the city's wastewater, potable water and drainage facilities.
3. Effectively plan infrastructure improvements in coordination with future land use planning.
4. Encourage water conservation and use of alternative water sources.

Housing Vision Statement

Create neighborhoods that provide diverse housing choices, offer attractive places to live, work, play and attend school, and create a place for residents to call home.

Housing Goals

1. Create additional and improved affordable housing opportunities for residents.
2. Preserve neighborhood character and establish a sense of place.
3. Provide residents a safe place to raise a family.
4. Provide appropriate housing choices and locations for temporary and transient workers.

City Services Vision Statement

The City of Dickinson will provide high quality and cost effective services to existing residents and businesses and provide the means to efficiently serve future growth.

City Services Goals

1. Assure city public safety services protect the life, safety and general welfare of all city residents and businesses.
2. Enhance the quality of place by properly maintaining all public facilities.
3. Promote intra-governmental and inter-governmental coordination to increase the cost effectiveness of providing city services.

Recreation and Cultural Amenities Vision Statement

Preserve and enhance city parks, trails, indoor recreational facilities and cultural facilities to ensure they are accessible to all residents, safe places to recreate and are attractive, well-maintained public spaces that enhance the community's quality of place.

Recreation and Cultural Amenities Goals

1. Provide high quality parks and recreational facilities to meet the needs of existing and future residents.
2. Create a connected network of trails and other pedestrian and bicycle facilities to link parks, neighborhoods and activity centers in the city.
3. Maintain a high quality of life by preserving existing historical and cultural resources in the city and encouraging public art.



Natural Resources Vision Statement

Preserve and protect Dickinson and Stark County's natural resources, including wildlife, to ensure future generations have access to high-quality land, water and air resources.

Natural Resources Goals

1. Preserve and protect natural resource corridors for open space and recreational uses.
2. Avoid waste and hazardous materials from entering the ecosystem.
3. Minimize the environmental impacts associated with energy-related extraction activities.

Implementation Vision Statement

The City of Dickinson 2035 Comprehensive Plan will be broadly supported by the community and will be used on a regular basis by elected and appointed officials, City staff and the public to guide and facilitate decision-making.

Implementation Goals

1. Use the comprehensive plan goals, objectives and policies as a guide for decision-making.
2. Provide and obtain funding to implement comprehensive plan policies.
3. Establish a five-year Capital Improvement Plan to program community investments and infrastructure and transportation improvements to accommodate future growth.
4. Maintain a high level of coordination between neighboring municipalities, Stark County and regional, state and federal agencies.
5. Establish a monitoring program to evaluate the effectiveness of comprehensive plan policies and proactively identify the emergence of changing circumstances or new opportunities.



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Population Characteristics, Trends and Projections

Chapter 2

An understanding of population characteristics, trends and projections is a key component of the comprehensive plan. The information directly supports future land use, transportation and infrastructure planning, as well as an analysis of housing, recreation and city service needs.

POPULATION CHARACTERISTICS

The city of Dickinson has experienced substantial growth from the 1930s to the 1980s, with population increases ranging from 13.9 percent between 1930 and 1940 to 25.1 percent in the 1960s. During the late 1970s and early 1980s, Dickinson experienced an influx of residents due to the oil boom that occurred in western North Dakota. Population jumped from 12,405 in 1970 to nearly 16,000 in 1980. Dickinson’s population had a negligible population increase (2.35 percent) between 1980 and 1990 as a result of the oil bust, which occurred in the mid 1980s. Population then declined in the last decade of the century with a 1.9 percent decline as shown in Table 2-1.

Dickinson is once again experiencing rapid population growth driven by energy development in western North Dakota. Based on the 2010 US Census, Dickinson had 17,787 residents, meaning the city added more than 1,700 people (11 percent increase in population) from 2000 to 2010. The greatest increase during the decade occurred between 2009 and 2010, when the city added 1,522 people (an 8.6 percent annual increase).

The 2010 Census does not accurately reflect the current population due to hotels being leased for long periods, individual home owners subletting basements or rooms, persons residing in RV campers and on-site housing of employees. However, the Census serves as a basic foundation for projecting future population. Table 2-1 shows population for the city, Stark County and the state of North Dakota from 1920 to 2010. Figure 2-1 shows the population for the city for the same time period. Table 2-2 shows the population for the city, Stark County and the state of North Dakota between 2008 and 2010.

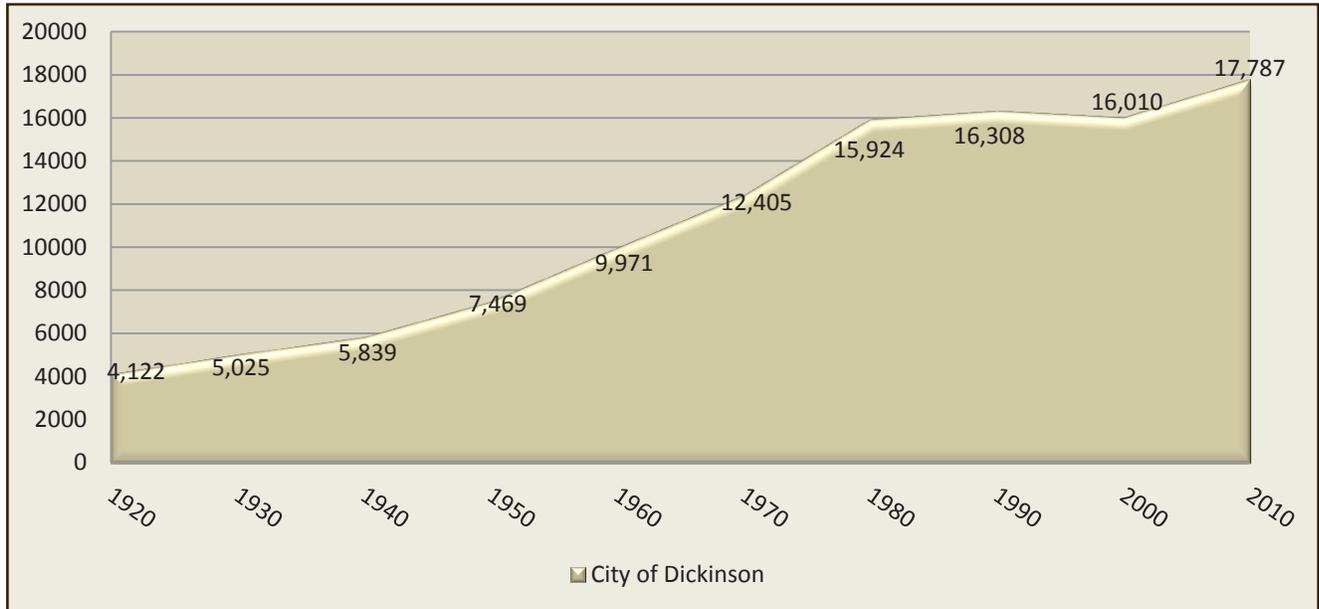
Table 2-1: Population 1920-2010: North Dakota, Stark County and City of Dickinson

Year	North Dakota	Percent Change	Stark County	Percent Change	City of Dickinson	Percent Change
1920	646,872	--	16,542	--	4,122	--
1930	680,845	5.0	15,340	11.7	5,025	18.0
1940	641,935	-6.0	15,414	0.5	5,839	13.9
1950	619,636	-3.6	16,137	4.5	7,469	21.8
1960	632,446	2.0	18,451	12.5	9,971	25.1
1970	617,792	-2.4	19,613	5.9	12,405	19.6
1980	652,717	5.4	23,697	17.2	15,924	22.1
1990	637,364	-2.4	22,766	-4.1	16,308	2.4
2000	642,200	0.8	22,636	-0.6	16,010	-1.9
2010	672,591	4.5	24,199	6.5	17,787	11.1

SOURCE: NORTH DAKOTA STATE DATA CENTER, US CENSUS



Figure 2-1: Population 1920-2010: City of Dickinson



SOURCE: NORTH DAKOTA STATE DATA CENTER, US CENSUS

Table 2-2: Population 2008-2010: North Dakota, Stark County and City of Dickinson

Jurisdiction	2008	2009	2008-2009	Change	2009	2010	2009-2010	Change
North Dakota	641,421	646,844	5,423	0.84%	646,844	672,591	25,747	3.83%
Stark County	22,517	22,847	330	1.44%	22,847	24,199	1,352	5.59%
City of Dickinson	15,969	16,265	296	1.82%	16,265	17,787	1,522	8.56%

SOURCE: US CENSUS BUREAU, 2010 CENSUS AND NORTH DAKOTA STATE DATA CENTER

Dickinson was the only city in Stark County to experience population growth between 2000 and 2010 as shown in Table 2-3. The city more than likely captured a percentage of the out-migration from other municipalities within the county. This is not the leading cause of the recent population boom in Dickinson as only a total of 173 people would have potentially moved into the city. However, Table 2-3 does indicate that Dickinson is the hub community within Stark County and will attract more people as national trends continue to indicate a shift of rural residents locating near or within urbanized areas. Moreover, as energy development in western North Dakota continues, Dickinson is forecast to experience significant increases in new residents and businesses. The forecast growth will reinforce the city’s role as a regional center in western North Dakota.

Table 2-3: Population 2000-2010: Cities within Stark County

Jurisdiction	2000	2010	Number Change 2000-2010	Percent Change 2000-2010
Dickinson	16,010	17,787	1,777	11.1
Belfield	866	800	-66	-8.3
Gladstone	248	239	-9	-3.8
Richardton	619	529	-90	-17.0
South Heart	307	301	-6	-2.0
Taylor	150	148	-2	-1.4

SOURCE: US CENSUS BUREAU, 2000 AND 2010 CENSUS

AGE COMPOSITION AND TRENDS

Important observations can be made by examining changes in the age characteristics of a community. The city, county and state have similar age characteristics with regard to various age groups population as a percent of total 2010 population. However, there are significant differences in the percent change of age groups between 2000 and 2010.

Compared to the county and state, between 2000 and 2010 the city experienced a strong growth in persons in the under-five year age group. This can be attributed to the 38.2 percent increase of young adults (ages 20-34). The in-migration and retention of young adults contribute to the strong percent increase in the age group. These findings are very positive for the city. The significant increase in young adults choosing to either move to or continue to live in the city shows economic opportunities support the decision to start a family in the city. However, the findings pose challenges for the city. As the children in these young families age, there will be an increase in school-aged persons that will require planning for new or expanded schools. Also, young adults starting their careers/vocations tend to have lower incomes than older adults. The City will need to encourage the provision of affordable housing options for the young adults in order to make it economically viable to continue to reside in the city.

As with the county and state, the city experienced the aging of the baby boom generation. The percentage of persons in the 35-49 age group declined as this group of persons moved into the 50-64 year age group which experienced a 54.1 percent increase between 2000 and 2010.

Finally, the city experienced a strong percent increase in persons in the 80 years and over age group. The City will need to be attentive to the increased demand for senior and transition housing, public transportation and medical services.

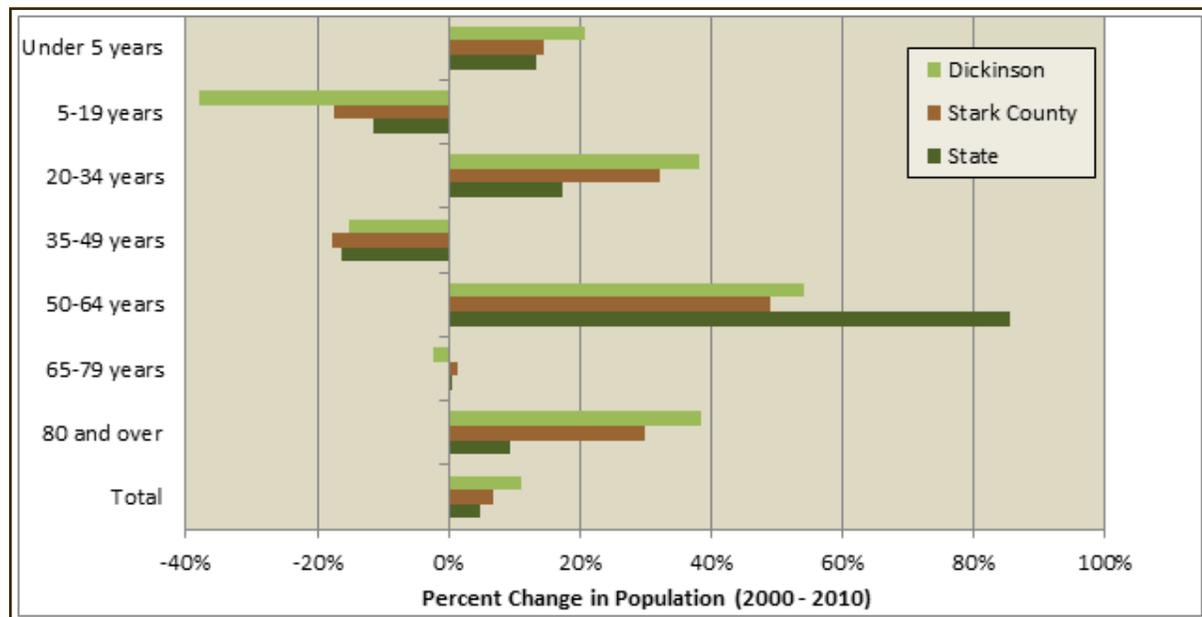


Table 2-4: Population by Age Groups 2000-2010: North Dakota, Stark County and City of Dickinson

Age Group	North Dakota				Stark County				City of Dickinson			
	2000	2010	Percent Change 2000-2010	2010 % of Total	2000	2010	Percent Change 2000-2010	2010 % of Total	2000	2010	Percent Change 2000-2010	2010 % of Total
Under 5 years	39,400	44,595	13.2	6.6	1,307	1,496	14.5	6.2	939	1,133	20.7	6.4
5-19 years	14,406	12,734	-11.6	18.9	5,418	4,474	-17.4	18.5	3,748	2,319	-38.1	18.1
20-34 years	12,739	14,944	17.3	22.2	4,032	5,328	32.1	22.0	3,205	4,430	38.2	24.9
35-49 years	14,544	12,164	-16.4	18.1	5,146	4,228	-17.8	17.5	3,470	2,940	-15.3	16.5
50-64 years	91,428	13,209	85.6	19.6	3,223	4,798	48.9	19.8	2,078	3,202	54.1	18.0
65-79 years	64,986	65,241	0.4	9.7	2,401	2,434	1.4	10.1	1,702	1,662	-2.4	9.3
80 and over	29,493	32,236	9.3	4.8	1,109	1,441	30.0	5.9	868	1,201	38.4	6.7
Total	642,200	672,591	4.7	--	22,636	24,199	6.9	--	16,001	17,787	11.2	--

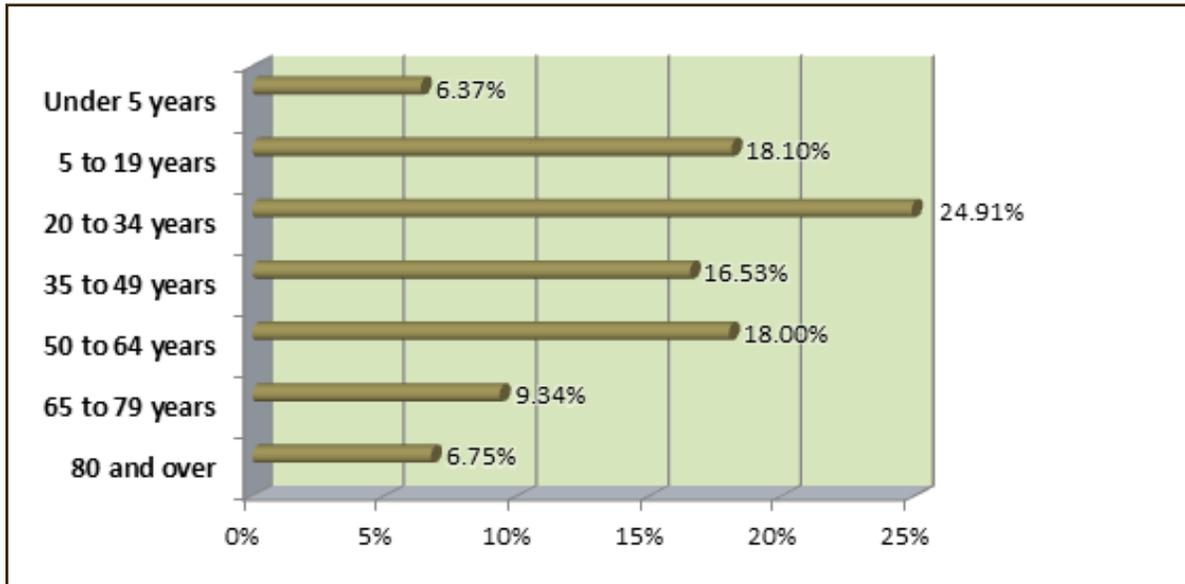
SOURCE: US CENSUS BUREAU, 2000 AND 2010 CENSUS

Figure 2-2: Age Composition by Jurisdiction



SOURCE: US CENSUS BUREAU, 2000 AND 2010 CENSUS

Figure 2-3: Dickinson Population Distribution 2010



SOURCE: US CENSUS BUREAU, 2010 CENSUS

HOUSEHOLD CHARACTERISTICS

Table 2-5 shows household characteristics for the city, Stark County and North Dakota in 2010. The most significant observation is the high percentage of non-family households (unrelated persons living together) in the city compared to Stark County and North Dakota. With the exception of unmarried couples, non-family households are predominantly renters. Given the relatively high percentage of non-family households, the City should encourage the development of rental housing to meet these households' housing needs.

Table 2-5: Household Characteristics, Dickinson, Stark County and North Dakota, 2010

Household Characteristics	Dickinson	Stark County	North Dakota
Total Households	7,521	6,860	181,192
Average Household Size	2.25	2.31	2.30
Family Households	4,308	5,088	170,916
Percent of Total Households	57.3%	74.2%	60.8%
Average Family Size	2.89	2.90	2.91
Non-Family Households	3,213	1,772	110,276
Percent of Total Households	42.7%	25.8%	34.6%

SOURCE: US CENSUS BUREAU, 2010 CENSUS



RACIAL AND ETHNIC COMPOSITION

The city of Dickinson, much like Stark County and North Dakota, is predominately White, although the number of people identifying themselves as Black, Asian or Hispanic rose modestly between 2000 and 2010. In 2000, 97.2 percent of Dickinson residents classified themselves as White, whereas in 2010, 94.2 percent were classified as White. The numbers are slightly higher than the state average. The greatest discrepancy between the city and state in terms of racial and ethnic composition was the percentage of American Indian residents. In 2010, Dickinson’s American Indians represented 1.2 percent of the total city population, compared to 5.4 percent of the state’s population. A profile of population by race and ethnicity is provided in Table 2-6.

Table 2-6: Racial and Ethnic Composition, Percent of Total Population 2000 and 2010

Jurisdiction	White		Black or African American		American Indian		Asian		Hispanic		Other Race	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
North Dakota	92.4	90.0	0.6	1.2	4.9	5.4	0.6	1.0	1.2	2.0	0.4	0.6
Stark County	97.5	95.2	0.2	0.8	0.9	1.0	0.2	1.2	1.0	1.9	0.2	0.6
City of Dickinson	97.2	94.2	0.3	1.1	1.2	1.2	0.2	1.5	1.1	2.2	0.4	0.6

SOURCE: KLI

2012 POPULATION ESTIMATE

Population estimates for 2012 were developed in conjunction with North Dakota State University (NDSU) to update the city 2010 population recorded by the US Census. Unlike the 2010 US Census data, the population estimates were calculated by accounting for permanent and non-permanent residents (oil workers residing in hotels, individual home owners subletting their basements or rooms, persons residing in RV campers and on-site housing of employees).

Table 2-7 shows the population for July 2012 was estimated to be slightly more than 23,900 persons. The existing permanent residents are estimated to be approximately 19,700 people while the non-permanent residents are estimated at more than 4,200 persons.

Figure 2-4: Workers Residing in RVs at a Construction Site



Table 2-7: July 2012 Estimated Total Population, City of Dickinson

Housing Type	Units	Estimated Population Increase	Estimated Existing Population
April 1, 2010 Consensus	7,865	-	17,787
Estimate of Building Permits (4/1/10-12/31/10)	237	593	18,380
2011 Building Permits	331	704	19,084
2012 Building Permits*	409	563	19,647
Permanent Hotel Residents	-	1,026	20,673
Informal Construction Camps	-	264	20,937
Campgrounds/RV Parks	-	1,292	22,229
20% Oil Worker Occupancy Rate	-	1,687	23,916

SOURCE: US CENSUS BUREAU, 2000 AND 2010 CENSUS, ND BUILDERS ASSOCIATION, CITY OF DICKINSON, KLJ

*Indicates number of permits issued through July 2012.

†Applies to all housing units except for housing units with 2012 building permits.

Strategy: Conduct a census in the next few years (per NDCC 40-05-02) to allow Dickinson to extend its extraterritorial zoning (ETZ) area from two miles to four miles. The new population must be more than 25,000 to extend ETZ limits. Major retailers use the 25,000 population figure as a minimum threshold for making investments in a new market. Substantiating a population in excess of 25,000 persons will facilitate increased retail commercial development.

POPULATION FORECAST

Population forecasts were prepared for each of the four planning periods: Years 1-3 (2013-2015), Years 4-5 (2016-2017), Years 6-10 (2018-2022) and Years 11-23 (2023-2035) and represent the city’s potential population if it adopts the necessary policies to sustainably accommodate increased population.

The population forecasts for the city of Dickinson were prepared by the North Dakota State University Department of Agribusiness and Applied Economics (NDSU). NDSU prepared a model to forecast employment based on three scenarios or future energy development. The employment forecasts were based on an assumption that a total of 32,000 oil wells will be drilled in the Bakken/Three Forks formations. It was also assumed the Taylor oil and gas formation located south of Dickinson would not be developed during the planning period. The scenarios included a slow or more gradual development of the Bakken/Three Forks formations, a continuation of the rapid development of the oilfields and an average of the slow and rapid development scenarios. For each scenario employment was forecasted for the Dickinson Trade Area (including Billings, Dunn, Golden Valley, Hettinger, Slope and Stark County), Stark County and the city of Dickinson.

The employment forecasts were used to establish housing forecasts for the Dickinson Trade Area, Stark County and the city of Dickinson. Two alternative housing forecasts were prepared for each. The first assumed the City would continue to provide its share (approximately 50 percent) of the trade area’s housing stock. The second assumed the city had the ability to absorb 70 percent of the forecasted housing demand. Separate housing forecasts were prepared for permanent housing and temporary housing for oil workers. The employment and housing forecasts for each of the scenarios were presented to the Dickinson City Commission; the Commission selected the average of the slow and rapid energy development scenario



with Dickinson absorbing 70 percent of the forecasted housing demand. This scenario was used for population estimates, future land use, transportation and infrastructure planning for the Dickinson 2035 Comprehensive Plan.

The housing forecast accepted by the City was used by NDSU to establish population forecasts for the trade area and the city of Dickinson. A housing to population model allocated total housing demand for the trade area into various categories of housing unit types by county. Expected future occupancy rates, by housing type and county, were used to convert the forecasted number of housing units into population estimates. The model generated a city 2035 permanent population forecast of 41,609 persons and also provided the city’s total population including permanent and temporary residents. Table 2-8 shows the city’s and the Dickinson Trade Area’s total, permanent and temporary total population forecast in five-year increments based on the housing demand scenarios. Figure 2-5 shows the increase of permanent and temporary residents based on the 70 percent housing demand during the planning period.

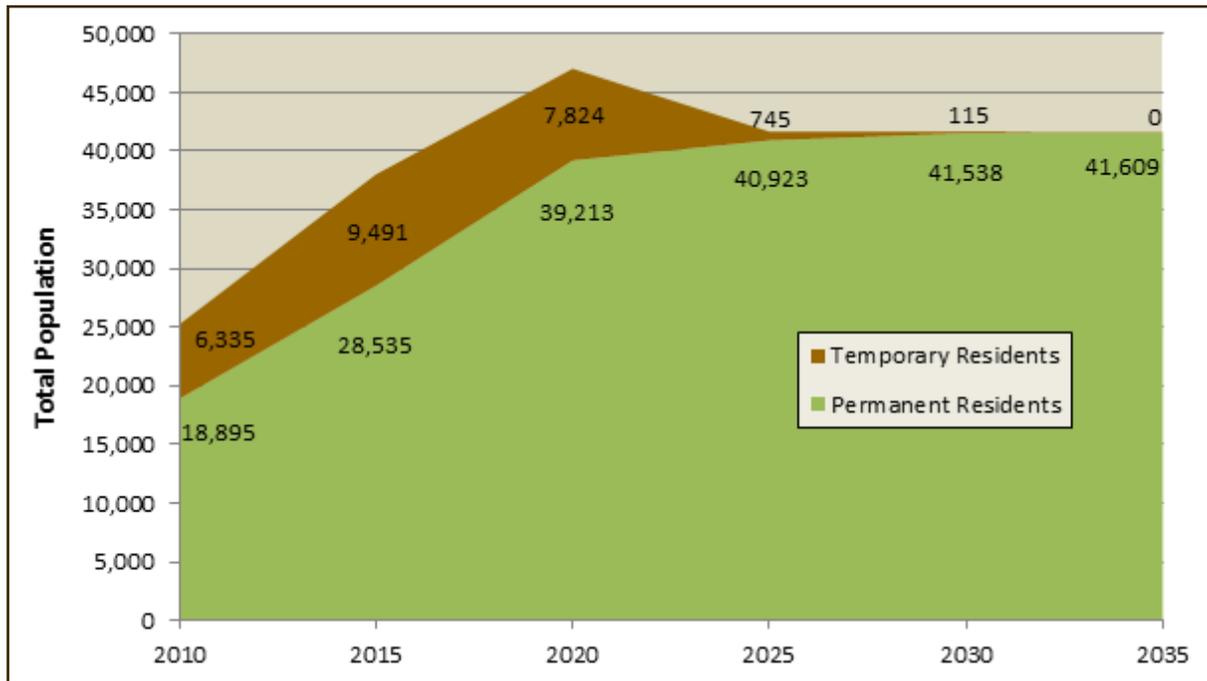
A summary of the NDSU methodology to establish the employment, housing and population forecasts is provided at the end of the chapter. Details regarding the forecasts based on slow and rapid development of the Bakken/Three Forks formations are provided in Appendix F.

Table 2-8: Population Estimates, Trade Area and City of Dickinson, Average of Slow and Rapid Scenarios, 2010-2035

Year	Dickinson Trade Area		City of Dickinson			
	Dickinson Trade Area		50 Percent of Trade Area Housing Demand		70 Percent of Trade Area Housing Demand	
	Permanent Workforce	Permanent and Temporary Workforce	Permanent Workforce	Permanent and Temporary Workforce	Permanent Workforce	Permanent and Temporary Workforce
2010	33,402	33,402	18,895	25,230	18,895	25,230
2015	36,947	50,322	23,779	31,688	28,535	38,026
2020	45,082	54,623	28,010	33,598	39,213	47,037
2025	47,555	48,668	29,231	29,763	40,923	41,668
2030	48,253	48,436	29,670	29,752	41,538	41,653
2035	48,490	48,490	29,721	29,721	41,609	41,609

SOURCE: NDSU

Figure 2-5: Forecasted Permanent and Temporary Population, City of Dickinson, 70 Percent Housing, 2010-2035



SOURCE: US CENSUS BUREAU, ND STATE DATA CENTER, NDSU, KLJ

KLJ also prepared permanent population forecasts by applying three measures of housing occupancy from the 2010 US Census to the City’s forecasted number of housing units. Table 2-9 shows the population forecasts based on 2010 Census housing occupancy factors.

Table 2-9: Forecasted Population by Housing Type, 2010-2035, City of Dickinson

Year	Based on Housing Tenure ¹	Based on Household Type ²	Based on Average Household Size of 2.25 Persons per Unit	Average of the Three Methods
2010	17,787	17,787	17,787	17,787
2015	27,034	26,888	26,873	26,931
2020	38,841	35,508	38,474	38,608
2025	42,242	41,855	41,815	41,971
2030	42,904	42,506	42,465	42,625
2035	43,156	42,754	42,713	42,874

SOURCE: 2010 US CENSUS AND KLJ

¹ Based on the proportion of owner-occupied units with 2.48 persons per unit and renter-occupied units with 1.89 persons per unit.

² Based on the proportion of family households with 2.89 persons per unit and non-family households with 1.40 persons per unit.



NDSU's and KLJ's forecasted permanent population vary by less than 1,600 persons through the planning period. Based on the consistency of the forecast results, the city of Dickinson permanent population is forecasted to be between 42,000 and 43,000 persons in 2035; therefore, the City can begin using the numbers as a planning benchmark to determine impacts and mitigation efforts.

The vast majority of permanent population growth is forecasted to occur before the end of 2021. Between 2013 and 2021, the permanent population in the city is forecasted to increase by more than 21,000 persons, nearly doubling the city's estimated 2012 population (23,900) in nine years. After the 2021 forecasted permanent population, growth subsides significantly. During the 14 years between 2022 and 2035 the increase in permanent population is forecasted to increase by approximately 2,500 persons.

Forecasted growth of the temporary population will remain strong through the end of 2020. The forecasted temporary population will increase by approximately 1,500 persons each year through the end of 2020.

It is important to note the population forecast is based on several assumptions which include, but are not limited to, the pace of future energy development, total number of wells drilled and the Taylor formation will not be developed during the planning period. It was also assumed macroeconomic, geopolitical and regulatory items would remain stable or unchanged. It was also assumed benchmark oil prices necessary to sustain continued energy development would be maintained and no new regulations would be enacted that would significantly restrict the use of fracking to extract oil and gas. The need to monitor the assumptions and other factors is discussed in more detail in the Implementation chapter.

POPULATION BY AGE

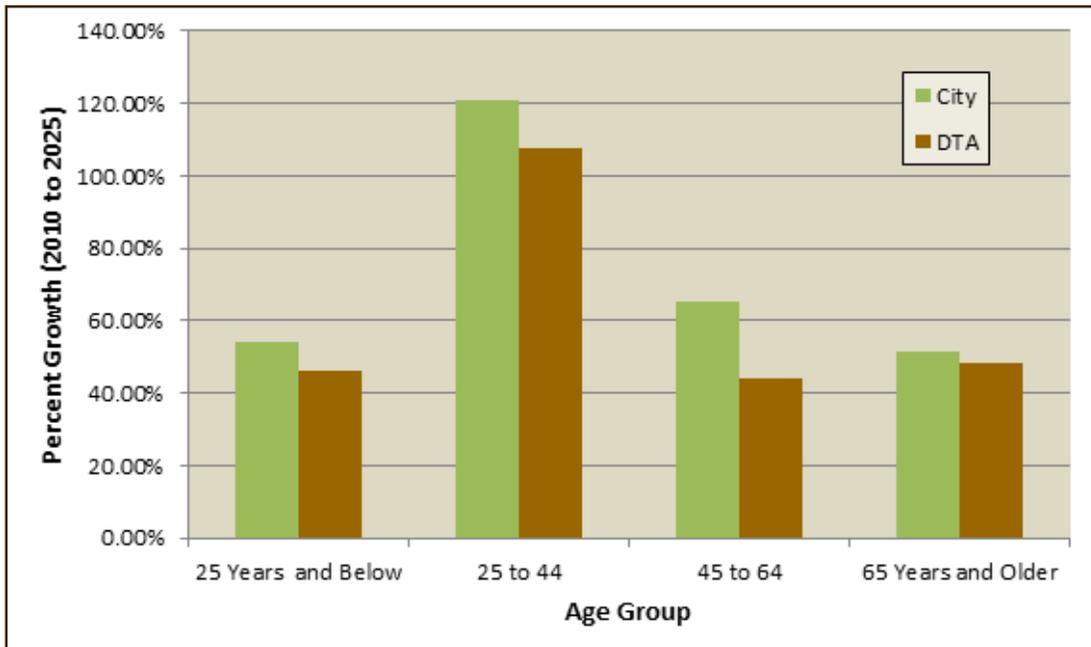
Age group comparisons were also analyzed to determine the breakdown of future residents. The comparisons displayed in Table 2-10 and Figure 2-6 show young people (age 25 and below) will grow nearly 50 percent through 2025. Yet more staggering is the increase in the young professional and working-age residents (age 25-44) with more than a 120 percent increase in growth. The City can capitalize on this growth by encouraging businesses to create jobs to sustain the different population group growth estimates as well as to provide different housing needs for the four different age-cohorts.

Table 2-10: Population by Age Group, 2010-2025

	Ages 24 years and below		Ages 25-44		Ages 45-64		Ages 65 years and older	
	2010	2025	2010	2025	2010	2025	2010	2025
Dickinson	6,235	9,594	4,360	9,620	4,329	7,166	2,863	4,337
Change 2010-2025	53.9%		120.7%		65.5%		51.5%	
Dickinson Trade Area (Region 8)	12,077	17,670	8,617	17,869	11,169	16,095	7,033	10,424
Change 2010-2035	46.3%		107.4%		44.1%		48.2%	

SOURCE: CENTER FOR SOCIAL RESEARCH AT NDSU AND 2006-2010 AMERICAN COMMUNITY SURVEY, 5-YEAR ESTIMATES

Figure 2-6: Population by Age Group, Percent Growth, 2010-2025



SOURCE: CENTER FOR SOCIAL RESEARCH AT NDSU AND 2006-2010 AMERICAN COMMUNITY SURVEY, 5-YEAR ESTIMATES

SUMMARY OF NDSU STUDY

Communities in western North Dakota are struggling to manage the unprecedented growth in employment associated with the current oil boom. The city of Dickinson is undertaking a comprehensive plan to develop policies, strategies and solutions for providing infrastructure, transportation, housing and public services to address the new conditions brought on by oilfield development. The study was designed to provide input into the City’s comprehensive planning effort.

Employment projections for the Dickinson Trade Area included future changes to employment in existing industries, future direct employment in the petroleum sector and potential secondary employment associated with changes in direct employment in the petroleum industry. To frame the context and scope of future oilfield development, perceptions and opinions on current and expected development in the Williston Basin were solicited from industry leaders and government representatives with knowledge of the industry. Those opinions and perceptions provided the basis for creating two development scenarios based on 32,000 wells in the Bakken/Three Forks formations in North Dakota by 2036. An estimate of 32,000 wells may be conservative, as recent projections from the North Dakota Department of Mineral Resources indicate that western North Dakota could see more than 40,000 wells by 2036.

Near-term growth in employment in the Dickinson Trade Area was substantial in the slow and rapid development scenarios. However, long-term employment dynamics differed. Those differences were reflected in the level of temporary employment and changes in permanent employment over the 25-year period. The slow development scenario produced a set of employment dynamics much more conducive to an orderly and sustained expansion. By contrast, the rapid development scenario indicated continued rapid growth in employment over the next decade. Further into the rapid scenario timeline, assumptions on oilfield development produced a strong contraction in employment upon completion of well drilling which results in an employment change reminiscent of boom-bust resource development. Neither scenario was modeled as a prediction, but rather a potential possibility.



Two separate approaches were used to estimate future population for the city of Dickinson. One approach used current and planned build-out rates for future housing developments within the current city limits, occupancy rates in motels and other non-traditional housing arrangements, crew camps, lodging at work sites and existing traditional Census population figures to produce an estimate of service population. Based on that approach, the city will reach a physical maximum service population of approximately 35,000 upon completion of all current and proposed projects as of early 2012. When planned developments are build-out, additional growth beyond that level will be dependent on how the city reacts to the demand for additional housing. Additional growth will require additional annexations.

A second approach to estimating future population utilizes projections of regional employment in all industries to generate estimates of regional housing demand. Future housing demand in the region was estimated separately for permanent and total (permanent and temporary jobs) workforce. Permanent workforce produced housing needs associated with long-term employment and would produce population estimates consistent with the Census. Total workforce (permanent and temporary workers) was used to produce estimates of future housing demand used to estimate service populations.

Future housing demand was allocated among the region's counties based on historic distributions of housing within the region. The allocation process was largely driven by the need to address mobility of the petroleum sector workforce. Petroleum sector workers may not necessarily reside where they work or be employed where they reside. Therefore, a direct correlation between place of employment and place of residence could not be used to allocate regional housing demand.

Future housing demand in each county was divided into homes, twin homes and apartments (R1, R2 and R3 housing) and assigned occupancy rates by housing type by county based on historical data. Information on the expected mix of housing in future housing developments was used to adjust the future distribution of single family houses, twin homes and apartments within the trade area counties. The process produced county-level estimates of permanent population and service population over the 25-year period.

Assuming all permanent housing needs are met within the region, an average of the slow and rapid development scenarios revealed the Dickinson Trade Area permanent population could approach 57,000 in 25 years. If temporary employment is included, trade area service population could peak near 64,000 people around 2020.

Two levels of future housing demand within the city of Dickinson were considered. First, housing demand was modeled at a rate consistent with Dickinson's historic share of regional housing, approximately 50 percent. A second scenario assumed the city would supply 70 percent of the regional housing supply. The second scenario was based on the premise other cities and communities in the region would not be able to meet future housing demand proportionate to their historical levels.

Housing demand for a permanent workforce was projected to be 72 percent to 140 percent above the 2010 Census estimate of housing units in the city of Dickinson, depending upon the share of regional housing units supplied by Dickinson. When housing demand included housing for the temporary workforce, housing demand peaked at 95 to 173 percent of the 2010 Census estimate of housing units in Dickinson 10 to 12 years into the planning period.

Future permanent population in the city of Dickinson could approach 30,000 in 15 years assuming 50 percent of regional housing demand. If that ratio were to change based on the assumption smaller communities in the trade area were either unwilling or unable to maintain their historic housing supply and Dickinson now supplied 70 percent of the regional housing demand, future permanent population was estimated to approach 40,000 in 15 years. When temporary employment is included in the population estimates, the city of Dickinson could see a service population between 34,000 to 47,000 in 10 years depending upon the share of regional temporary housing demand supplied by the city.

Aside from detailed estimates of future employment, housing and population, a number of insights were gained regarding current and future activity in the Dickinson Trade Area.

Employment

- Employment in the petroleum sector will remain high, and there are strong indications increases in direct employment could occur in the near term.
- Near-term employment drivers are associated with drilling and fracking activity in the Bakken/Three Forks formations.
- Long-term employment drivers are associated with oilfield service and will be a direct function of the number of wells operating in the state.
- Wildcards in the long-term employment may include development of other shale formations (e.g., Tyler formation).
- Long-term employment predictions are difficult to make.
- The energy industry has substantial incentives to reduce current labor requirements.
- Future use of new technologies and techniques are likely to be a factor in employment requirements.
- Macro-economic factors affecting oilfield development rates and the future desirability of the industry to pursue opportunities in shale oil formations in North Dakota are difficult to predict.
- Several factors make concise long-range estimates impossible. The best remedy for long-term uncertainty is to shorten the time between assessments and make the process of forecasting more iterative.

Housing

- Substantial demand for housing is in the Dickinson Trade Area.
- Current build-out rates for water, sewer and housing are not likely to result in overbuilding of infrastructure within the city of Dickinson.
- Despite the enormous housing demand, it is not unlimited. The City must carefully plan how it will respond to housing demand as overbuilding can result in equally serious ramifications.
- Too much housing is likely to result in high vacancy rates, and a depressed housing market.
- Too little housing drives up value and rent and creates additional problems for elderly and other fixed income residents.
- Community's response to the housing issue must include continual monitoring and periodic re-assessment to avoid building to peak demand.

Workforce Characteristics

- Workers in the petroleum sector are far more mobile than previously thought.
- A good understanding of workforce characteristics is lacking.
- Planning efforts at both the local and state level would benefit from a better understanding of demographic profiles, anticipated work schedules and likelihood/willingness of existing workforce to become North Dakota residents.
- Evidence (airline boardings, real estate purchases) suggests workers are seeking housing outside of the oilfields, and using work schedules that allow them to work in North Dakota but maintain home residence elsewhere in the state or outside of North Dakota.
- A mobile workforce responsive to housing availability has substantial implications for level of secondary employment—implications for support businesses, services and commercial activity.

Population

- Local communities must include estimates of service population when planning for delivery of public services.
- The duration and intensity of service population will largely be reflective of the city's policy regarding housing supply and the future rates of development within the oilfield.



NDSU METHODOLOGY

The rapid expansion of the petroleum sector has left planners, policymakers and community leaders struggling to develop strategies to address the challenges associated with unprecedented growth in the petroleum sector. Models, methodologies and strategies used in the past to assess changes in economy are not well suited to model the effects of rapid growth in the petroleum sector. Because of the unique nature of the circumstances in western North Dakota, namely the extremely rapid and significant expansion combined with severe housing shortages, many tools traditionally used to model economic, demographic and fiscal impacts are not properly calibrated to the current economic environment. Traditional models do not accurately reflect the effects of the rapid and widespread expansion of the petroleum sector. Furthermore, models are not easily updated in their entirety given the paucity of current economic data and the lag at which data can be collected.

Due to the unique circumstances, new approaches and methodologies must be developed. Because the petroleum sector is the driving economic influence in western North Dakota, models and methods should focus on effects of the petroleum sector. Models and processes must be dynamic and flexible to allow for new data to be incorporated into modeling efforts as it becomes available.

Bangsund and Hodur (2012) developed a process to model direct and secondary employment associated with future development scenarios for the petroleum sector. The study uses the petroleum sector employment model and expands the analysis to include changes in regional employment in western North Dakota. The combined effects of future changes in the petroleum sector and future employment changes in other regional industries are used to produce estimates of regional employment. The study's methodology converts regional employment forecasts into demand for housing and ultimately future population. The process was used to provide estimates of regional employment, housing and population potential for the Dickinson Trade Area.

Employment in western North Dakota is separated into two categories: 1) employment in the petroleum sector and 2) employment in all other industries and sectors. Petroleum sector employment estimates were based on Bangsund and Hodur. Constraints are used to adjust employment coefficients in the petroleum sector and to limit future employment change in non-petroleum base industries. Secondary employment is also subject to constraints within the model. The model produces a regional employment forecast that is used to estimate future housing demand. Because of workforce mobility, housing demand is estimated on a regional basis. Historic data on occupancy rates, current information on build-out rates and future mix of housing types were used to estimate regional population potential. The model estimates employment, housing and population by modeling potential changes in the petroleum industry and existing industries in western North Dakota.

A single copy of Agribusiness and Applied Economics Report 695, Modeling Employment, Housing and Population in Western North Dakota: The Case of Dickinson is available free of charge. Please address your inquiry to: Norma Ackerson, Department of Agribusiness and Applied Economics, North Dakota State University, PO Box 6050, Fargo, ND 58105-6050, phone (701 231 7441), fax (701 231 7400), or email: norma.ackerson@ndsu.edu. The publication is also available electronically at the following website: <http://ageconsearch.umn.edu/>



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Local Economy and Economic Development

Chapter 3

Introduction

The economy plays a crucial role in determining the quality of life in a community. The benefits of a strong economy are numerous; a healthy and vibrant local economy stimulates the generation of jobs, which in turn draws new residents to the community and increases the retention of young adults and families. The increased population sustains existing and new businesses which leads to additional job creation. This is commonly known as the “virtuous cycle” of a growing economy.

A growing local economy can have a profound positive effect on a community’s perception of itself. A sense of optimism and well-being is created when a growing economy generates wealth, increased incomes and a diversity of employment opportunities.

A strong local economy also reduces the risk of investment. Investment in a community can be made in a variety of ways. Businesses can invest in plant and equipment to expand operations. Entrepreneurs start new businesses. Younger residents purchase their first home and existing homeowners make improvements to their property. Young families feel financially stable and decide to have another child. And as noted above, younger adults choose to remain in their community because there are opportunities to start a career or vocation.

Local governments also benefit from a growing economy. New or expanded businesses and homes increase property tax revenue. Increased economic activity drives up sales tax revenue. With the increased revenue and decreased investment risk, local government is able and willing to expend public funds on a variety of community investments. Those investments can fund needed improvements to existing facilities as well as fund new programs and facilities. These types of investments directly impact and enhance the quality of life in a community.

Dickinson’s economic base has been historically centered on manufacturing and agriculture; however, as the energy sector continues to grow in western North Dakota, more energy-related businesses have started to locate in and around Dickinson. As such, economic conditions have improved for most citizens, yet other residents and businesses have been negatively impacted – local businesses are losing employees to higher wage jobs in the energy sector, and lower income residents are experiencing financial stress from significantly increased housing costs.

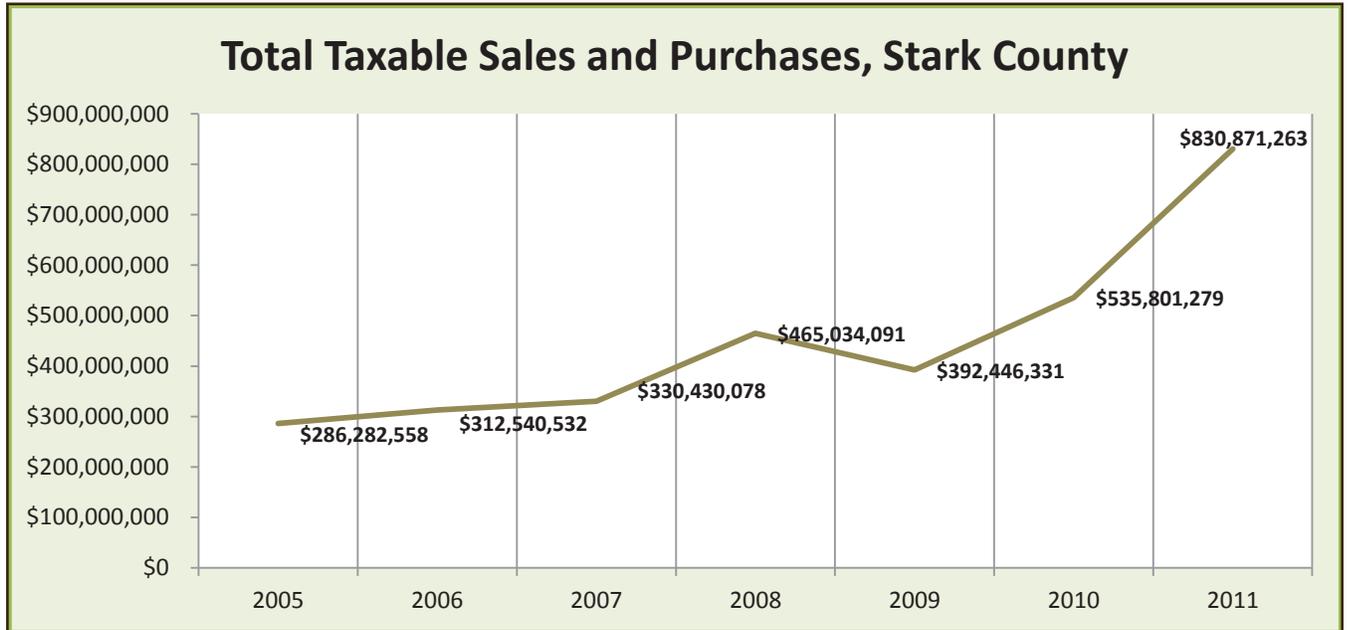
This chapter provides a basis for establishing economic development strategies and policies to address business-related issues. It analyzes the major elements of Dickinson’s current economy, and addresses future trends that will affect the city and surrounding area. The chapter also provides an overview of economic development programs and organizations that have a role in the city’s current and future success.

Recent Performance of the Local Economy

A variety of data are available to measure the performance of the local economy. One general measurement is taxable sales and purchases. As shown in Figure 3-1, the amount of total taxable sales and purchases in Stark County has nearly tripled (an increase of 190 percent) since 2005. As Dickinson is the economic hub of the county, it is reasonable to assume the majority of taxable sales and purchases were derived from businesses within the county. Table 3-1 shows similar results, with local sales tax collections seeing a generally rapid increase dating back to at least 2005.



Figure 3-1: Total Taxable Sales and Purchases, Stark County, 2005-2011



SOURCE: OFFICE OF THE STATE TAX COMMISSIONER

Table 3-1: Total Taxable Sales and Purchases, Stark County, 2005-2011

Sales Tax Collections	
Year	Year Over Year Increases
2006	+10.4%
2007	+12.1%
2008	+14.8%
2009	-3.8%
2010	+20.9%
2011	+ 55.1%

SOURCE: CITY OF DICKINSON 2012 BUDGET AND STRATEGIC PLAN

Table 3-2 shows the increase in total assessed valuation for residential and commercial properties in the city. Residential properties have seen a consistently rapid growth in assessed valuation, compared to commercial properties which have seen positive but inconsistent growth.

Table 3-2: Total Assessed Valuation for Residential and Commercial Properties, City of Dickinson, 2006-2011

Year	Residential Properties		Commercial Properties		Total Assessed Valuation	
	Valuation (\$ million)	Percent Change	Valuation (\$ million)	Percent Change	Total Assessed Valuation (\$ million)	Percent Change
2006	\$447.0	--	\$161.6	--	\$608.6	--
2007	\$502.9	12.5%	\$175.7	8.7%	\$678.6	11.5%
2008	\$573.0	12.5%	\$185.4	5.5%	\$758.4	11.8%
2009	\$642.0	12.0%	\$199.0	7.3%	\$841	10.9%
2010	\$696.0	8.4%	\$212.1	6.6%	\$908.1	7.8%
2011	\$776.3	11.5%	\$247.2	16.5%	\$1,023.5	12.7%

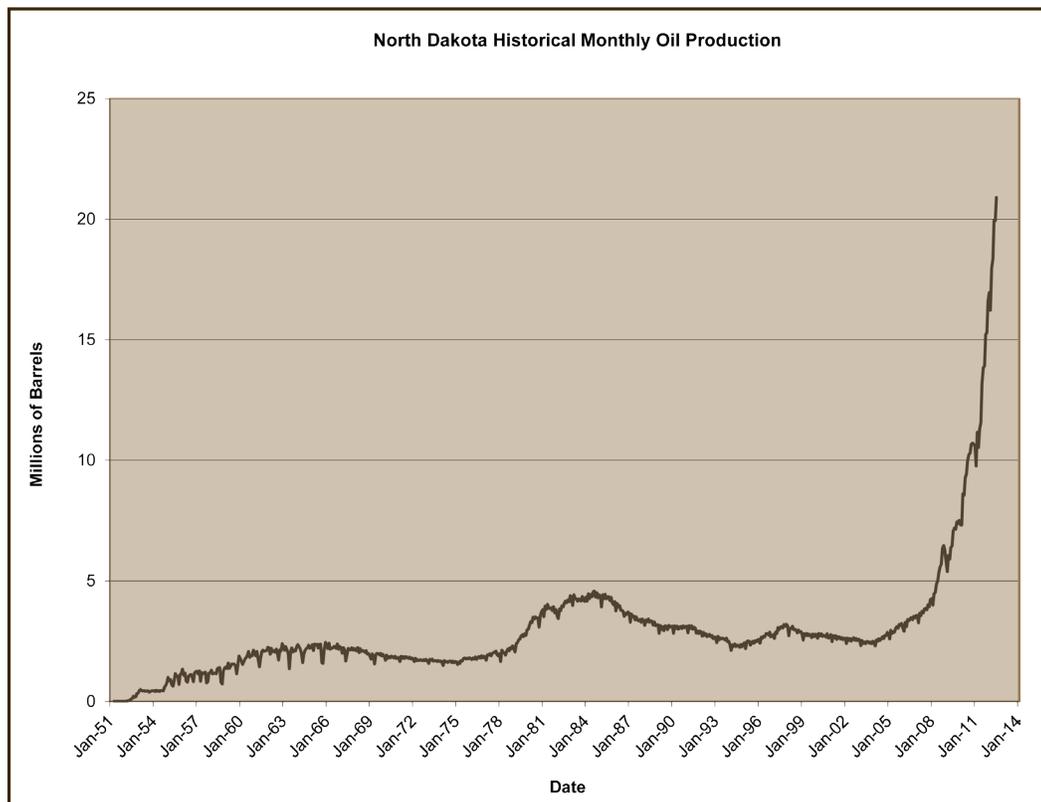
SOURCE: CITY OF DICKINSON ASSESSOR

Major Sectors of the Economy

Energy

Energy development is the most significant growth industry in the state. As shown in Figure 3-2 and Figure 3-3, North Dakota oil production has dramatically increased in recent years. Much of the new production originates from the Bakken/Three Forks formation, whose boundaries are shown in Figure 3-4.

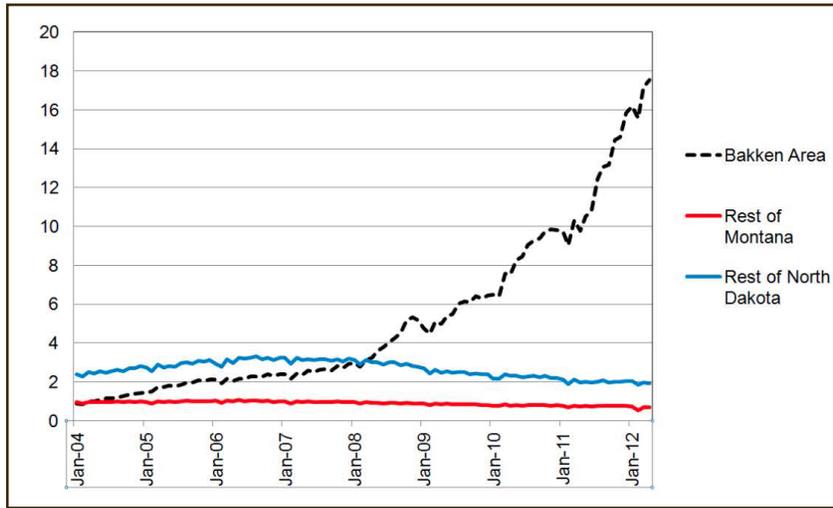
Figure 3-2: North Dakota Historical Monthly Oil Production



SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION

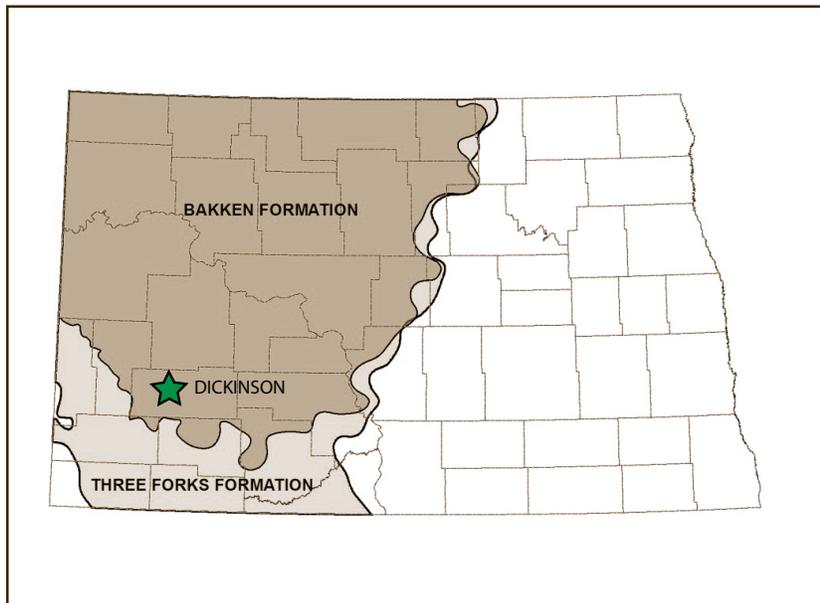


Figure 3-3: Oil Production, Millions of Barrels per Month, 2004-2012



SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION

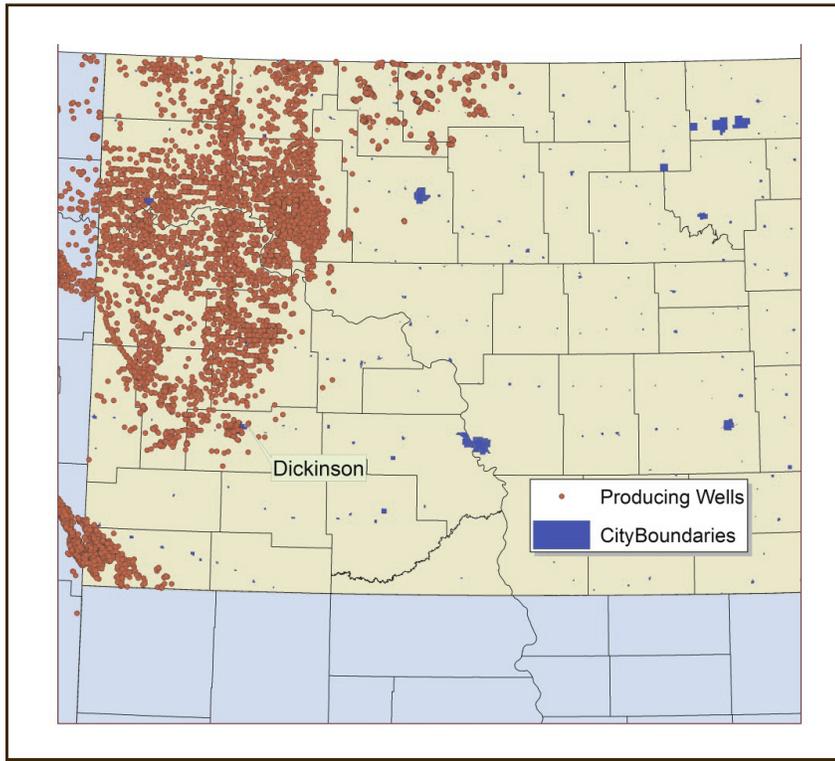
Figure 3-4: Extent of Bakken and Three Forks Formation in North Dakota



SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION, 2012

According to the North Dakota Department of Mineral Resources, there were 7,303 oil producing wells in the state during July 2012. Of those wells, 4,319 were located within the Bakken formation. Well locations are shown in Figure 3-5.

Figure 3-5: Producing Oil Wells in the Bakken/Three Forks Formation



SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION (OCTOBER 1, 2012)

Each individual well has a significant economic impact. According to the North Dakota Department of Mineral Resources, a typical North Dakota Bakken well will produce for 45 years. It will produce approximately 615,000 barrels of oil, generate a \$20 million net profit, pay royalties of \$7,300,000 to mineral owners, pay salaries and wages of \$2,125,000 and pay \$4,325,000 in taxes.

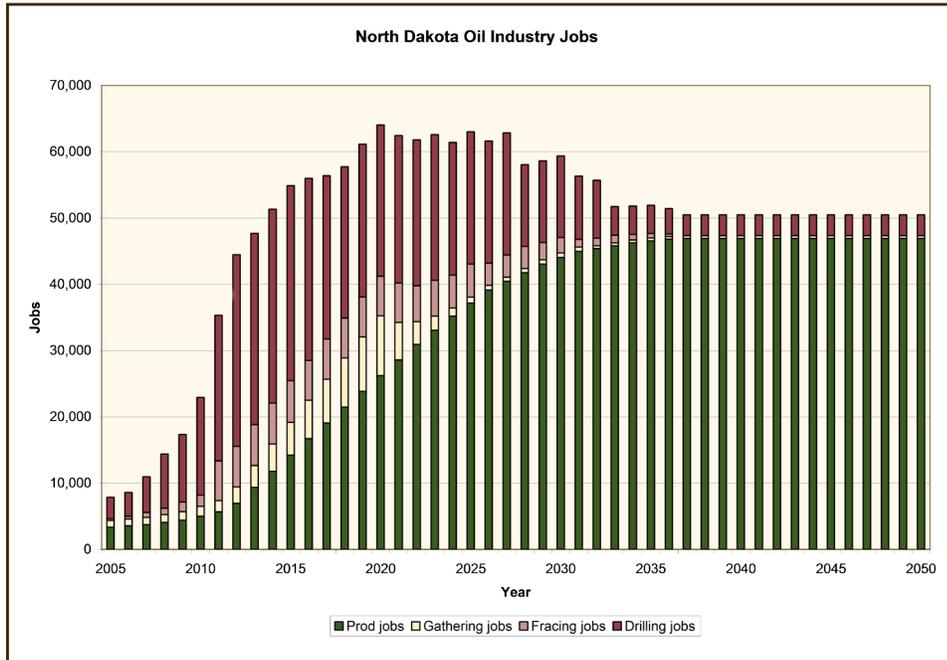
The state levies a 5 percent gross production tax on oil and a 6.5 percent extraction tax. An estimated \$1,310,067,268 will be collected from these taxes over the 2011-2013 biennium, according to the North Dakota Legislative Council. Dickinson has directly benefited from these taxes. In 2011, the city received from the state \$1 million in oil impact funds, and a \$5 million grant for a wastewater treatment plant from the same funding pool.

The oil industry produces a significant amount of local jobs. While there is a large amount of short-term jobs created, the majority of oil industry jobs are long-term and projected to continue through 2050. The category-specific amounts of projected oil industry jobs through 2050 are shown in Figure 3-6.

A new “diesel topping” refinery is planned four miles southwest of Dickinson, with completion set for late 2014. The \$300 million refinery will be built by MDU Resources Group and Calumet Refining LLC, and will create approximately 100 permanent jobs. It will process 20,000 barrels of crude oil daily.



Figure 3-6: North Dakota Oil Industry Job Projections

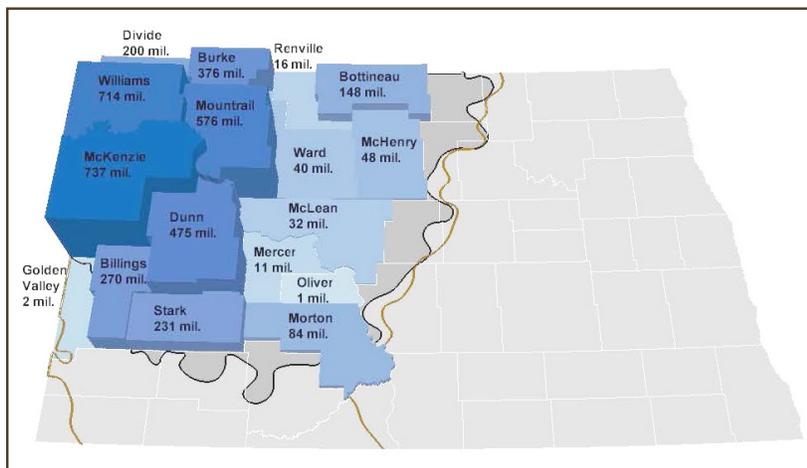


SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES

Dickinson and the surrounding area are located in the southern end of the Bakken/Three Forks formation. Estimated total oil production is shown by county in Figure 3-7. Stark County is estimated to contain 231 million barrels of retrievable oil. As shown in Figure 3-8 and Figure 3-9, both oil and natural gas production have rapidly expanded in Stark County since 2010. The Department of Mineral Resources estimates that 2,000 new wells will be built each year in western North Dakota, so this rapid increase in production is expected to continue.

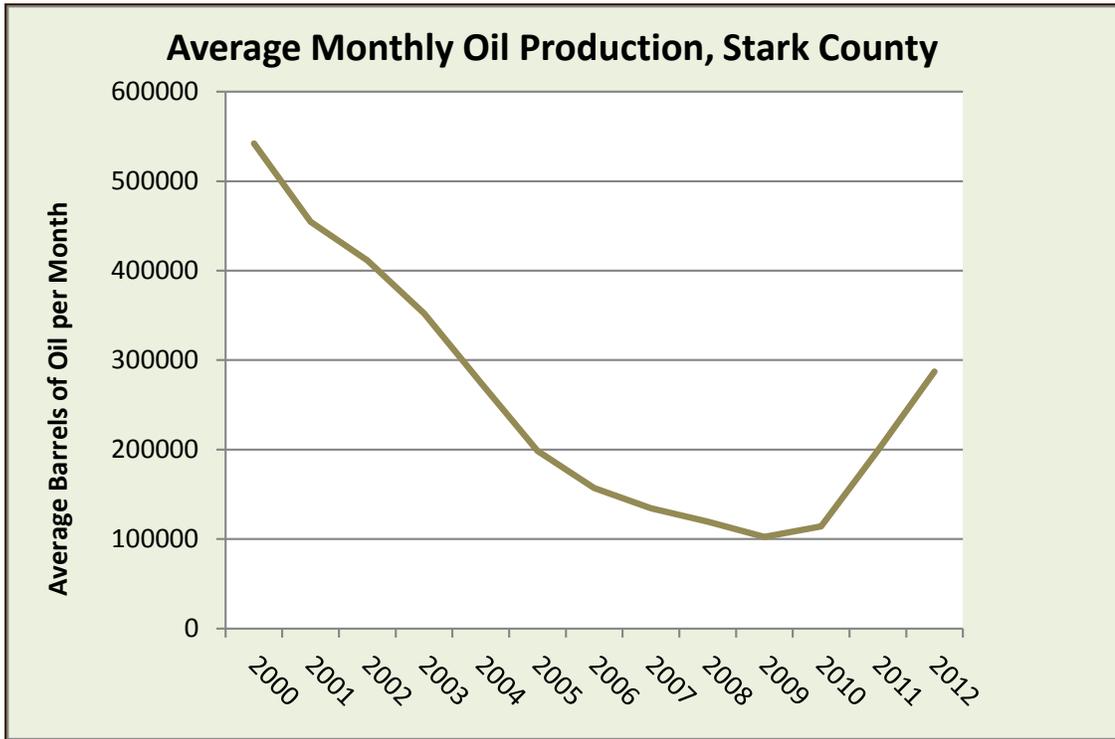
According to Job Service North Dakota, Stark County had 3,579 employees in the mining, quarrying, gas and oil extraction industry during the first quarter of 2012, ranking second in the state behind Williams County, with 11,441 employees. The average weekly wage for those employees in Stark County was \$1,917.

Figure 3-7: Estimated Amount of Retrievable Oil (Barrels)



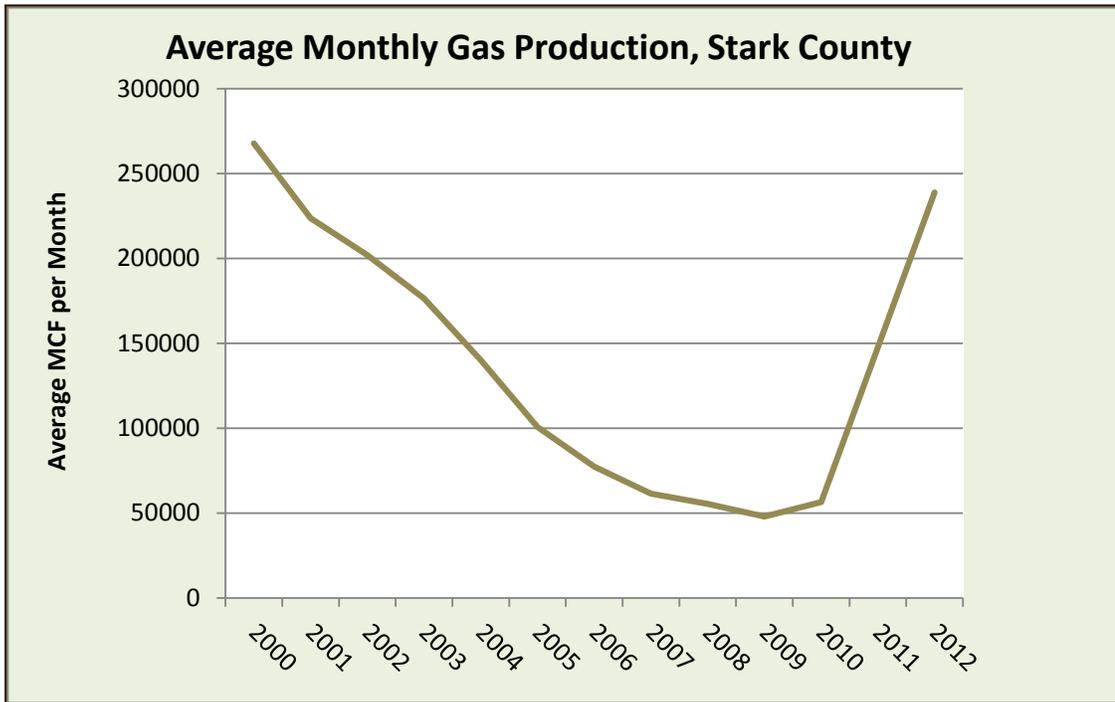
SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION

Figure 3-8: Average Monthly Oil Production, Stark County



SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION

Figure 3-9: Average Monthly Gas Production, Stark County



SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION



Manufacturing

Manufacturing has been a long-term base industry for the city of Dickinson. Total manufacturing employment in Stark County for the first quarter of 2012 was 1,187 according to Job Service North Dakota.

Table 3-3 shows the character of manufacturing operations within the county. Furniture and kitchen cabinet manufacturing, and bakeries and tortilla manufacturing are the two largest categories based on paid employees. Agriculture, construction and mining machinery manufacturing is the next largest category.

Table 3-3: Paid Employees by Manufacturing Classification in Stark County, 2010

<i>Manufacturing Classification</i>	<i>Paid Employees*</i>
Furniture and Kitchen Cabinet Manufacturing	250-499
Bakeries and Tortilla Manufacturing	250-499
Agriculture, Construction and Mining Machinery Manufacturing	100-249
Architectural and Structural Metals Manufacturing	20-99
Cement and Concrete Product Manufacturing	20-99
Basic Chemical Manufacturing	20-99
Animal Food Manufacturing	20-99
Printing and Related Support Activities	47

SOURCE: US CENSUS COUNTY BUSINESS PATTERNS 2010

*Some specific information withheld by US Census to avoid disclosing data for individual companies

Strategy: Support city merchants with consideration and implementation of an intermodal transfer facility at the existing energy development material intermodal transfer facility west of the city. An intermodal transfer facility would reduce transportation costs, particularly for the city’s manufacturers.

Education

Education has been a consistent base sector for the Dickinson economy. Dickinson Public Schools is the city’s largest single employer, closely followed by Dickinson State University. Dickinson State University is a critical asset as it brings a steady supply of young, educated people into the community. This helps to attract a diverse collection of businesses that cater to college students and/or utilize college students as their employees. A university also creates a significant number of jobs somewhat insulated from economic fluctuations, and which require highly-educated employees. According to Job Service North Dakota, total educational services employment in Stark County for the first quarter of 2012 was 1,123, the fifth most in the state.

Figure 3-10: Dickinson State University

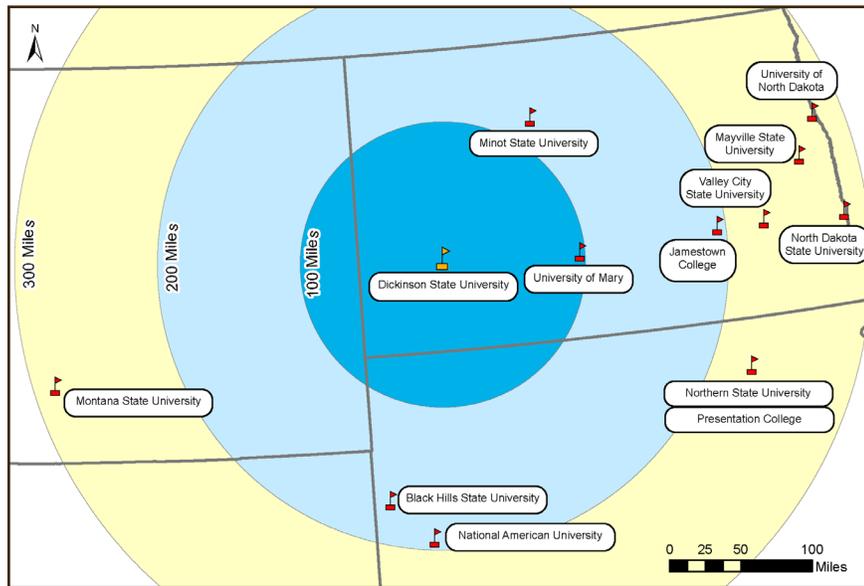


Dickinson State University provides the community with a unique asset. It offers more than 60 four-year degree programs and 11 academic departments. As shown in the following figure, it is one of the only collegiate institutions in the region that offers four-year degrees. The closest four-year degree institution is University of Mary in Bismarck, which is private. The only public four-year degree institutions within 200 miles are Minot State University and Black Hills State University in Spearfish, South Dakota.

Dickinson State University had 2,346 enrolled students for the 2011/2012 academic year, down from 2,485 the previous year and 2,767 in the 2009/2010 academic year. In 2011/2012, 61 percent of the students were from North Dakota, and 32 percent were from Stark County. Eight percent of students were from Montana, and three percent were from South Dakota.

Beginning March, 2013, the University of Mary will be offering master’s-level degrees in education, business, nursing and counseling at Dickinson State University. DSU and the University of Mary have also agreed to explore the possibility of offering a 4+1 accelerated module in which new DSU students would be able to finish their undergraduate degree at DSU in four years and immediately enter into a fifth year with the University of Mary to complete a master’s degree.

Figure 3-11: Colleges/Universities Offering Four-Year Degree Programs in the Region



SOURCE: NATIONAL CENTER FOR EDUCATION STATISTICS

Healthcare

St. Joseph’s Hospital and other healthcare related businesses also create jobs that are generally protected from economic fluctuations and require highly-educated and skilled employees. Healthcare occupations and employment in Stark County are shown in Table 3-4. According to Job Service North Dakota, total healthcare employment in Stark County for the first quarter of 2012 was 1,964, the sixth most in the state.

Healthcare institutions such as St. Joseph’s Hospital serve beyond city limits into the surrounding region, which means they bring a steady number of outside visitors into the community. Dickinson State University and St. Joseph’s Hospital both have significant regional pull and enhance the stature of Dickinson throughout the state.

Table 3-4: Paid Employees by Healthcare Classification in Stark County, 2010

Manufacturing Classification	Paid Employees*
Nursing and Residential Care Facilities	727
Hospitals	250-499
Social Assistance	414
Ambulatory and Health Care Services	395

SOURCE: US CENSUS COUNTY BUSINESS PATTERNS 2010

*Some specific information withheld by US Census to avoid disclosing data for individual companies

Figure 3-12: St. Joseph’s Hospital



St. Joseph’s is constructing a new hospital and medical office building, and plans to have both facilities open by 2015. The new facilities will provide modern inpatient facilities and expanded space for outpatient and emergency room care. They are working with developers to determine a future use for the current hospital facility. The goal of St. Joseph’s governing board is to have the current space be utilized for the benefit of the community.

Strategy: Coordinate with the Hospital Board to proactively plan for re-use of existing hospital building.

Agriculture

Table 3-5 lists the top agricultural products for Stark County according to the USDA Census of Agriculture, with 2007 being the most recent year available. Wheat for grain is overwhelmingly the most common crop in terms of acres. Forage includes hay, grass silage and greenchop used for the livestock industry. Sunflower seed, barley for grain, oats for grain and corn for grain have a significantly smaller presence in the county. Cattle and calves account for nearly the entire livestock inventory in the county. Sheep and lambs, and hogs and pigs are the other livestock categories with a measureable number.

Table 3-5: Agricultural Production in Stark County, 2007

Crop	Acres
Wheat for grain	259,747
Forage	97,612
Sunflower Seed	13,037
Barley for grain	11,123
Oats for grain	10,545
Corn for grain	8,994
Livestock	Inventory
Cattle and calves	27,054
Sheep and lambs	983
Hogs and pigs	675

SOURCE: USDA CENSUS OF AGRICULTURE, 2007

Strategy: Proactively address issues that negatively impact the productivity of agricultural operations including dust abatement and the safe movement of farm vehicles on public roads.

Strategy: Require the recordation and notification of buyers of residential properties in proximity to agricultural land uses and operations such as harvesting, grazing of animals, application of fertilizers and herbicides, etc.

Retail

A study of Dickinson’s retail sales potential was completed by the McComb Group in June 2010. The study identified five primary retail areas of the city, with a total of 185 retail establishments. Most establishments were located near I-94 and the Prairie Hills Mall, with 89 retail stores in the area. The second largest retail area was downtown, with 40 stores. The results of the community survey indicate a large majority of residents shop at the north side of town on a weekly basis. The results are shown in Figure 3-13.

Figure 3-13: Response to the question, “What are your retail shopping preferences in Dickinson?”.



SOURCE: COMMUNITY SURVEY NO. 1



Dickinson’s closest competitors for retail dollars are Bismarck, Minot, Rapid City and Billings, all of which are at least 100 miles away. Dickinson’s location along I-94 and large trade area create an ideal opportunity for retail in the city. The study found Dickinson has the potential to greatly increase all categories of retail activity by 2020 due to the rapid economic growth in the area.

The top retail categories found in Stark County are shown in Table 3-6 and organized by number of paid employees. Dickinson has a large variety of retail categories due to its stature as a regional trade center, and it has become a place people go to satisfy multiple shopping needs. Total retail employment in Stark County for the first quarter of 2012 was 1,925 according to Job Service North Dakota.

Table 3-6: Paid Employees by Retail Classification in Stark County, Top Ten, 2010

Retail Classification	Paid Employees
Automobile Dealers	223
Gasoline Stations and Convenience Stores	191
Health and Personal Care Stores	92
Automotive Parts, Accessories and Tire Stores	92
Electronics and Appliance Stores	84
Lawn and Garden Equipment and Supplies Stores	59
Clothing Stores	42
Furniture Stores	31
Sporting Goods, Hobby and Musical Instruments Stores	30
Other Motor Vehicle Dealers	30

SOURCE: US CENSUS COUNTY BUSINESS PATTERNS 2010

Tourism

Tourism is a source for personal income, employment and tax revenue. According to the Tourism Division of the North Dakota Department of Commerce, tourism in the state generated \$4.6 billion in non-resident spending in 2010 – the third largest industry after agriculture and oil. Statewide tourism supported more than 32,000 jobs and \$760 million in wages and salaries. According to a study by Longwoods Travel USA, western North Dakota had 3.3 million overnight visitors in 2008, which was more than 50 percent of all overnight visitors to the state. Of those trips, 45 percent were visits to friends and relatives, 20 percent were business trips and 34 percent were pleasure trips.

Dickinson’s location along Interstate 94 and close proximity to the Badlands region provide the elements to develop a successful local tourism industry. Nearby tourist destinations include Theodore Roosevelt National Park and Lake Sakakawea. More distant tourist destinations along Interstate 94 include the Rocky Mountains and Yellowstone National Park to the west and Minneapolis to the east. Dickinson is in an ideal location to capture revenue from pass-through tourists traveling to major destinations. Tourists can be enticed to spend time in Dickinson with the development and marketing of local attractions and city amenities. Current attractions in and around the city include the Dickinson Museum Center, Dakota Dinosaur Museum and the Dickinson State University Art Gallery. They provide a solid base for attracting visitors, and it is important interstate travelers are made aware of their presence.

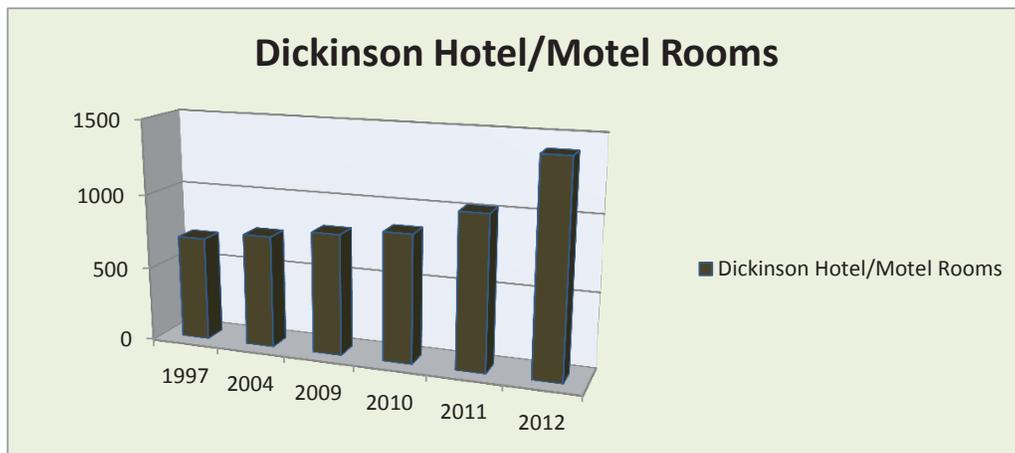
The Tourism Division of the North Dakota Department of Commerce operates several tourism grant programs. The Tourism Expansion Grant provides between \$5,000 to \$24,000 of grant funds to a tourism-related business or organization to support new or expanding tourism/recreation facilities or designated development areas. The Tourism Marketing Grant is

available to communities, businesses and marketing organizations wanting to promote North Dakota tourism programs. It provides a maximum of \$15,000 over a period of three consecutive years. The Tourism Event Grant has similar criteria and funding levels except it is intended to promote tourism-related events. All tourism grants require a 1:1 match. More information can be found at: <http://www.ndtourism.com/industry/nd-tourism-grants/>.

Strategy: Install wayfinding signs to direct residents and tourists to local attractions.

The community has experienced rapid expansion in hotel capacity in recent years. Hotel room growth is shown in Figure 3-14. The Dickinson Convention and Visitors Bureau (CVB) estimates that approximately 60 percent of local hotel rooms are contracted out to energy companies, so a surge in rooms does not necessarily mean a surge in tourists. The CVB assists visitors in finding hotel accommodations due to the relative scarcity of available rooms.

Figure 3-14: Hotel/Motel Rooms in Dickinson



SOURCE: DICKINSON CONVENTION AND VISITORS BUREAU

The City collects a Hospitality Tax and an Occupancy Tax. The Hospitality Tax is a 1 percent charge on gross receipts of hotel/motel stays and restaurant sales of prepared food and beverages. The Occupancy Tax is a 2 percent charge on gross receipts of hotel/motel stays. Revenue from both taxes is used to promote tourism in the Dickinson area.

Several issues are causing the loss of potential revenue from hotel and motel stays. Per state law, the Hospitality and Occupancy Taxes only applies to hotel and motel stays for a period of less than 30 days. This costs Dickinson significant revenue because many rooms in the city are contracted long-term with energy companies. The CVB and the City lobbied the state legislature to remove the 30-day exemption, but have been unsuccessful. In addition, room rates in the city (including the government room rate) are among the highest in the state, causing the area to lose out on convention business. The price discrepancy will continue until the supply of rooms is able to catch up with growing demand.

Strategy: Provide increased support for lobbying efforts to remove the state’s tax exemption for hotel/motel stays longer than 30 days.

Dickinson Theodore Roosevelt Regional Airport

Airports are significant elements of a local economy as they help attract both businesses and residents. Benefits include:





- Direct connection to national and international markets
- Local businesses can utilize charter services or park their own aircraft at the airport
- Convenient travel is an attractive community asset for prospective and current residents
- Most airport jobs require educated and/or skilled workers

Theodore Roosevelt Regional Airport is currently serviced by Great Lakes Airlines. They offer four daily flights to Denver, each utilizing 30-passenger turboprop planes. The airport is managed by the Dickinson Airport Authority.

Enplanements (passenger boardings) are shown in Table 3-7. The airport experienced a dramatic increase in passenger traffic in 2011, representing the highest percentage change of all airports in the state between 2010 to 2011. According to the Federal Aviation Administration (FAA), traffic distribution at the airport was 75 percent general aviation, 22 percent scheduled commercial, 3 percent air taxi and less than 1 percent military for the annual period ending September 30, 2011. The influx of private planes has created space issues for hangars, runways and taxiways. A new hangar is under development, with \$200,000 in grants from the City and Stark Development Corporation.

Table 3-7: Enplanements (Passenger Boardings) at Dickinson Theodore Roosevelt Regional Airport

Year	Enplanements	Percent Change
2008	9,164	--
2009	8,924	-2.6%
2010	10,383	16.3%
2011	18,995	82.9%

SOURCE: FEDERAL AVIATION ADMINISTRATION

The airport is operating at maximum commercial passenger capacity. Management is working with other airlines in an effort to increase passenger capacity for 2013. Delta Airlines and United Airlines will both begin 50 passenger regional jet service to the Dickinson Airport in June 2013. Delta Airlines will provide twice daily nonstop service to Minneapolis and United Airlines will provide twice daily nonstop service to Denver. A renovation of the commercial terminal was completed in late 2011, expanding the total waiting area capacity from 36 to 100 passengers. An updated baggage claim, new information display screens, and an improved security checkpoint were also part of the renovation.

The airport is currently in the process of developing a master plan. The planning process has revealed that a \$100 million upgrade may be necessary to accommodate projected growth over the next five years. Some funding may need to come from the City and local economic development agencies.

Strategy: Support airport expansion so passengers can benefit from increased capacity and reduced airfare costs. It is important for the airport to remain viable against regional competitors such as Williston, Minot and Bismarck.

Employment

Employment by Industry Sector

Total employment in Dickinson rose 52.9 percent between 2000 and 2011. Table 3-8 and Figure 3-15 show changes for Dickinson’s top eight industries in terms of employment. All selected industries have seen significant growth since 2000, but energy-related industries have seen the most growth by a wide margin. The mining/quarrying/gas and oil extraction industry has seen a growth of 499.8 percent, most of which has occurred since 2006. Construction and transportation have also seen rapid growth, with rates of 131.0 percent and 266.9 percent respectively. The three industries have increased their proportional share of Dickinson’s economy since 2000, while the other selected industries have seen their

proportional share decrease.

Table 3-9 looks at the statewide changes for these selected industries. Dickinson’s growth in all of the selected industries outpaces the state, with the only exceptions being healthcare and retail. Reflecting the trend in Dickinson, the industries of mining/quarrying/gas and oil extraction, transportation and warehousing, and construction have seen an increase in their proportional share of the economy, while other selected industries have seen a decrease in their proportional share.

Table 3-8: Employment Change by Selected Industry for Dickinson, 2000 to 2011

Industry	2000 Average Employment	Percent of Total	2011 Average Employment	Percent of Total	Percent Change
Mining, Quarrying, Gas and Oil Extraction	403	3.9%	2,417	15.2%	499.8%
Transportation and Warehousing	278	2.7%	1,020	6.4%	266.9%
Construction	519	5.0%	1,199	7.5%	131.0%
Manufacturing	1,007	9.7%	1,327	8.3%	31.8%
Accommodation and Food Services	1,015	9.8%	1,302	8.2%	28.2%
Educational Services	833	8.0%	1,025	6.4%	23.0%
Health and Social Assistance	1,590	15.3%	1,846	11.6%	16.1%
Retail	1,547	14.9%	1,689	10.6%	9.2%
Total for All Industries	10,405	--	15,907	--	52.9%

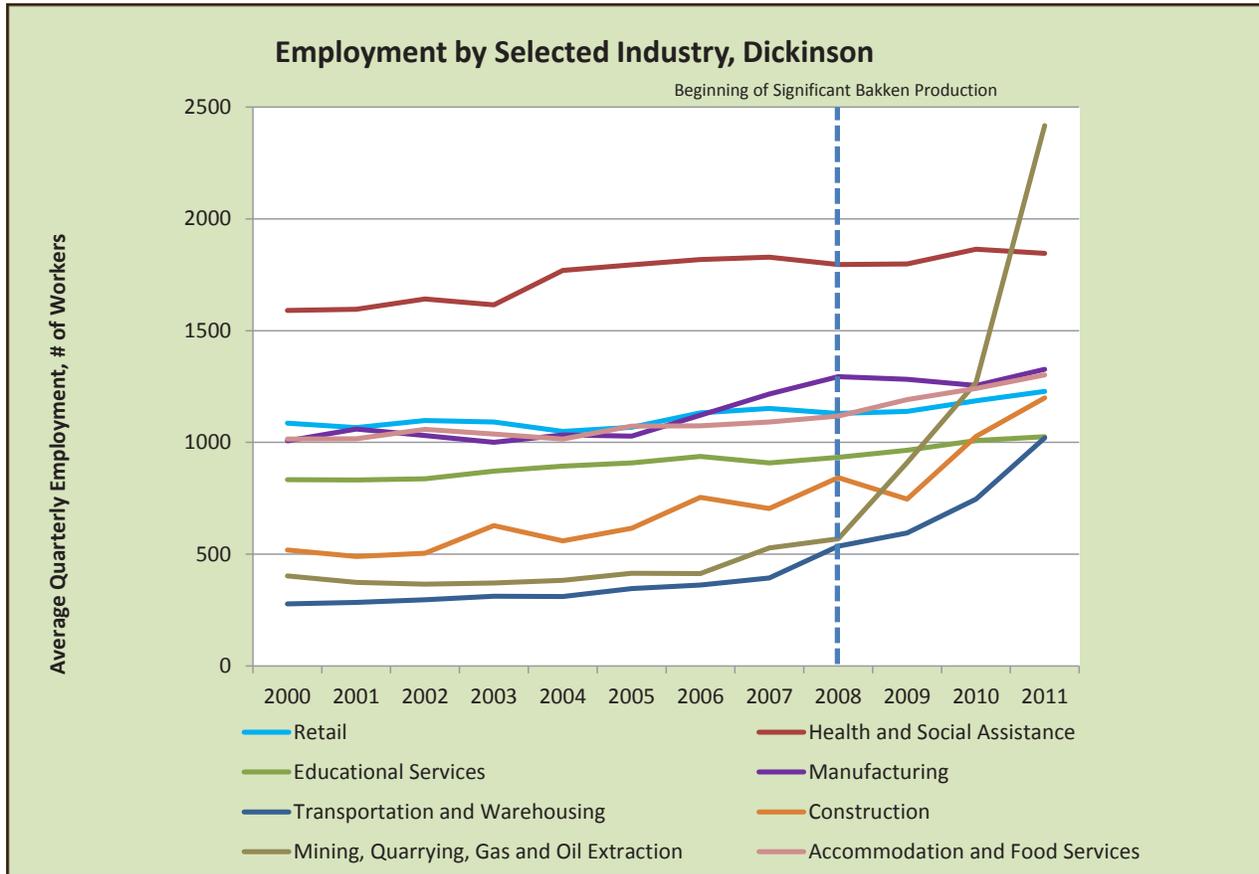
SOURCE: JOB SERVICE ND, WORKFORCE INTELLIGENCE NETWORK QUARTERLY WORKFORCE INDICATORS

Table 3-9: Employment Change by Selected Industry for North Dakota, 2000 to 2011

Industry	2000 Average Employment	Percent of Total	2011 Average Employment	Percent of Total	Percent Change
Mining, Quarrying, Gas and Oil Extraction	3,683	1.2%	18,801	4.9%	410.5%
Transportation and Warehousing	8,188	2.7%	15,581	4.0%	90.3%
Construction	17,430	5.7%	29,295	7.6%	68.0%
Manufacturing	24,674	8.1%	24,882	6.5%	0.8%
Accommodation and Food Services	25,786	8.5%	31,983	8.3%	24.0%
Educational Services	30,835	10.1%	34,607	9.0%	12.2%
Health and Social Assistance	45,364	14.9%	56,876	14.8%	25.4%
Retail	40,866	13.4%	45,100	11.7%	10.4%
Total for All Industries	304,577	--	385,562	--	26.6%



SOURCE: JOB SERVICE ND, WORKFORCE INTELLIGENCE NETWORK QUARTERLY WORKFORCE INDICATORS



SOURCE: JOB SERVICE ND, WORKFORCE INTELLIGENCE NETWORK QUARTERLY WORKFORCE INDICATORS

Employment by Occupation

Table 3-10 shows the top occupations in Dickinson, and provides an estimate of the gender ratio. The top categories are a mix of male-dominated, female-dominated and gender-neutral occupations.

Table 3-10: Estimated Employment by Type of Occupation and by Gender, City of Dickinson, 2010

Occupations	Estimated Employment	Male	Female
Management, business, science and arts occupations	2,577	45.4%	54.6%
Sales and office occupations	2,395	33.3%	66.7%
Service occupations	1,849	26.9%	73.1%
Natural resources, construction and maintenance occupations	1,428	93.3%	6.7%
Production, transportation and material moving occupations	1,367	74.7%	25.3%
Office and administrative support occupations	1,254	17.7%	82.3%
Sales and related occupations	1,141	50.4%	49.6%

Management, business and financial occupations	1,085	55.0%	45.0%
Education, legal, community service, arts and media occupations	910	33.3%	66.7%
Construction and extraction operations	876	95.8%	4.2%
Management occupations	830	59.0%	41.0%
Production occupations	678	63.6%	36.4%
Food preparation and serving related occupations	508	31.75	68.3%
Education, training and library occupations	496	30.2%	69.8%
Installation, maintenance and repair occupations	474	96.0%	4.0%
Personal care and service occupations	424	19.3%	80.7%
Building and grounds cleaning and maintenance occupations	407	37.6%	62.4%
Transportation occupations	389	96.9%	3.1%
Healthcare support occupations	336	4.5%	95.5%
Material moving occupations	300	71.0%	29.0%
Computer, engineering and science occupations	293	75.4%	24.6%
Healthcare practitioner and technical occupations	289	17.0%	83.0%
Business and financial operations occupations	255	42.0%	58.0%
Health diagnosing and treating practitioners and other technical occupations	216	22.7%	77.3%
Protective service occupations:	174	49.4%	50.6%
Community and social services occupations	162	19.1%	80.9%
Architecture and engineering occupations	152	69.7%	30.3%
Arts, design entertainment, sports and media occupations	148	69.6%	30.4%
Legal occupations	104	18.3%	81.7%
Law enforcement workers including supervisors	92	33.7%	66.3%
Computer and mathematical occupations	83	86.7%	13.3%
Fire-fighting and prevention, and other protective service workers including supervisors	82	67.1%	32.9%
Farming, fishing and forestry occupations	78	48.7%	51.3%
Health technologists and technicians	73	0.0%	100.0%
Life, physical and social science occupations	58	74.1%	25.9%
Civilian employed population 16 years and over	9,616	50.1%	49.9%

SOURCE: 2010 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Labor Force Participation

An economy with an unemployment rate at or below 3.0 percent is generally considered to be experiencing full employment. Table 3-11 shows labor force participation in Stark County. Unemployment is low, with the county-wide rate at only 1.5 percent. This is below the statewide rate of 2.9 percent, which is the lowest in the country.

The county's low unemployment rate is reflected by the large number of job openings. As shown in Table 3-12, Stark County ranks sixth in the state for highest number of job openings. Stark County has the fourth most job openings on a per capita basis when considering the civilian labor force. This data suggests employers are having difficulties filling vacant positions. High-wage energy industry jobs are negatively affecting the ability of other employers to recruit and retain



qualified workers.

Table 3-11: Labor Force Participation, July 2012

Area	Civilian Labor Force	Number Employed	Number Unemployed	Unemployment Rate
Stark County	19,269	18,998	291	1.5%
North Dakota	397,586	386,120	11,466	2.9%

SOURCE: JOB SERVICE NORTH DAKOTA, LABOR MARKET INFORMATION CENTER

Table 3-12: Advertised Job Openings by County in North Dakota, August 2012

Rank	Area Name	Job Openings	Labor Force Per Capita
1	Cass County, North Dakota	7,050	12.4
2	Burleigh County, North Dakota	2,889	16.8
3	Ward County, North Dakota	2,249	13.5
4	Grand Forks County, North Dakota	2,063	17.3
5	Williams County, North Dakota	1,712	21.3
6	Stark County, North Dakota	1,336	14.4
7	Stutsman County, North Dakota	550	19.7
8	Ramsey County, North Dakota	444	13.4
9	Mountrail County, North Dakota	346	17.3
10	Morton County, North Dakota	334	45.3

SOURCE: JOB SERVICE NORTH DAKOTA, LABOR MARKET INFORMATION CENTER, AUGUST 9, 2012

Employers

As shown in Table 3-13, Dickinson’s two largest disclosed employers are in the educational services industry. Healthcare, retail and manufacturing make up the remaining largest employers. The most recent available data is from 2010, and it is

likely employers related to the energy industry have grown in rank since that time.

Table 3-13: Largest Employers in Dickinson, ND, 2010 Annual Average

Rank	Employer	Industry
1	Nondiscloseable	-
2	Dickinson Public Schools	Elementary and Secondary Schools
3	Dickinson State University	Colleges and Universities
4	St. Joseph’s Hospital	Medical and Surgical Hospitals
5	TMI Systems	Showcases, Partitions, Shelving and Locker Mfg.
6	Wal-Mart	Warehouse Clubs and Supercenters
7	St. Benedict’s Health Center	Nursing Care Facilities
8	Baker Boy Bake Shop	Commercial Bakeries
9	Nondiscloseable	-
10	St. Luke’s Home	Nursing Care Facilities
11	BJ Services Company	Support Activities for Oil and Gas Operations
12	Dickinson Park and Recreation District	Fitness and Recreational Sports Activities
13	Wyoming Casing Service, Inc.	Support Activities for Oil and Gas Operations
14	Able	Residential Facilities for Developmentally Disabled

SOURCE: NORTH DAKOTA WORKFORCE INTELLIGENCE NORTH DAKOTA AREA PROFILES DICKINSON, ND

Under-represented Industries

As shown in this chapter, Dickinson has a generally thriving economy primarily driven by energy development in recent years. However, there is still room for growth. Targeted growth can help increase diversification and ensure future health of the economy. A diverse economy is more sustainable over time and can provide a safeguard against economic volatility. Dickinson has the opportunity to increase its economic diversity by targeting industries currently underrepresented locally through financial and regulatory incentives.

Table 3-14 looks at employment for major industry groups in Stark County and North Dakota. The two geographies are compared based on a per capita measurement of residents per employee. A smaller number means more employees per capita. For example, in the accommodation and food services industry, North Dakota has 20.7 residents per employee, and Stark County has 17.3 residents per employee. This means the accommodation and food services industry has a greater presence in Stark County on a per capita basis. Industries whose per capita presence in Stark County is smaller than the overall statewide rate are highlighted in red. Based on per capita employment data, the following industries are underrepresented in the local economy:

- Administrative and Waste Services
- Arts, Entertainment and Recreation
- Educational Services
- Finance and Insurance
- Health Care and Social Assistance
- Utilities

The largest underrepresentation is in the administrative and waste services industry. The industry is comprised of businesses that perform support activities for other businesses. Activities include office administration, clerical services, security, cleaning



and waste disposal. Other heavily underrepresented industries are finance and insurance and utilities.

Table 3-14: Per Capita Employment by Industry, North Dakota and Stark County

Industry	North Dakota Employees	North Dakota Residents Per Employee	Stark County Employees	Stark County Residents Per Employee
Accommodation and Food Services	32,971	20.7	1,452	17.3
Administrative and Waste Services	12,589	54.3	230	109.5
Agriculture Forestry, Fishing and Hunting	3,120	219.2	n/a	n/a
Arts, Entertainment and Recreation	7,430	92.1	259	97.2
Construction	24,571	27.8	1,541	16.3
Educational Services	34,908	19.6	1,123	22.4
Finance and Insurance	16,667	41.0	452	55.7
Health Care and Social Assistance	57,574	11.9	1,964	12.8
Information	7,176	95.3	275	91.6
Management of Companies and Enterprises	4,587	149.1	n/a	n/a
Manufacturing	24,839	27.5	1,187	21.2
Mining, Quarrying and Oil and Gas Extraction	22,231	30.8	3,579	7.0
Professional, Scientific and Technical Services	13,841	49.4	541	46.5
Real Estate and Residential Leasing	4,817	142.0	233	108.1
Retail Trade	45,757	14.9	1,925	13.1
Transportation and Warehousing	19,434	35.2	1,565	16.1
Utilities	3,674	186.2	101	249.3
Wholesale Trade	23,788	28.8	1,045	24.1

SOURCE: JOB SERVICE NORTH DAKOTA WORKFORCE INTELLIGENCE NETWORK AND US CENSUS

Table 3-15 looks at specific sectors within the manufacturing industry. Specific data for most sectors was not available due to privacy concerns, but Stark County’s strength in each sector can be seen through county rankings. For example, in the apparel manufacturing sector, Stark County is ranked second in the state in terms of number of employees. Sectors ranked as none have no presence in Stark County. Table 3-16 utilizes the same ranking system for selected sectors of note. The data provided in Tables 3-15 and 3-16 can be used to support economic development initiatives. Specifically, under-

represented manufacturing and other economic sectors should be promoted to further diversify the City’s economy.

Table 3-15: State Ranking of Number of Manufacturing Employees by Manufacturing Sector, Stark County

Manufacturing Sectors	County Employment Ranking
Apparel	2
Beverage and Tobacco Product	none
Chemical	4
Computer and Electrical Product	4
Electrical Equipment and Appliance	none
Fabricated Metal Product	9
Food	15
Furniture and Related Product	5
Leather and Allied Product	none
Machinery	2
Nonmetallic Mineral Product	8
Paper	none
Petroleum and Coal Products	none
Plastics and Rubber Products	13
Primary Metal	none
Printing and Related	4
Textile Mills	none
Textile Product Mills	6
Transportation Equipment	12
Wood Product	12

SOURCE: JOB SERVICE NORTH DAKOTA WORKFORCE INTELLIGENCE NETWORK

Table 3-16: County Ranking by Number of Employees, Selected Sectors

Selected Sectors	County Employment Ranking
Arts, Entertainment and Recreation	
Amusement Gambling and Recreation	4
Museums and Historic Sites	17
Performing Arts and Spectator Sports	5
Transportation and Warehousing	
Warehousing and Storage	none
Truck Transportation	3
Pipeline Transportation	1
Wholesale Trade	
Merchant Wholesalers Durable Goods	6
Merchant Wholesalers and Non-Durable Goods	37



SOURCE: JOB SERVICE NORTH DAKOTA WORKFORCE INTELLIGENCE NETWORK

Strategy: Determine underrepresented industries the City wants to target for growth. Provide financial and regulatory incentives for targeted industries and businesses that further diversify the local economy.

Employment Forecasts

The Workforce Intelligence Network of Job Service North Dakota maintains statewide industry growth projections. The outlook for North Dakota is presented below in Table 3-17. Mining, quarrying and oil/gas extraction is by far the largest projected growth industry, with an increase of 154.7 percent (or one out of every five new jobs in the state) by 2020. The industry’s growth, at 9.8 percent annually, is much more rapid than the overall 1.7 percent annual growth rate for all industries. Other projected large growth industries include transportation and warehousing (55.7 percent), real estate (33.8 percent), professional and technical services (33.7 percent) and construction (29.9 percent).

Table 3-17: North Dakota Employment Projections

Industry	2010 Estimated Employment	2020 Projected Employment	2010-2020 Change	Average Annual Percent Change	Total Percent Change
Mining, Quarrying, Gas and Oil Extraction	10,675	27,190	16,515	9.80%	154.70%
Transportation and Warehousing	14,888	23,184	8,296	4.50%	55.70%
Real Estate and Rental and Leasing	3,580	4,791	1,211	3.00%	33.80%
Professional and Technical Services	12,475	16,674	4,199	2.90%	33.70%
Construction	21,548	27,989	6,441	2.60%	29.90%
Management	4,330	5,332	1,002	2.10%	23.10%
Wholesale Trade	21,110	25,028	3,918	1.70%	18.60%
Manufacturing	22,523	26,606	4,083	1.70%	18.10%
Health Care and Social Assistance	52,123	61,553	9,430	1.70%	18.10%
Accommodation and Food Services	30,498	36,007	5,509	1.70%	18.10%
Administrative and Waste Services	11,606	13,663	2,057	1.60%	17.70%
Finance and Insurance	16,369	18,888	2,519	1.40%	15.40%
Arts, Entertainment and Recreation	3,787	4,266	479	1.20%	12.60%
Retail Trade	43,510	48,407	4,897	1.10%	11.30%
Educational Services	37,950	41,629	3,679	0.90%	9.70%
Other Services	16,187	17,250	1,063	0.60%	6.60%
Utilities	3,419	3,633	241	0.60%	6.30%
Government	37,073	38,411	1,338	0.40%	3.60%
Agriculture, Forestry, Fishing and Hunting	32,279	32,022	-257	-0.10%	-0.80%
Information	7,353	7,136	-217	-0.30%	-3.00%

Total, All Industries	422,483	499,259	76,776	1.70%	18.20%
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SOURCE: JOB SERVICE NORTH DAKOTA, LABOR MARKET INFORMATION CENTER, PROJECTIONS UNIT, 2012

Researchers at NDSU created employment forecasts for the Dickinson area by analyzing employment trends in existing industries, future direct and secondary employment of the petroleum sector, and interviews with government and industry leaders in the region. The results of the forecasts can be seen in Table 3-18, Table 3-19 and Table 3-20. The counties of Billings, Dunn, Golden Valley, Hettinger, Slope and Stark comprise the Dickinson Trade Area from Table 3-18. Years shown correspond with the planning periods of the study.

The data in Tables 3-18, 3-19 and 3-20 shows modest gains in total employment through 2022 and significant decreases in employment between 2022 and 2035. It is important to note the employment data in the three tables represent total employment, which is the sum of temporary and permanent employment. The interaction between temporary energy sector employment and permanent employment creates the unexpected total employment projections. As can be seen in Table 3-21, significant annual increases in permanent employment in the city continue through 2024 and gradually subside thereafter. However, temporary employment in the city peaks in 2014 and drops off sharply after 2022. As a result, sharp decreases in temporary employment largely off-set significant gains in permanent employment, resulting in modest gains in total employment. During the planning period, nearly 6,500 new permanent jobs are projected to be created in the city.

Table 3-18: Dickinson Trade Area Total Employment Projections

Industry Group	2013	2016	Percent Change 2013-2016	2018	Percent Change 2016-2018	2022	Percent Change 2018-2022	2035	Percent Change 2022-2035	Percent Change 2013-2035
Mining, Quarry, Oil and Gas Extraction	5,414	5,812	7.4%	5,893	1.4%	5,655	-4.0%	3,483	-38.4%	-35.7%
Services	3,723	3,862	3.7%	3,911	1.3%	3,984	1.9%	3,989	0.1%	-29.0%
Transportation and Warehousing	2,606	3,191	22.4%	3,542	11.0%	3,658	3.3%	2,744	-25.0%	6.5%
Retail Trade	2,392	2,490	4.1%	2,523	1.3%	2,573	2.0%	2,563	-0.4%	7.2%
Construction	2,385	2,487	4.3%	1,963	-21.1%	1,727	-12.0%	1,693	-2.0%	7.1%
Health Care and Social	2,462	2,600	5.6%	2,645	1.7%	2,711	2.5%	2,683	-1.0%	5.3%
Education	1,721	1,794	4.2%	1,819	1.4%	1,855	2.0%	1,843	-0.6%	8.2%
Manufacturing	1,698	1,858	9.4%	1,929	3.8%	1,985	2.9%	1,809	-8.9%	7.1%
Wholesale Trade	1,274	1,311	2.9%	1,329	1.4%	1,353	1.8%	1,366	1.0%	9.0%
Government	1,223	1,269	3.8%	1,285	1.3%	1,309	1.9%	1,309	0.0%	8.4%
Financial	832	875	5.2%	889	1.6%	910	2.4%	900	-1.1%	7.1%
Other	600	628	4.7%	637	1.4%	652	2.4%	651	-0.2%	7.0%



Total Employment	26,329	28,174	7.0%	28,363	0.7%	28,370	0.0%	25,030	-11.8%	-4.9%
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SOURCE: NORTH DAKOTA STATE UNIVERSITY, 2012

Table 3-19: Stark County Total Employment Projections

Industry Group	2013	2016	Percent Change 2013-2016	2018	Percent Change 2016-2018	2022	Percent Change 2018-2022	2035	Percent Change 2022-2035	Percent Change 2013-2035
Mining, Quarry, Oil and Gas Extraction	4,440	4,766	7.3%	4,833	1.4%	4,637	-4.1%	2,856	-38.4%	-35.7%
Services	3,390	3,505	3.4%	3,543	1.1%	3,605	1.7%	3,609	0.1%	-28.0%
Health Care and Social	2,386	2,498	4.7%	2,535	1.5%	2,590	2.2%	2,567	-0.9%	5.9%
Retail Trade	2,111	2,191	3.8%	2,218	1.2%	2,259	1.8%	2,521	-0.4%	7.3%
Construction	2,028	2,111	4.1%	1,680	-20.4%	1,487	-11.5%	1,459	-1.9%	6.6%
Transportation and Warehousing	1,833	2,312	26.1%	2,600	12.5%	2,694	3.6%	1,945	-27.8%	6.1%
Manufacturing	1,544	1,675	8.5%	1,734	3.5%	1,780	2.7%	1,635	-8.1%	7.9%
Wholesale Trade	1,042	1,073	3.0%	1,088	1.4%	1,108	1.8%	1,118	0.9%	6.5%
Education	909	969	6.6%	990	2.2%	1,019	2.9%	1,010	-0.9%	7.6%
Government	730	768	5.2%	780	1.6%	800	2.6%	799	-0.1%	9.9%
Financial	704	739	5.0%	751	1.6%	768	2.3%	760	-1.0%	11.1%
Other	613	646	5.3%	657	1.7%	674	2.5%	673	0.0%	9.5%
Total Employment	21,609	23,127	7.0%	23,282	0.7%	23,921	0.0%	20,547	-11.8%	-4.9%

SOURCE: NORTH DAKOTA STATE UNIVERSITY, 2012

Table 3-20: Dickinson Total Employment Projections

Industry Group	2013	2016	Percent Change 2013-2016	2018	Percent Change 2016-2018	2022	Percent Change 2018-2022	2035	Percent Change 2022-2035	Percent Change 2013-2035
Mining, Quarry, Oil and Gas Extraction	3,861	4,144	7.3%	4,203	1.4%	4,034	-4.0%	2,491	-38.2%	-35.5%
Services	3,250	3,360	3.4%	3,397	1.1%	3,456	1.7%	3,458	0.1%	-28.0%

Health Care and Social	2,295	2,403	4.7%	2,439	1.5%	2,492	2.2%	2,469	-0.9%	5.9%
Retail Trade	2,058	2,136	3.8%	2,163	1.3%	2,202	1.8%	2,195	-0.3%	7.2%
Construction	1,883	1,960	4.1%	1,560	-20.4%	1,381	-11.5%	1,355	-1.9%	6.7%
Manufacturing	1,457	1,581	8.5%	1,635	3.4%	1,679	2.7%	1,543	-8.1%	6.2%
Education	909	969	6.6%	990	2.2%	1,019	2.9%	1,010	-0.9%	7.8%
Wholesale Trade	861	886	2.9%	899	1.5%	915	1.8%	923	0.9%	6.4%
Transportation and Warehousing	867	1,094	26.2%	1,230	12.4%	1,274	3.6%	920	-27.8%	7.6%
Financial	669	702	4.9%	714	1.7%	730	2.2%	722	-1.1%	8.0%
Government	662	696	5.1%	707	1.6%	725	2.5%	725	0.0%	11.1%
Other	431	454	5.3%	461	1.5%	473	2.6%	465	-1.7%	9.4%
Total Employment	19,248	20,436	6.2%	20,448	0.1%	20,432	-0.1%	18,322	-10.3%	-4.8%

SOURCE: NORTH DAKOTA STATE UNIVERSITY, 2012

Researchers at NDSU projected total employment for the Dickinson Trade Area and the city and permanent employment in the trade area. The employment data provided by NDSU was used to establish city projections for total, permanent and temporary employment. It is important to note total employment includes both temporary workers and permanent workers.

As shown in Table 3-21, total city employment rises modestly until 2023 and then gradually decreases to a pre-2012 total employment level in 2035. The moderate change in total employment is due to interaction of projected permanent and temporary employment shown in Figure 3-16. Permanent employment for the city increases throughout the planning period and 6,500 new permanent jobs are projected to be created. The city is projected to experience very strong permanent employment growth between 2013 and 2018 when the annual increase in permanent employment is expected to be between 4.2 and 5.1 percent. Between 2019 and 2023 the city is expected to have annual percent increases in permanent employment of between 3.1 and 2.2 percent. Thereafter, growth in permanent employment significantly subsides.

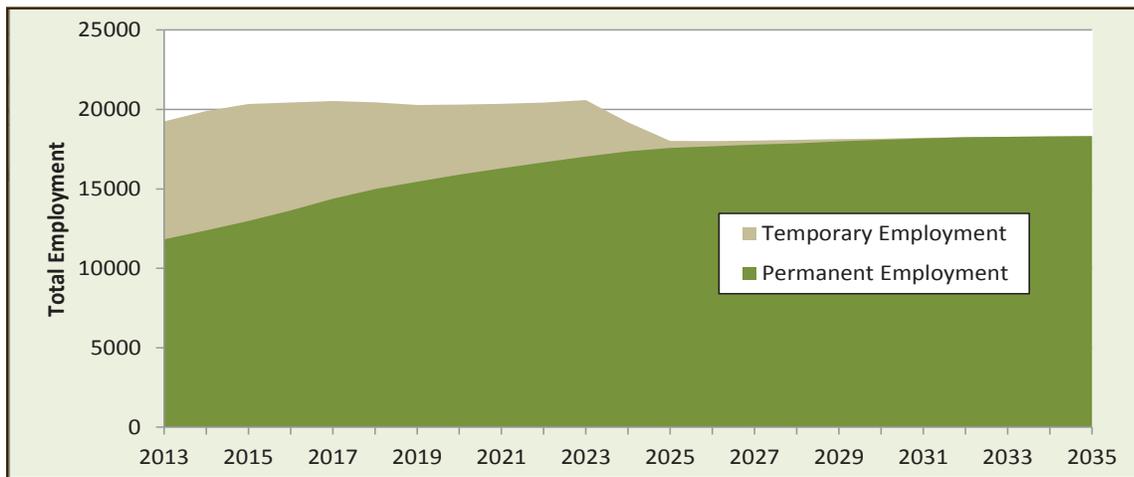
Table 3-21: Projected Permanent and Temporary Employment, City of Dickinson, 2013-2035

Year	City of Dickinson Total Employment	City of Dickinson Permanent Employment	Percent Change	City of Dickinson Temporary Employment
2013	19,248	11,823	--	7,425
2014	19,897	12,386	4.8%	7,511
2015	20,344	12,980	4.8%	7,364
2016	20,436	13,369	5.1%	6,797
2017	20,530	14,377	5.4%	6,153
2018	20,448	14,985	4.2%	5,463
2019	20,282	15,448	3.1%	4,834
2020	20,305	15,898	2.9%	4,407
2021	20,355	16,294	2.5%	4,061
2022	20,432	16,672	2.3%	3,760
2023	20,590	17,034	2.2%	3,556



2024	19,191	17,362	1.9%	1,829
2025	18,017	17,578	1.2%	439
2026	18,008	17,680	0.6%	328
2027	18,041	17,785	0.6%	256
2028	18,088	17,866	0.5%	222
2029	18,136	17,992	0.7%	144
2030	18,160	18,089	0.5%	71
2031	18,222	18,172	0.5%	50
2032	18,253	18,253	0.4%	0
2033	18,278	18,278	0.1%	0
2034	18,303	18,303	0.1%	0
2035	18,322	18,322	0.1%	0

SOURCE: NORTH DAKOTA STATE UNIVERSITY



When the temporary employment drops sharply and by

SOURCE: NORTH DAKOTA STATE UNIVERSITY, 2012

It is important to note permanent employment is the driver for forecasted growth in housing and population. Historically, each new permanent job in the City generated, on average, one housing unit. Due to the current undersupply and strong demand for housing, NDSU adjusted the employment to housing ratio to nearly 2:1 through the first half of the planning period. The ratio was adjusted downward to the historical average thereafter. This explains why projected population and housing exceeds projected permanent employment.

Income

Income Attributes

When evaluating and measuring the local economy it is useful to examine change over time and compare the local economy to a large economy. Dickinson's median household income is higher than the state average, yet lower than Stark

County as shown in Table 3-22. However, the percent change from 2000 to 2010 indicates both the city of Dickinson and Stark County households had larger economic gains than other North Dakota households over the past decade. Moreover, Dickinson and Stark County residents closed the gap with other North Dakotans as per capita incomes are within approximately \$600 plus/minus the State’s per capita income. It is important to note the most recent data is from 2010, and the city’s comparison to the state may now be even more favorable given recent energy-related growth.

Table 3-22: Median Household and Per Capita Income, Dickinson, Stark County and North Dakota 2000 and 2010

Jurisdiction	Median Household Income			Per Capita Income		
	2000	2010	Percent Change	2000	2010	Percent Change
Dickinson	\$31,542	\$50,022	59%	\$15,975	\$25,463	59%
Stark County	\$32,526	\$52,237	61%	\$15,929	\$26,740	68%
North Dakota	\$34,604	\$48,670	41%	\$17,769	\$26,021	46%

SOURCE: LABOR MARKET STATISTICS, QUARTERLY CENSUS OF EMPLOYMENT AND WAGES PROGRAM AND US CENSUS

Dickinson’s household income distribution as compared to the state of North Dakota shows a similar distribution pattern across each income range with two exceptions. A larger percentage of Dickinson households earn \$15,000 to \$24,999, suggesting more city households (as a percentage) may be at, below or near poverty. However, a larger percentage of Dickinson households are making more than the average North Dakota household in the \$50,000 to \$74,999 range.

Table 3-23: Household Income, Dickinson and North Dakota, 2010

Household Income	Dickinson		North Dakota	
	Households	Percent of Households	Households	Percent of Households
Less than \$10,000	609	8.5%	21,561	7.7%
\$10,000 to \$14,999	440	6.1%	17,023	6.1%
\$15,000 to \$24,999	934	13.0%	31,945	11.4%
\$25,000 to \$34,999	563	7.9%	31,817	11.3%
\$35,000 to \$49,999	1,038	14.5%	40,842	14.6%
\$50,000 to \$74,999	1,619	22.6%	55,630	19.8%
\$75,000 to \$99,999	869	12.1%	37,583	13.4%
\$100,000 to \$149,999	811	11.3%	30,858	11.0%
\$150,000 to \$199,999	187	2.6%	7,051	2.5%
\$200,000 or more	101	1.4%	6,102	2.2%
Total	7,171	100%	280,412	100%



SOURCE: US CENSUS BUREAU, 2010 CENSUS

Stark County ranks ninth in the state for highest average wage, as shown in Table 3-24. The average hourly wage of \$26.38 is significantly above the statewide rate of \$21.78 per hour. A majority of the highest-paying counties are located in the western half of the state, and generally benefit from the rapidly-expanding energy industry.

Table 3-24: Top Counties with Highest Weekly Wages for All Industries, North Dakota and United States, 4th Quarter 2011

Rank	County	Average Hourly Wage	Average Weekly Wage	Average Annual Wage
1	McKenzie County	\$38.93	\$1,557	\$80,964
2	Williams County	\$37.15	\$1,486	\$77,272
3	Slope County	\$33.23	\$1,329	\$69,108
4	Burke County	\$31.08	\$1,243	\$64,636
5	Dunn County	\$30.53	\$1,221	\$63,492
6	Mountrail County	\$29.40	\$1,176	\$61,152
7	Oliver County	\$29.98	\$1,159	\$60,268
8	Mercer County	\$26.58	\$1,063	\$55,276
9	Stark County	\$26.38	\$1,055	\$54,860
10	Cavalier County	\$21.35	\$854	\$44,408
	North Dakota	\$21.78	\$871	\$45,292
	United States	\$19.85	\$794	\$41,288

SOURCE: LABOR MARKET STATISTICS, QUARTERLY CENSUS OF EMPLOYMENT AND WAGES PROGRAM

There is no cost of living data produced by a public agency for the city of Dickinson. However, the information is available from commercial sources. The website www.bestplaces.net reported the 2012 cost of living index for Dickinson is 94 compared to the US average of 100. Comparative cost of living data is presented in Table 3-25. Dickinson, and the state of North Dakota overall, have a lower cost of living than the US average.

Table 3-25: Cost of Living Index for Selected Locations

Location	Cost of Living Index
Bismarck	98
Minot	97
Dickinson	94
Williston	90
North Dakota Average	93

SOURCE: WWW.BESTPLACES.NET

Based on the data available, it appears the cost of living has remained relatively low despite recent income gains from wages and salaries. However, results from the community survey conducted as part of this study indicate increasing prices for food and basic retail items are a primary concern of residents.

Economic Development Organizations and Programs

Community Survey Results

Community residents were asked to rank the economic development strategies the City should pursue. Results are shown in Table 3-26. The highest ranked strategy was attracting new businesses. The lowest ranked strategy was enhancing job training services.

Table 3-26: Response to the question, “Please rank (most important to least important) the economic development strategies the City should pursue.”

Answer Options	First (Most Important)	Second	Third	Fourth (Least Important)	Rating Average
Attract new businesses	54	20	16	12	1.86
Encourage neighborhood-type services (corner coffee shop, pharmacy, etc.)	25	27	28	22	2.46
Expand existing businesses	18	33	28	23	2.55
Enhance job training services	8	21	28	44	2.07

SOURCE: COMMUNITY SURVEY NO. 1



Local Organizations

Stark Development Corporation is headquartered in Dickinson and serves southwest North Dakota. The organization promotes the retention and expansion of primary sector (value-adding) businesses in Stark County and the surrounding area. It has 54 members, most of which are local businesses. Its goal is to utilize economic development tools to facilitate quality business decisions and enhance the overall quality of place in the region.

Stark Development Corporation provides assistance for entrepreneurs with numerous state and federal programs, including those administered by the Bank of North Dakota and the North Dakota Department of Commerce. It has in-depth experience with state programs and incentives that can be utilized by businesses to reduce their start-up, expansion and relocation costs.

Contact: Gaylon Baker, 701 227 8647, gaylon@starkdev.com, www.starkdev.com

The **Manufacturer’s Roundtable** is a group of local business and community leaders who meet bi-monthly to discuss issues and opportunities. This allows business leaders in Dickinson and southwest North Dakota to benefit from the shared knowledge of their peers and discuss important issues in a structured setting. The roundtable focuses on improving business success and assisting community development in southwest North Dakota.



The **Dickinson Area Chamber of Commerce** has a membership of approximately 500 local businesses. The Chamber works with local businesses and the community to make the Dickinson area an attractive place to live and work. It offers a wide range of services for member businesses, including referrals, networking, advertising, business-to-business discounts, professional development and benefits. The Chamber also works with member businesses to sponsor community events and organizations that enhance quality of life in the Dickinson area. The Chamber maintains a website that promotes the community and member businesses.

Contact: Cooper Whitman, 701 225 5115, www.dickinsonchamber.org

The **Roosevelt-Custer Regional Council for Development** is the planning agency for the eight-county district in southwest



North Dakota that includes Stark County. The Council was first established in 1971 and provides planning, development and technical assistance to local governments (e.g., they assisted in preparation of the Stark County Comprehensive Plan and Zoning Regulations). The Council also administers economic development programs sponsored by the Department of Commerce. The Council's board is made up of City and County elected officials and soil conservation district representatives.

Contact: Rod Landblom, 701 483 1241, landblom@rooseveltcuster.com

The **Dickinson Convention and Visitors Bureau (CVB)** promotes tourism for Dickinson and the surrounding area. The CVB operates the website www.visitdickinson.com, which markets the area to both business and non-business travelers. For businesses they offer complete convention planning services, including coordination of meeting space, lodging and area activities. They also have a wealth of information for non-business travelers, including event listings and general information about the area.

The CVB also works with local hotel operators to ensure rooms will be available for travelers despite pressure on room occupancy due to expansion of the energy industry.

Contact: Terri Thiel, 701 483 4988, www.visitdickinson.com

Dickinson State University's **Strom Center for Entrepreneurship and Innovation** serves as a hub for information, training and events for entrepreneurs in southwest North Dakota. Professional services offered to entrepreneurs include creation of branding and logos, identification of target markets and development strategic marketing plans. The Center also helps to improve the internet footprint of local businesses by creating professional websites, providing search engine optimization services and using social media outlets as low-cost marketing platforms. The Center operates the annual Business Challenge, which brings together high school and university students from North Dakota and surrounding states to learn business skills through hands-on experience. The Center is also home to the Small Business Development Center.

Contact: 701 483 2756, www.stromcenter.com

The **Southwest Regional Small Business Development Center (SBDC)** is located at Dickinson State University's Strom Center for Entrepreneurship and Innovation. It is the result of a partnership between the US Small Business Administration, the state university system, North Dakota Department of Commerce, local economic development organizations such as the Stark Development Corporation and local financial institutions. The SBDC provides entrepreneurs with assistance in starting, managing and growing their business. Services include consulting on business plans, marketing and promotion, financial operations, production management and internet technology assistance.

Contact: Ray Ann Kilen, 701 483 2470, www.ndsbdc.org

The **Southwest Rural Economic Area Partnership (REAP)** is a resource for southwest North Dakota that works to increase job/business opportunities and encourage partnerships for economic development. Southwest REAP is a partnership with the USDA, which designated eight counties in southwestern North Dakota (including Stark County) as a REAP Zone in 1995. The primary funding mechanism for Southwest REAP is its revolving micro loan fund. Loans are targeted to businesses that address deficiencies in the local economy. Southwest REAP is also a member of the project support team for Vision West ND, which is a regional planning effort to address emerging growth challenges in western North Dakota.



Contact: Shirley Brentrup, 701 483 1447, brentrup@ndsupernet.com

Strategy: Create an overall environment that is supportive of entrepreneurial activity through the continued support of local economic development organizations, quality of place improvements and a city administration responsive to the needs of business.

State and Federal Organizations

The **Bank of North Dakota** is a state-owned bank that acts as a funding resource in partnership with various economic development groups and other organizations. It offers several programs targeted at new or expanding businesses that make financing easier to access and less expensive. Its programs are generally focused on assisting individual borrowers by working with local financial institutions.



Contact: 701 328 5777, <http://banknd.nd.gov>

The **North Dakota Department of Commerce** offers several state economic development programs that can assist local businesses, including the Community Development Block Grant (CDBG) program and the North Dakota Development Fund. The Department works with Regional Councils throughout the state to administer funds. Dickinson is in Region 8, which is administered by the Roosevelt-Custer Regional Council for Development. The Department of Commerce also has a variety of other services to promote business in North Dakota, including an inventory of potential business sites and a wide range of tax incentives. It administers Innovate ND, which is an assistance program intended to bring together entrepreneurs, investors and educators.

Contact: Paul Lucy, 701 328 5300, plucy@nd.gov, www.business.nd.gov

USDA Rural Development has a wide variety of loan and grant programs focused on improving the economy and quality of life in rural communities. The agency operates a field office in Dickinson and the statewide program is headquartered in Bismarck. The general qualifying criteria for most USDA Rural Development loans and grants is population-based, usually targeting communities with populations below 25,000 or 50,000. Each specific program has additional criteria for individual applicants and intermediaries. Assistance comes in the form of direct or guaranteed loans, grants, technical assistance, research and educational materials.

Contact: 701 225 9168 (Dickinson office), http://www.rurdev.usda.gov/ND_Home.html



Programs for Direct Business Assistance

The **Commercial Bank Participation Loan Program** allows the Bank of North Dakota to assist local financial lending institutions with a borrower whose needs exceed the limits of the lender. Funds are available for start-up and working capital or refinancing an existing loan. Activities include business and industrial acquisitions, modernization, expansion, purchase of land, building and equipment, and any other reasonable business purchase. To acquire this financing, the lead lender must submit an application to the Bank of North Dakota. The loan rate for Bank of North Dakota funds is set in accordance with the original loan policies or the current market rate.

The **Bank of North Dakota's Business Development Loan Program** is designed to assist new and existing businesses obtain loans that have a higher degree of risk than would normally be acceptable to a lending institution. In order to make a loan acceptable to a local lender, the Bank of North Dakota will contribute a portion of the loan, generally between



50 to 70 percent, with a maximum amount of \$1 million. A similar program operated by the Bank of North Dakota, the Beginning Entrepreneur Loan Guarantee Program, provides a local lending institution with a guaranty of 75 to 85 percent on loans to qualified entrepreneurs.

Both the **PACE (Partnership in Assisting Community Expansion) Program** and **Flex PACE Program** are designed to assist with new job development. PACE funding provides an interest buy down that can reduce a borrower's rate of interest by as much as 5 percent. Eligible businesses include manufacturing, processing, value-added processing and targeted service industries. Flex PACE expands the pool of eligible businesses by allowing communities to determine eligibility and accountability standards. Both programs are administered by the Bank of North Dakota.

The **Bank of North Dakota's MATCH Program** is similar to the PACE Program, except it specifically targets companies with demonstrated financial strength. It targets businesses in the manufacturing, processing and value-added industries by providing these businesses with loan interest rates that are among the lowest in the nation.

More information on the above Bank of North Dakota programs: http://banknd.nd.gov/lending_services/business_financing_programs/.

The **North Dakota Development Fund**, administered by the North Dakota Department of Commerce, provides up to \$300,000 of financial assistance to primary sector businesses for use in real estate, equipment and working capital. The Fund is intended to provide "gap" financing not available from other sources. Funds are available in the form of direct loans, participation loans, subordinated debt and equity investments. Long-term and short-term financing is available to new, expanding or relocating businesses. More information can be found at: <http://www.business.nd.gov/businessInformation/nd-development-fund/>.

Programs Awarded to Local Government and Non-Profit Organizations for Economic Development

The **CDBG (Community Development Block Grant) Program** provides funds to local municipalities and non-profits for a wide variety of community development activities, with the primary beneficiaries being low to moderate income individuals. The CDBG program in North Dakota has three emphasis areas: housing, public facilities and economic development. The Roosevelt-Custer Regional Council, which administers the program locally, has chosen to focus on housing needs for its current CDBG allocation. Eligible uses include support activities for new housing construction (site acquisition, site clearance, site improvements) and housing rehabilitation for existing low to moderate income single-family and multi-family units. Maximum project award is \$100,000 of CDBG funds, with a required local match of 15 percent. More information can be found at: <http://www.communityservices.nd.gov/community/block-grant/>.

USDA Rural Development provides loans for businesses, cooperatives, housing, community facilities and utilities. The business loan programs are intended to increase economic activity and employment in rural areas. They generally work through intermediaries to extend credit to local businesses that would otherwise be unable to obtain a loan with acceptable rates. The Intermediary Relending Program (IRP) provides loans to local intermediaries for the establishment of revolving loan funds. Eligible intermediaries include municipalities with a population of 25,000 or less, non-profit corporations, Native American groups and cooperatives. An intermediary can borrow \$2 million under its first financing and up to \$1 million at a time thereafter. The intermediary is authorized to make loans with a maximum value of \$250,000. Eligible uses include:

- Acquisition and/or improvement activities to a business facility
- Purchase and development of land
- Purchase of equipment and general supplies



- Start-up costs and working capital
- Pollution control and abatement
- Transportation services
- Feasibility studies
- Hotels, motels, B&Bs, convention centers

More information about specific loan programs and individual criteria can be found at: http://www.rurdev.usda.gov/RD_Loans.html.

USDA Rural Development also offers several grant programs that focus on business and housing. The **Rural Business Enterprise Grant (RBEG) Program** provides grants for projects that facilitate development of small and emerging rural businesses, distance learning networks or adult education programs. RBEG grants are typically in the range of \$10,000 to \$500,000, and municipalities with a population below 50,000 are eligible to apply. Other grant focus areas include industries related to renewable energy and low income housing. More information about specific grant programs can be found at: http://www.rurdev.usda.gov/RD_Grants.html.

City of Dickinson Locally-Administered Programs

In the community survey conducted as part of this study, 80 percent of residents felt downtown revitalization is an issue that needs attention. North Dakota's Renaissance Zone Program is a tool that can help address the issue. The program was established by the State of North Dakota in 1999 under N.D.C.C. 40-63, also known as the Renaissance Zone Act. The program allows cities to create a Renaissance Zone within their jurisdiction, subject to approval by the North Dakota Division of Community Services, and following the city's creation of a Renaissance Zone Development Plan.

A Renaissance Zone is typically intended to apply to areas in the central city consisting of residential and commercial properties in need of revitalization. The program provides for certain types of tax exemptions and credits to encourage investment in these properties. More than just tax incentives for a few isolated projects, the program is intended to be a catalyst for downtown revitalization in coordination with the long-term city development plans. Several types of tax incentives are available that provide options to accomplish the development goals of a city. The Office of the State Tax Commissioner lists the following tax incentives as potential tools to be used within a Renaissance Zone:

- Single-family residence individual income tax credit
- Business or investment income exemption
- Business purchase or expansion individual income tax credit
- Historic property preservation or renovation tax credit
- Nonparticipating property owner credit
- Renaissance fund organization investment tax credit
- Property tax exemption for single-family residence
- Property tax exemption for real property other than a single-family residence

Communities have the option of establishing a Renaissance Fund Organization (RFO). The purpose of a RFO is to raise funds to be used to make investments (e.g. equity investments, loans, guarantees, commitments for funding, etc.) in Renaissance Zone properties.

Dickinson's Renaissance Zone Development plan was approved by the state in 2004, and amended in 2012. Per state law, the program is required to sunset after 15 years (in 2018), although the city can request extensions in increments of up to five years. The size of the Renaissance Zone is determined by population. Cities with a population of 5,000 or fewer are allowed to have Renaissance Zones of up to 23 blocks. The area can be increased by one block for every additional



5,000 residents. Dickinson's Renaissance Zone is comprised of 25 blocks and its boundaries are shown in Figure 3-17.

As identified in Dickinson's Renaissance Zone Development Plan, the city has three primary goals for ongoing implementation activities:

- To gain at least three improved structures or new businesses in the Renaissance Zone each year.
- To gain at least three renovated residential properties and/or new owners each year.
- City Government involvement in improving the look and amenities of the downtown area.

The city is not currently meeting these goals, and the city has received very few applications in recent years. With Dickinson's booming economic climate and low interest rates, some developers feel the financial incentives of the program are not worth the time and administrative costs associated with the application and review process. However, recent interest from developers may signal an increase in program participation and a shift of focus to residential projects. An affordable housing project is currently being planned in the southern end of the Renaissance Zone. The project will utilize the program's property tax reduction incentives and is expected to be completed by the end of 2013. This project suggests that the Renaissance Zone may be an effective tool to address affordable housing shortages that could develop over the next five years.

Figure 3-17: Dickinson Renaissance Zone



SOURCE: CITY OF DICKINSON, 2012

Strategy: Actively promote the Renaissance Zone, and determine if the City and the investment community are interested in establishing a Renaissance Fund Organization (RFO). The purpose of a RFO is to raise funds to be used to make investments (equity investments, loans, guarantees, commitments for funding, etc.) in

Renaissance Zone properties.

Strategy: Provide technical assistance with Renaissance Zone applications and streamline project reviews so that developers find the program more convenient to utilize.

Strategy: The City should consider providing financial (fee waivers, revolving loan, grants, etc.) and/or regulatory incentives to increase participation in the Renaissance Zone program.

Strategy: Increase promotion of the Renaissance Zone program and its benefits to local developers.

The city utilizes a one percent sales tax that was renewed in 1994 (an additional 0.5 percent sales tax was authorized in 2001 and is not utilized for economic development). Thirty percent of revenues from the one percent sales tax are dedicated for capital purchases which enhance the economic and social vitality of Dickinson and the southwest region. Twenty percent of revenues are dedicated to job development and senior programs. In 2011, 14 percent of revenues from the one percent sales tax were used to fund Stark Development Corporation and other job development programs. One percent of the revenues funded the Southwest Regional Grant Program, which provides grants for community projects in southwest North Dakota.

Historic preservation can be an important economic development tool. Historic and distinctive structures add to a community's sense of place, which can aid in recruiting businesses and attracting new residents. The City currently operates a Historic Preservation Commission, which works to market and preserve Dickinson's historical assets. It is funded by an annually-awarded Certified Local Government grant from the North Dakota State Historical Society.

The Commission has been somewhat limited by a lack of participation, and has had trouble finding individuals with the desired professional qualifications to fill the vacancies. There are several properties within the city that would be ideal for future historic preservation projects, including the train station and the Patterson band shell. The Commission has expressed interest in designating historic districts, mainly in downtown residential neighborhoods. State Historical Society grant funds are available for the designation of historic buildings/districts with a 40 percent local match.

Strategy: Establish a downtown gathering place and green space. This would enhance the unique character of Dickinson's downtown and add to the community's sense of place.

Other Local Economic Development Tools

A significant tool to encourage development is Tax Increment Financing (TIF), which was first authorized by the North Dakota legislature in 1973. Pursuant to Chapter 40-58-20 of the Century Code, TIF empowers municipalities to direct property tax dollars that accrue for new development, within a specially designated district, to community and economic development activities within that district.

To use TIF, a municipality must approve a development or renewal plan. The plan designates a development or renewal district, which means it has industrial or commercial properties and is designated as slum/blighted. TIF is intended as a tool that can encourage and support investment in areas where growth has been hindered by a lack of sufficient infrastructure and/or the presence of blight.

TIF does not increase property taxes for individuals and businesses located within a designated district. Rather, it only affects the way taxes are distributed after they have been collected. A base taxable value is determined upon establishment of a TIF district, and any additional tax revenue that accrues due to new development over a specified time frame is used to finance a variety of district improvements. Potential improvement activities include:

- Land acquisition
- Rehabilitation and renovation of structures



- Demolition and removal of structures
- Planning, marketing and analysis
- General redevelopment activities
- Constructing, improving and connecting to infrastructure

Financing generally comes in the form of municipal bonds. Upon plan adoption, the City utilizes a bond to fund district improvements and the bond is repaid through additional tax revenue that is created by new development over a set number of years (with a maximum of 25 years). Municipalities also have the option of forgoing the sale of bonds and offering total or partial tax abatement for businesses in the district to stimulate development.

Chapter 40-22.1 of the Century Code allows for the creation of Business Improvement Districts. A municipality may use funds generated from a special assessment of business owners in the district for the promotion of current business and new business development. Eligible activities include advertising, public information, marketing, maintenance and decoration of public places, promotion of public events, furnishing music in a public place, providing professional management, planning and the general promotion of trade activities. The City currently operates a Downtown Improvement District, which is used for general maintenance and snow removal of downtown parking lots. A section of the city's downtown is shown in Figure 3-18.

Figure 3-18: Downtown Dickinson, Southbound View of Sims Street



As allowed in Chapter 40-62 of the Century Code, a similar special assessment district can be utilized for creation of a pedestrian mall. A pedestrian mall can be created within a municipality's central business district to encourage a high concentration of pedestrian use. Eligible activities include space for seating, tables, shelters, general landscaping, traffic signs, kiosks, fire hydrants, lighting elements, trash receptacles, awnings, marquees, heating devices and any other general improvements that enhance the movement, safety, convenience and enjoyment of pedestrians. A pedestrian mall can be a critical element for business revitalization in a downtown district because it creates an attractive public gathering place to increase the number of visitors and customers in the area.

Strategy: Consider the establishment of a downtown special assessment district to enhance the pedestrian experience in the area.

Chapter 40-57.1 of the Century Code allows for tax exemptions for new and expanding businesses. A municipality may grant a partial or complete exemption from ad valorem taxation on all buildings, structures, fixtures and improvements for a maximum period of five years. The exemption can be extended to 10 years for a project that produces or manufactures a product from agricultural commodities.

Education

Educational attainment is a critical component of economic development because it helps to determine what types of employers may decide to locate in an area. Businesses that require an educated workforce generally choose to locate in areas with populations that have a high level of educational attainment or requisite skills.

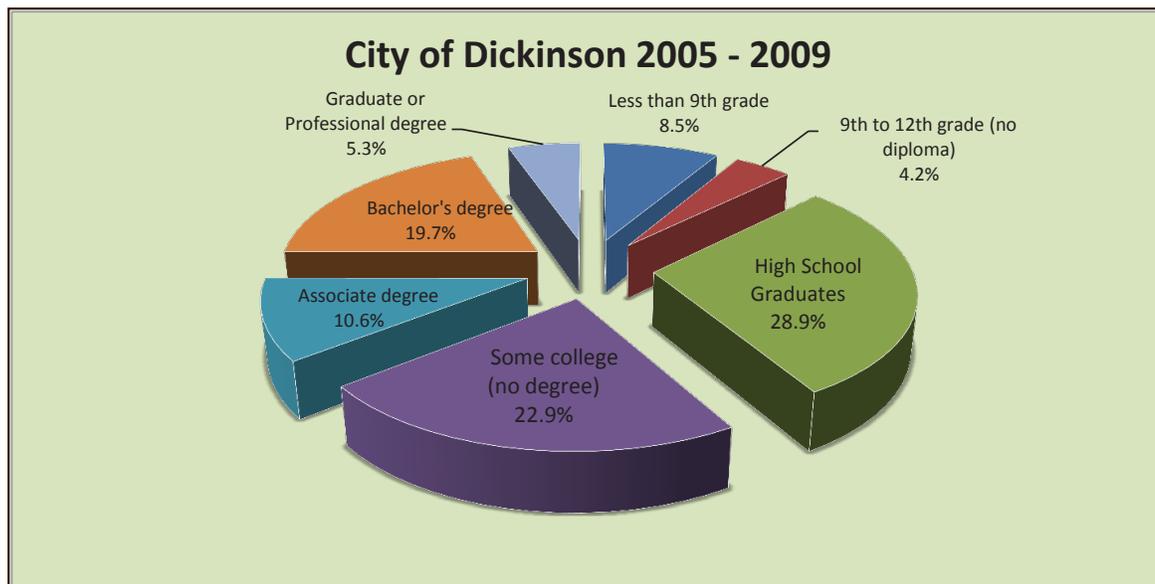
As shown in Table 3-27, the populations of Dickinson and North Dakota have similar levels of educational attainment, with the rate generally rising across all levels since 2000. Of Dickinson residents, 87.3 percent have at least a high school diploma, compared to 88.7 percent of all residents in the State. Of Dickinson residents, 19.7 percent have a Bachelor’s Degree, which is slightly higher than the statewide rate of 19.1 percent. Dickinson’s educational attainment is graphically represented in Figure 3-19.

Table 3-27: Educational Attainment 2000-2009 as a Percentage of Selected Population

Educational Attainment	North Dakota		City of Dickinson	
	2000	2009	2000	2009
Population 25 and Over	%	%	%	%
Less than 9th grade	8.7	6.0	13.3	8.5
9th to 12th grade, no diploma	7.4	5.2	6.5	4.2
High school graduate (includes equivalency)	27.9	28.5	25.1	28.9
Some college, no degree	24.5	22.9	22.6	22.9
Associate degree	9.4	11.8	8.7	10.6
Bachelor’s degree	16.5	19.1	18.1	19.7
Graduate or professional degree	5.5	6.5	5.7	5.3
High school graduate or higher	83.9	88.7	80.2	87.3
Bachelor’s degree or higher	22.0	25.6	23.9	25.0

SOURCES: US CENSUS BUREAU, 2005-2009 AMERICAN COMMUNITY SURVEY. US CENSUS BUREAU, 2000 CENSUS

Figure 3-19: Educational Attainment for Population 25 and Over in Dickinson



SOURCES: US CENSUS BUREAU, 2005-2009 AMERICAN COMMUNITY SURVEY, 2012



Educational attainment is an important factor to consider when looking at the types of current job openings as well as jobs forecasted to grow. A snapshot of job openings from August 2012 shows a majority of available jobs (52.4 percent) require a high school diploma as a minimum. When considering the generally high wages of the county, it is reasonable to assume many residents are finding high-paying jobs in occupations that do not require a college degree.

A comparison of Table 3-27 and Table 3-28 shows the population of Dickinson is generally well-matched with available jobs in terms of education. A majority of jobs require a high school diploma, and most residents age 25 and over (87.3 percent) meet this requirement. Of available jobs, 12.8 percent require a Bachelor’s Degree and 19.7 percent of residents meet this requirement. Of available jobs, 1.1 percent require a Master’s Degree and 5.3 percent of residents are qualified for these jobs.

Table 3-28: Educational Requirements of Job Openings in Stark County, August 2012

Minimum Education Level	Job Openings	Percent
Not Specified	781	33
No Minimum Education Requirement	131	23.6
High School Diploma or Equivalent	291	52.4
1 year of College or Technical or Vocational School	7	1.3
2 years of College or Technical or Vocational School	12	2.2
3 years of College or Technical or Vocational School	4	0.7
Vocational School Certificate	6	1.1
Associate’s Degree	27	4.9
Bachelor’s Degree	71	12.8
Master’s Degree	6	1.1

SOURCE: JOB SERVICE NORTH DAKOTA, LABOR MARKET SERVICES, AUGUST 9 2012

Workforce Development

The **Workforce Development Division of the North Dakota Department of Commerce** and the **Workforce Development Council** are mandated to increase the quality of the state’s workforce. The organizations helped to create the North Dakota Talent Initiative, of which are three major goals:

- Increase the quantity and quality of North Dakota’s workforce. Integrate soft skills, cultural diversity and work readiness into all education and training offerings.
- Transition from a workforce to a talent force through a workforce improvement focus. Adopt a life-long learning model with the opportunity to continually train up.
- Reduce unemployment in counties and areas of the state with current unemployment above the state average.



The Workforce Development Division administers and promotes numerous grant and training programs to assist with improving the education and skills of the state’s workforce. The Workforce Enhancement Grant provides funding to local colleges to create training programs that address a critical workforce shortage. The Division also promotes programs that keep young skilled workers in North Dakota, such as local apprenticeship programs and Youth Forward, which is aimed at connecting workers age 14-24 with jobs within the state. More information about the North Dakota Talent Initiative and Workforce Development can be found at <http://www.workforce.nd.gov/programs/initiatives/>.

Job Service North Dakota maintains workforce information that is intended to help connect employers with job seekers possessing necessary skills. They also maintain a database of apprenticeship opportunities, job openings and job fairs within the state. The Job Service operates an office in Dickinson to assist local businesses and job seekers. More information can be found at the office’s website, <http://jobsnd.com/location/dickinson>.



The **North Dakota Center for Distance Education** provides accredited distance learning courses for middle school and high school students. It can be used to assist middle school and high school students with supplemental coursework, and can also provide comprehensive instruction for students not attending a local public school. The courses can be applied toward a high school diploma and will meet entrance requirements for most universities. More information can be found at www.ndcde.org.



Objectives and Recommended Policies

The vision for Dickinson’s economic development policy, as identified in Chapter 1, is to “promote a sustainable economic future for the city by maintaining a diversified local economy, enhancing the quality of place and establishing a highly qualified workforce.” The objectives and recommended policies provide a roadmap for achieving this vision.

Objective 1: Increase private and city investment in the downtown area to reestablish the downtown as the civic center of the city.

Policy 1.1. – The City should consider funding downtown streetscape improvements to stimulate private investment, and pursue grant opportunities to fund streetscape projects.

Policy 1.2. – The City shall actively promote the Renaissance Zone, and determine if the city and investment community are interested in establishing a Renaissance Fund Organization (RFO). The purpose of a RFO is to raise funds to be used to make investments (e.g. equity investments, loans, guarantees, commitments for funding, etc.) in Renaissance Zone properties.

Policy 1.3. – The City should consider providing financial (fee waivers, revolving loan, grants, etc.) and/or regulatory incentives to increase participation in the Renaissance Zone program.

Policy 1.4. – Provide technical assistance with Renaissance Zone applications.

Policy 1.5. – Prepare a downtown revitalization plan; upon completion of the revitalization plan consider the establishment of downtown manager position to implement the plan. Objectives of the plan should include, but not be limited to, investigating the need, feasibility and cost of:

- Structure parking
- TIF district
- Special assessment district
- Renewed focus on Renaissance Zone

Policy 1.6. – Consistent with Land Use Policy 4.11, the City should consider relocating the Memorial Park band shell to a recommended downtown public gathering place and acquire and renovate the downtown train depot for civic uses.

Policy 1.7. – To reinforce the downtown role as the civic center of the community, the City shall coordinate with Stark County



in locating the new social services building and other county buildings in the downtown.

Objective 2: Support establishment of start-up businesses, and promote retention and expansion of existing businesses.

Policy 2.1. – Promote development of affordable housing to accommodate the housing needs of service sector workers. Consider grant or loan opportunities with the Department of Commerce, Bank of North Dakota and USDA Rural Development.

Policy 2.2. – Establish a capital improvement program to facilitate planning for infrastructure improvements and expansions to accommodate development of new business or expansion of existing businesses in the community.

Policy 2.3. – Support establishment of a business incubator to support small business start-ups.

Policy 2.4. – Create a job skills training program for local residents and new graduates based on the skills local employers are requesting. The Rural Business Enterprise Grant (RBEG) from USDA Rural Development is a potential source of funding for adult training courses.

Policy 2.5. – Recognize the Dickinson Theodore Roosevelt Regional Airport as a gateway to the community, coordinate with the airport authority to enhance airport amenities and facilities.

Policy 2.6. – Financially and administratively support airport expansion so passengers can benefit from increased capacity and reduced airfare costs.

Policy 2.7. – Continue to maintain the city’s conservative fiscal policy concerning bonded debt and the maintenance of capital reserves in the Dickinson Future Fund while at the same time recognizing the prudent issuance of bonds may be required to make growth-related investments in the community.

Policy 2.8. – Provide funding for a grant writer to support implementation of policies in this and other chapters of the comprehensive plan.

Objective 3: Promote expansion of the commercial retail base of the economy at desired locations.

Policy 3.1. – Establish a future land use policy to encourage development of commercial retail uses at strategic locations such as within walking distance of DSU, in the downtown to support existing professional service businesses and within planned residential areas to provide convenient access to retail businesses.

Objective 4: Continue to promote the city of Dickinson as a tourism destination.

Policy 4.1. – Develop wayfinding signs with a consistent design to direct visitors to tourist destinations.

Policy 4.2. – Pursue tourism expansion, marketing and event grants through the North Dakota Department of Commerce.

Policy 4.3. – Provide increased support for lobbying efforts to remove the state’s tax exemption for hotel/motel stays longer than 30 days.



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Land Use

Chapter 4

Introduction

The city of Dickinson’s ability to grow in a sustainable manner is vital for its future. Sustainable growth will generate more housing options and employment opportunities for its residents and provide the city with additional revenue to maintain and enhance city services. Sustainable growth will allow the City to more efficiently deliver city services and enhance the quality of life in the community.

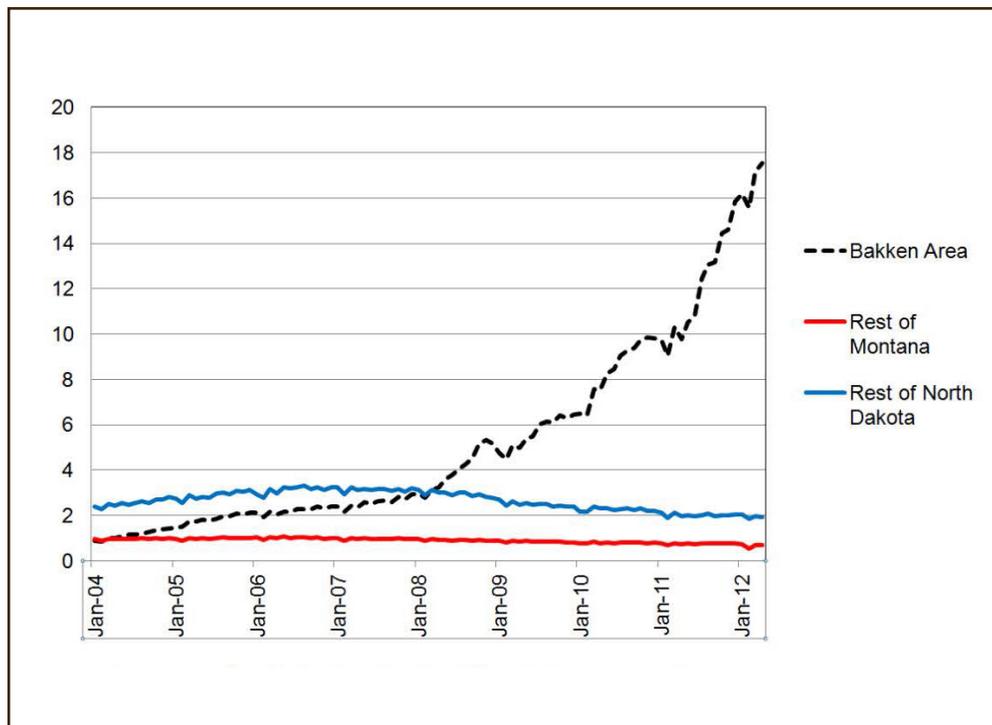
To achieve a sustainable growth pattern a community must plan for future land uses. The location, timing and type of future development will have a significant bearing on the cost of expanding and maintaining infrastructure, the level of service on city streets and State highways and the cost of providing essential city services. It will also impact the growth pattern that greatly influences both the community’s quality of life and quality of place.

In addition to guiding the location, timing and type of future growth, land use planning is also a means of enhancing the quality of future development. Land use policy can positively influence the quality of the built environment. Effective land use policy can address issues such as the relationship between adjacent uses and design to promote high quality development.

Growth Pressures

Rapid development of the Bakken/Three Forks formation has generated strong growth pressures on communities throughout western North Dakota, including the city of Dickinson. As shown in Figure 4-1, rapid development of the formation began in 2008 and has continued unabated to the present.

Figure 4-1: Oil Production, Millions of Barrels per Month



SOURCE: NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES, OIL AND GAS DIVISION



The oil play has generated a tremendous influx of new residents and temporary energy sector workers into the city and the region. Based on US Census data permanent population in the city increased from 15,969 in 2008 to 17,787, in 2010, representing an 11.4 percent increase, in two years. Based on the number of building permits issued since the 2010 Census and an estimate of the number of temporary residents, NDSU estimated the total mid-2012 city population was 24,142. As such, the city’s population increased by more than fifty percent between 2008 and mid-2012. By any measure, the city has experienced an extraordinary growth rate over the past five years. As is presented in a later section of this chapter, the growth pressures experienced by the city are expected to continue for the next 10 to 15 years until the well development phase of the oil play subsides.

Table 4-1 shows the total year-end assessed valuation of all residential and commercial properties in the city between 2006 and 2011. The total assessed valuation of all properties in the city increased from \$608 million in 2006 to more than \$1 billion in 2011, representing a 68 percent increase in total assessed valuation in the six-year period. It is important to note increased total assessed valuation is attributed to new development as well as the dramatic increase in the value of real estate in the city.

More detailed information is provided in the Recent Land Use/Development Trends section of the chapter.

Table 4-1: Total Assessed Valuation for Residential and Commercial Properties, City of Dickinson, 2006-2011

Year	Residential Properties		Commerical Properties		Total	
	Valuation (\$ million)	Percent Change	Valuation (\$ million)	Percent Change	Valuation (\$ million)	Percent Change
2006	\$447.0	--	\$161.6	--	\$608.6	--
2007	\$502.9	12.5%	\$175.7	8.7%	\$678.6	11.5%
2008	\$573.0	12.5%	\$185.4	5.5%	\$758.4	11.8%
2009	\$642.0	12.0%	\$199.0	7.3%	\$841.0	10.9%
2010	\$696.0	8.4%	\$212.1	6.6%	\$908.1	8.0%
2011	\$776.3	11.5%	\$247.2	16.5%	\$1,023.5	12.7%

SOURCE: CITY OF DICKINSON ASSESSOR

Land Use Goals

The rapid growth during the past five years has had numerous impacts on the community. Employment opportunities and the housing stock in the city have significantly increased. City revenues from multiple sources have increased dramatically. The rapid growth has also put strain on the community. Even though there have been a significant increase in the number of housing units constructed in the last few years, the availability of housing is not keeping pace with a very strong demand for housing. As a consequence, housing costs have sharply increased and remain high. The price of goods and services has increased due to increased demand and a shortage of specific commercial uses. Travel time and congestion has increased on streets and highways in the city. Businesses are struggling to recruit and retain qualified workers. Many residents report the small town feel of the city is rapidly fading away. Based on these issues and other land use considerations, the land use goals of the comprehensive plan include:

- Effectively manage the location, timing and fiscal impacts of future development.
- Promote and require high quality development in the city.
- Increase the availability of locations for retail commercial development.
- Improve the appearance of the community along major roadways, including I-94, that are community entrances.
- Allow crew camps to meet the demand for temporary worker housing.

- Make downtown Dickinson a vibrant part of the community and contribute to its quality of place by being the primary center for professional business services, civic services and entertainment.
- Provide financial and regulatory incentives for development that successfully achieve the objectives and policies of the comprehensive plan.

Recommended objectives, strategies and policies are provided to achieve each of the land use goals.

Future Land Use Planning

Considerable effort and coordination with City staff and members of the community was devoted to plan future land uses in the study area. The primary land use planning tool to guide future growth is the Future Land Use Map (FLUM). The FLUM designates general future land uses for the entire study area. Land use policy requires consistency with the FLUM. Future development requiring a change in zoning will be required to be consistent with the applicable future land use designation. Policy establishes the ability and procedure to amend the FLUM.

Other Growth Management Tools

Other growth management tools are recommended to promote a sustainable future growth pattern. The tools address the timing or pace of future growth as well as significant capital improvement costs required to accommodate rapid growth. Several recommended financial growth management tools are presented in the Implementation and Capital Improvements Chapters and include:

- Establishment of an Urban Service Area
- A Capital Improvement Program
- Revised Special Assessments, Improvement Districts and Development Impact Fee policies
- An Adequate Public Facilities program
- A Connection Fee program
- Annexation policy
- Annexation and Development Agreements

Some of the above growth management tools are already being used by the City. Others are recommended tools the City should strongly consider to manage fiscal impacts of anticipated growth.

Existing Land Uses

To effectively plan future growth, it is necessary to understand existing land uses and existing land use patterns. Information is needed to plan future land uses that are a logical and compatible extension of an established land use pattern. Figure 4-2 shows the existing land uses within the city's two-mile extra territorial zoning jurisdiction.

A profile of existing land uses within the Extra Territorial Area is shown in Table 4-2. Due to the fact that much of the existing land uses in the extra territorial are rural and agricultural in nature, approximately 4,000 acres, or 13 percent of the total extra territorial area is developed as urban uses.

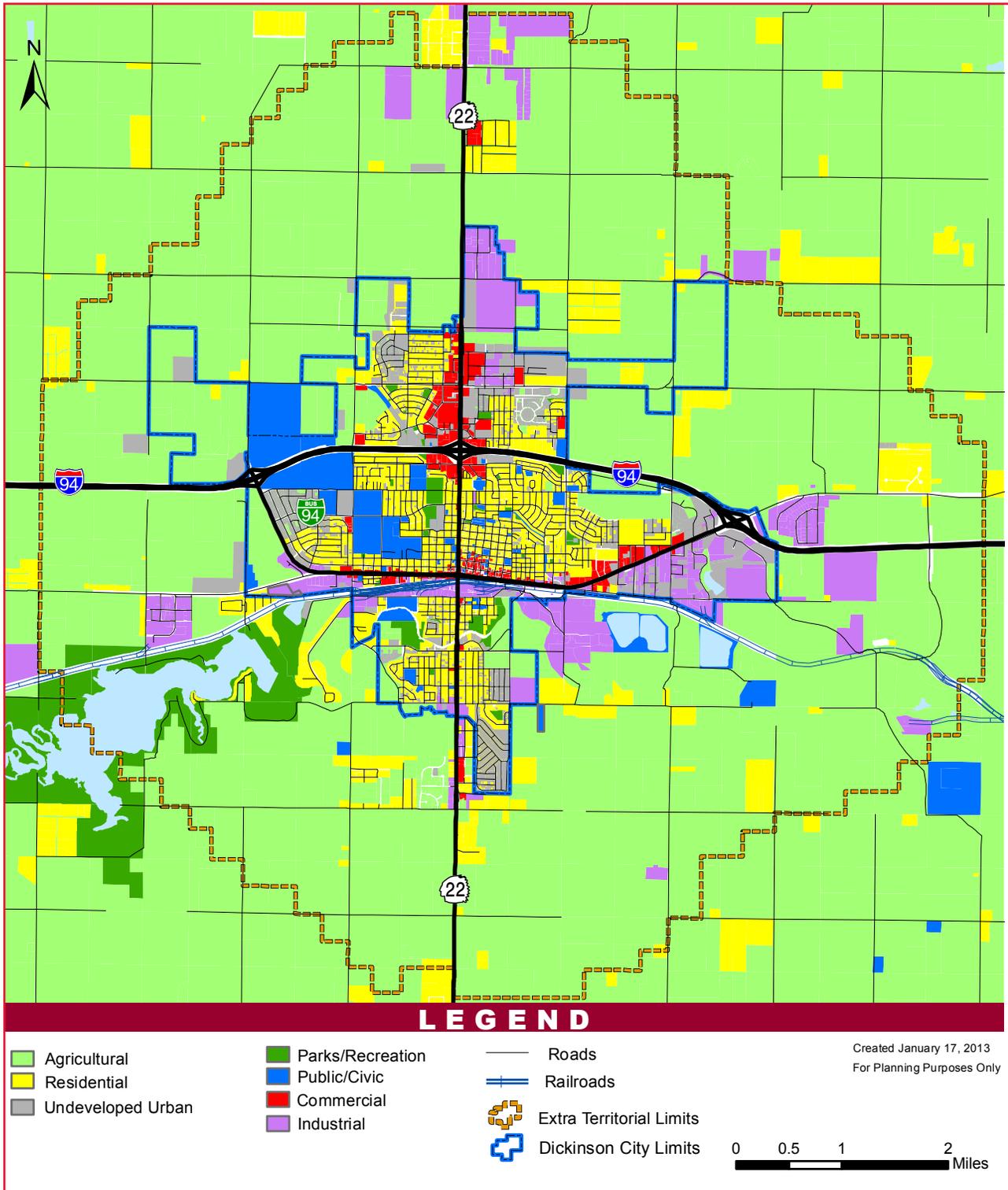


Table 4-2: Profile of Existing Land Uses within the City's Two-Mile Extra Territorial Jurisdiction

Existing Land Uses	Acres	% of Total
Agricultural/Open Space	22,489.6	69.7
Undeveloped	2,036.3	6.3
Residential Single Family	2,971.2	9.2
Residential Multi-Family	144.6	0.4
Residential Mobile Home	100.6	0.3
Parks/Recreation	1,198.7	3.7
Public/Civic	1,190.4	3.7
Commerical	452.2	1.4
Industrial	1,670.9	5.2
Total	32,254.5	100.0

SOURCES: CITY ASSESSOR, INTERPRETATION OF AERIAL PHOTOS AND FIELD OBSERVATIONS INTERPRETATION OF AERIAL PHOTOGRAPHY

Figure 4-2: Existing Land Uses Within the City's Extra Territorial Zoning Jurisdiction, October 2012



SOURCE: KLJ



Figure 4-3 breaks down existing land uses within or immediately adjacent to city limits and Table 4-3 provides a profile of existing land uses shown in Figure 4-3. The existing land use category with the largest land area is underdeveloped land. Undeveloped land is considered land that does not contain an urban use. It should be noted a significant portion of the undeveloped land has been platted and are in subdivisions currently under development. Nearly one-eighth of existing uses are designated as public/civic uses. Dickinson State University property and state-owned experiment farmland is included in this existing land use category. Residential uses account for more than one-fourth of the land area and industrial uses account for over one-sixth of the land area.

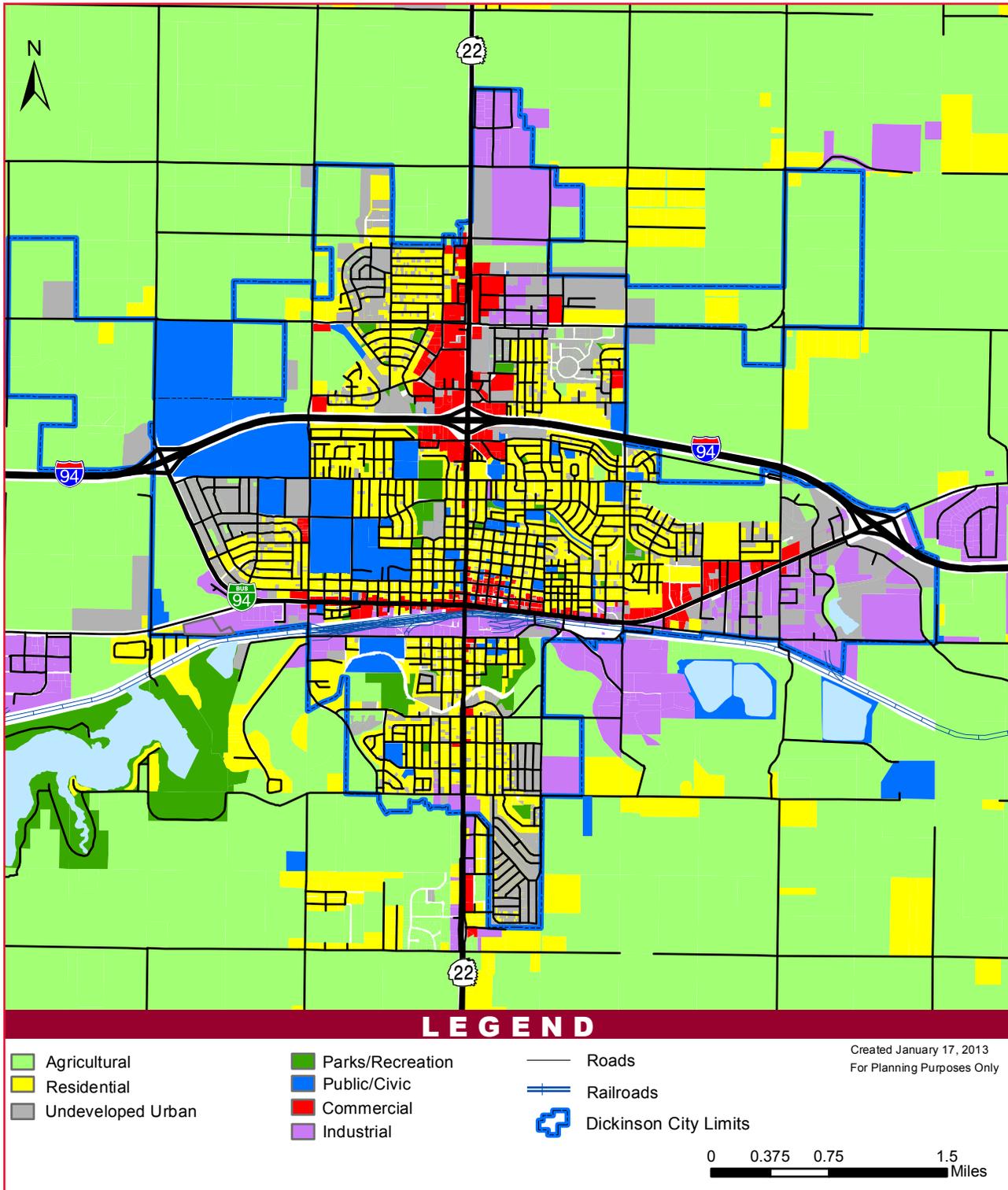
Table 4-3: Profile of Existing Land Uses Within and Immediately Surrounding the City Limits, July 2012

Existing Land Uses	Acres	% of Total
Undeveloped	1,996.3	32.8
Residential Single Family	1,421.3	23.3
Residential Multi-Family	144.6	2.4
Residential Mobile Home	100.6	1.7
Parks/Recreation	161.6	2.7
Public/Civic	766.7	12.6
Commerical	422.2	6.9
Industrial	1,074.5	17.6
Total	6,087.8	100.0

SOURCES: CITY ASSESSOR, INTERPRETATION OF AERIAL PHOTOS AND FIELD OBSERVATIONS INTERPRETATION OF AERIAL PHOTOGRAPHY, NOTE: PUBLIC RIGHT-OF-WAY AREA NOT INCLUDED

As noted above, a significant portion of the undeveloped land in the city is represented by vacant platted lots. Table 4-4 shows the number and size of undeveloped residential lots or tracts in the city. Vacant residential lots or tracts account for more than one-fourth of the undeveloped land in the city. Data in Table 4-4 was used to estimate projected in-fill development during the planning period.

Figure 4-3: Existing Land Uses Within and Immediately Surrounding the City Limits, October 2012



SOURCE: KLI



Table 4-4: Vacant Residential Lots or Tracts by Size

Vacant Residential Lots or Tracts by Size (Square Feet)	Number of Lots or Acreage	Acres
Platted Lots		
Less than 6,000	139 Lots	13.4
6,000-7,000	122 Lots	80.1
7,001-10,500	213 Lots	107.8
10,501-13,000	210 Lots	62.3
13,001-20,000	163 Lots	68.0
Large Platted Lots or Un-Platted Tracts		
Greater than 20,000	241 Acres	241.0
Total	--	572.6

SOURCE: CITY OF DICKINSON ASSESSOR, JUNE 2012

Table 4-5 shows the amount of vacant commercial zoned property within city limits. Nearly all vacant lots are zoned as Community Commercial and General Commercial, resulting in very few vacant lots zoned Downtown Commercial or Limited Commercial. Limited Commercial districts are intended for office use and low-impact commercial facilities that serve nearby residents and are ideally suited for commercial nodes surrounded by residential neighborhoods. The near absence of vacant Downtown Commercial zoned indicates the revitalization of the downtown will need to be based on redevelopment of existing properties.

Table 4-5: Profile of Existing Vacant Commercial Zoned Property in the City Limits

Zoning District	Number of Lots or Parcels	Total Acres
Limited Commercial	8	6.3
Community Commercial	93	80.4
General Commercial	89	85.0
Downtown Commercial	2	0.4
Total	192	172.1

SOURCE: CITY OF DICKINSON ASSESSOR, JUNE 2012

Table 4-6: Profile of Existing Vacant Industrial Zoned Property in the City Limits

Zoning District	Number of Lots or Parcels	Total Acres
Light Industrial	5	4.8
General Industrial	5	58.8
Total	10	63.4

SOURCE: CITY OF DICKINSON ASSESSOR, JUNE 2012

Table 4-7 provides detailed characteristics of existing commercial and industrial property in the city. A total of 660 developed commercial and industrial properties are in the city with a combined total building area of more than 6.3 million square feet. Commercial uses account for nearly 65 percent of the total developed properties and total building area. The land use intensity of both commercial and industrial properties is relatively low. The aggregate building coverage of commercial uses is approximately 25 percent and only 12 percent for industrial uses. Nearly 37 percent of the commercial properties were developed with a building coverage in excess of 50 percent while less than 4 percent of industrial uses were developed at that intensity. The building coverage data provided in Table 4-7 was used in forecasting the square footage of future commercial and industrial development during the planning period.

Table 4-7: Land Use Intensity of Existing Commercial and Industrial Properties, City of Dickinson

<i>Land Use Measurements</i>	<i>Commercial Uses</i>	<i>Industrial Uses</i>	<i>Total</i>
Number of Developed Properties	426	234	660
<i>Percent of Total</i>	64.5%	35.5%	100.0%
Total Square Footage	4,086,450	2,224,396	6,310,846
<i>Percent of Total</i>	64.8%	35.2%	100.0%
Aggregate Building Coverage	25.5%	12.1%	--
% of Properties with Building Coverage over 50%	36.8%	3.4%	--
% of Properties with Building Coverage over 40%	45.1%	8.5%	--
% of Properties with Building Coverage over 30%	62.6%	12.8%	--

SOURCE: CITY OF DICKINSON ASSESSOR, JUNE 2012

Recent Land Use/Development Trends

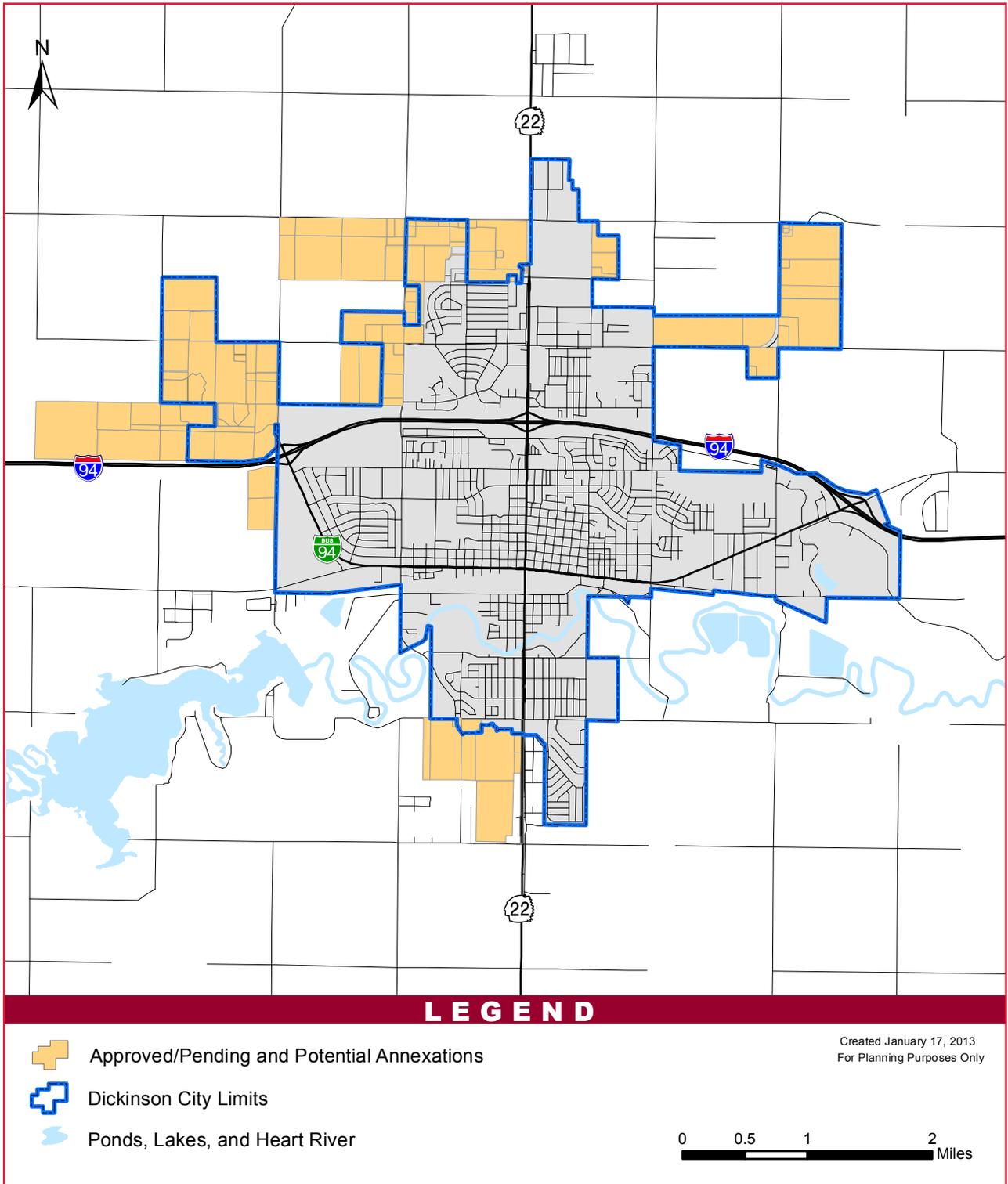
This section examines recent land use and development trends. In summary, the city has experienced a rapid increase in development since 2008. More significant is the unprecedented interest by developers to pursue major development projects. Figure 4-4 shows the location of recently approved, pending and potential annexation requests. The total land area of approved, pending and potential annexation requests is estimated to be 2,717 acres based on Figure 4-4. In comparison, the total area of the city prior to recently approved annexations was 6,088 acres. If all annexations are approved, the area of the city will increase by nearly 45 percent.

Based on information provided by the City planner on expected residential development for both approved and pending annexations, nearly 11,000 housing units will be developed during the planning period when the annexed properties are fully built out. The housing units from annexations alone will double the existing housing stock in the city. In terms of non-residential development, the annexations are estimated to develop 2.9 million square feet of commercial space compared to the city’s existing 4.1 million square feet.

Table 4-8 shows the amount and type of housing units constructed between 2000 and March 2012. Nearly 1,200 housing units were constructed during that period. More than half of the new units were single family detached and more than one-quarter were apartments. During the 12-year period, the mix of housing units changed somewhat. In terms of percent of total housing units, single family detached units dropped by three percentage points while the proportion of duplex, townhouse and apartment units increased.



Figure 4-4: Location of Recently Approved, Pending and Potential Annexation



SOURCE: KLJ

Table 4-8: Type of Housing Units Constructed, City of Dickinson, 2000 and 2012

Housing Type	2000	2000 Percent of Total	Units Constructed 2000-2012	Percent of Total Constructed 2000-2012	March, 2012	2012 Percent of Total
Single Family Detached (SFD)	4,112	72.0%	650	55.2%	4,762	69.0%
Duplex	61	1.1%	111	9.4%	172	2.5%
Townhouse	157	2.7%	98	8.3%	255	3.7%
Apartments	1,263	22.1%	317	27.0%	1,580	23.0%
SFD Converted to Apartments	119	2.1%	0	0.0%	119	1.7%
Total Units	5,712		1,176		6,888	100%

SOURCE: CITY OF DICKINSON ASSESSOR, 2012 HOUSING UNIT DATA PROVIDED MARCH 2012

Tables 4-9 and 4-10 provide city permit data from 2008 to July 2012. Table 4-9 shows the number and types of building permits issued while Table 4-10 shows the valuation of permitted construction. During the 12-year period the number of permits issued increased significantly for all types of construction. Table 4-9 shows that as of July 2012, nearly 400 permits were issued by the City in 2012. However, more recent information provided by the City planner indicates nearly 900 permits were issued in 2012 through September and approximately 600 more permits are expected to be issued by year's end.

Table 4-10 shows a dramatic increase in permit valuations during the four and one-half year period. The total valuation of permitted construction increased from \$41 million in 2008 to \$121.5 million in 2011, representing nearly a threefold increase. The valuation of permitted construction could easily approach \$200 million in 2012.

Table 4-9: Number and Type of Building Permits, City of Dickinson Year End Data 2008-July, 2012

Type	2008		2009		2010		2011		2012	
	No.	Percent Change								
Single Family	82	--	78	-4.9%	141	80.8%	137	-2.8%	363	265.0%
Multi-Family	17	--	14	-17.6%	70	400%	74	5.7%	46	62.2%
Commercial	34	--	25	-26.5%	41	64.0%	41	0.0%	30	73.2%
Total	133	--	117	-12.0%	252	115.4%	252	0.0%	389	154.4%

SOURCE: NORTH DAKOTA ASSOCIATION OF BUILDERS



Table 4-10: Permit Valuation, City of Dickinson Year End Data 2008-July, 2012

Type	2008		2009		2010		2011		2012	
	Valuation (\$ Million)	Percent Change								
Single Family	\$18.3	--	\$16.2	-11.5%	\$30.0	85.2%	\$31.0	3.3%	\$67.4	217.4%
Multi-Family	\$3.2	--	\$2.3	-28.1%	\$18.8	717.4%	\$19.6	4.3%	\$17.5	89.3%
Commercial	\$19.5	--	\$25.5	30.8%	\$22.6	-11.4%	\$71.0	214.2%	\$47.4	66.8%
Total	\$41.0	--	\$43.9	7.1%	\$71.4	62.6%	\$121.5	70.0%	\$132.3	108.9%

SOURCE: NORTH DAKOTA ASSOCIATION OF BUILDERS

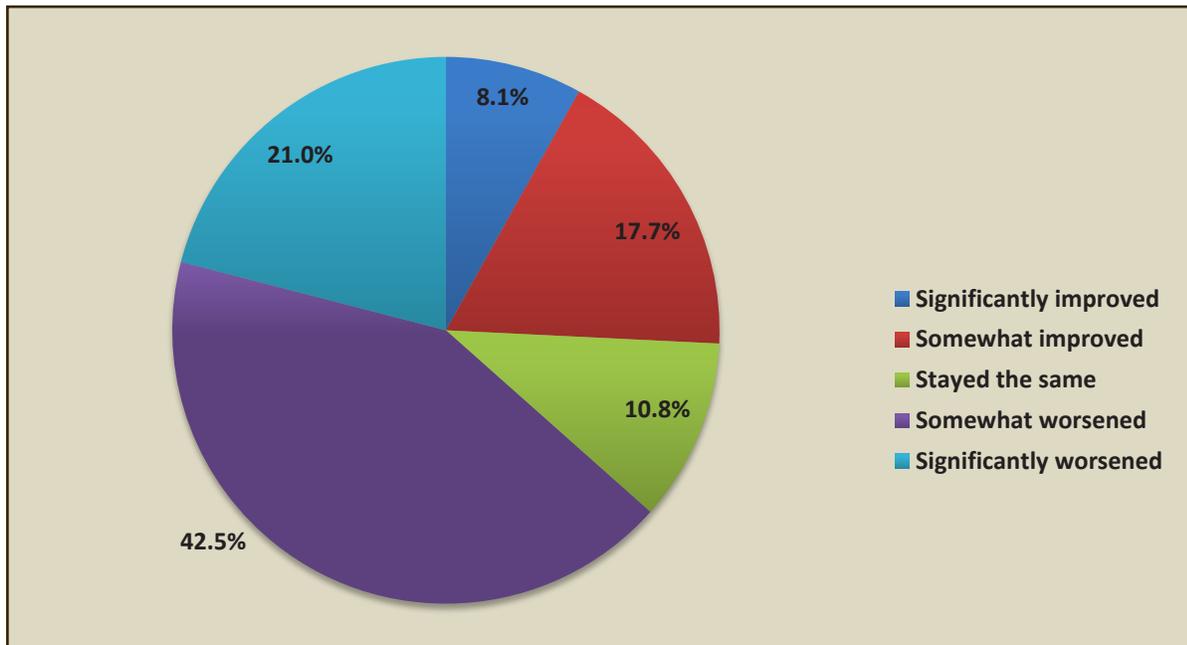
Issues Arising from Development Trends

This section reports on the land use issues arising from recent development trends. Most issues presented were identified by the community through various public involvement activities. Based on existing or emerging land use patterns, several issues were identified by the Consultant Team.

The Pace of Development

It is clear from the information provided in previous sections, the city is currently experiencing and will likely continue to experience a rapid development pace. The following are responses to community survey questions relevant to this issue.

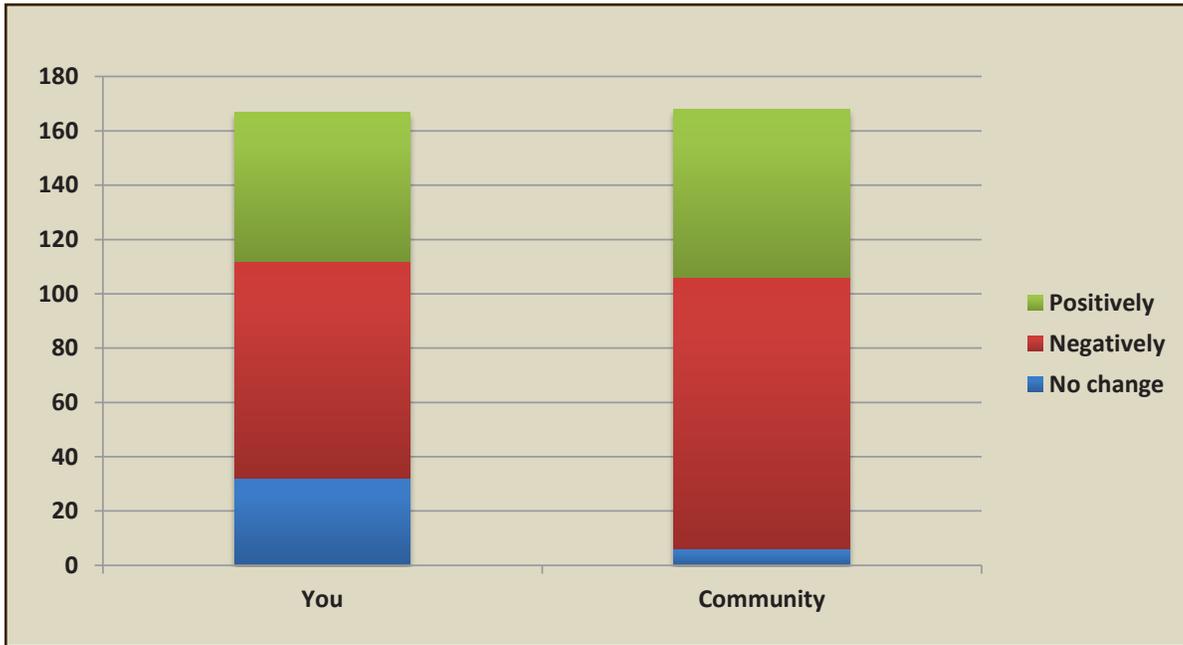
Figure 4-5: Response to the question, "Compared to when you first arrived in the city, has the quality of life:"



SOURCE: COMMUNITY SURVEY NO. 1

More than 63 percent of respondents reported that since they first arrived in the city, the quality of life has either somewhat worsened or significantly worsened, and 21 percent of respondents reported the quality of life has significantly worsened. It is important to note that more than 50 percent of respondents reported they have lived in the city for more than 20 years and over 83 percent reported living in the city 10 or more years.

Figure 4-6: Response to the question, "How has recent growth impacted you and the community?"

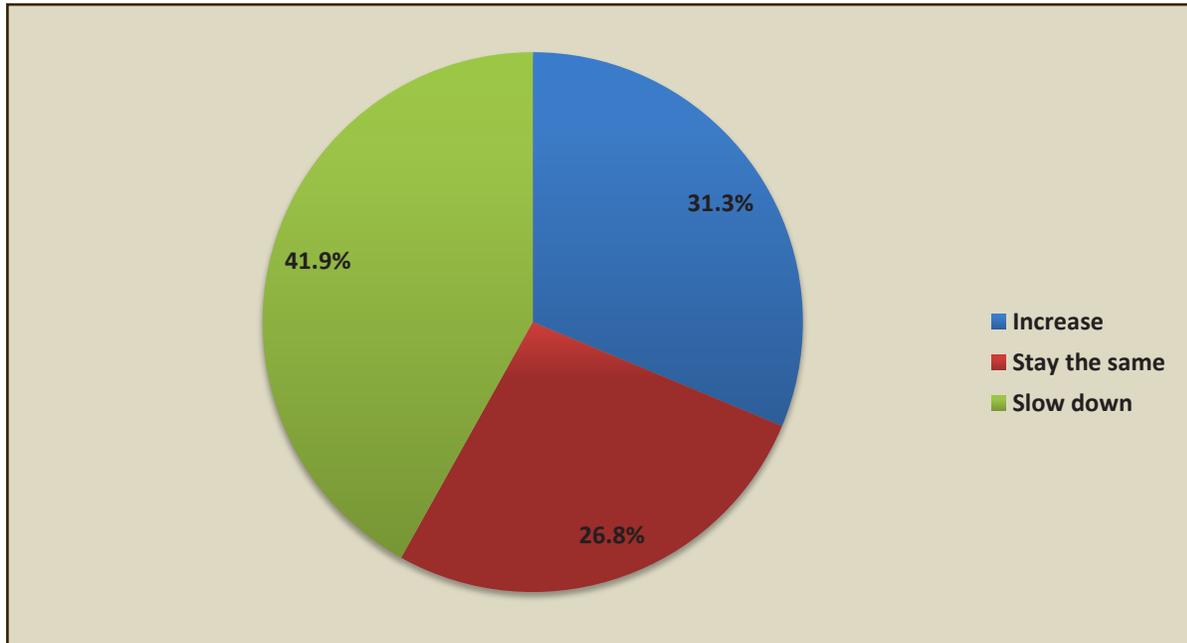


SOURCE: COMMUNITY SURVEY NO. 1

Nearly 50 percent of respondents reported that recent growth has impacted them personally while more than 60 percent reported that recent growth has negatively impacted the community.



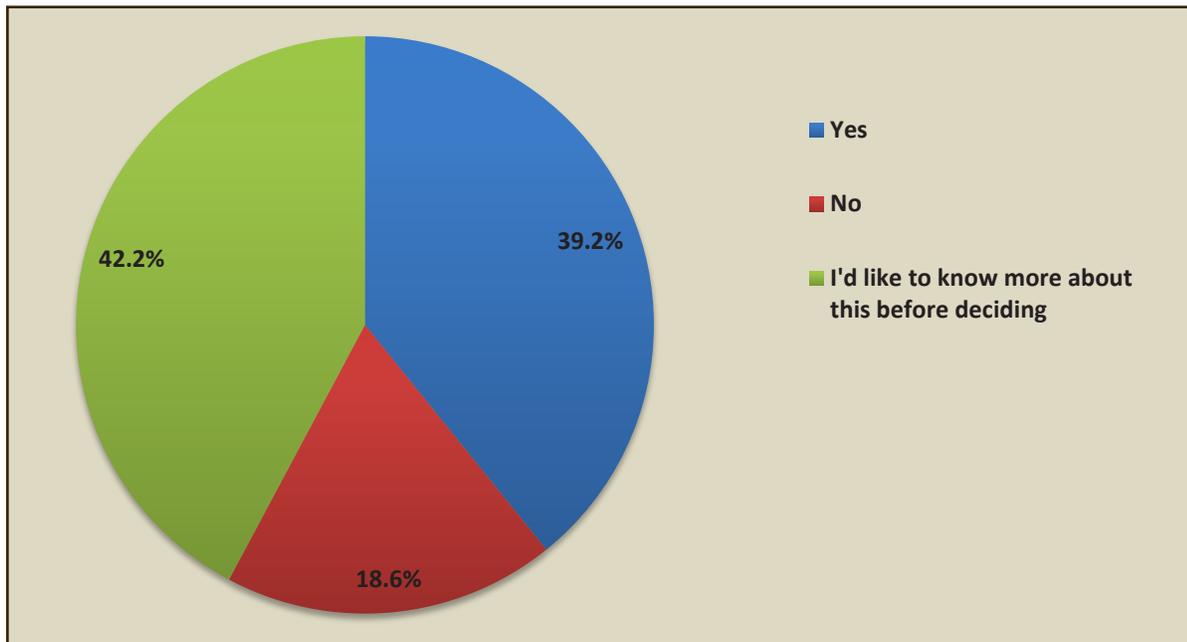
Figure 4-7: Response to the question, "In your opinion, should the pace of growth in the future:"



SOURCE: COMMUNITY SURVEY NO. 1

Nearly 42 percent of respondents reported that the pace of growth in the future should slow down.

Figure 4-8: Response to the question, "Would you like to see the City encourage development within existing city boundaries and discourage development along the fringe of the city, thus reducing infrastructure costs?"



SOURCE: COMMUNITY SURVEY NO. 1

Only less than one-fifth of respondents rejected the idea of encouraging development within the existing city limits and discourage development along the fringe of the city to reduce infrastructure cost.

Based on the community's responses to the above survey questions, it appears the shared perception of a significant population segment is the recent rapid growth has negative impact on the community and there is a sentiment the pace should slow down. However, based on the strong market forces being exerted on the community, the city is expected to experience continued rapid growth into the foreseeable future. The challenge for the City is to effectively manage the future growth to ensure impacts are mitigated to the greatest extent possible and moving forward a high quality of life is maintained.

Revitalize Downtown

In the early stages of North Dakota's development, cities were built along the railroad, and downtowns were the business and civic hubs of communities. Typically, as a city grows, new commercial centers are developed at the intersection of major highway corridors. Eventually, the new automobile-oriented commercial centers become a community's new commercial hub and the downtown area experiences a protracted period of stagnation or decline. The city of Dickinson's downtown has undergone this evolution.

A series of community survey questions were devoted to the downtown. Approximately 10 percent of respondents reported they did most of their shopping downtown. When asked what would increase their patronage of downtown businesses, a variety of measures were supported by the respondents. Most noteworthy was less than 8 percent of respondents reported nothing would change their shopping habits. By implication, more than 90 percent of respondents indicated their patronage of downtown business would increase if adequate measures were implemented. In another community survey, 40 percent of respondents reported much attention should be devoted to downtown revitalization and 80 percent reported that much or some attention should be devoted to the subject.

Downtown is not geographically defined, particularly along Villard Street. Figures 4-9 and 4-10 illustrate the issue. Figure 4-9 shows strip commercial just a few blocks for the downtown area and Figure 4-10 shows buildings along Villard Street representative of a downtown setting. With the Downtown Visioning project currently underway, the city should geographically define the limits of the downtown core, particularly along Villard Street, establish policies and regulations and provide public improvements that accentuate the boundary of the core downtown area.



Figure 4-9: Villard Street Looking West, Approximately One Mile West of Downtown



Figure 4-10: Downtown Retail on Villard Street



The downtown core area is much more defined north of Villard Street with building intensities and design that “fit” a downtown setting. Figure 4-11 shows a section of the downtown two blocks immediately north of Villard Street. Also noteworthy is the pedestrian-friendly environment with street trees, a wide sidewalk and on-street parking that creates a buffer between pedestrians and traffic on the street.

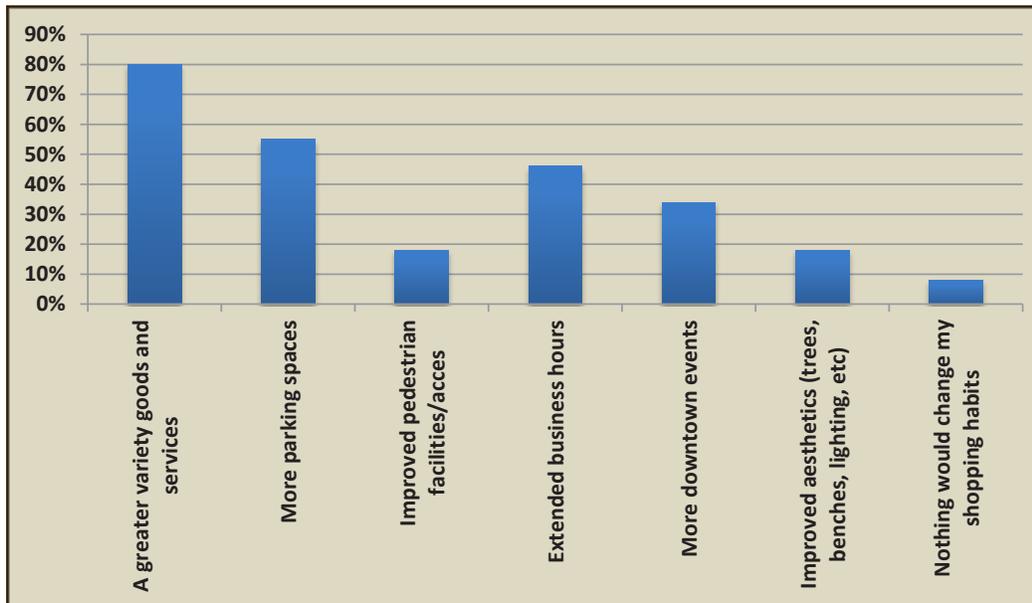
Figure 4-11: Downtown Setting on 1st Street W



Upon completion of the Downtown Visioning project, the City should consider two follow-up studies to support the revitalization of the downtown. The first should be a downtown master plan that identifies specific redevelopment opportunities and strategies and capital improvements that would enhance the downtown’s quality of place. A community survey question asked what would increase patronage of downtown businesses. Figure 4-12 shows the response to a variety of strategies to increase downtown business activity.



Figure 4-12: “What would increase your patronage of downtown businesses?”



SOURCE: COMMUNITY SURVEY NO. 1

Having a greater variety of goods and services was the most favored strategy. More parking spaces, extended business hours and more downtown events were other strategies that received high ranking. Response to the community survey question provides a starting point for developing policies and programs to increase downtown activity.

Other strategies contained in the land use objectives and policies include:

- Establishing a downtown capital improvement fund in the Capital Improvement Program.
- More actively promoting the Renaissance Zone and make potential participants aware of the state tax credits and local property tax exemption that are available for eligible projects.
- Establish a Tax Increment Finance District in the downtown area as a means for funding downtown improvements that will stimulate redevelopment activities.
- Consider establishing a Business Improvement District, funded by an assessment on downtown businesses, to make downtown public investments. The funds could also be used to hire a downtown manager who would be responsible for administering all downtown redevelopment programs..
- Consider establishing a no interest revolving loan fund for façade and other improvements.

Another important strategy to support downtown revitalization is to promote more housing downtown. New housing should only be allowed above ground floor non-residential uses to preserve the character of downtown. Downtown residents are more likely than other residents to patronize downtown businesses. As noted in a later section of the chapter, a Downtown Mixed Use Overlay FLUM designation is recommended, in part, to increase the number of downtown housing units.

Another important strategy to promote downtown housing is to preserve and protect existing downtown areas. Non-residential uses should not be allowed to encroach into established downtown neighborhoods.

Strategy: Avoid strip industrial development; improve the appearance of gateways to the community.

The impression of a first-time visitor to the city is the physical appearance of the primary roadway entrances into the city. An important objective of the Land Use Chapter is to enhance the visual appearance of community gateways. Figures 4-13 through 4-16 show images of the four primary gateway entrances to the community.

Figure 4-13: East Gateway along Interstate 94



Figure 4-14: North Gateway along Highway 22





Figure 4-15: South Gateway near Highway 22



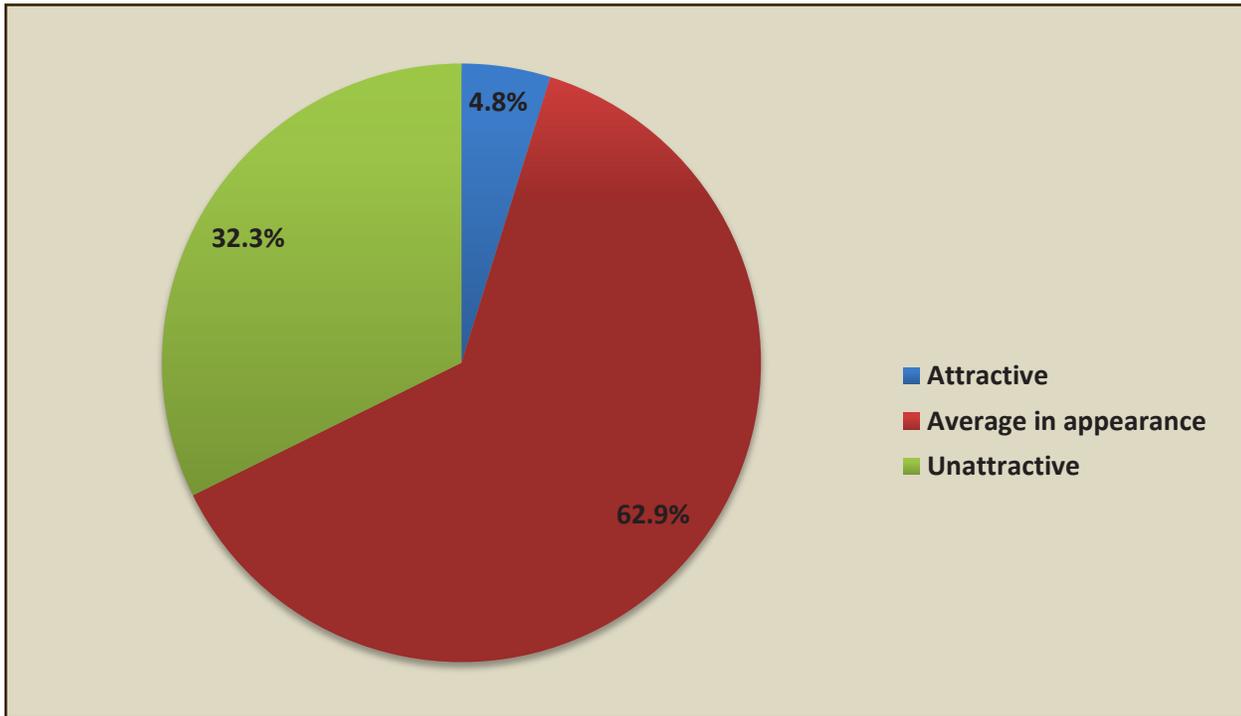
Figure 4-16: West Gateway along Interstate 94



Based on the above images of gateway entrances to the community, the City should focus efforts to enhance the appearance of the east, north and south gateways and proactively control the appearance of the west gateway as the area develops.

Based on the community survey results, it appears the community strongly supports the objective as well as specific policies to implement the objective. Figure 4-17 shows that less than five percent of respondents reported existing community gateways are attractive and nearly one-third of respondents viewed the gateways as unattractive.

Figure 4-17: Response to the question, “How would you describe the appearance of main entrances (gateways) in the city?”

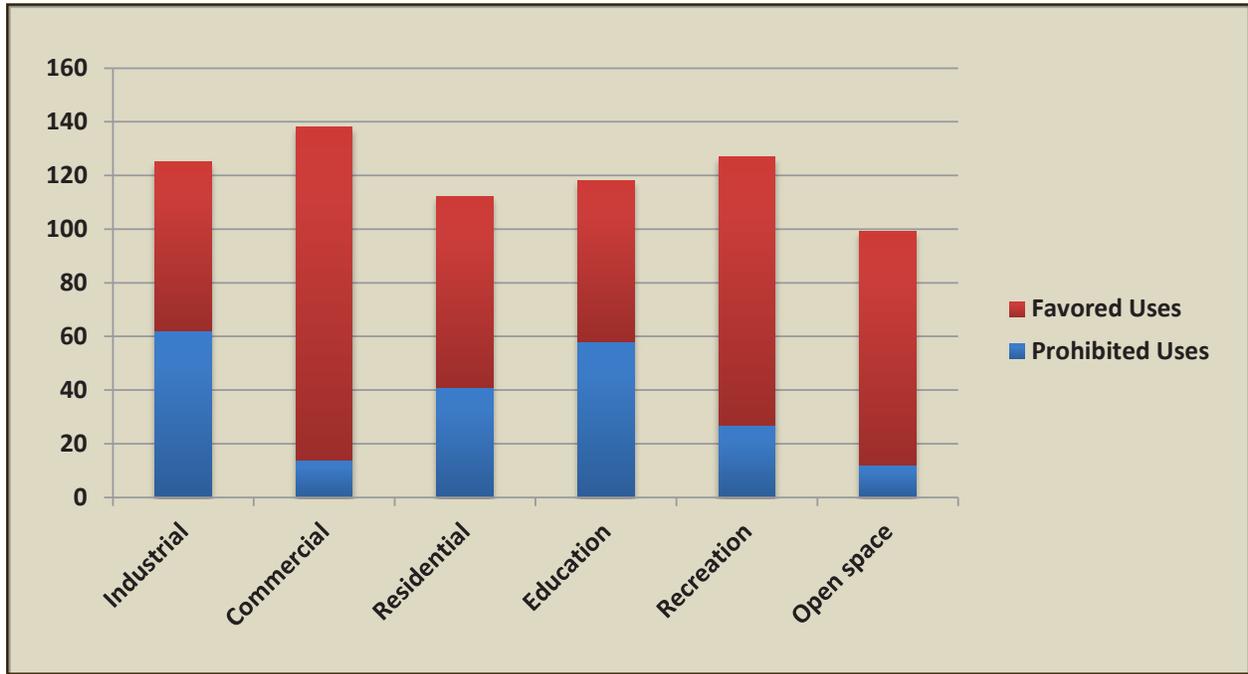


SOURCE: COMMUNITY SURVEY NO. 1

Land use policy recommends industrial uses not be located along community gateway and preferred development includes commercial and residential uses. The community survey results support the policy. As seen in Figure 4-18, one-half of respondents favored prohibiting industrial uses along gateway roadways, while 90 percent supported commercial uses and 64 percent support residential uses. A follow-up question in Community Survey 2 showed support for commercial and higher density FLUM designations along community gateways. As seen in Figure 4-19, more than one-half of respondents supported this land use planning approach.

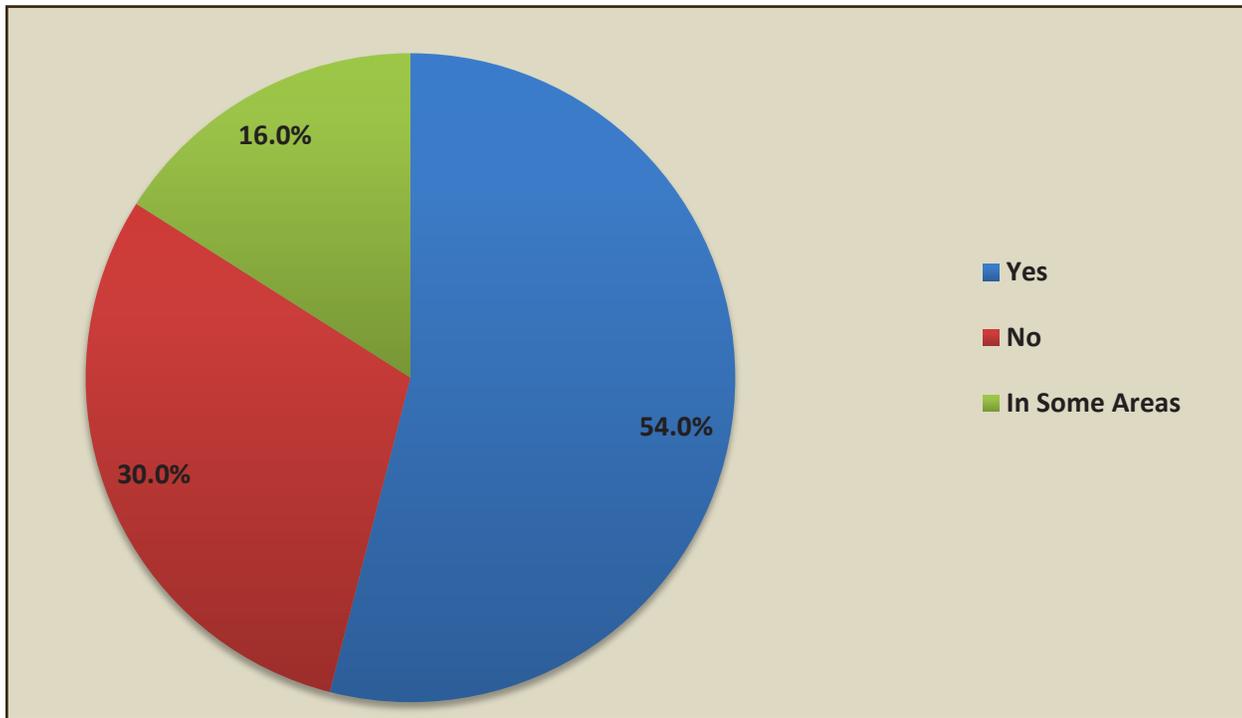


Figure 4-18: Response to the question, “What uses would you like to see along gateway corridors (Hwy 22, I-94 Business Loop, etc.) and what uses should be prohibited?”



SOURCE: COMMUNITY SURVEY NO. 1

Figure 4-19: Response to the question, “Should the future land use map minimize industrial development along gateway corridors (Hwy 22, Villard, I-94 Business Loop) and encourage commercial uses and higher density residential (apartments/townhomes) fronting major streets?”



SOURCE: COMMUNITY SURVEY NO. 2

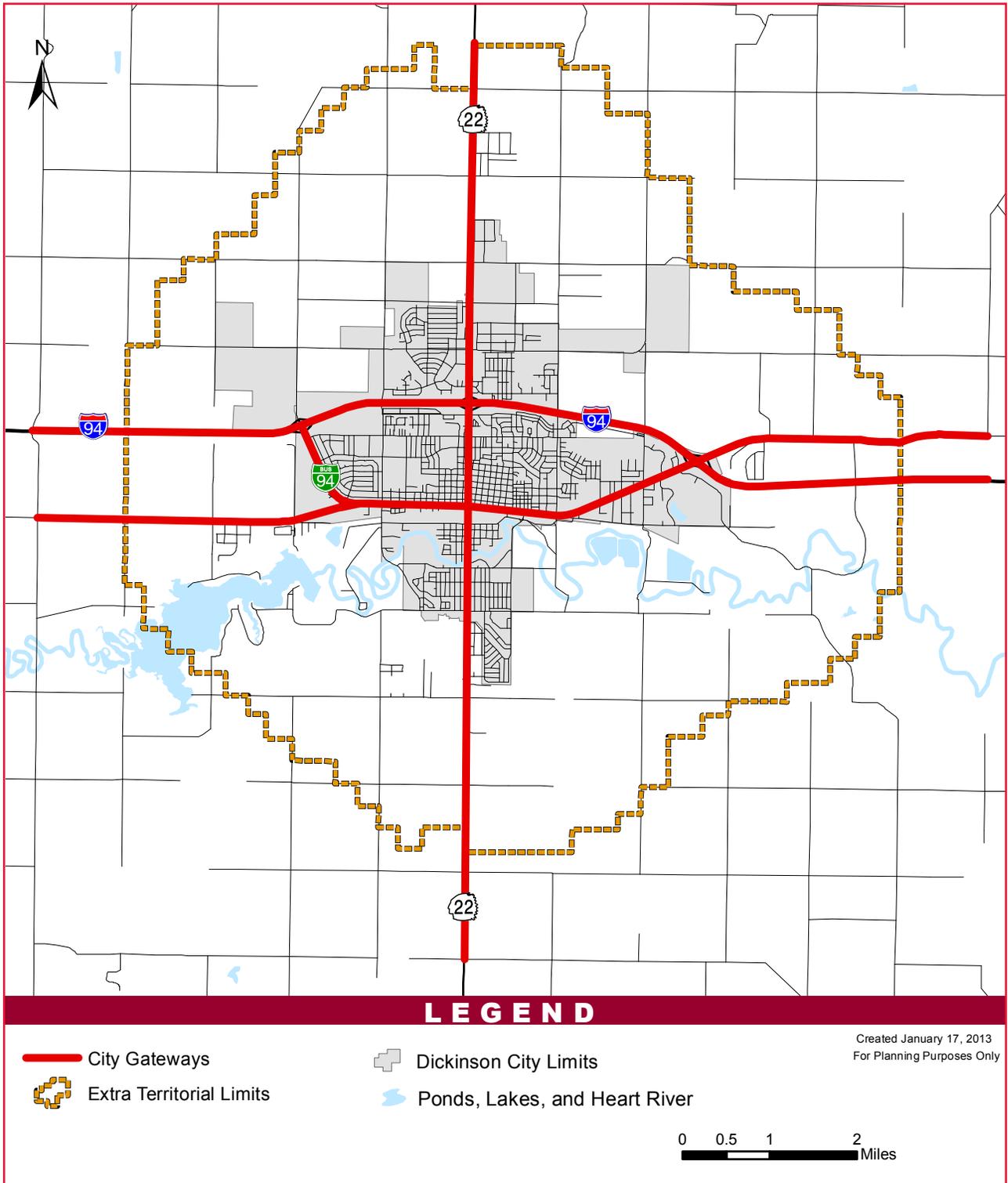
The City has recently adopted Corridor Overlay District zoning standards to enhance the appearance of development along major roadways. The standards regulate non-single family structures and non-residential structures, and site improvement along the first 300 feet from the right-of-way of eight major roadways in the city. The standards regulate building materials and design, and several site design features. The Corridor Overlay District will have a positive impact on the quality of development along the community gateways as well as other major roadways.

The City should consider amending the Corridor Overlay District to address the following topics that could serve to enhance the quality and appearance of development along the community gateways shown in Figure 4-20.

- Extend the geographic limits of the standards to at least 500 feet or by applying the standards to the entire property that fronts a designed roadway.
- Enhance the building/parking orientation standards to minimize the amount of off-street parking in front of buildings.
- Add outdoor lighting standards to avoid direct lighting extending to abutting properties or rights-of-way.
- Reduce the size and number of free-standing signs and add controls to avoid unwanted types of sign illumination. The preferred type of sign would be monument sign with a maximum height of approximately six feet.



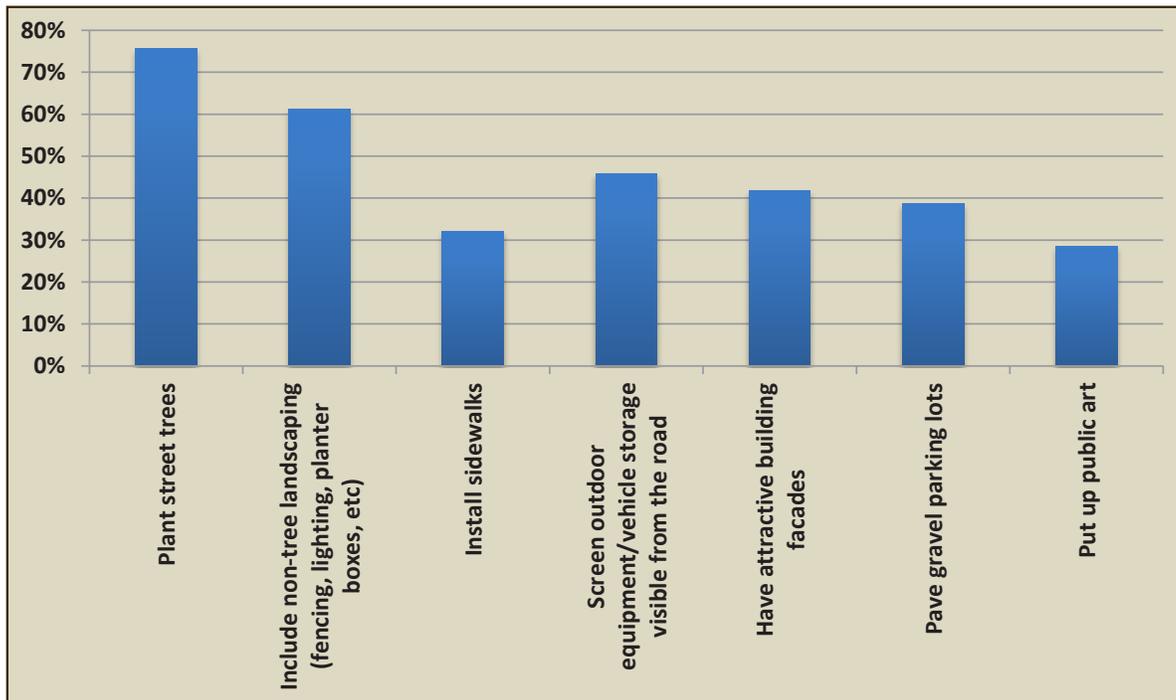
Figure 4-20: Location of Community Gateway Entrances to the City of Dickinson



SOURCE: KLJ

Figure 4-21 shows the results of a community survey question addressing various measures used to improve the appearance of community gateways. Various types of landscaping improvements were most supported by respondents. Landscape enhancements can be provided by the state within the right-of-way and by developers/builders as part of development projects. The screening of outdoor storage of equipment and vehicles was also supported by survey respondents.

Figure 4-21: Response to the question, “What should be done to improve the attractiveness of major entrances (gateways) into Dickinson?”



SOURCE: COMMUNITY SURVEY NO. 1

Lack of a Variety of Retail Uses

While not quantified by the community surveys, participants at public input meetings often cited the lack of a variety of retail businesses as a major concern. The limited supply of specific business types has resulted in price increases and in some cases a limited supply of goods to purchase. Community members reported they travel nearly 100 miles to Bismarck to shop.

Retail business development is largely driven by the private market. However, the city can facilitate retail commercial business that a sufficient amount of land is zoned and planned for such purposes. The FLUM provides ample area for the development of community and neighborhood commercial centers.

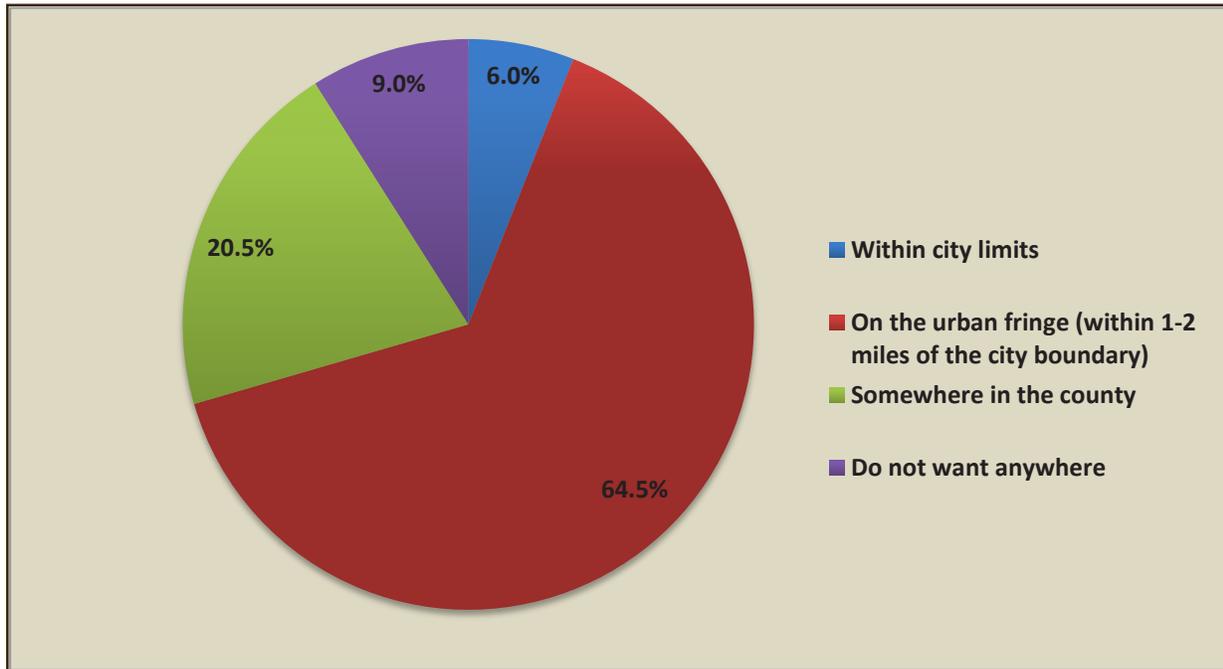
Allow Crew Camps to Reduce Demand for Apartments

As discussed in the Housing chapter, the city has experienced a significant influx of temporary oil sector employees. The temporary workers are putting stress on an already constrained rental housing market. Development of a crew camp in or near the city would help alleviate the situation. However, as noted in Chapter 3, the demand for temporary workers is expected to peak in 2014, gradually decrease for the next 10 years and thereafter drop significantly. While temporary worker housing in the community would benefit the rental housing market, the projected decrease in the demand for temporary worker housing will soon lessen the importance of providing large numbers of temporary worker housing in the city.



A central community concern is location of a temporary housing facility. Figure 4-22 shows the results of responses to a community survey question regarding crew camp locations. Eighty-five percent of respondents reported crew camps should be located outside the city. Land use policy is provided to specify appropriate locations for crew camps in the city. Revenue sharing policy is also provided to address city service costs if a crew camp facility is located in Stark County.

Figure 4-22: Response to the question, “Where should crew camp housing facilities be located?”



SOURCE: COMMUNITY SURVEY NO. 1

Financial Responsibility for Infrastructure of New Development

An important aspect of land use planning and growth management is the assignment of financial responsibility for infrastructure that serves new development. Policies that specify such financial responsibilities will support a short-term and long-term sustainable growth pattern. A funding strategy matrix provided in the Capital Improvement Chapter provides a general framework of how development-related capital improvement should be funded.

Land Use Compatibility

One primary purpose of zoning and land use planning is to minimize and mitigate incompatible land development patterns. Zoning was originally established to protect neighborhoods from nuisance-generating land uses. Examples of incompatible adjacent land uses exist today as shown in Figures 4-23 and 4-24.

Figure 4-23: Incompatible Adjacent Land Uses



Figure 4-24: Incompatible Adjacent Land Uses



Several land use policies are provided to avoid, minimize or mitigate land use incompatibilities such as those shown above.

Quality Development

The physical design characteristics of the built environment have significant influence in determining the quality of place. High quality design is often the goal of a developer or builder. Figures 4-25 and 4-26 provide examples of well-designed, high quality development in the city.

Figure 4-25: High Quality Development





Figure 4-26: High Quality Development



When design is not a priority for a development project, the community as a whole is impacted. Several land use policies are provided to enhance the appearance of all development types.

Strategy: Evaluate and update residential and non-residential design standards.

Strategy: Consider creating incentives to attain desired commercial building features.

Mixed Use Development

Mixed use development is the use of a building, group of buildings or neighborhood for more than one purpose or land use. It is a popular planning technique that provides an alternative to the traditional single-use form of development. Place-making can be achieved by a well-designed mixed use development of more than one building. One primary objective of mixed use development is to provide commercial services in close proximity to residential areas to provide shorter, more convenient vehicular or pedestrian trips for purchases of goods and services.

Traditionally, cities first developed as mixed use communities. Figure 4-27 shows an example of existing mixed use buildings in the city and Figure 4-28 shows an example of a more intensive form of mixed use development.

Figure 4-27: Downtown Mixed Use Development



With the advent of zoning, mixed use development was largely abandoned in favor of single-use development districts. However, in recent decades the benefits of mixed use development has been recognized as a viable alternative to single-use development.

Mixed use development need not be reserved for downtown areas nor does the mix of uses need to provide different uses on separate building floors. Mixed use development can also be achieved by physically separating different uses within a development site.

To promote mixed use development in the city, the FLUM includes a mixed use designation and a mixed use overlay designation for the downtown area. Land use policies are provided to support implementation of the two FLUM mixed use designations.

Potential Unsafe Development Areas

It is common planning practice to prohibit development in a FEMA designated floodway to avoid the loss of property or life. A less well-known hazard in the community is several abandoned mines located in the southeast sector just outside of town. Figure 4-29 shows the location of known abandoned underground mine sites within four miles of Dickinson.

Since abandonment of the mines, several sinkholes have formed over abandoned underground mines. Given the risks of subsidence and sinkholes, development of land in the known mine area should be carefully regulated. The City should consider establishing a Mining Overlay Zoning District consistent with the delineation of known abandoned underground mines shown in Figure 4-28. The primary propose of the overlay district would be to require geological testing prior to final plat or site plan approval to determine if a property is located under an abandoned mine, and if so, assess the risk to constructing a structure over the abandoned mine.

Forecasted Residential Development

The forecasted demand for development during the planning period was based on employment, housing and population forecasted provided by NDSU. Detailed information regarding the forecast modeling conducted by NDSU can be found in Chapter 2 and Appendix F. The section describes how city-wide housing forecasts were used to forecast different future housing development categories as well as forecasts for the amount of commercial and industrial development.

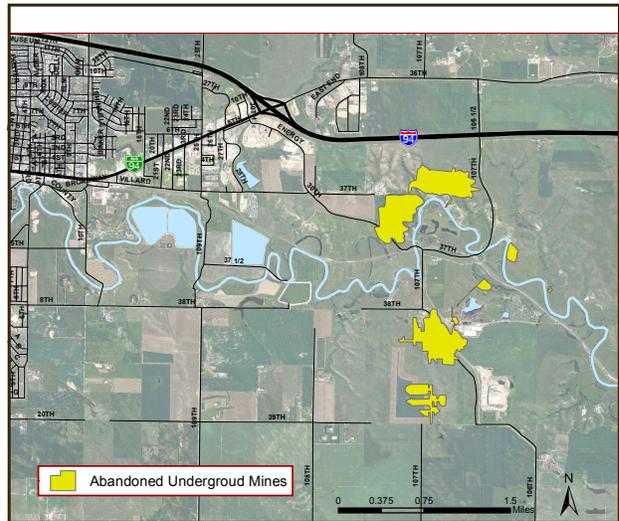
Forecasted Demand for Housing

NDSU housing demand forecasts for the city included total housing units, permanent housing units and a forecast of the

Figure 4-28: Example of Mixed Use Development Located Elsewhere



Figure 4-29: Known Abandoned Underground Mines



SOURCE: ND PUBLIC SERVICE COMMISSION, ABANDONED MINE LANDS DIVISION



demand for temporary housing to accommodate oil industry workers. Table 4-11 shows the annual demand for each housing category between 2011 and 2035 and Figure 4-29 presents the data graphically.

Based on the 2010 US Census and the housing units permitted between the census and July 2012, the city had approximately 8,700 housing units in July 2012. In comparison, NDSU estimated a demand for more than 12,000 total housing units and more than 9,000 permanent housing units. The demand for housing significantly exceeded the supply, explaining the cause for the sharp increase in housing costs.

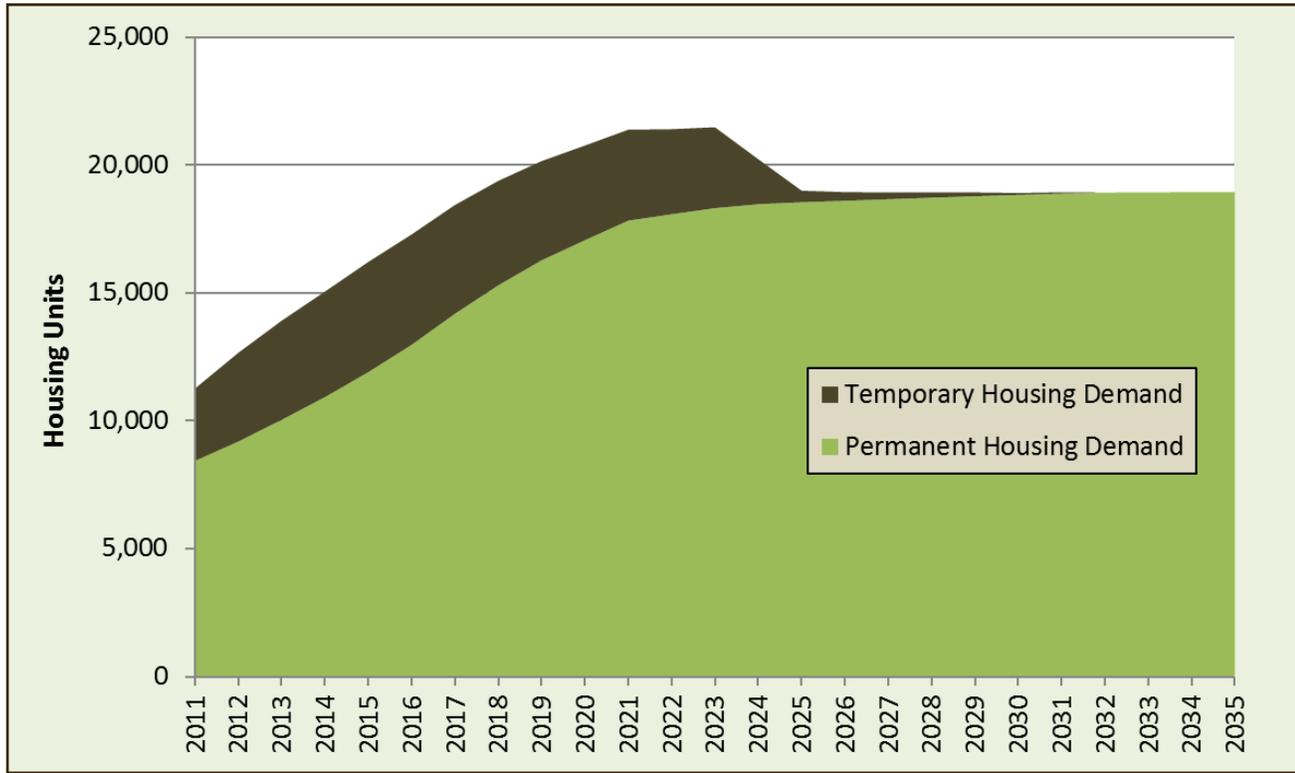
The strong demand for total and permanent housing units is expected to continue through 2021. Between 2013 and 2021 there will be a forecasted demand for more than 8,000 permanent housing units. After 2021, demand for permanent housing is expected to drop off significantly. At the end of the planning period the demand for permanent housing will reach nearly 19,000 units, which is more than twice the city’s existing housing stock. Demand for temporary housing is forecasted to peak in 2016 but remain strong through 2023.

Table 4-11: Forecasted Permanent Housing Demand, City of Dickinson, 2011-2035

Year	Total Housing Demand	Permanent Housing Demand	Percent Change from Prior Year	Temporary Housing Demand	Percent Change from Prior Year
2011	11,263	8,435	7.2%	2,828	--
2012	12,659	9,189	8.9%	3,470	22.7%
2013	13,913	10,040	9.3%	3,873	11.6%
2014	15,054	10,928	8.8%	4,126	6.5%
2015	16,211	11,903	8.9%	4,308	4.4%
2016	17,285	12,971	9.0%	4,314	0.1%
2017	18,436	14,185	9.4%	4,251	-1.5%
2018	19,380	15,294	7.8%	4,086	-3.9%
2019	20,152	16,274	6.4%	3,878	-5.1%
2020	20,761	17,059	4.8%	3,702	-4.5%
2021	21,381	17,824	4.5%	3,557	-3.9%
2022	21,400	18,074	1.4%	3,326	-6.5
2023	21,476	18,313	1.3%	3,163	-4.9%
2024	20,228	18,468	0.8%	1,760	-44.4%
2025	18,996	18,544	0.4%	452	-47.3%
2026	18,940	18,601	0.3%	339	-25.0%
2027	18,927	18,662	0.3%	265	-21.8%
2028	18,929	18,722	0.3%	207	-21.9%
2029	18,928	18,779	0.3%	149	-28.0%
2030	18,906	18,833	0.3%	73	-51.0%
2031	18,933	18,881	0.3%	52	-28.8%
2032	18,922	18,922	0.2%	0	-100.0%
2033	18,933	18,933	0.1%	0	--
2034	18,939	18,939	0.0%	0	--
2035	18,943	18,943	0.0%	0	--

SOURCE: NDSU, 2012

Figure 4-30: Forecasted Permanent and Temporary Housing Demand, City of Dickinson, 2011-2035



SOURCE: NDSU, 2012

Due to a potentially constrained water supply, the planning periods used to forecast both residential and non-residential development were based on the planned additional water allocations from the Southwest Water Authority Pipeline Project. If the project is fully funded and the water system improvements are constructed in accordance with the planned schedule, the city will receive additional water allocations in 2017 and 2019.

Table 4-12 shows the number of forecasted permanent housing units by planning period. For each year between 2013 and 2021, the average annual forecasted demand for permanent housing units will be nearly 1,000 units.

Table 4-12: Forecasted Permanent Housing Units by Planning Periods

Planning Period	Total Forecasted Number of Permanent Housing Units	Average Annual Number of Forecasted Permanent Housing Units
2010-2012 (est)	1,252	417
2013-2016	3,782	946
2017-2018	2,323	1,162
2019-2035	3,649	215

SOURCE: NDSU, 2012



Estimated Residential Development

KLJ, with extensive coordination with the City planner, estimated the residential development during the planning period. There are three sources of expected residential development. The first is in-fill development of existing platted lots or tracts, many of which are part of active residential development projects. Table 4-13 shows the number of vacant lots and tracts by size and the assumptions made regarding expected development. A total of 846 residential units from the vacant lots and tracts are expected to be developed during the planning period.

Table 4-13: Expected Development of Existing Vacant Residential Lots and Tracts in the City Limits during the Planning Period

Vacant Residential Lots or Tracts by Size (square feet)	Number of Lots or Acreage	Percent Assumed to be Developed During Planning Period	Assumed Percentage and Type of Residential Units		Number of Units
			Type of Residential	Percent	
6,000-7,000	122 Lots	50%	Single Family Detached	100%	61
7,001-10,500	213 Lots	75%	Single Family Detached	100%	160
10,501-13,000	210 Lots	60%			
			Single Family Detached	66%	126
			Duplex	34%	86
13,001-20,000	163 Lots	60%			
			Single Family Detached	66%	65
			Duplex	17%	33
			Triplex	17%	50
Greater than 20,000	241 Acres	20%			
			Single Family Detached	80%	154
			Multi-Family	20%	154
Total					846

SOURCE: CITY OF DICKINSON ASSESSOR AND CITY PLANNING DEPARTMENT, 2012

The second source of expected residential development is from existing and future residential projects within the city limits. Table 4-14 shows that this source of expected residential development is expected to yield more than 2,200 housing units during the planning period.

Table 4-14: Expected Residential In-Fill Development Projects within City Limits during the Planning Period

Type of Residential Development	Existing Projects	Future Projects	Total
R-1 Zoning at 4 dwelling units/acre	421	730	1,151
R-2 Zoning at 8 dwelling units/acre	215	0	215
R-3 Zoning at 16 dwelling units/acre	851	0	482
Total	1,487	730	2,217

SOURCE: CITY PLANNING DEPARTMENT AND GIS DATA ANALYSIS

The third source of expected residential development is from recently approved, pending and potential annexations. This is the largest source of expected residential development, accounting for nearly 11,000 housing units, representing 78 percent of all expected housing units. Table 4-15 shows the expected number of housing units from approved and pending annexations versus potential annexations.

Table 4-15: Expected Residential Development from Annexations during the Planning Period

Type of Residential Development	Existing Projects	Future Projects	Total
R-1 Zoning at 4 dwelling units/acre	1,787	3,380	5,167
R-2 Zoning at 8 dwelling units/acre	1,101	857	1,958
R-3 Zoning at 16 dwelling units/acre	2,777	947	3,724
Total	5,665	5,184	10,849

SOURCE: CITY PLANNING DEPARTMENT AND GIS DATA ANALYSIS

Figure 4-31 shows the location of all infill residential projects and residential annexations. Table 4-16 shows the number of expected housing units by planning period for each of the three sources of expected residential development. Table 4-17 shows the expected residential zoning of all expected development during the planning period. R-1 zoning is assumed to be developed exclusively as single family detached projects, R-2 zoning is assumed to be predominantly developments with duplexes and single family attached housing with some single family detached housing, and R-3 zoning is assumed to be developed with single family attached and multifamily housing (apartments).

Table 4-16: Expected Residential Development for the Three Planning Periods

Source of Expected Housing Units	2013-2016		2017-2018		2019-2035		Total	
	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
Annexation	4,379	72.0%	3,054	95.7%	3,416	73.5%	10,849	78.0%
Infill Development	1,487	24.5%	0	0%	730	15.7%	2,217	15.9
Infill Lots	210	3.5%	136	4.3%	500	10.8%	846	6.1
Total	6,076	--	3,190	--	4,646	--	13,912	--

SOURCE: CITY PLANNING DEPARTMENT AND GIS DATA ANALYSIS

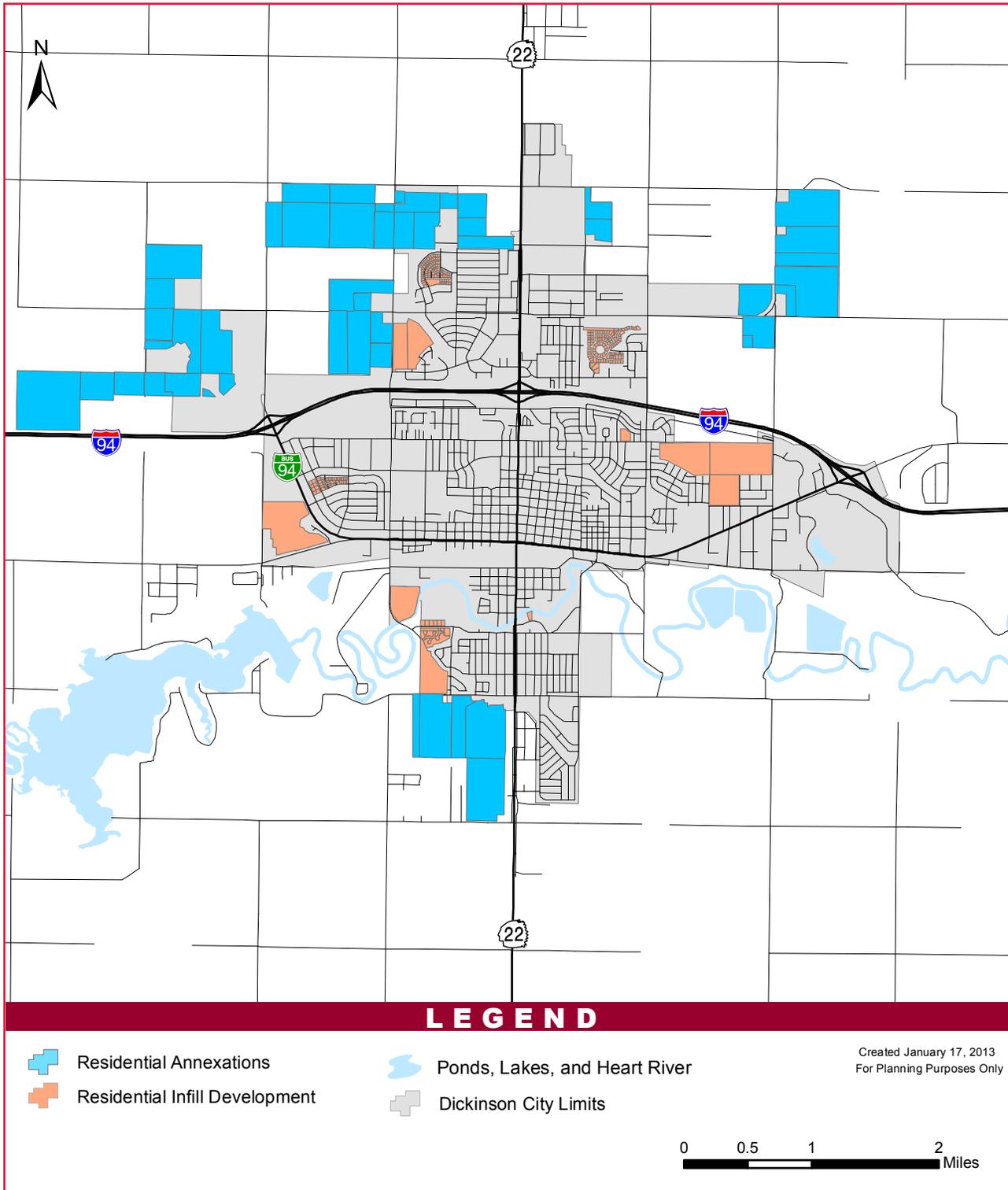


Table 4-17: Expected Residential Development during the Planning Period

<i>Type of Residential Development</i>	<i>Units</i>	<i>Percent of Total</i>
R-1 Zoning at 4 dwelling units/acre	6,841	49.2%
R-2 Zoning at 8 dwelling units/acre	2,292	16.5%
R-3 Zoning at 16 dwelling units/acre	4,779	34.3%
Total	13,912	

SOURCE: CITY PLANNING DEPARTMENT AND GIS DATA ANALYSIS

Figure 4-31: Infill Residential Projects and Approved, Pending and Potential Residential Annexations



SOURCE: KLJ



Table 4-18 shows the total expected residential development in relation to the forecasted housing demand during each planning period. During the 2013 to 2016 planning period, expected residential development significantly exceeds forecasted housing demand. It is important to note potential annexations are not included in this planning period. During the next two planning periods, expected residential development exceeds forecasted housing demand, but to a lesser degree compared to the first planning period. For the entire planning horizon, total expected residential development exceeds total forecasted housing demand by nearly 43 percent. It would be prudent of the City not to consider any new annexation requests until it has the opportunity to evaluate whether the planned residential development is proceeding in line with expectations.

Table 4-18: Expected Residential Development and Forecasted Housing Demand by Planning Period

	2013-2016	2017-2018	2019-2035	2013-2035
Expected Development	6,076	3,190	4,644	13,912
Forecasted Housing Demand	3,782	2,323	3,649	9,754
Total Expected Development In Excess of Forecasted Housing Demand	2,294	867	995	4,158

SOURCE: CITY PLANNING DEPARTMENT AND NDSU

Forecasted Commercial and Industrial Development

A two-step method was used to forecast commercial and industrial development. The first was to establish a methodology to forecast the demand for commercial and industrial uses. The second was to identify areas where commercial and industrial development were either likely or planned using the forecasted demand as a control.

Forecasted Demand for Commercial and Industrial Development

The ratio of existing commercial and industrial square footage to the existing number of housing units forecasts the demand for commercial and industrial space. Given reduced reliability of forecasting commercial and industrial demand, 10-year forecasts were prepared. Table 4-19 shows the method used. Based on the square footage of existing commercial and industrial uses and the mid-2012 estimated housing units, an existing square footage per housing unit was established for commercial and industrial uses. The existing square footage per housing unit figures were then multiplied by the forecasted number of housing units over the 10-year period to establish an estimated demand for commercial and industrial space for the 10 years. Using this method, the estimated 10-year demand for commercial space is more than 3.5 million square feet and nearly 2 million square feet for industrial space.

Table 4-19: Forecasted Commercial and Industrial Square Footage, 2013-2022

Housing Unit Based Statistics and Estimates	Commercial Uses	Industrial Uses
Existing Square Footage	4,086,450	2,224,396
Estimated Existing Square Footage per Housing Unit ¹	428	233
Total 2013 to 2022 Estimated Demand for Square Footage	3,595,613	1,957,217
Percent Increase of Existing Square Footage	88%	88%

SOURCE: CITY OF DICKINSON ASSESSOR, JUNE, 2012

¹ Based on mid-year 2012 housing unit estimate of 9,541 units.

Allocation of Forecasted Commercial and Industrial Development

Three sources of commercial and industrial development were used to allocate or meet the forecasted demand for commercial and industrial space. The first was existing vacant commercial and industrial zoned land in the city limits. A complete inventory of vacant commercial and industrial zoned land was prepared. Each parcel was evaluated to determine its likelihood of being developed. Factors such as access, parcel size and environmental constraints were used to identify parcels most likely to be developed during the planning period. The second source was planned commercial and industrial development in approved or pending annexations. The third source was commercial and industrial development that could likely be developed in potential annexations.

Table 4-20 shows the forecasted amount of commercial and industrial development from the three sources for each of the three planning periods. The majority of forecasted commercial and industrial development is expected from approved, pending and potential annexations. Twenty-seven percent of the total forecasted commercial development is expected from vacant commercial property in the current city limits, while only eight percent of total forecasted industrial development is expected to come from vacant commercial property in the current city limits. Figure 4-32 show the locations of all forecasted commercial and industrial development.

Stark County has recently approved industrial rezones and plats for four quarter sections near the city limits. The four county industrial tracts are shown on Figure 4-32. If the county is successful in promoting industrial development in these areas, the demand for industrial development in the city will likely be reduced. The City should closely monitor industrial development in the County and base its decisions on requested industrial annexations on the level of market demand for new industrially zoned land.

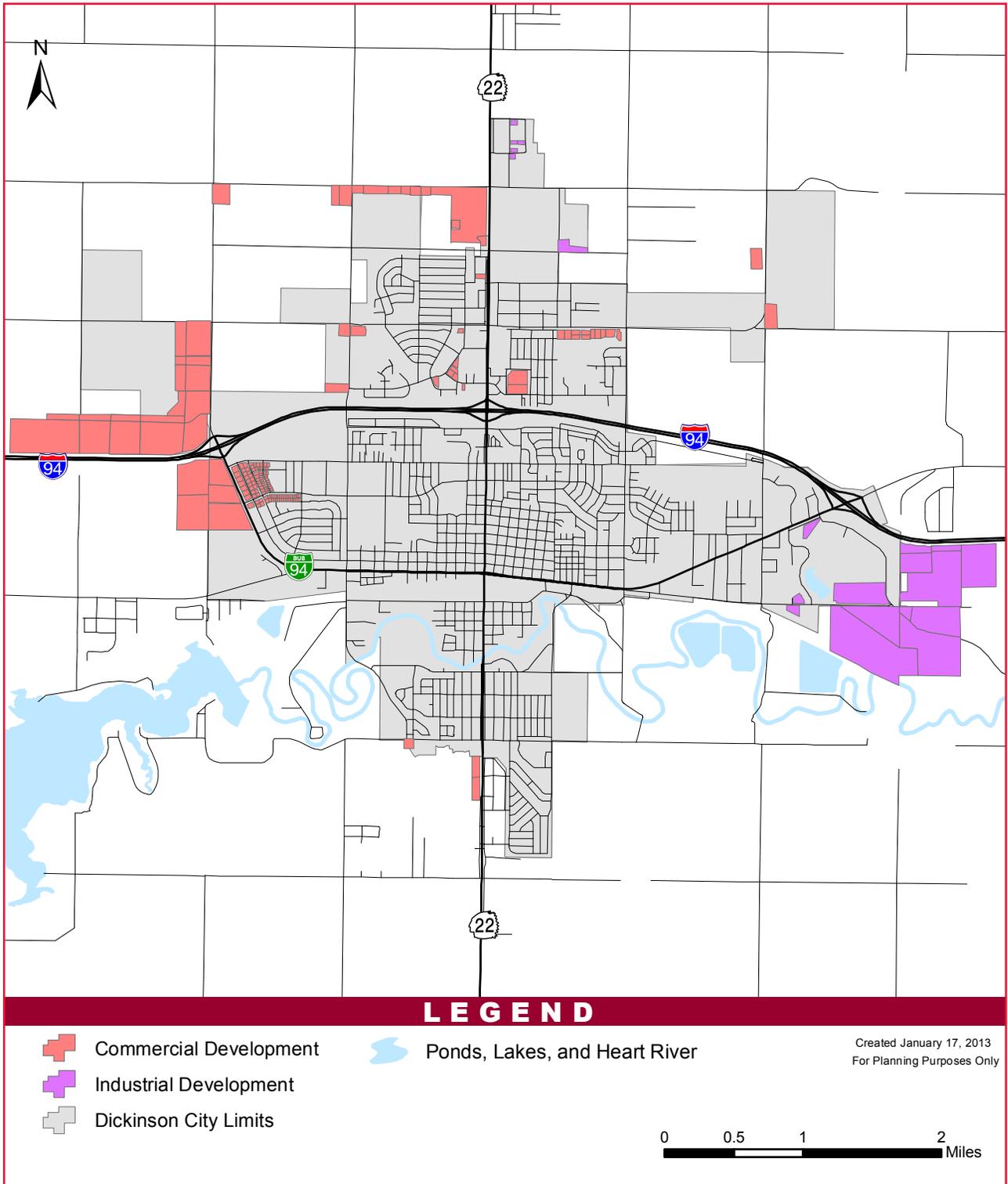
Table 4-20: General Location and Timing of Forecasted Commercial and Industrial Development, 2013-2035

<i>Planned Versus Existing Vacant and Time Frame</i>	<i>Commercial</i>		<i>Industrial</i>	
	<i>Acres</i>	<i>Square Feet</i>	<i>Acres</i>	<i>Square Feet</i>
<i>Existing Vacant in City Limits</i>	151	843,000	16	138,240
Years 1-4	118	655,300	16	138,240
Years 5-6	32	187,700	0	0
<i>Planned Development in Approved/Pending Annexations</i>	300	1,174,000	8	43,000
Years 1-4	203	754,000	8	43,000
Years 5-6	59	367,000	0	0
Years 7-23	38	52,700	0	0
<i>Planned Development in Potential Annexations</i>	291	1,059,500	329	1,605,000
Years 1-4	54	224,150	122	692,600
Years 5-6	54	335,850	77	495,500
Years 7-23	183	499,500	130	416,900
Total	742	3,076,500	353	1,786,740

SOURCE: CITY OF DICKINSON ASSESSOR AND DICKINSON PLANNING DEPARTMENT

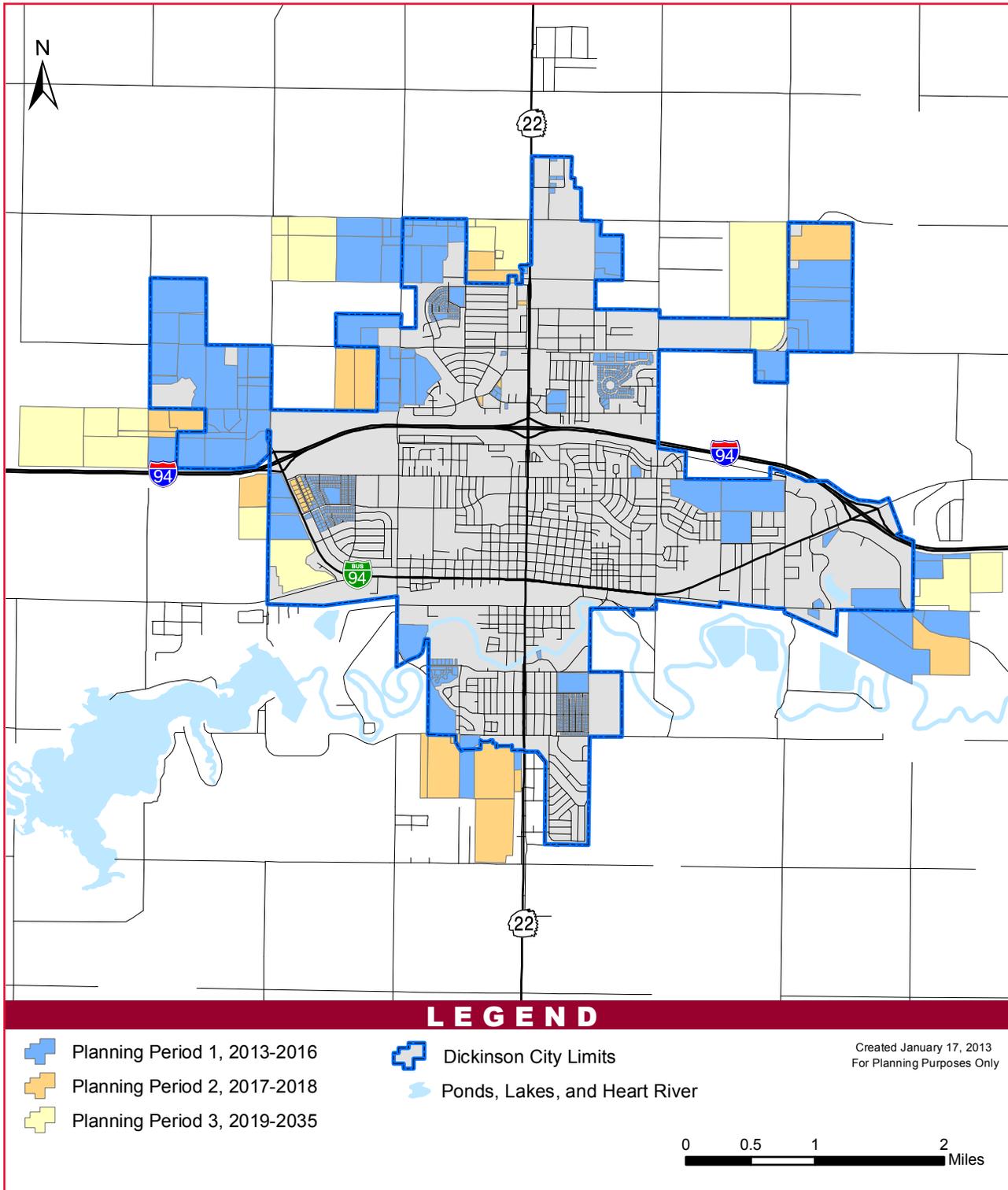


Figure 4-32: Forecasted Commercial and Industrial Development



SOURCE: KLJ

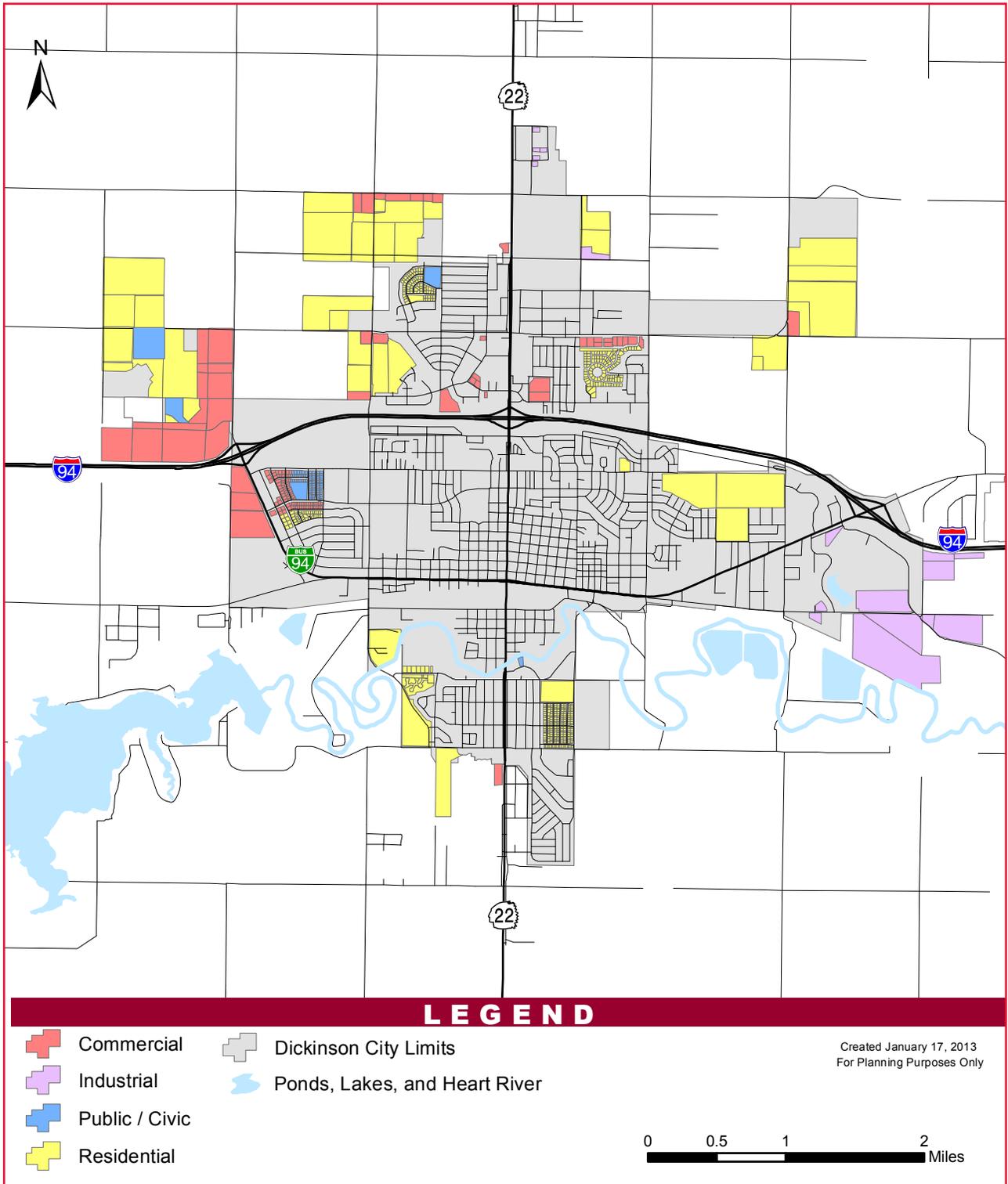
Figure 4-33: Projected Development by Planning Period



SOURCE: KLJ

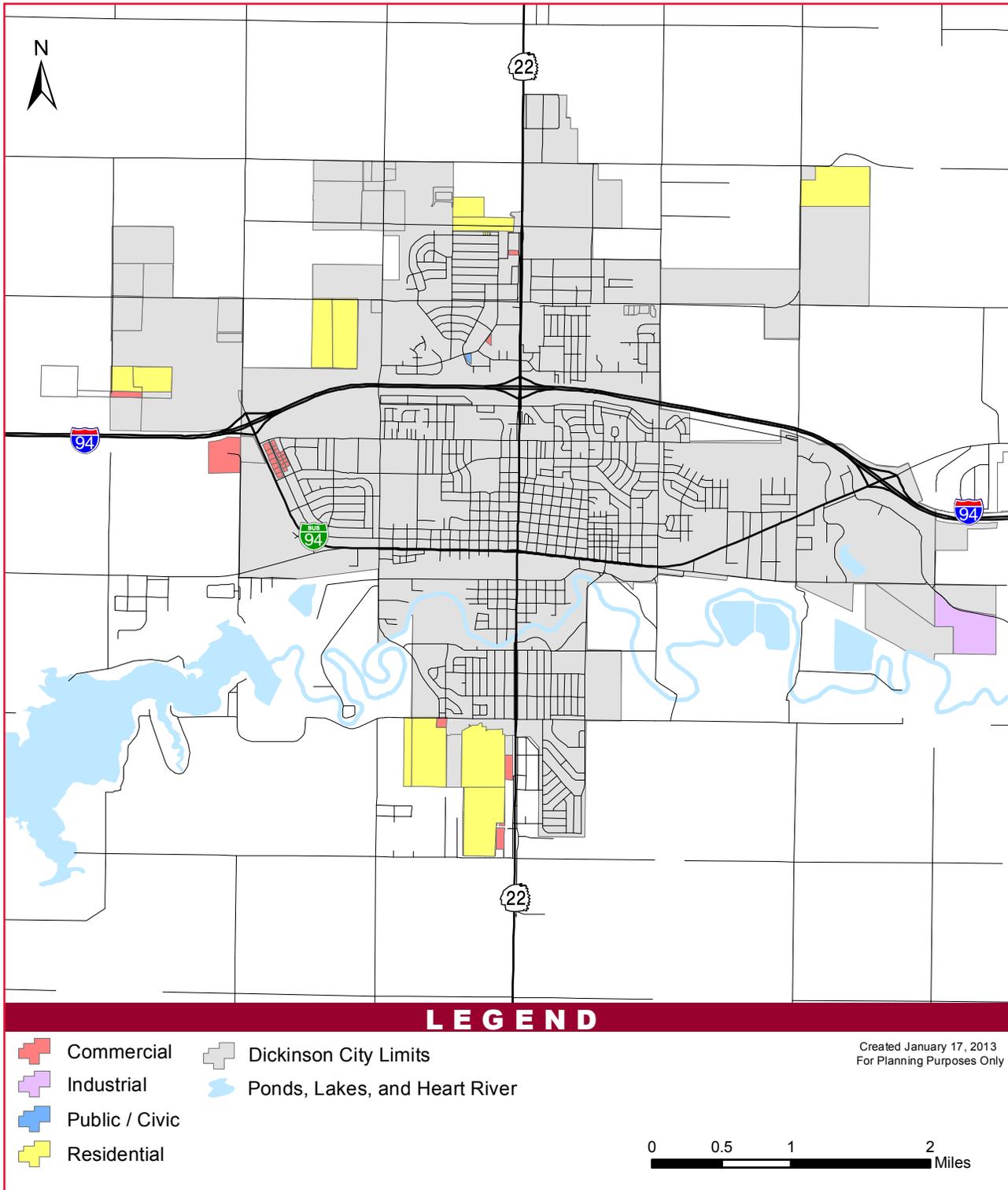


Figure 4-34: Development for Planning Period 1, 2013-2016



SOURCE: KLI

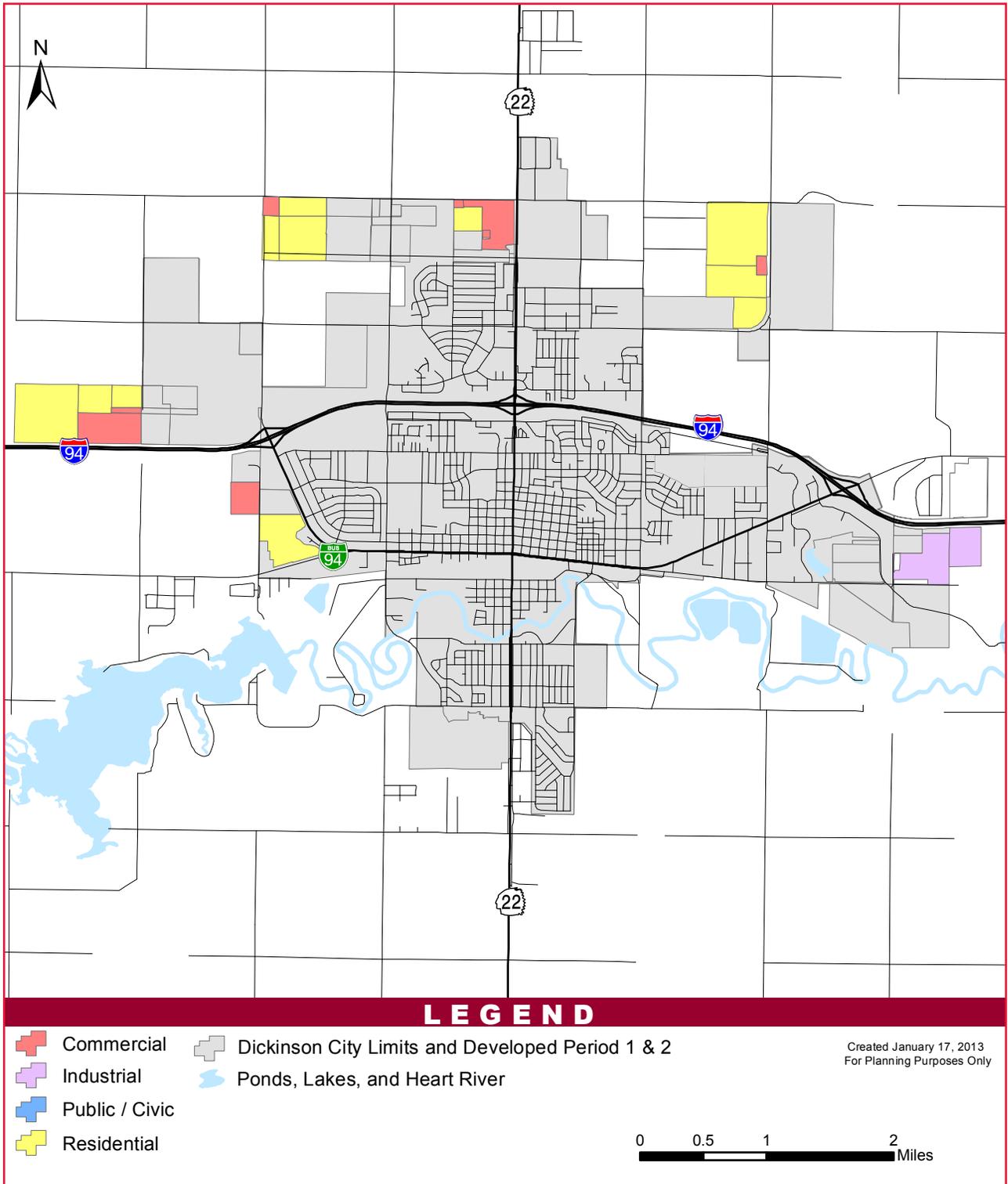
Figure 4-35: Development for Planning Period 2, 2017-2018



SOURCE: KLJ



Figure 4-36: Development for Planning Period 3, 2019-2035



SOURCE: KLJ

Future Land Use Map

The FLUM specifies the location of future land uses. The following considerations were taken into account in developing the FLUM.

- City planner input on general mapping strategies as well as the location of specific FLUM designations
- Public comment received on specific FLUM designations
- Existing land use pattern
- Development trends
- Planned land uses in approved, pending and potential annexations
- Development constraints shown in Figure 4-37
- Land use compatibility
- Avoidance of strip commercial and industrial development by establishing future community and neighborhood commercial centers and industrial FLUM designations that do not front major roadways
- Preferred future redevelopment of existing properties

Future Land Use Map Designations

The FLUM shown in Figure 4-38 establishes future land use designations within the city's existing extraterritorial zoning jurisdiction and beyond the extraterritorial jurisdiction along I-94 and ND Highway 22. The FLUM includes the following future land use designations.

- Agriculture
- Residential
- Mixed Use
- Commercial
- Industrial
- Public/Civic
- Parks/Recreation
- Downtown Mixed Use Overlay (delineated in Figure 4-38)

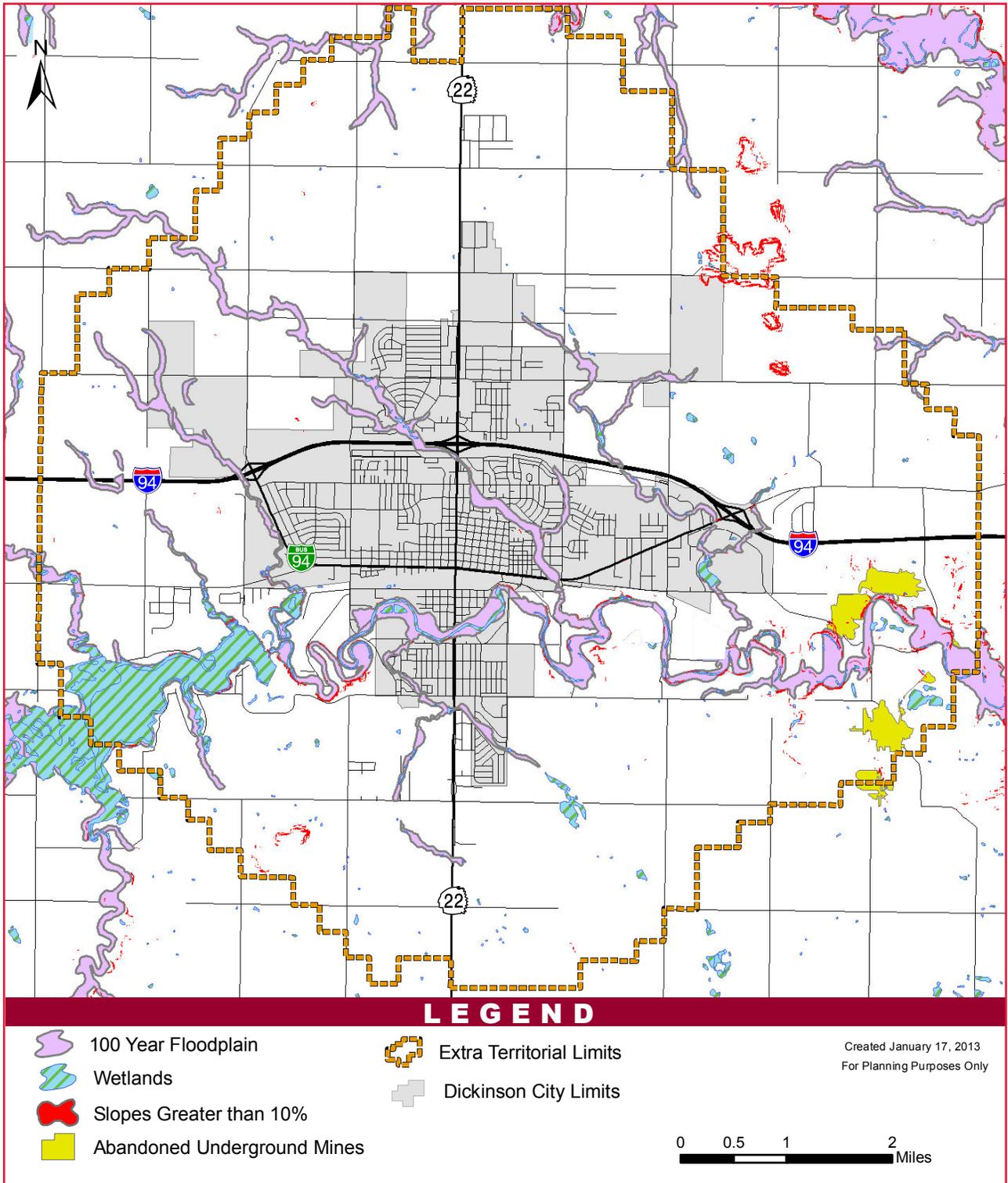
Future Land Use Map Consistency

The FLUM is a guide for local government land use decisions for most cases in North Dakota. However, a few proactive local governments in the state require consistency with the FLUM. By doing so, property owners, developers, the City and the community as a whole are able to rely on the FLUM as a roadmap to the future.

It is important to understand the impact FLUM consistency will have on existing property rights. FLUM consistency will in no way impact or alter existing property rights. Existing land uses and rights under existing zoning are vested in relation to the FLUM. This is true for any property whose existing use and/or zoning is inconsistent with its FLUM designation. For example, an existing industrial use in compliance with City zoning regulations and designated residential on the FLUM would be allowed to continue the existing industrial use or any other use permitted in the applicable zoning district. Legal non-conforming uses (non-conforming to the City zoning regulations) would also not be impacted by the FLUM. In all cases, properties with existing uses that are not consistent with the FLUM would retain the legal right to develop the property in compliance with the existing zoning district designation.

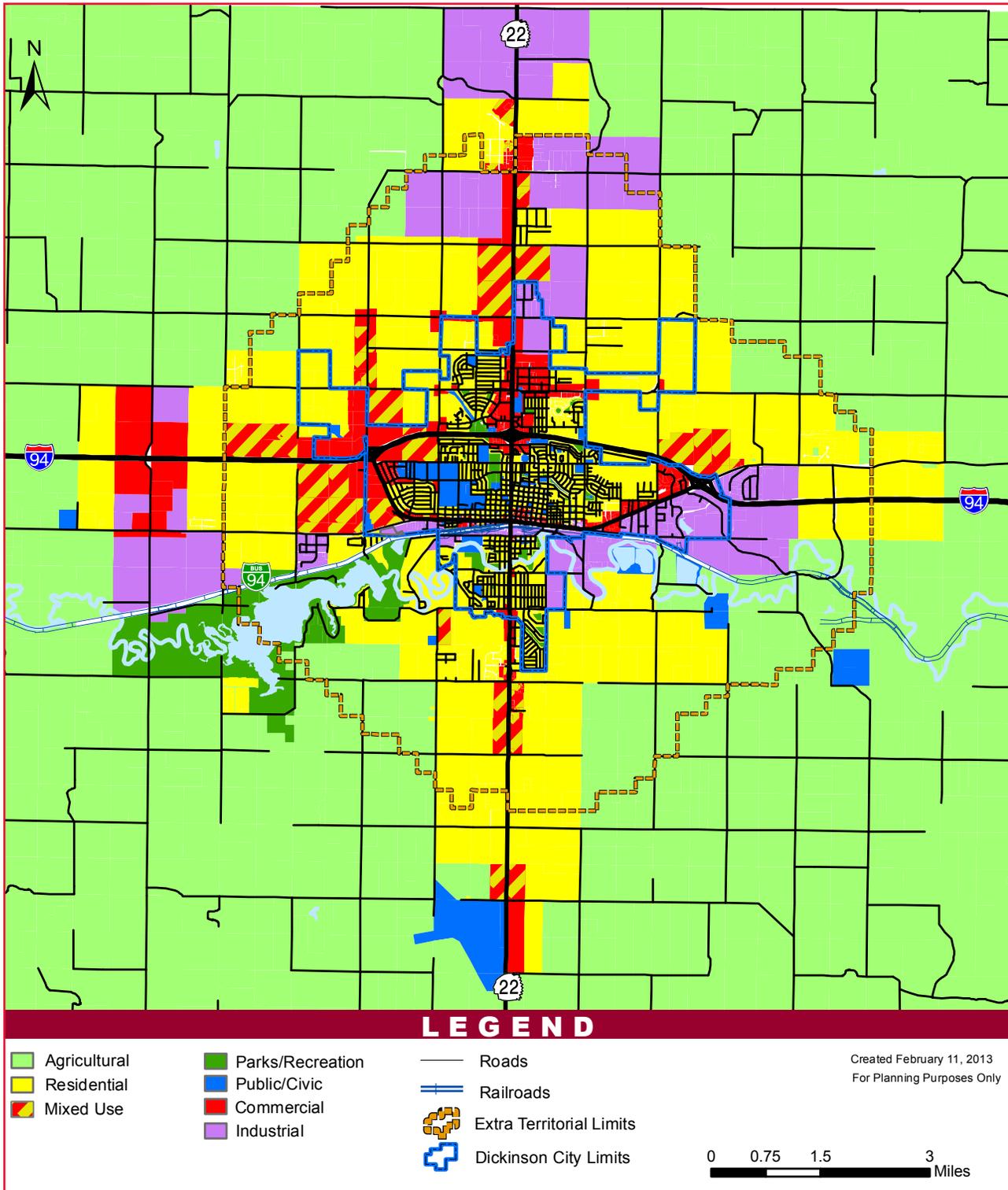


Figure 4-37: Development Constraints



SOURCE: KLI

Figure 4-38: City of Dickinson Future Land Use Map



SOURCE: KLJ



Figure 4-39: Future Land Use Map Downtown Mixed Use Overlay Designation



SOURCE: KLJ

The only situation in which the FLUM is implemented is when a property owner wishes to rezone property. The requested zoning district would be required to be consistent with the property's FLUM designation. If the proposed zoning district is consistent with the FLUM designation, the FLUM would have no bearing on the City's action on the rezone request.

Since all existing zoning rights are to be vested by the comprehensive plan, the future land use map consistency requirement would be enforced only in those cases where a rezone request is inconsistent with the applicable FLUM designation. In other words, the requested zoning district would be deemed by the city to be inconsistent with the FLUM and no action would be taken on the rezone request.

If a rezone request is deemed inconsistent with the FLUM the property owner has two options. The first is to modify the development plans to be consistent with the FLUM. The property could be developed under existing zoning or any other zoning district that is consistent with the FLUM. The second option is to request an amendment to the FLUM. The property owner would request the FLUM be amended by changing the future land use designation for the property to one consistent with the requested rezone.

Future Land Use Map Amendment Process

An official FLUM amendment application will need to be submitted to the City. The FLUM amendment may be processed concurrently with a rezone application. Land use policy is provided to guide the City's review of a FLUM amendment. The applicant is required to provide information to support the City's review of evaluative criteria provided in Policy 1.3.4.

Land Use Objectives and Policies

Objective 1: Establish a growth management program including a future land use map that manages the location, timing and fiscal impacts of future development.

Policy 1.1 – The Future Land Use Map (FLUM) establishes the following future land use designations:

Policy 1.1.1 – Agriculture: The agricultural designation is intended for a variety of agricultural uses, including agricultural business, the extraction of resources, including energy resources and rural density residential uses.

Policy 1.1.2. – Residential: The residential designation is intended for a wide variety of residential uses at varying densities. Recreational and compatible civic uses are allowable. Limited commercial and office uses may be allowed at neighborhood center locations. New industrial or heavy commercial uses are not allowable uses in the residential designation. The City should allocate multi-family housing to a maximum of thirty-five (35) percent of the total residential land use allocation. The following are the maximum gross densities for the R-1, R-2, R-3 and R-4 residential zoning districts:

- R-1 – 4 dwelling units per acre
- R-2 – 8 dwelling units per acre
- R-3 – 16 dwelling units per acre
- R-4 – 25 dwelling units per acre

Policy 1.1.3. – Mixed Use: The mixed use designated is intended for complementary residential, civic, office and commercial uses, subject to consistency with policy 3.12, below. New industrial and heavy commercial uses are not allowable uses in the mixed use designation.

Policy 1.1.4. – Commercial: The commercial designation is intended for a variety of commercial uses and civic uses. Residential uses above the ground floor are allowed. New industrial uses are not allowable in the commercial designation.

Policy 1.1.5. – Industrial: The industrial designation is intended for a variety of industrial uses. Ancillary commercial and office uses are allowable. New residential and recreational uses are not allowable uses in the industrial designation.



Policy 1.1.6. – Public/Civic: The public/civic designation is intended exclusively for a variety of public and civic uses.

Policy 1.1.7. – Parks/Recreation: The parks/recreation designation is intended for public parks and recreational uses. Private recreation uses may be allowable in the parks/recreation designation.

Policy 1.1.8. – Downtown Mixed Use Overlay: The downtown mixed use overlay designation is intended for residential, civic, commercial and office uses. New industrial, heavy commercial uses and uses with outdoor storage of material, equipment or vehicles are not allowable in the downtown mixed use overlay designation.

Policy 1.2 – The City shall consider adding high density residential and highway commercial FLUM designations.

Policy 1.3 – All rezone applications shall be consistent with the applicable future land use designation on the FLUM to provide increased certainty over future growth patterns. The following policies establish the vesting of land development rights with regard to the FLUM, the zoning districts deemed consistent with each future land use designation, the general procedure to process amendments to the FLUM and criteria to guide the review of FLUM applications.

Policy 1.3.1 – All existing land uses shall be vested in accordance with the provisions of the City of Dickinson zoning regulations and existing zoning shall be vested with regard to the FLUM.

Policy 1.3.2. – The following table identifies City of Dickinson Zoning Districts deemed consistent with each FLUM designation.

Table 4-21: Future Land Use Map Designation

Zoning District	Future Land Use Map Designation							
	Agriculture	Residential	Commercial	Industrial	Park/ Recreation	Public/ Civic	Mixed Use	Downtown Mixed Use Overlay
AG	X					X		
RR	X	X ¹				X		
R-1		X			X	X		
R-2		X			X	X		
R-3		X			X	X		
MH		X			X	X		
LC			X			X		
CC			X			X		
DC			X			X	X	X
GC			X			X		
LI				X		X		
GI				X		X		
P	X				X	X		
MU		X ²	X ³		X	X	X	X
PUD		X ²	X ³	X ⁴	X	X	X	X
AB	X							

Footnote: ¹Only in Residential Designated land outside the urban service area. ²Commercial uses allowed provided such uses are less than 5 percent of the gross PUD area and located at the intersection of collector and/or arterial roadways. ³Only permitted uses in the LC, CC, DC and GC Districts and upper story residential. ⁴Only uses permitted in LI and GI districts.

Policy 1.3.3 – FLUM amendments shall be processed by the City on a semi-annual basis (June and December of each year). FLUM amendments shall be processed in accordance with procedures established by the City. FLUM amendment applications and rezone applications may be processed concurrently.

Policy 1.3.4 – The City shall review FLUM amendments applications and shall take into consideration and record as findings of fact in an ordinance that approves a requested Future Land Use Map Amendment the following factors:

- Impact to the FLUM.
- Consistency with comprehensive plan policies and all other city plans.
- Availability of city infrastructure to serve the property in which the FLUM amendment is requested.
- Location of the property in relation to planned thoroughfares and the availability and cost to the City to provide infrastructure.
- Compatibility of the requested future land use designation in relation to abutting or adjacent future land use designations.
- Extent to which the requested future land use designation establishes or reinforces an urban sprawl pattern of development as opposed to an orderly, compact form of development.
- Whether the first two phases of the Capital Improvement Program include programmed improvements in the area where the FLUM amendment is proposed.
- Short-term and long-term fiscal impacts to the City of approving the FLUM amendment.

Policy 1.3.5 – Approval of FLUM amendments shall require a majority vote of the City Commission in favor of a FLUM amendment.

Policy 1.4 – Prior to submitting a formal request for voluntary annexation, the property owner(s) or their designated agent shall submit a report to the City that fully and completely addresses the following information related to the short-term and long-term fiscal impacts of the requested annexation.

Policy 1.4.1 – Any and all City infrastructure (water, sewer and roads) that will need to be extended to the annexation site.

Policy 1.4.2 – Any and all new or enlarged City infrastructure facility that will be needed to extend City services to the annexation site.

Policy 1.4.3 – A profile of planned development on the annexation site, including the approximate area of each proposed general land use type, the density of planned residential uses and the intensity of planned non-residential uses.

Policy 1.4.4 – The estimated water demand of the planned development of the annexation site.

Policy 1.4.5 – The estimated peak hour traffic that will be generated from the planned development of the annexation site.

Policy 1.4.6 – An evaluation of City Police and Fire Department’s ability to safely provide service to the annexation site.

Policy 1.4.7 – When applicable, the cost of providing urban services to existing rural development.

Policy 1.4.8 – A cost estimate, prepared by a licensed engineer, of the cost of providing or extending urban services specified in Policies 1.4.1 through 1.4.7.

Policy 1.5 – Prior to City approval of the annexation request, the property owner(s) or their designated agent shall enter into a binding annexation agreement with the City that establishes the general framework of the assignment of financial responsibilities for all infrastructure costs identified through full and complete implementation of Policies 1.4.1 through



1.4.8. At the sole discretion of the City Commission, any of the informational requirements provided in Policies 1.4.1 through 1.4.8 may be waived due to the size of the requested Urban Service Area expansion or the nature of the proposed use(s).

Policy 1.6 – Where appropriate, expand the city’s extraterritorial zoning authority to four miles when the city population reaches 25,000 persons. Section 40-05-02.11 of the Century Code authorizes municipalities to conduct a municipal census. Conduct a city census when there is little doubt that the city’s population has reached 25,000 persons, in accordance with the US Census Bureau standards and guidelines.

Policy 1.7 – The City has officially established an Urban Service Area as depicted in Figure 6-35 of the Comprehensive Plan that delineates the areas the City plans to provide urban services consistent with the City’s Capital Improvement Plan for the next five to ten years. The Urban Service Area may only be amended by ordinance by the City Commission. In conjunction with any request to expand the Urban Service Area boundary, the applicant shall submit to the City all information specified in Policies 1.4.1 through 1.4.8, above. At the sole discretion of the City Commission, any of the informational requirements provided in Policies 1.4.1 through 1.4.8 may be waived due to the size of the requested Urban Service Area expansion or the nature of the proposed use(s).

Objective 2: Promote sustainable and high quality development that mitigates the impacts of new development adjacent to existing developed areas and enhances the visual qualities of gateways to the city.

Policy 2.1 – To avoid land use incompatibilities and promote the efficient use of sewer and water infrastructure, all new Rural Residential zoning districts shall be outside the urban service area.

Policy 2.2 – As urban development abuts existing rural residential subdivisions, the following policies shall apply to mitigate the impact of abutting or adjacent urban uses on existing rural residential subdivisions.

Policy 2.2.1 – Except for neighborhood commercial centers shown on the FLUM at the intersection of existing or planned collector or arterial roadways, non-residential uses shall not abut existing rural residential subdivisions. When non-residential development is allowed pursuant to this policy, a minimum 100-foot buffer shall be provided adjacent to the existing rural residential subdivisions. The minimum setbacks for structures shall be established from the interior boundary of the buffer area. The City shall establish minimum buffer area standards in the zoning ordinance that apply to this interface of land uses, and in the absence of approved standards the specifications for buffer area landscaping and/or screening improvements shall be established in a development order.

Policy 2.3 – New residential developments that abut or are adjacent to existing agricultural uses shall provide recorded notice to all prospective home buyers of the proximity and likely impacts, including but not limited to harvesting, spraying, animal grazing and other common agricultural practices, of adjacent or nearby agricultural operations.

Policy 2.4 – With the exception of commercial corridors along Highway 22, 30th Avenue NW and Business I-94, the following standards should apply. Non-residential, commercial development along collector or arterial roadways as designated by the Transportation Plan should generally be located at the nodes of intersecting collector and/or arterial roadways and non-residential commercial nodes should be separated by a minimum distance of one-half mile.

Policy 2.5 – New industrial uses or industrial parks shall not be developed along Highway 22 or Business I-94. However, such uses or parks may receive access from Highway 22 and Business I-94 so long as any industrial use or park is setback a minimum of 500 feet from the above-referenced highways. To implement this policy, the City of Dickinson shall amend its zoning regulations to require industrial uses or industrial parks be setback a minimum of 500 feet from Highway 22 and Business I-94.

Policy 2.6 – Future industrial FLUM designations shall be extensions of existing industrial areas or extensions of existing FLUM industrial designations. The intent of this policy is to generally discourage the development of isolated or spot industrial uses.

Policy 2.7 – All rezone requests that allow multi-family and manufactured housing development should be located along an arterial or collector roadway as designated by the Transportation Plan. When such residential development abuts a predominately single family detached neighborhood, the City should have the option of requiring a minimum landscape buffer between the existing and proposed residential use. The minimum setbacks for structures should be established from the interior boundary of the buffer area. The City should establish minimum buffer area standards in the zoning ordinance that apply to this interface of such land uses, and in the absence of approved standards the specifications for buffer area landscaping and/or screening improvements should be established in a development order.

Policy 2.8 – All rezone requests that allow any non-residential use should be located along an arterial or collector roadway as designated by the Transportation Plan. When such non-residential development abuts any residential use, the City should have the option of requiring a landscape buffer between the proposed non-residential use and existing residential use(s). The minimum setbacks for structures should be established from the interior boundary of the buffer area. The City should establish minimum buffer area standards in the zoning ordinance that apply to this interface of such land uses, and in the absence of approved standards the specifications for buffer area landscaping and/or screening improvements should be established in a development order.

Policy 2.9 – Temporary worker housing (also known as crew camps) should be approved only in locations that will not be detrimental to existing residential neighborhoods and should have direct access to a collector or arterial roadway as designated by the Transportation Plan. If such temporary worker housing is permitted within the extraterritorial zoning jurisdictional area of the City of Dickinson, the City should seek an equitable revenue sharing agreement with Stark County pursuant to Section 57-02.4-02 of the Century Code.

Policy 2.10 – Within two years of comprehensive plan adoption, existing oil wells shall comply with the standards contained in Articles 40.01 and 40.02 of the Dickinson Municipal Code. The City shall consider recommended amendments to Article 40.01 and 40.02 contained in Appendix B. If any amendments to the articles are adopted by the city, existing oil wells shall be in compliance with such regulations no later than two years after the adoption of said amendments.

Policy 2.11 – When any proposed FLUM amendment or rezone application could result in potential land use incompatibilities between adjacent or abutting land uses, the City Planning Department staff shall require the applicant to conduct neighborhood meetings prior to any public hearing on the application. The neighborhood meeting shall be held at a location and time that will not hinder the attendance of neighboring residents.

Objective 3: Amend the City’s zoning regulations and other land development regulations to enhance the design standards for development and implement land use goals.

Policy 3.1 – The City should consider establishing and adopting an R-4 zoning district to allow, compared to existing residential districts, higher density development to increase the supply of affordable housing. New district should allow increased building height subject to location, compatibility, minimum lot size and other standards.

Policy 3.2 – Whenever possible, the City should encourage the use of planned unit development (PUD), due to the combined benefits of providing greater design flexibility as well as city direct involvement in the establishment of development specific site standards. The approval of a PUD should be executed through the rezone of the subject property and the zoning map should be amended by adding a unique site specific PUD zoning district designation (e.g. PUD 2013-01). To maximize design flexibility, the only standards that should apply to PUDs are maximum density and intensity, minimum open space



and minimum recreation area for large-scale residential PUDs. General performance standards for design and circulation would be required to ensure high quality development. A sufficiently high maximum density standard should be provided to incentivize development of PUDs.

Policy 3.3 – Establish land use policy and implement zoning standards to require minimum open space, landscaping and recreational amenities for high density residential development.

Policy 3.4 – At the sole discretion of City staff based on the scale and scope of proposed development, pre-application meetings shall be required.

Policy 3.5 – The maximum building height for single family detached structures shall be 35 feet measured from the mid-point of a sloped roof.

Policy 3.6 – Establish specific zoning standards for the screening of outdoor storage and roadway buffer standards in the LI and GI zoning districts and clearly define what constitutes outdoor storage.

Policy 3.7 – Establish specific landscaping standards that apply to all types of landscape buffers. The standards shall address when landscaping materials are required to be installed, the specific type, size and spacing of landscaping material and irrigation and maintenance requirements. Prior to the establishment of standards, the City should specify buffer yard landscaping requirement in land development orders.

Policy 3.8 – To improve quality of place, the City should reduce the number, size and height of detached signs in most non-residential zoning districts.

Policy 3.9 – Commercial and industrial centers comprised of three or more tenants or uses shall comply with a unified sign program approved as part of a site plan or preliminary plat application.

Policy 3.10 – Establish a mining overlay zoning district to protect proposed development from potential subsidence from known abandoned coal mines. The overlay district should require the preparation of geological tests to determine if an underground mine is located on the subject property, prohibit the construction of non-agricultural structures over an abandoned mine and establish minimum setbacks from identified underground mines.

Policy 3.11 – Amend the Corridor Overlay District development standards to enhance the appearance of development along designated community gateways shown in Figure 4-20. The Corridor Overlay District standards should be amended, regulate general building orientation, signage, landscaping and non-pedestrian outdoor lighting.

Policy 3.12 – The City shall adopt zoning regulations to allow a mix of residential, civic, office and commercial uses to implement the Mixed Use FLUM designation. The land use mix requirement would establish a maximum percentage of area developed as non-residential uses and a minimum percentage of area for residential development. All development in the mixed use future land use designation should be required to be processed and approved as a PUD. In addition, the implementing zoning regulations should address the following topics.

Policy 3.12.1 – A mixed use development should provide commercial services in close proximity to residential areas to provide shorter, more convenient vehicular or pedestrian trips for purchases of goods and services. An example of mixed use development is a Regional Center concept that includes a mixture of residential types to accommodate housing options for nearby employment and commercial centers.

Policy 3.12.2 – A mixed use development should be allowed as multiple uses in a single building or multiple uses within a development site.

Policy 3.12.3 – The following uses shall be prohibited from being developed in a mixed use development:

- The following automotive and equipment services: 1) equipment rental and sales, 2) equipment repair services and 3) vehicular storage (short-term)
- Campgrounds
- Crematorium
- Kennels
- Vehicle Storage (short-term)

Policy 3.12.4 – The following land use mix requirements shall apply to a mixed use development:

- Any non-residential use types: 70% maximum
- Residential land use types: 25% minimum

Policy 3.12.5 – Implementation of the Mixed Use Future Land Use Map designation shall be subject to the following development standards.

- Minimum Area: 2 acres
- Maximum Residential Density: 16 dwelling units per gross acre
- Minimum Residential Density: 10 dwelling units per gross acre
- Maximum Floor Area Ratio: 1.0
- Minimum Open Space: A minimum of 20 percent of the open space is required to recreational space for residential uses

Policy 3.13 – Site plans shall be reviewed to ensure high quality development. The following site factors shall be subject to staff required conditions of approval related to the following site plan considerations.

- Building orientation and design
- Appropriate screening of site characteristic that may potentially impact adjacent residential land uses or be visual from any public right-of-way
- Safe and convenient access to the site
- Safety of internal traffic circulation
- Adequate provisions for safe pedestrian circulation

Policy 3.14 – Encourage requirements for green buildings such as USGBC LEED or the State Energy Program for development approvals.

Policy 3.15 – Provide new and infill development to accommodate basic retail services within walking distance of residential areas.

Objective 4: Promote the sustainable redevelopment of the downtown area.

Policy 4.1 – As an interim measure, the City should consider rezoning all properties within the Downtown Mixed Use Overlay FLUM designation to Downtown Commercial and require properties to be developed as a planned unit development. Subsequently, the Downtown Commercial zoning district shall be amended to further promote redevelopment of downtown properties.

Policy 4.2 – Establish a downtown mixed use overlay zoning district, outside the Downtown Mixed Use Overlay FLUM designation to eliminate the legal nonconforming status of downtown residential properties and facilitate redevelopment of such properties for commercial uses. Permitted uses in the downtown mixed use overlay zoning district should be limited



to 1) professional service businesses (financial, legal, real estate), 2) personal services, 3) civic uses, 4) entertainment businesses (restaurants, night clubs, bars, coffee shops, etc.), 5) residential and 6) specialty retail.

Policy 4.3 – Civic uses shall be promoted in the downtown area.

Policy 4.4 – Upon completion of the Downtown Visioning process, consider implementing the downtown vision by conducting a downtown master plan and a parking study.

Policy 4.5 – Promote downtown residential development and ensure the viability of existing downtown neighborhoods.

Policy 4.6 – Promote the establishment of a downtown Business Improvement District.

Policy 4.7 – Establish a downtown capital improvement fund for public improvement projects

Policy 4.8 – Consider establishing a Tax Increment Finance District in the downtown to support the object of revitalizing the downtown.

Policy 4.9 – Expand the size of the Renaissance Zone by excluding industrial properties or predominantly industrial blocks currently located in the Renaissance Zone.

Policy 4.10 – Establish a Revolving Loan Fund for downtown commercial businesses. The loan fund should be reserved for façade improvements and other exterior improvements to enhance the appearance of the downtown.

Policy 4.11 – The City and the Park Board should coordinate in planning for and developing downtown civic/recreational amenities. The objective of the amenities is to create a pleasant outdoor gathering place that will increase activity in the downtown. Amenities that should be pursued include an urban landscaped park and a plaza, both of which should be designed to accommodate special events.

Policy 4.12 – The City should evaluate feasibility and cost of establishing quiet railroad crossing zones to encourage downtown residential development.



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Transportation

Chapter 5

Introduction

The primary purpose of this chapter is to officially recognize the City of Dickinson Transportation Plan is part of the Comprehensive Plan and to provide specific transportation policies. While the Transportation Plan stands alone as a document, the information, objectives, strategies and policies are considered part of the Comprehensive Plan.

Transportation plays a key role in quality of life for all of Dickinson's residents and visitors. It is how we travel to work, school and recreational activities and how goods are delivered. In order for transportation to deliver the most benefit to our lives, and to those of future generations, in-depth understanding and response to traveler needs is required.

The Transportation Plan is designed to help Dickinson study existing and future transportation needs. With an unprecedented level of forecasted growth the Transportation Plan provides the means to maintain a safe and functional multi-modal transportation system. The Transportation Plan has been prepared to achieve the following transportation vision statement developed by the community.

Maintain safe, barrier-free travel with a minimum amount of congestion and trucking conflicts.

Transportation Plan objectives include:

- Identify alternative approaches to address safety, congestion and/or access concerns at various locations
- Identify future truck routes with railroad grade separated crossings
- Identify and preserve future barrier crossings for all modes of traffic
- Prepare a proposed future functional classification map to identify planned locations for future roadways
- Identify future transportation improvements and funding sources for improvements

Many organizations and individuals contributed to preparing the Transportation Plan. Participants included City staff, appointed and elected City officials, Planning Advisory Committee members, North Dakota Department of Transportation, Federal Highway Administration and countless members of the community.

Summary of Transportation Plan Analysis

The Consultant Team analyzed existing and future transportation needs and worked closely with City representatives to select transportation projects that provide sufficient roadway capacity, address current and future mobility needs and improve transportation safety in the community. A wide range of project types were considered, including:

- Intersection improvements
- New road construction
- Road widening
- Railroad underpasses
- Interchange improvements
- Traffic signalization
- New trail construction
- Specific area studies
- Quiet Rail

Various projects were modeled to determine their effect on traffic forecasts, evaluated quantitatively and qualitatively, and discussed with participants in the planning process. After thorough evaluation, specific transportation projects were recommended for inclusion in the Transportation Plan. The transportation projects, intended to optimize the city's transportation network, are to be complete in phases over the 23-year planning period.



Key Elements of the Transportation Plan

The key elements of the Transportation Plan that interface most with the Comprehensive Plan are provided below and are not intended to represent all elements of the Transportation Plan.

Functional Classification Map

A proposed functional street classification supports the concept that streets are designed for different purposes. The proposed Functional Classification Map, shown in Figure 5-2, designates all major existing and future roadways based on their function in the transportation plan, subject to approval by NDDOT and FHWA. Table 5-1 below indicates how the proposed functional classification fits within FHWA guidelines. Guidelines for design speed, access control and cross section design are provided for functional classification. The Functional Classification Map also shows the planned alignment for future roads based on access management and roadway separation standards.

Table 5-1: Functionality Classification

FHWA Guidelines on Extent of Urban Functional Systems	
System	Miles (Percent)
Principal Arterial System	5-10 %
Principal Arterial Plus Minor Arterial Street Systems	15-25%
Collector Street System	5-10%
Local Street Systems	65-80%
Dickinson Extent of Urban Functional Systems	
System	Miles (Percent)
Principal Arterial System	7%
Principal Arterial Plus Minor Arterial Street Systems	18%
Collector Street System	12%
Local Street System	70%

Note: Mileage data from map of future functional class for Dickinson and a local street assumption of 10 miles per 1 square mile of land for undeveloped urban area.

Program Transportation Projects

All recommended transportation projects are phased or programmed consistent with the Capital Improvement Plan in Chapter 12. Planning level cost estimates, accounting for inflation and increased construction costs in western North Dakota are provided for each project.

Multi-Modal Transportation

The Transportation Plan accounts for all modes of travel including:

- Vehicular travel on roads
- Truck travel on roads
- Transport of freight by rail
- Air travel
- Public transit
- Bicycling
- Pedestrian travel

As part of the transportation planning process, the Consultant Team worked with the Dickinson Park Board regarding the review and approval of a Master Trails Plan.

Crossing of Major Barriers to the Transportation Network

The Heart River, a major railroad line and Interstate 94 are three major barriers that impede north-south travel in the city. Currently, there is only one grade separated railway crossing in the city which floods during heavy rainfall. One of the primary goals of the Transportation Plan was to increase the number of grade separated railway crossings. A new grade-separated crossing is recommended at State Avenue and another potential location is recommended for further study at 10th Avenue SE, as well as improvements to the existing Highway 22 railroad underpass.

Figure 5-1: Traffic Congestion at the Highway 22 Railroad Underpass



Truck Routing

The city has experienced a significant increase in truck traffic in recent years. The proposed Functional Classification Map establishes truck reliever or bypass routes to reduce the pass volume of through truck traffic in the city. Figure 5-4 shows the recommended truck route map, including a specific route for trucks hauling hazardous material.

Access Management

An Access Management plan was prepared and provides standards for driveway access and traffic signal spacing on the transportation system. Implementation of access management standards will reduce the number and severity of collisions while providing improved vehicle progression on all collector and arterial roadways in the city.



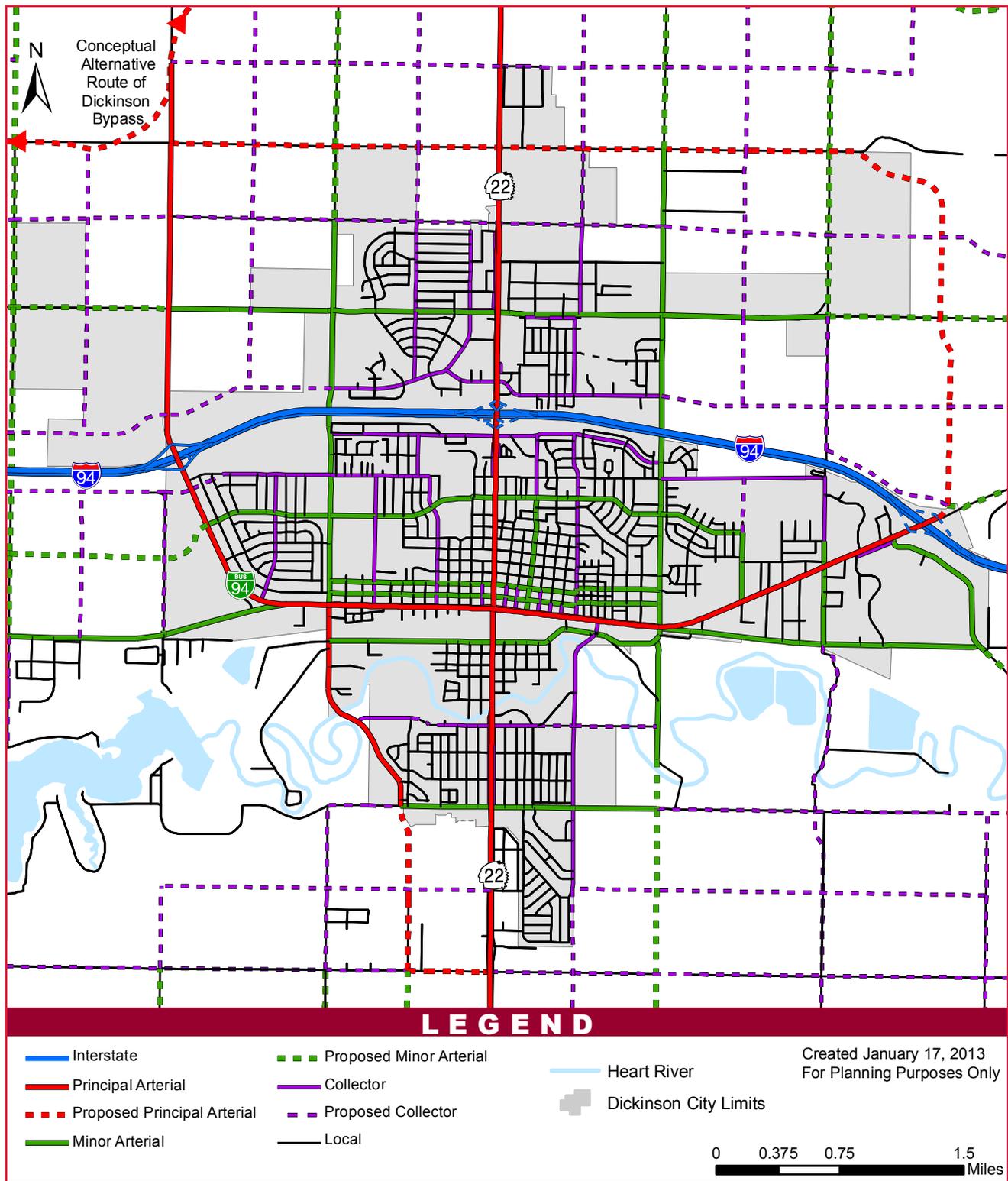
Transportation System Modeling

The future transportation network was modeled to determine traffic forecasts, to analyze how well the network performs based on forecasted development and to optimize the city's future transportation network. The transportation system was modeled for Years 3, 5, 10 and 2035. In large part, modeling the future transportation system provided the basis for recommended transportation improvements shown in Table 5-1. Figure 5-5 shows the location of recommended transportation improvements by phase. Figure 5-6 shows the future levels of service of the transportation system if all recommended transportation improvements shown in Table 5-1 and Figure 5-5 are implemented.

Transportation System Impacts Generated by Future Development

A significant amount of recommended transportation system improvements are directly attributable to expected or forecasted development. Transportation policies are provided below to identify traffic impacts generated by development and require the land developer to contribute to the cost of the needed transportation improvements. In addition, there are several programs recommended in the Implementation chapter that require developers to contribute funding for transportation projects that are needed to accommodate development projects. The Capital Improvements chapter also includes a discussion of capital improvement funding strategies and policies to facilitate the City's determination of financial responsibility for planned capital improvement projects.

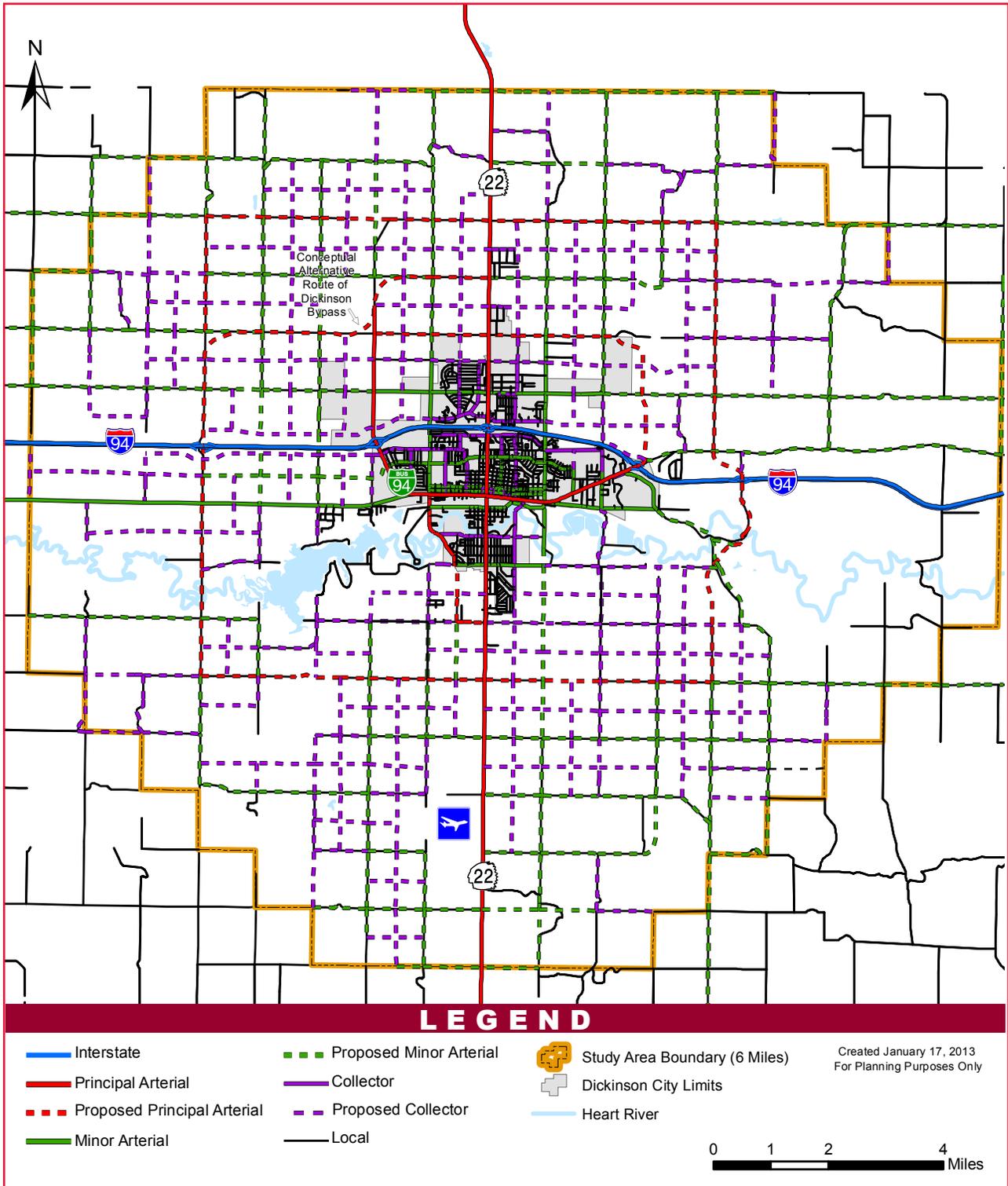
Figure 5-2: Proposed Future Functional Classification of Streets in Dickinson Vicinity



SOURCE: KLJ

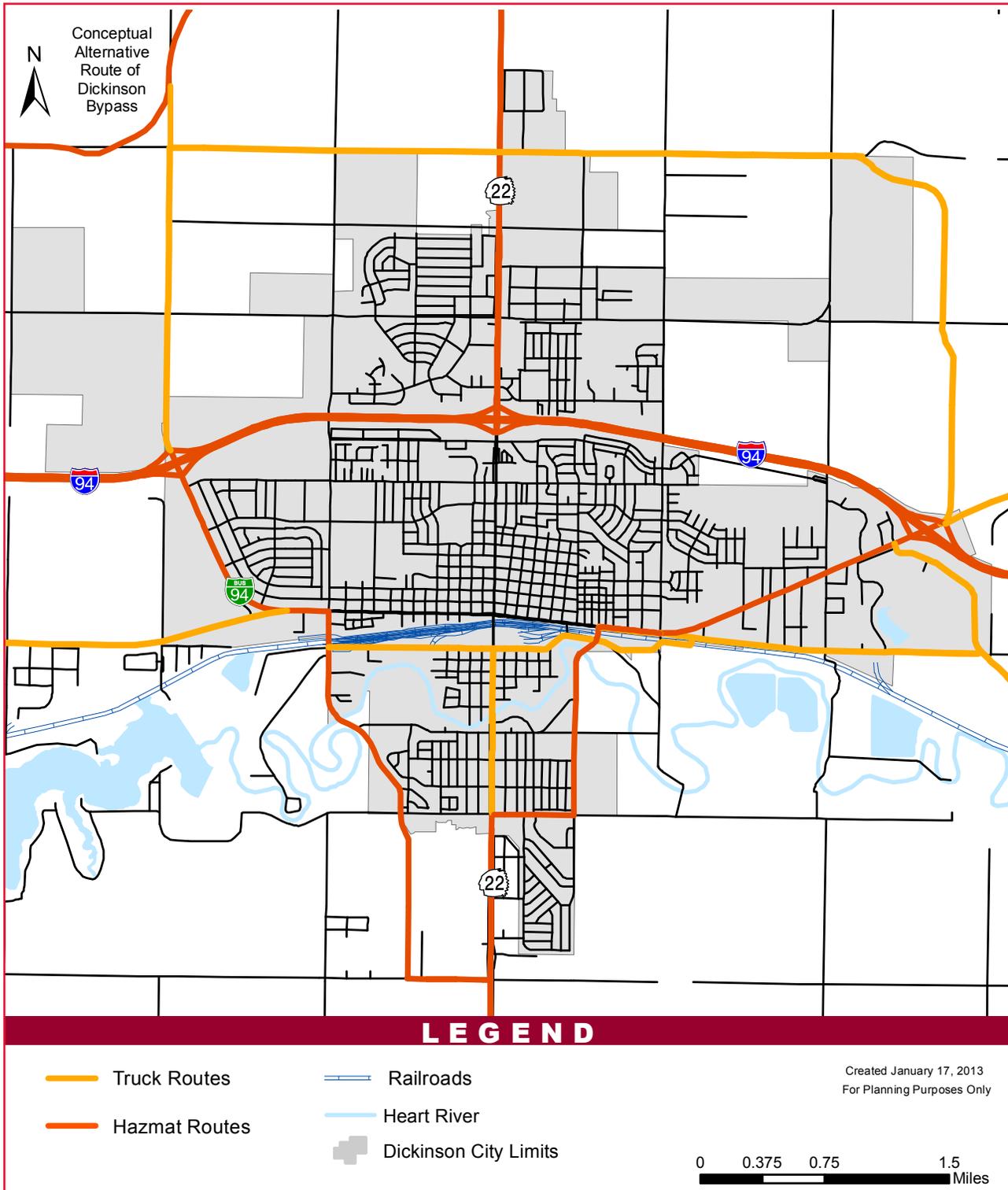


Figure 5-3: Future Functional Classification of Streets in Study Area



SOURCE: KLJ

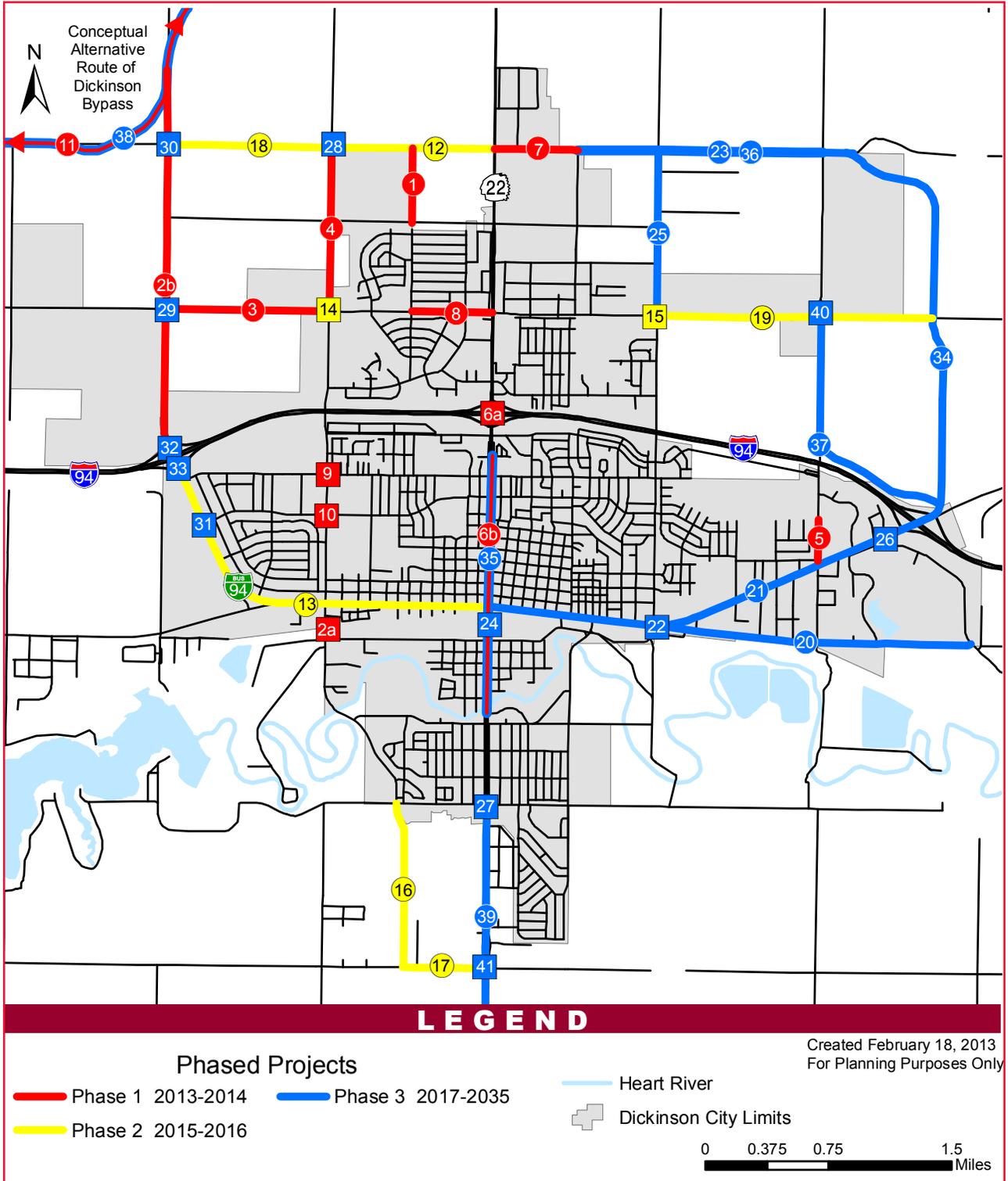
Figure 5-4: Recommended Truck Route Map



SOURCE: KLJ



Figure 5-5: Transportation Projects by Phase



SOURCE: KLJ



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Table 5-2: Preliminary Dickinson Transportation Project List

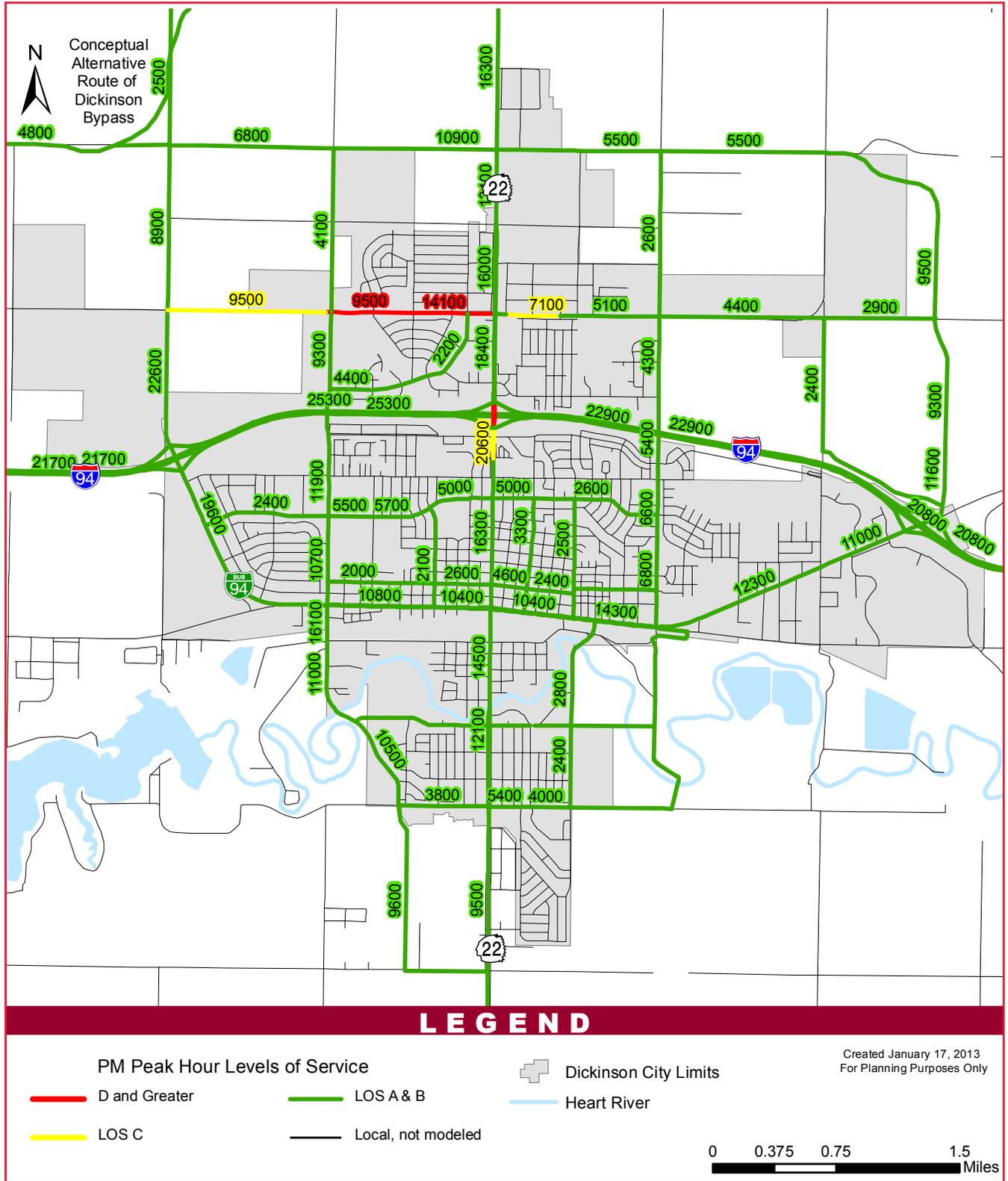
Phase	Priority	Street	Limits		Project	Proposed Street Classification	Length (miles)	Total Cost	Preliminary Cost Assignment				Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
			Begin	End					Pre-Construction Costs	Local Costs	State/Federal Programs	Oil Impact Revenue			
1	1	10th Ave W	29th St	40th St	New Construction Two Lanes	Collector	0.5	\$2,525,000	\$378,750	\$1,725,000	\$800,000 (capped)		New Development	Added Congestion	City, Federal, Urban Roads
1	2a	State Ave/Railroad	Railroad Underpass		Railroad Underpass	Minor Arterial	n/a	\$32,400,000	\$4,860,000		\$32,400,000	X	Safety and Connectivity	Continued Delays from Trains	State Energy Impact
1	2b	Reliever Route	I-94	40th St	Widen to Five Lanes	Principal Arterial	2.0	\$17,280,000	\$2,592,000		\$17,280,000	X	New Development	Added Congestion	State Energy Impact
1	3	21st St W	State Ave	Reliever Route	Widen to Three Lanes	Collector	1.0	\$4,680,000	\$702,000		\$4,680,000	X	New Development	Added Congestion and Discontinuity	State Energy Impact and Developers
1	4	State Avenue	21st St	40th St	Widen to Three Lanes	Collector	1.0	\$4,320,000	\$648,000		\$4,320,000	X	New Development	Added Congestion	State Energy Impact and Developers
1	5	25th Ave E	I-94 B	10th St E	New Construction Two Lanes	Collector	0.5	\$2,700,000	\$405,000		\$2,700,000	X	New Development	Disconnected Street System	State Energy Impact
1	6a	I-94/ND Hwy 22	Interchange Study		Interchange Study	Interchange	n/a	\$1,000,000	\$1,000,000		\$1,000,000	X	Growing Traffic, Inadequate Capacity	Increased Delay/ Congestion	State Energy Impact
1	6b	3rd Ave/ND Hwy 22	I-94	20th St SW	Corridor Study and Engineering	Principal Arterial	1.8	\$500,000	\$500,000		\$500,000	X	Growing Traffic, Inadequate Capacity	Increased Delay	State Energy Impact
1	7	40th Street	ND Hwy 22	4th Ave E	Widen to Five Lanes	Principal Arterial	0.5	\$4,320,000	\$648,000		\$4,320,000	X	New Development	Added Congestion	State Energy Impact
1	8	21st St W	ND Hwy 22	10th Ave W	Corridor Improvement	Minor Arterial	0.5	\$2,484,000	\$372,600		\$2,484,000	X	New Development	Added Congestion	State Energy Impact
1	9	State Ave/Empire	Intersection		Install Signal	Intersection	n/a	\$324,000	\$48,600	\$103,680	\$220,320		Growing Traffic	Increased Delay	City, Federal, Urban Roads
1	10	State Ave/Fairway	Intersection		Install Signal	Intersection	n/a	\$324,000	\$48,600	\$103,680	\$220,320		Growing Traffic	Increased Delay	City, Federal, Urban Roads
1	11	Dickinson Bypass	I-94	ND Hwy 22	New Construction Three Lanes	Principal Arterial	7.8	\$33,696,000	\$5,054,400		\$33,696,000	X	Growing Truck Traffic	Added Congestion	State Energy Impact
2	12	40th St	State Ave	ND Hwy 22	Widen to Five Lanes	Principal Arterial	1.0	\$9,280,000	\$1,392,000		\$1,392,000	X	New Development	Added Congestion	State Energy Impact
2	13	I-94 Business Loop W	ND Hwy 22	I-94	Widen to Five Lanes	Principal Arterial	2.4	\$22,464,000	\$3,369,600		\$22,464,000	X	New Development	Added Congestion	State Energy Impact
2	14	21st St W/State Ave	Intersection		Install Signal	Intersection	n/a	\$351,000	\$52,650	\$112,320	\$238,600		Growing Traffic	Increased Delay	City, Federal, Urban Roads
2	15	21st St E/10th Ave E	Intersection		Install Signal	Intersection	n/a	\$351,000	\$52,650	\$112,320	\$238,600		Growing Traffic	Increased Delay	City, Federal, Urban Roads
2	16	State Ave	8th St SW	20th St SW	New Construction Five Lanes	Minor Arterial	1.0	\$9,360,000	\$1,404,000		\$9,360,000	X	New Development	Added Congestion	State Energy Impact
2	17	20th St SW	State Ave	ND Hwy 22	Widen to Five Lanes	Principal Arterial	0.55	\$5,148,000	\$772,200		\$5,148,000	X	New Development	Added Congestion	State Energy Impact
2	18	Reliever Route	30th Ave NW	State Ave	Widen to Five Lanes	Principal Arterial	1.0	\$5,148,000	\$772,200		\$5,148,000	X	New Development	Added Congestion	State Energy Impact
2	19	21st St E	10th Ave E	circa 108 Ave SW	Widen to Three Lanes	Collector	1.5	\$6,690,000	\$1,003,500		\$6,690,000	X	New Development	Added Congestion and Discontinuity	State Energy Impact
3	20	East Villard	10th Ave E	Energy Drive	Reconstruction	Minor Arterial	1.9	\$1,900,000	\$285,000		\$1,900,000	X	Growing Truck Traffic	Increased Delay	To Be Determined/State Energy Impact
3	21	I-94 Business Loop East	ND Hwy 22	I-94	Widen to Five Lanes	Principal Arterial	2.8	\$22,400,000	\$3,360,000	\$2,240,000	\$20,160,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	22	10th Ave E/Villard	Intersection		Intersection Improvement	Intersection	n/a	\$1,000,000	\$150,000	\$100,000	\$900,000		Geometric Deficiencies	Increased Delay	City, State, Federal, Urban Regional System

3	23	40th Street	4th Ave E	109 Ave SW	Widen to Three Lanes	Collector	1.5	\$6,000,000	\$900,000		\$6,000,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	24	ND Hwy 22	Railroad Underpass		Railroad Underpass	Principal Arterial	n/a	\$40,000,000	\$6,000,000	\$4,000,000	\$36,000,000	X	Nearing End of Design Life, Inadequate Capacity	Continued Delay, Congestion and Deterioration	To Be Determined/State Energy Impact
3	25	10th Ave E	21st St	40th Street	Widen to Three Lanes	Collector	1	\$4,000,000	\$600,000		\$4,000,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	26	Energy Drive/I-94 Business Loop	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	27	8th St SW/ND Hwy 22	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	28	40th St NW/State Ave	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	29	21st St W/Reliever Route	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	30	40th St NW/Reliever Route	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	31	Fairway/I-94 Business Loop	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	32	I-94 North Ramps/Reliever	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	33	I-94 South Ramps/Reliever	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
3	34	Northeast Loop	I-94	40th Street	Widen to Five Lanes	Principal Arterial	2.8	\$22,400,000	\$3,360,000		\$22,400,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	35	3rd Ave/ND Hwy 22	I-94	5th Street	Widen to Five Lanes	Principal Arterial	1.8	\$14,400,000	\$2,160,000		\$14,400,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	36	40th Street	4th Ave E	109 Ave SW	Widen to Five Lanes	Principal Arterial	1.5	\$6,000,000	\$900,000		\$6,000,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	37	Frontage/109 Ave SW	Northeast Loop	21st Street	New Construction Three Lanes	Collector	1.6	\$6,400,000	\$960,000		\$6,400,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	38	Dickinson Bypass	I-94	ND Hwy 22	Widen to Five Lanes	Principal Arterial	7.8	\$31,200,000	\$4,680,000		\$4,680,000	X	Growing Truck Traffic	None	To Be Determined/State Energy Impact
3	39	ND Hwy 22	10th Street SE	Airport	Widen to Five Lanes	Principal Arterial	3.9	\$31,200,000	\$4,680,000		\$31,200,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
3	40	21st St E/109 Ave	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000	\$96,000	\$204,000	X	Growing Traffic	Increased Delay	City, Federal, Urban Roads
3	41	20th St SW/ND Hwy 22	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000	\$96,000	\$204,000	X	Growing Traffic	Increased Delay	City, Federal, Urban Roads

SOURCE: KLJ



Figure 5-6: Future Roadway Level of Service



SOURCE: KLJ

Transportation Policies

Policy 5.1 – The proposed Functional Classification Map provides general alignment of future roads, subject to NDDOT and FHWA concurrence. Significant deviations from the road alignment shown on the proposed Functional Classification Map shall require a Comprehensive Plan amendment approved by the City Commission. Additionally, the proposed Functional Classification Map shall provide the basis for required right-of-way dedication for new or expanded roads.

Policy 5.2 – Traffic impact studies shall be required for any proposed development estimated to generate more than 100 directional trips during the peak hour of the traffic generator, peak hour on the adjacent streets or more than 750 trips in an average day. The traffic study shall be based on peak hour traffic and both capacity or operational and safety factors shall be studied. Traffic impact studies shall be prepared under the supervision of a registered professional engineer.

Policy 5.3 – The land development applicant shall be responsible for providing improvements to the transportation system that are generated by the proposed development. In lieu of providing the needed transportation improvements, the City Commission may require the applicant to provide the City with a financial contribution based on the proposed development's proportional impact on the transportation system. In such cases, the applicant shall submit a cost estimate accounting for inflation and contingencies, of needed transportation improvement(s) prepared by a licensed engineer. The cost estimate shall be reviewed and approved by the City Engineering Department. The proportional transportation impact contribution shall be equal to the ratio of estimated peak hours trips generated by the proposed development and the existing peak hour trips times the estimated cost of the needed transportation improvement(s). The development order or development agreement shall specify when the needed transportation improvement(s) shall be constructed or when the proportional transportation impact contribution shall be submitted to the City. This policy shall apply to all streets within Dickinson's extraterritorial area with exception of I-94.

Policy 5.4 – All land development applications shall comply with access management standards contained in the Transportation Plan. The City may grant relief from the standards when there is no practical way to achieve the standards.

Policy 5.5 – Streets in new developments shall be aligned to connect to existing or planned streets beyond a development.

Policy 5.6 – A minimum of two accesses shall be provided for residential subdivisions unless otherwise allowed by fire department requirements or standards.

Policy 5.7 – When a proposed land development abuts vacant or undeveloped land with the same future land use classification, through streets shall be constructed to the abutting property line. The land development application shall include an off-site survey of existing conditions extending a minimum of 500 feet from the property line to ensure the future feasibility of extending the street into the abutting property.

Policy 5.8 – When a proposed land development fronts an existing or planned street where a trail is planned in accordance with the Master Trail Plan, subject to the Dickinson Park Board's recommendation, the applicant shall dedicate sufficient right-of-way to accommodate construction of the trail. The applicant shall be responsible for construction of the trail or in lieu of constructing a 10-foot wide trail and subject to the Dickinson Park Board's recommendation, the City may allow the developer to construct a sidewalk and grade the area abutting the sidewalk to facilitate the future widening of the sidewalk to a 10-foot wide trail.

Policy 5.9 – When practical, proposed developments shall construct off-site sidewalk extensions when the termination of an existing sidewalk is within 700 feet of the project boundary, provided there is sufficient right-of-way along the adjacent properties and the adjacent proposed areas are developed with an urban use.

Policy 5.10 – All new roads shall be designed consistent with the roadway cross sections contained in the Transportation Plan.



Policy 5.11 – All new streets shall require sidewalks designed with a grass boulevard separating the curb or edge of pavement and the sidewalk.

Policy 5.12 – All non-residential development and multifamily residential development shall provide adequate bicycle parking and access to encourage bicycle travel. Bicycle parking should be located to provide convenient access to building entrances and other destinations. The City shall amend the zoning ordinance to provide specific standards for bicycle access and parking facilities.

Policy 5.13 – Integrate the character and identity of streetscape into the City’s Street Manual standards.



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Infrastructure

Chapter 6

Introduction

The Infrastructure chapter provides a detailed report on the city's water, sewer and stormwater systems. For each system, existing conditions are identified. Sections on water and stormwater systems identify existing deficiencies and recommended measures to correct the deficiencies. Finally, the impacts of forecast growth on the systems are identified and infrastructure improvements are recommended to serve future identified growth areas. The full list of recommended infrastructure improvements is provided in the Capital Improvements Plan.

Overview of Existing Water System

The city does not have its own dedicated drinking water supply. To fulfill the city's needs water is purchased from Southwest Water Authority (SWA), which operates under North Dakota State Water Commission guidance. The SWA is authorized to draw 10,600 gallons per minute (GPM) from Lake Sakakawea, and is in the process of securing a permit and state funding for an additional 5,600 GPM. Currently, the city is contractually allocated a maximum of six million gallons per day (MGD) from SWA. The city's current water allocation is based on serving a population of 24,000.

A 12 MGD SWA water treatment plant (WTP) is located in southwest Dickinson. A six million gallon (MG) reservoir located adjacent to the WTP provides water storage for the entire SWA system. Five high service pumps located within the water treatment plant pump water to the city's distribution system. The average flow rate from the pumps is approximately 3,700 to 3,900 GPM. However, the city has enough pumping capacity to pump its entire six MGD allocation but only when the water plant is in operation. There is not presently a sufficient emergency power supply to operate these pumps during power outages.

A map of the city's existing water system (Figure 6-1) shows the location of both the city's and SWA's water storage facilities, booster pump stations and water mains. Figure 6-2 shows the location of water mains by size and Figure 6-3 shows the location of water mains by type.

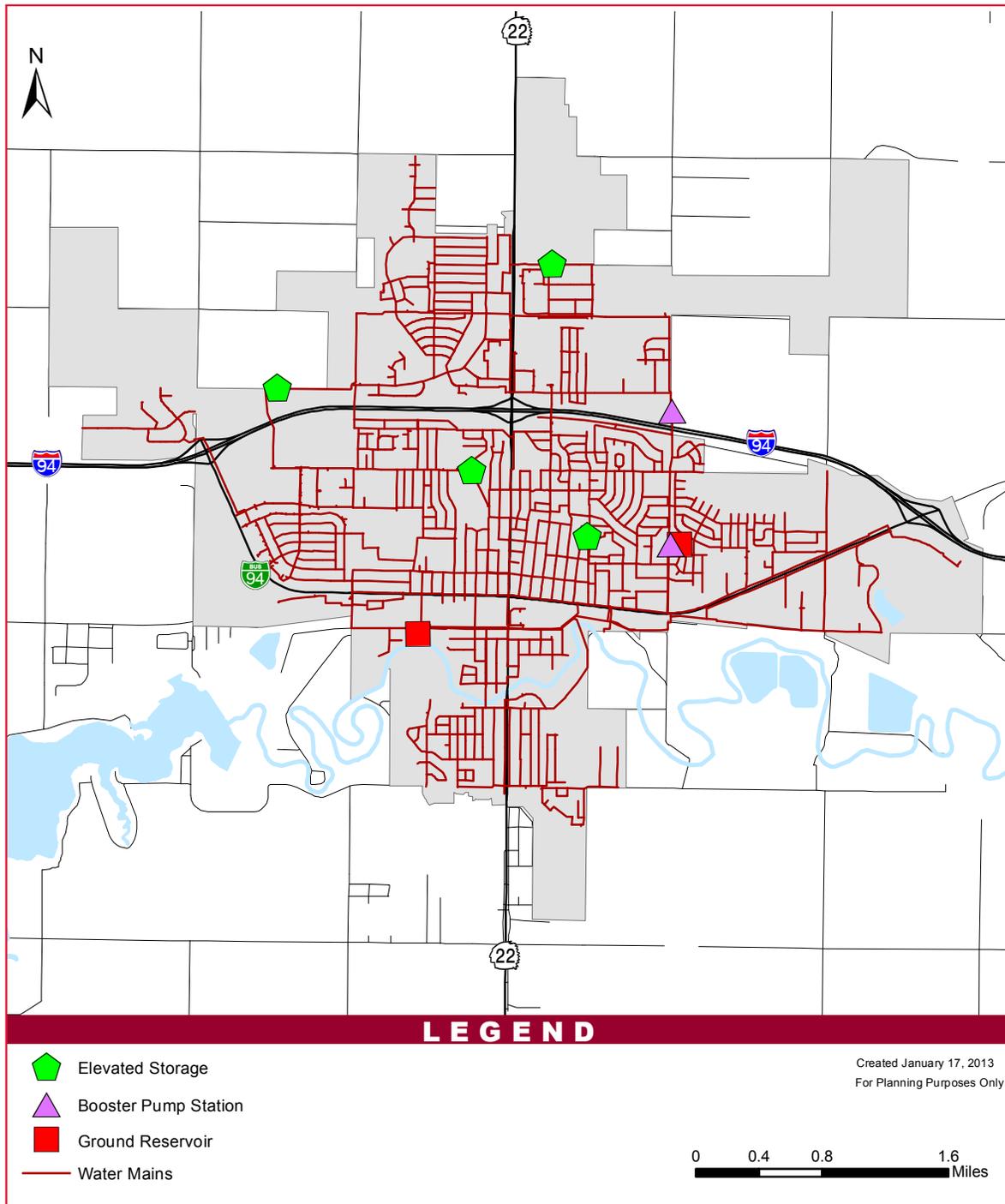
The city's water system is broken into two pressure zones. Figure 6-4 shows the boundary separating the two pressure zones, as well as the approximate maximum extension of existing pressure zones. The pressure zones boundary generally divides the system into north and south pressure zones. The boundary between each zone is created with pressure reducing valves (PRV), check valves or closed gate valves. The SWA plant pumps directly into the south pressure zone, which has three tanks. Two of the tanks in the south zone are elevated and maintain pressure within the zone. The remaining tank is below grade, and provides only storage volume. A booster station pumps water out of the below grade tank to either of the elevated tanks in the south zone, and maintains water supply to a second booster station dedicated to the north pressure zone. The north pressure zone has two tanks filled from the second booster station, which is located along 10th Avenue East. The south pressure zone, which is lower in elevation, will be referred to as Zone 1 and the north pressure zone will be referred to as Zone 2. Table 6-1 provides a summary of existing storage facilities and Table 6-2 provides a summary of existing booster pump stations. In order for water to reach Pressure Zone 2 it must move east from the SWA treatment plant along Broadway and then north along 10th Avenue East to the booster station located at the below grade tank. This is the only normal operation path for water to reach Pressure Zone 2.

To develop and finalize recommendations for improving the city's water system, it is important to understand and decide how the 6 MG reservoir located next to the SWA water plant is and should be used. This reservoir is the third, and largest, clearwell within the plant complex. When the plant is producing water, finished water is pumped directly from the plant's other two clearwells into the city's system or into the SWA's system and water in excess of the entire system demands is then pumped to and stored in the 6 MG reservoir until either system needs it. Normal operation for the plant is to produce finished water until the city's storage facilities and the 6 MG reservoir/clearwell are full.



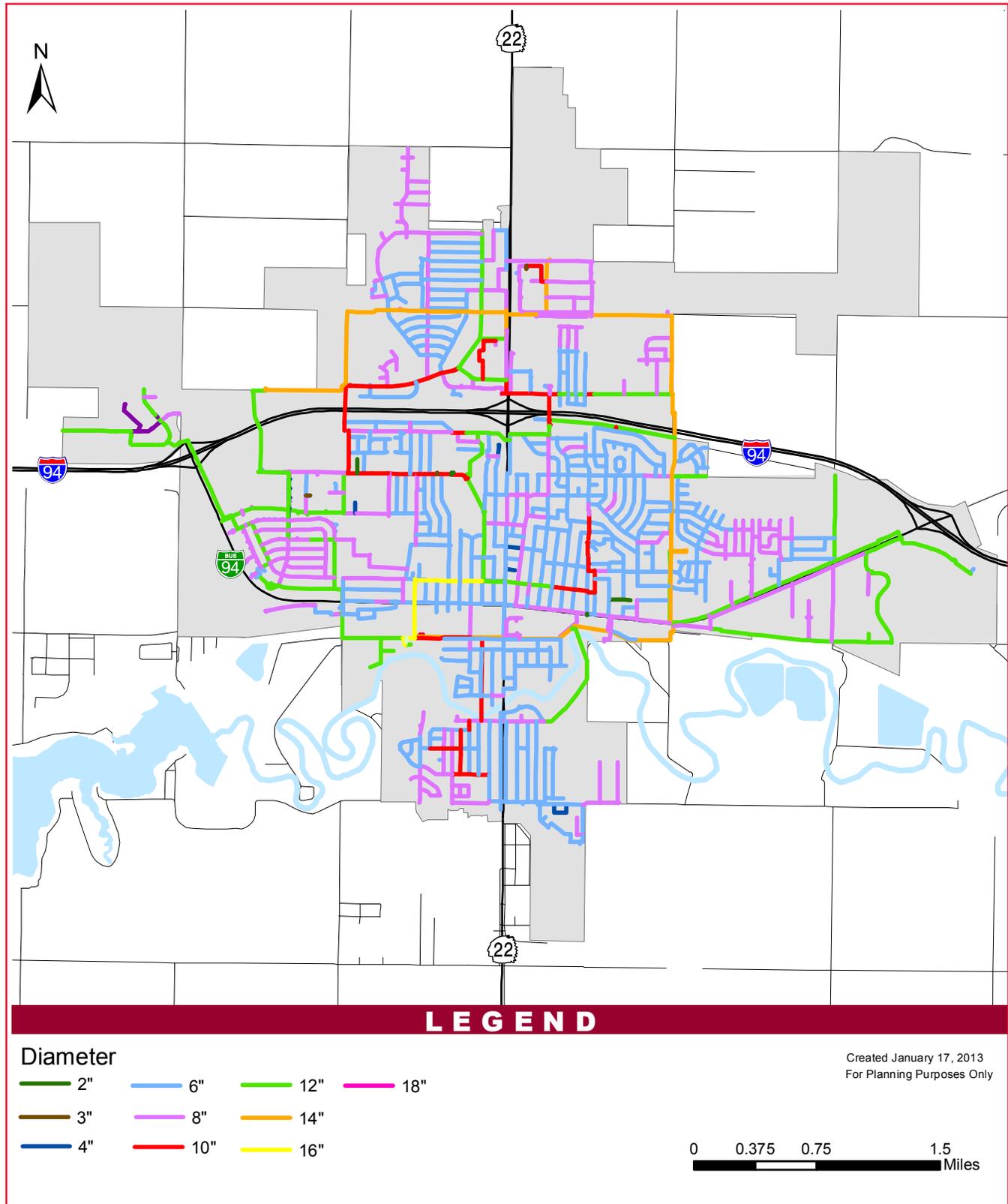
Currently the daily demand of the entire water system is approximately equal to the storage capacity of the 6 MG reservoir. Therefore, for normal operations, it is recommended the 6 MG of storage be considered as a one-day reserve for the entire water system and the city not include any portion of this storage as part of their daily system storage needs. Having adequate storage within city's system for average daily demands plus fire flows will provide a reliable and consistent system for users.

Figure 6-1: Overall City of Dickinson Water System



SOURCE: KLJ

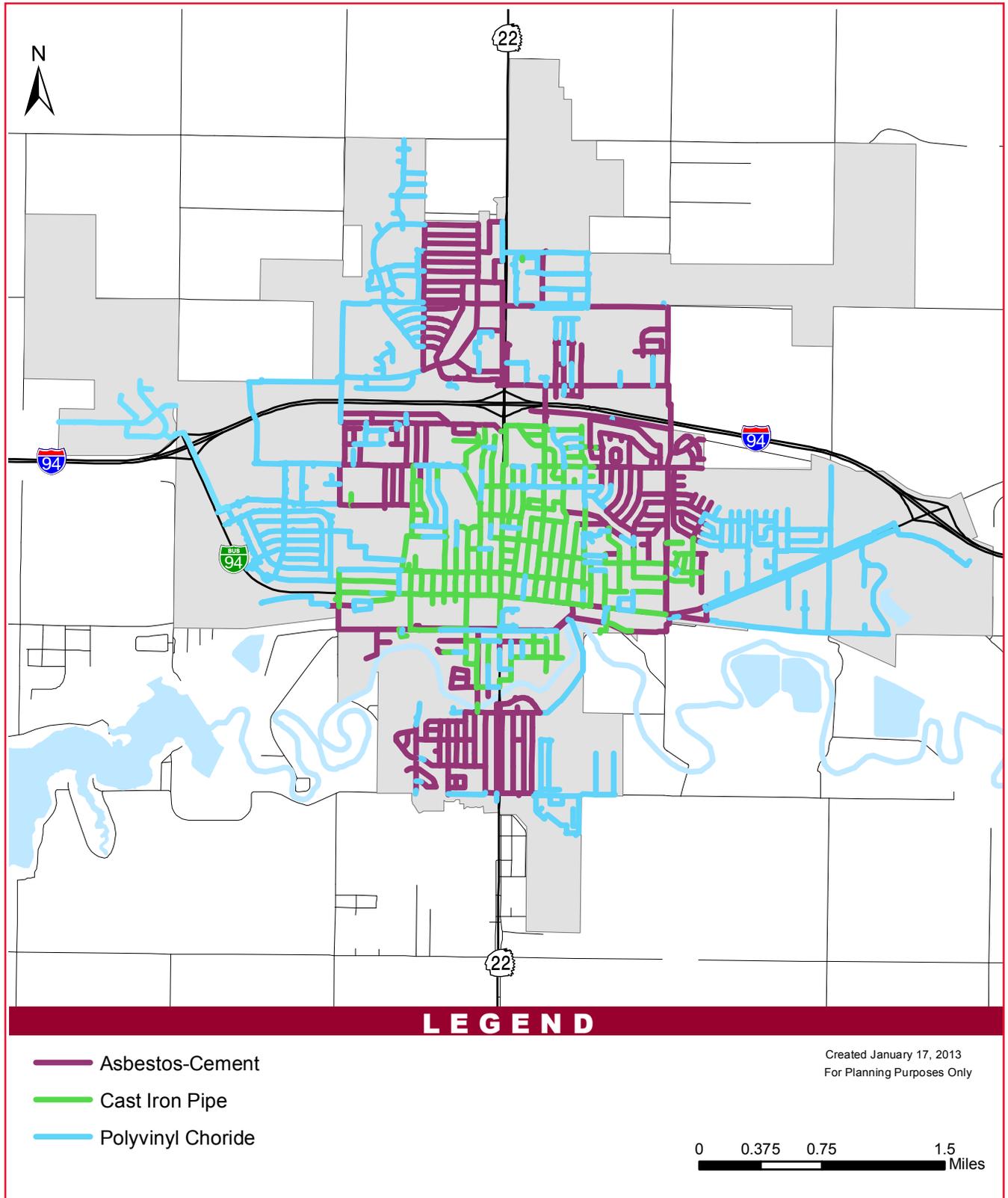
Figure 6-2: Location of Water Mains By Size



SOURCE: KLI

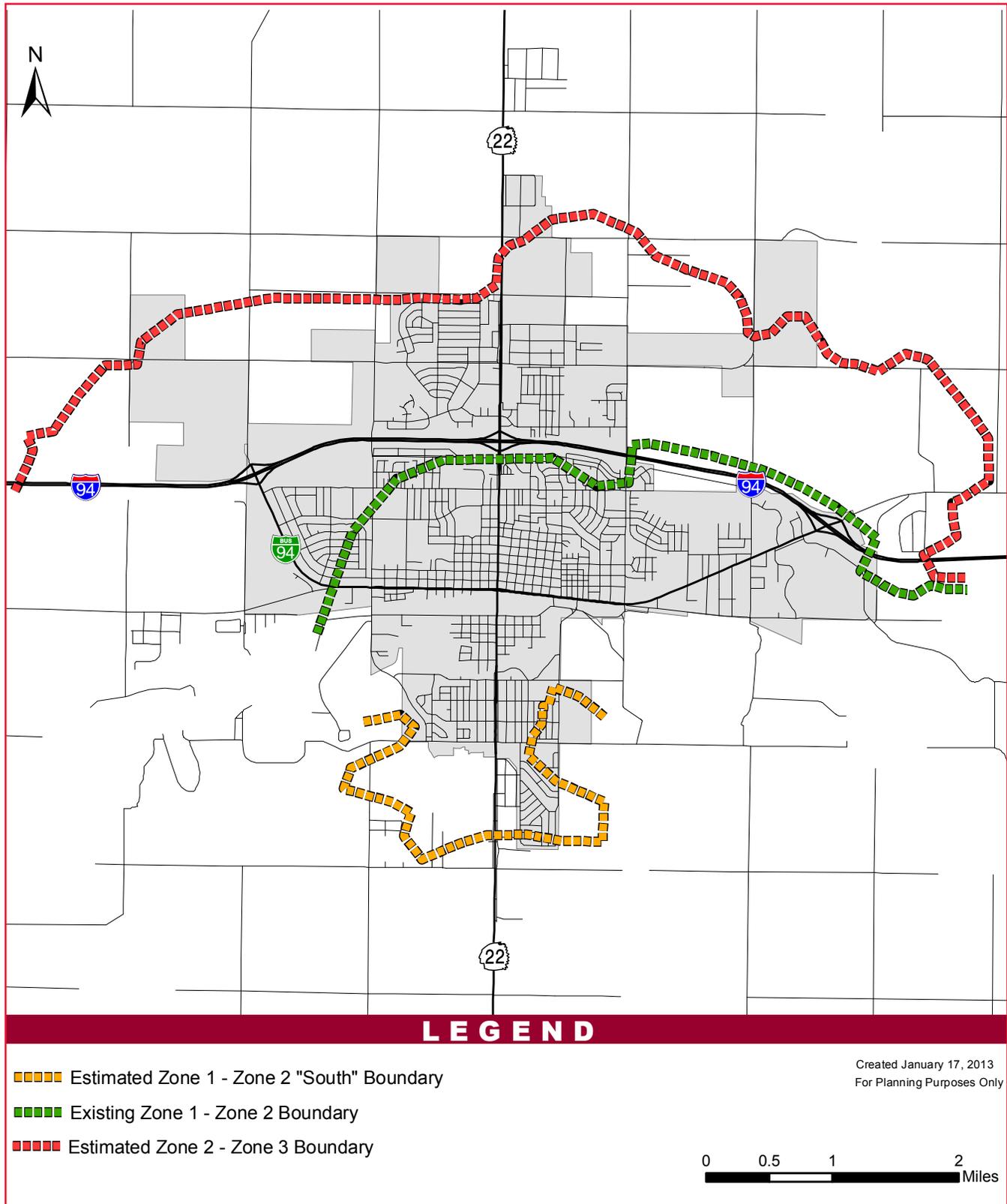


Figure 6-3: Location of Water Mains By Type of Material



SOURCE: KLJ

Figure 6-4: Delineation of Pressure Zones Boundary and Estimated Maximum Extension of Pressure Zones



SOURCE: KLJ



Table 6-1: Existing Water Storage Facilities

Water Storage Facilities	Description/Function
6 million gallon reservoir at water treatment plant	Clearwell #3 and emergency storage for entire system
1 million gallon tank (at 10th Avenue East and Baker Avenue)	Ground storage tank that provides storage for Zone 1 and the booster station pumping into Zone 2
North East Tower (4th Avenue East and 6th Street)	500,000 gallon elevated tank located in Zone 1
Young’s Tank (Rocky Butte Park)	843,000 gallon ground storage tank located in Zone 1
North Water Tower (26th Street and Sims)	500,000 gallon elevated tank located in Zone 2
North West Tower (1489 State Avenue)	525,000 gallon ground storage tank located in Zone 2

SOURCE: KLJ

Table 6-2: Existing Booster Station Facilities

Water Booster Station	Description/Function
1 million gallon booster station (10th Ave East)	Pumps water out of the 1 million gallon ground storage tank to supply Zone 1 tanks and the north booster station
North Booster Station	Pumps water supplied through Zone 1 to Zone 2 tanks

SOURCE: KLJ

Water levels within Zone 1 elevated tanks are controlled by the water level within the North East Tower. When the level within the North East Tower reaches the normal low water set point, pumps at the SWA treatment plant turn on and fill Zone 1 tanks. The water level within the 1 MG booster station tank on 10th Avenue East is controlled by an altitude valve, which opens when the tank reaches the normal low water set point, and closes once filled. Water levels within Zone 2 tanks are controlled by the level in the North Water Tower. When the water level within the North Water Tower reaches the normal low water level, the booster station at the 1 MG tank turns on and approximately five minutes later the North Booster Station turns on to supply water to Zone 2. Once the tanks are full, the booster stations shutdown in reverse order.

Water Supply

As noted above, the city is contractually allocated a maximum of six MGD from the SWA. However, if excess water is available in the entire SWA system, SWA would make additional water available to meet the city’s emergency needs.

Table 6-3 shows the July average daily and peak daily use of water in 2012; Table 6-4 shows the industrial use of city water during the first nine months of 2012.

Table 6-3: City of Dickinson Daily Water Use, 2012

Water Use Measurement	Water Use (MGD)
July Average Daily Usage	3,865,000
Peak Daily Usage	4,921,000

SOURCE: SWA WATER USE REPORT

Table 6-4: Industrial Water Use from Bulk Water Use Permits and City Sale of Water, City of Dickinson, 2012

Month	Water Use
January	11,462,900
February	9,879,730
March	13,572,110
April	11,693,800
May	14,665,400
June	9,463,500
July	9,968,800
August	10,820,300
September	14,236,100
Monthly Average	11,751,404
Daily Average Derived from Monthly Average	391,713

SOURCE: SWA INDUSTRIAL WATER USE REPORT

As noted later in this section, water demand from forecast growth far exceeds the city’s current water allocation. The SWA is currently planning for a major water system project intended to ultimately provide the city with 10 MGD. The additional water supply would be provided in two increments, in 2017 and 2019. If the project is fully funded by the state and proceeds on schedule, the city will have an adequate supply of water to service forecast growth identified to date.

Water Demands

Water demand can be measured several ways depending on the type of analysis conducted. Average daily demand and peak demand data was used in the water model. Peak demand and average July (peak month) were used to forecast water supply based on forecasted development.

Average Daily Demand

For the purpose of water modeling, a random sample of water meters was used to develop demand based on type of residential uses. The water meter data was supplemented by water usage data provided by the City assessor. The July 2011 meter readings and July 2012 water use records from the City assessor were used to establish average daily demands by type of residential use presented in Table 6-5.

Table 6-5: Calculated and Assumed Average Daily Demand by Type of Residential Unit

Residential Use	Sample Size	Average Daily Demand (GPD)	
		Calculated	Assumed
Single-family detached	297 properties	297	300
Single-family attached	23 individual units	196	200
Apartments	18 apartment buildings with 373 total units	154	150

SOURCE: CITY WATER DEPARTMENT AND CITY ASSESSOR



Average daily water demand for commercial and industrial use was also analyzed. Water demands of the largest commercial and industrial water user were obtained from meter readings to calibrate the water model. The 75 highest commercial and industrial water users had an average flow rate ranging from approximately 1.4 gallons per minute (GPM) to 30.6 GPM. For the purposes of forecasting water demand generated from future commercial and industrial development, a national standard of typical water use per acre was used. Future commercial uses were assumed to use 2,035 gallons per day (GPD) and future industrial uses were assumed to use 2,055 GPD.

Peaking Factor

To accurately identify system deficiencies, the peak day water demand was factored in the water model. Based on information provided by SWA, the maximum volume of water used by the city in 2011 during a single day during the peak month (July) was 4,219,000 gallons. The average daily demand of approximately 3,345,900 gallons for July yields a peaking factor of 1.26 and for the purposes of modeling the factor was rounded up to 1.3.

Analysis of the Existing Water System

The existing water system was evaluated in terms of water pressure, fire flows, overall water storage and specific areas in need of additional water storage.

Water Pressure

The 10 State Standards¹ recommends normal distribution system operating pressures should be between 60 and 80 pounds per square inch (PSI). However, in areas with significant topography, operating within this range can be problematic or require creation of a significant number of pressure zones. The 10 State Standards also recommends operating pressures should not be allowed to drop below 35 PSI. If pressures exceed 100 PSI, pressure reducing valves should be made available to service connections to reduce pressures. Analysis of existing condition for the city of Dickinson suggests the system operates within the 35 to 100 PSI range taking into account the anticipated fluctuations in water tower levels.

Fire Flows

The city's adopted fire flow standards were used in the water model to identify areas in the city that do not currently meet the standards. Fire flow standards are shown in Table 6-6.

Table 6-6: City of Dickinson Desired Fire Flows

<i>Land Use</i>	<i>Fire Flow</i>
R1 and RR Residential	1,500 gpm for 2 hours
R2 and MH Residential	2,500 gpm for 2 hours
R3 Residential	4,000 gpm for 4 hours
Commercial and Industrial	4,000 gpm for 4 hours

SOURCE: CITY OF DICKINSON

¹ Recommended Standards for Water Works, Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (10 States Standards), 2012.

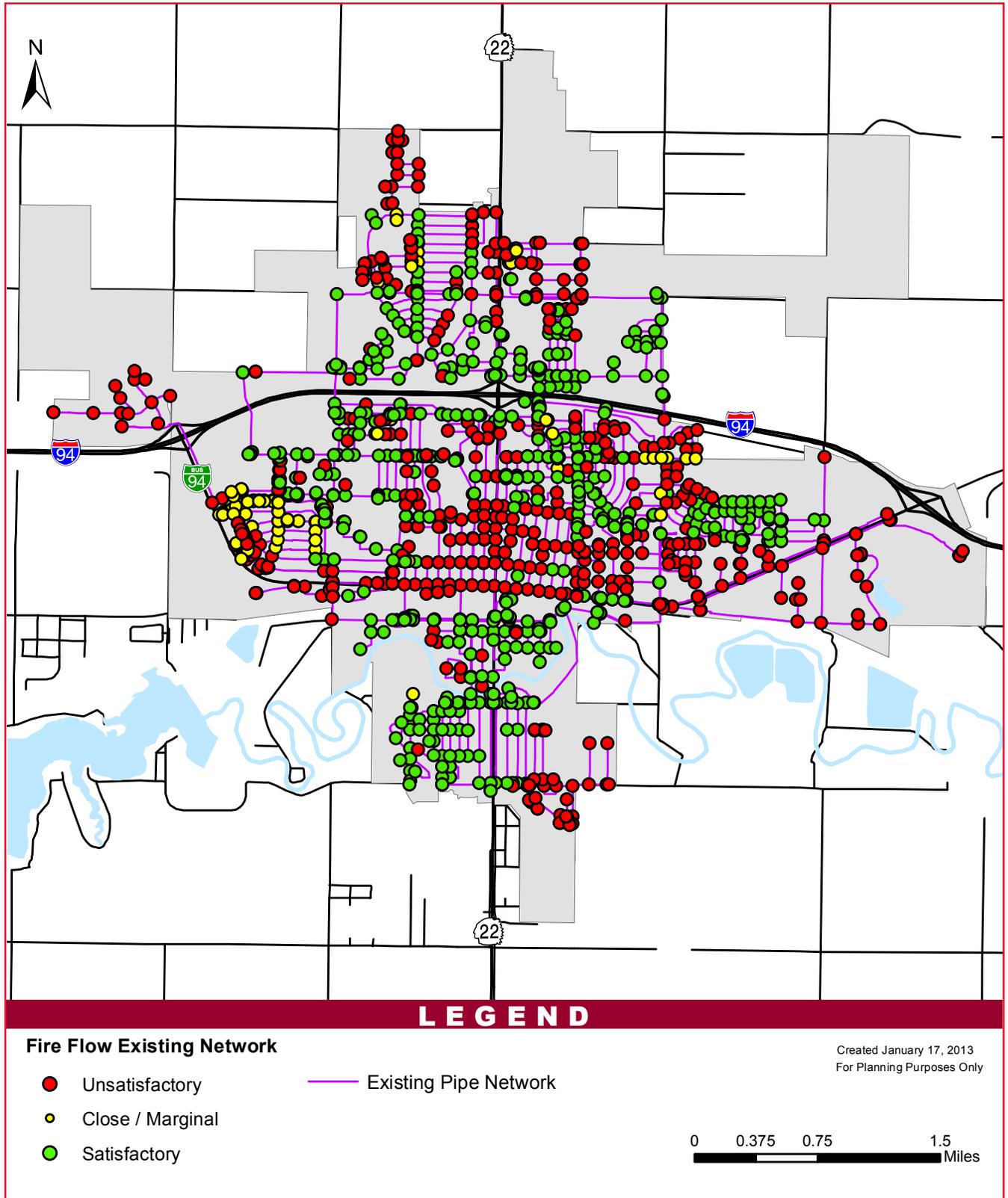
Much of the city does not meet these standards. Figure 6-5 provides an overview of modeled potential fire flows compared to fire flow standards. Some fire flow deficiencies are due to the basic design of the water system. Approximately 48 percent of water mains in the city are six inches in diameter or smaller. The 10 State Standards specifies a water main with a fire hydrant should have a minimum diameter of six inches. However, this size is more appropriate for meeting fire flows of 1,000 GPM or less. Secondly, based on current fire flow testing results, much of the distribution network is in poor condition. Approximately 35 percent of the water mains have a Hazen Williams value of 70 or less. A value this low, compared to a design value of 130, suggests severe pipe degradation due to corrosion, build up and/or rusting. In terms of capacity, these pipes have approximately half of the flow capacity of new pipe. Replacement of all pipes six inches or less in diameter with eight-inch pipe, along with replacement of all pipes with a Hazen Williams value of 70 or less, greatly improves the system's ability to achieve desired fire flows. Figure 6-6 shows the extent of fire flow improvements if all undersized or constricted water mains are replaced.

It is not practical or reasonable to replace all existing pipes six inches or less. Addressing the areas with inadequate fire flow will require a variety of additional improvements which are discussed in the remainder of this section. These improvements will include additional looping, targeted upgrades in pipe sizes, additional pumping facilities, adjustment of pressure zone boundaries, new water towers and establishment of new pressure zones.

Figure 6-7 provides an overview of possible system improvements to correct fire flow deficiencies.

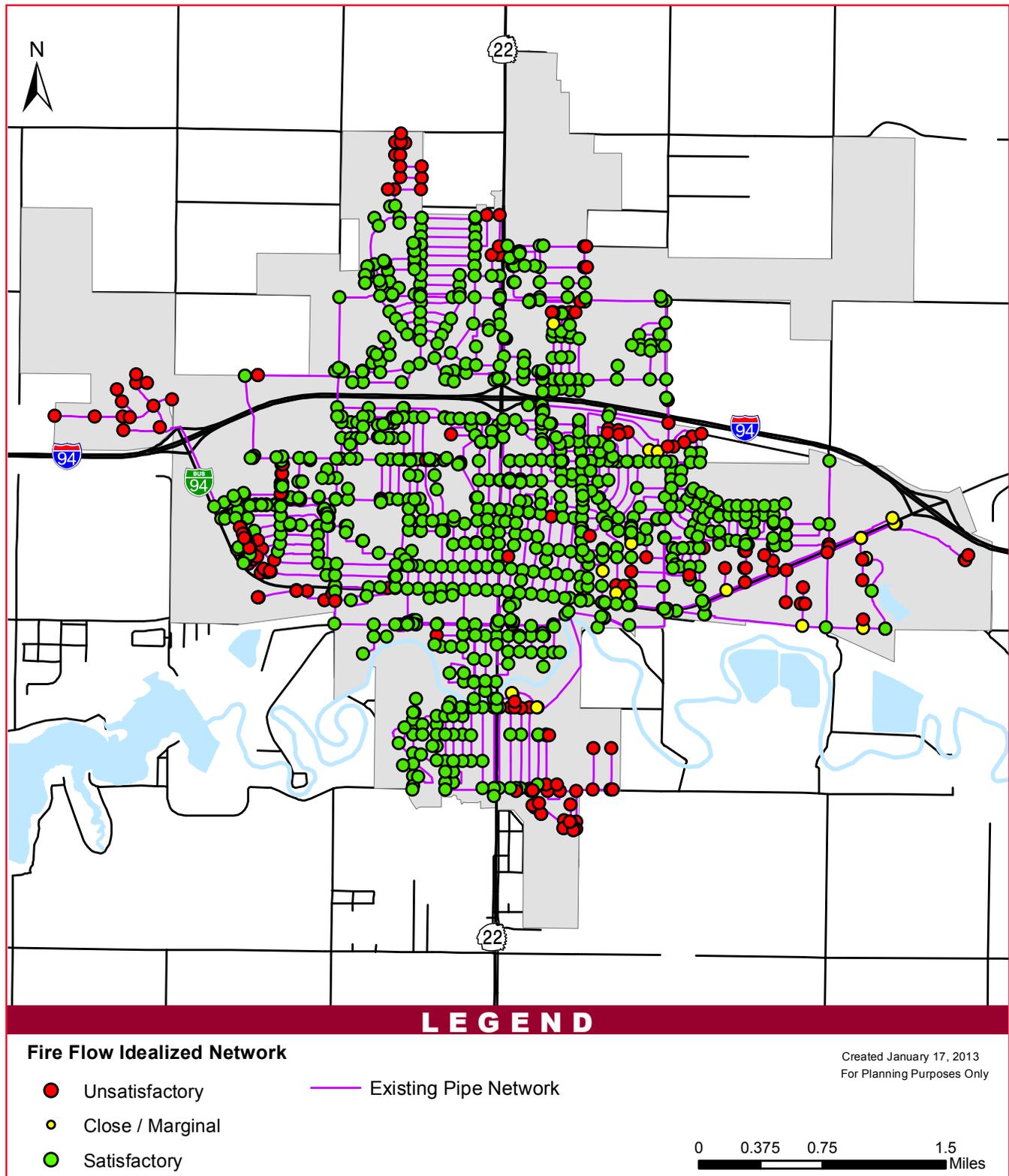


Figure 6-5: Areas Identified through Modeling that Do Not Meet Fire Flow Standards



SOURCE: KLJ

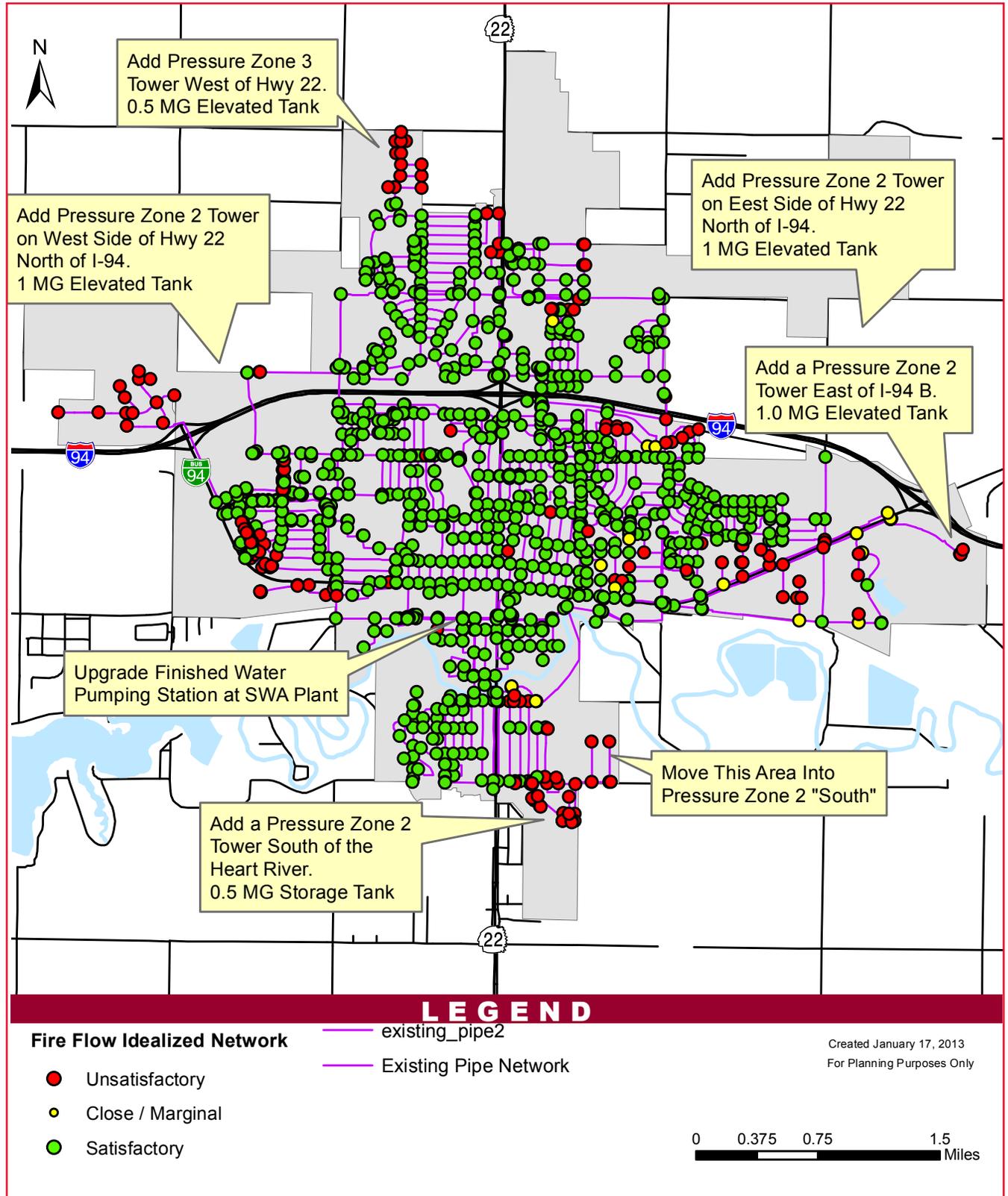
Figure 6-6: Areas that Do Not Meet Fire Flow Standards After All Undersized or Constricted Water Mains are Replaced, Based on Water Model Analysis



SOURCE: KLJ



Figure 6-7: Additional Improvements to Correct Remaining Fire Flow Deficiencies



SOURCE: KLJ

Overall Water Storage

The city’s water distribution system has 1.34 MG of elevated storage in Pressure Zone 1, and Pressure Zone 2 has 1.0 MG of elevated storage. In addition, Zone 1 has a 1 MG reservoir tank that provides storage water to Pressure Zone 1 and indirectly to Pressure Zone 2. The reservoir is a ground tank that is neither on a hill or pressurized, thus a pump is required to deliver water to the system. Current annual average daily system demands are approximately three MGD. In addition, the limiting fire flow requirements are assumed to be 4,000 GPM flow for four hours in any pressure zone. The 10 State Standards suggest water system distribution storage should be enough to supply the average daily demand plus fire flows. An additional storage of approximately 2.0 MG is needed within the existing system today. An analysis of the existing system was used to determine approximate locations for new water storage facilities.

Table 6-7: Locations of Storage Facilities in the Existing Water System

Month	Water Use	Use
Between 10th Avenue East and Baker Avenue	1 MG	Ground storage tank provides storage for Zone 1 and the booster pumping station pumping to Zone 2
North East Tower (4th Avenue East and 6th Street)	.5 MG	Elevated tank located in Zone 1
Young’s Tank (Rocky Butte Park) located in Zone 1	843,000 gallon	Ground storage tank located in Zone 1
North Water Tower (26th Street and Sims)	.5 MG	Elevated tank located in Zone 2
North West Tower (1489 State Avenue)	525,000 gallon	Ground storage tank located in Zone 2
Total	3.37 MG	

SOURCE: KLJ

Areas in Need of Additional Water Storage

Several areas in the city were identified as being deficient in water storage.

The first area is at the east end of the city near the proposed public works building, which is hydraulically distant from its nearest tower. As such, it is difficult to maintain adequate fire flow in the area. As part of the new storage needed in the system, it is recommended a tower be placed in this area. The southern portion of the city has a similar concern. Therefore, a new water tower is recommended in this area as well. An analysis of the current plus future demands in these areas is needed to properly size and specifically locate the water towers.

The next area is Pressure Zone 2, which will ultimately be the city’s largest zone. It is recommended a tower be placed in the western portion of the city north of I-94 to address existing fire flow deficiencies in the area. Detailed analysis of future growth will provide guidance on placement of additional water towers in Pressure Zone 2.

The last area is the new Pressure Zone 3. It is recommended a tower be placed west of Highway 22 to service the area. Detailed analysis of future growth will provide guidance on placement of additional water towers in Pressure Zone 3.

Analysis of Impacts on the Water System from Forecast Growth

System Pressures

To maintain future system pressures, new pressure zones will need to be established. Figure 6-8 shows the approximate configuration of new pressure zones. Figure 6-9 shows the same information in relation to the phasing of forecasted development. As the figures indicate, forecasted growth areas in Planning Period 1 will require establishment of new pressure zones. The specific location of new pressure zone boundaries will need to be adjusted as the placement of new water tanks is finalized.



To create additional pressure zones, it is recommended that booster pumping stations draw water from a water tank or reservoir rather than from the network itself. This will avoid drawing down the hydraulic grade of the network. With monitors at the towers, it will also be easier to monitor and control filling water tanks at this time. It is recommended a dedicated water main from the SWA Water Treatment Plant is established to deliver water to the new recommended west side water tower in Pressure Zone 2. This tower will serve not only Pressure Zone 2 but also serve as the source for new booster station for Pressure Zone 3 to the north. Locating additional storage facilities, along with dedicated water mains to fill these storage facilities, will provide an adequate water supply for an area of the city seeing rapid development and infill. With the addition of the new west side I-94 interchange, this area of the city will most likely see increased growth. These improvements also provide a second path for water to reach Pressure Zone 2 which adds significant dependability to the system.

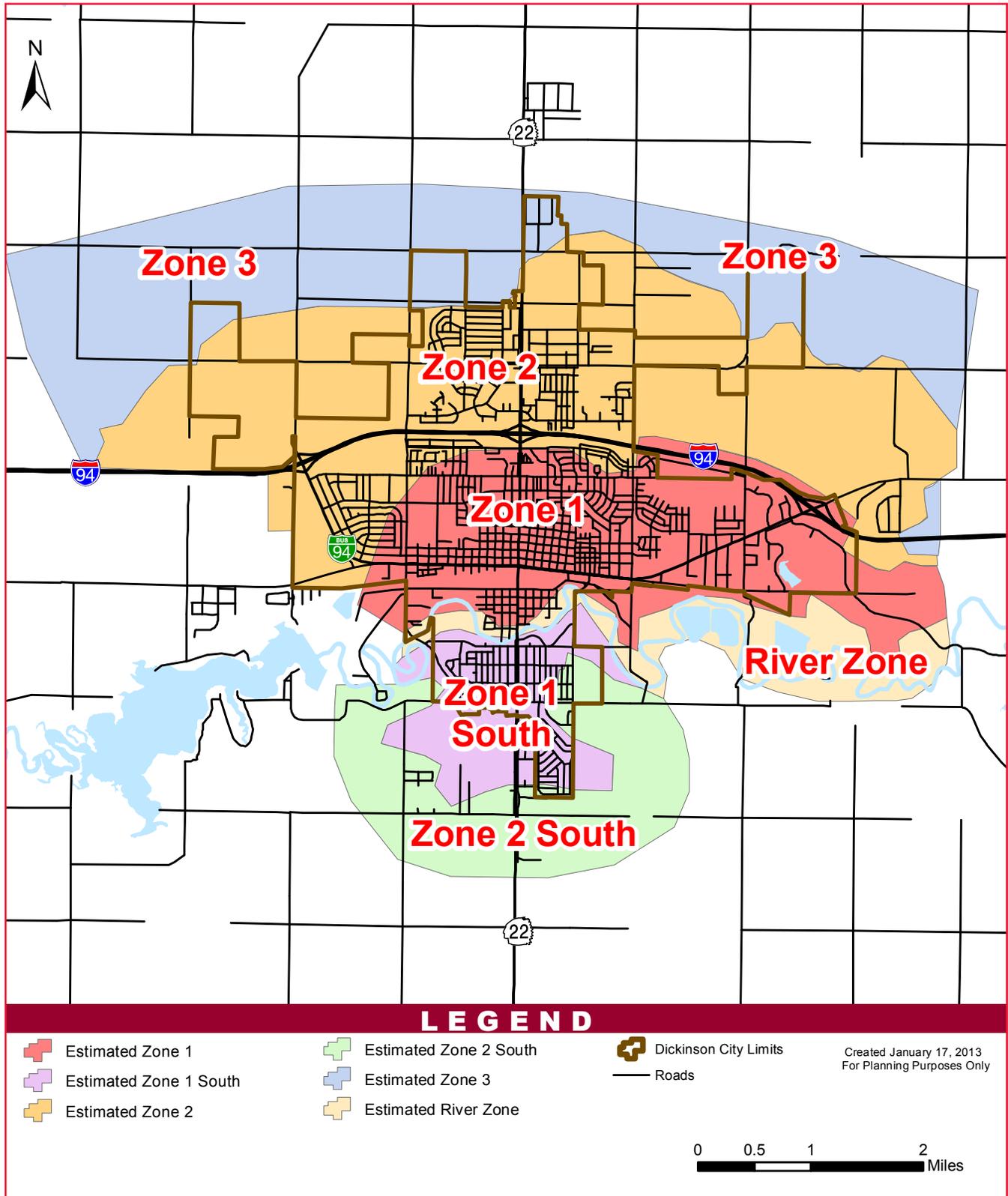
A pressure zone must be able to maintain operating pressures between 35 and 100 PSI. To understand existing pressure zones and elevations they can cover, an analysis of the existing elevated storage was conducted. The analysis looked at minimum and maximum levels in the towers. The ground reservoir, which requires a pump, was not analyzed because it does not control system pressure. At the lowest programmed level in a water tower, 35 PSI must be maintained for water users. At highest programmed level in a water tower, the pressure must not exceed 100 PSI. This analysis looked at static pressures without friction losses in the pipe. The 35 and 100 PSI limits were reduced to 40 and 80 PSI for this analysis. Forty PSI equates to approximately 92 feet of head and 80 PSI equates to approximately 185 feet of head. Thus, the anticipated service areas of the elevated storage can be found by subtracting 92 feet from the minimum hydraulic grade of the tower and 185 feet from the operating elevation of the water tower. Figure 6-8 provides a schematic of the service areas of the existing towers based on this analysis.

Pressure Zone 3 was added to the schematic to determine the tower height necessary to service the area. The gap between Pressure Zone 1 and 2 is bridged by allowing for greater than 80 PSI from Pressure Zone 2 towers or by programming Pressure 1 towers to remain close to full. In summary, this analysis is a simplified version of the computer software program, which helps determine where to place new towers.

New Pressure Zone to the East

Based on both the above analysis and the computer model, it was determined that topography on the east side of the city of Dickinson near the proposed public works building is quickly climbing out of the Pressure Zone 1 coverage area. This helps to explain the poor fire flows in the area. As previously stated, a new tank should be placed in this area. The exact location, sizing and elevations are approximated and would be determined during the design process. The tank would ideally be fed directly from the Water Treatment Plant or its own booster pump. The exact feed route is also left for the design process. Given the smaller amount of anticipated development in this area outside Pressure Zone 1, it is not practical to place towers in all Pressure Zones. Therefore, a tower in Pressure Zone 3 is proposed with pressure reducing valves to establish Pressure Zone 2 in this area and also feed into Pressure Zone 1. The new public works building would be moved into Pressure Zone 2. Figure 6-11 provides a conceptual layout. Exact location of system components will be established in the design stage of the improvements. The conceptual layout of this area in terms of creating new pressure zones could be used in other future growth areas as well.

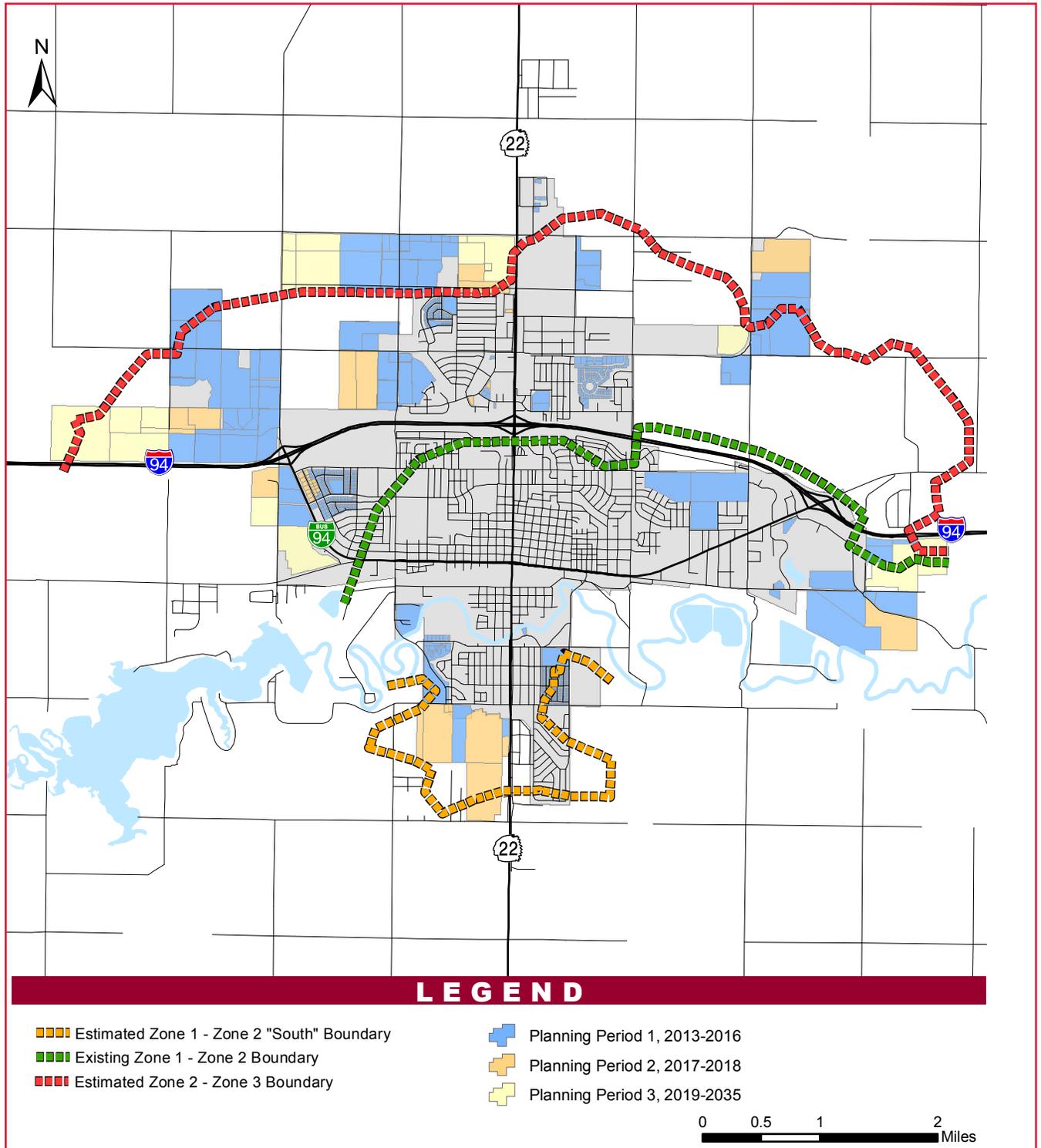
Figure 6-8: Approximate Configuration Expanded Existing and New Pressure Zones



SOURCE: KLJ

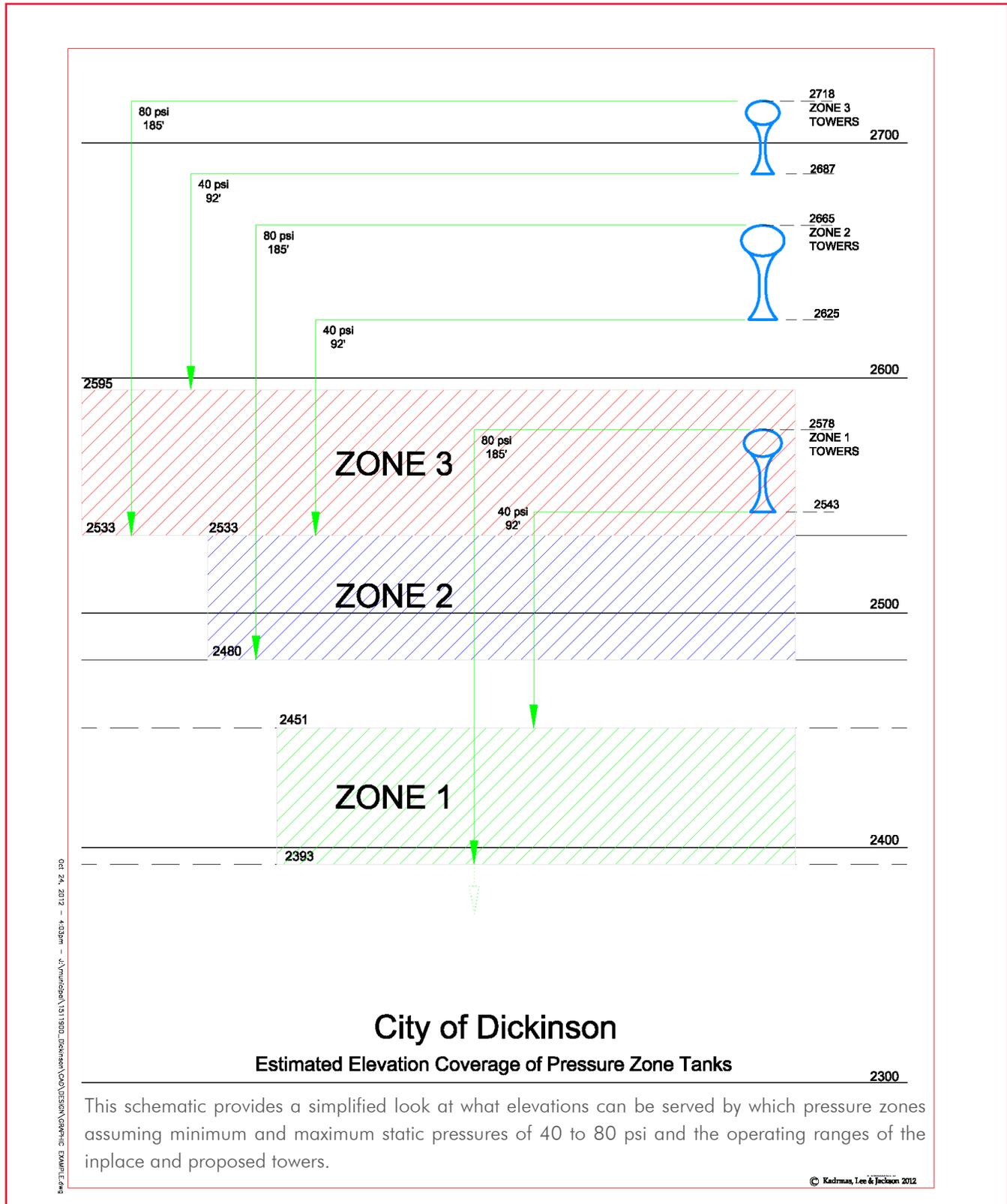


Figure 6-9: Water System Pressure Zones in Relation to Forecasted Growth



SOURCE: KLJ

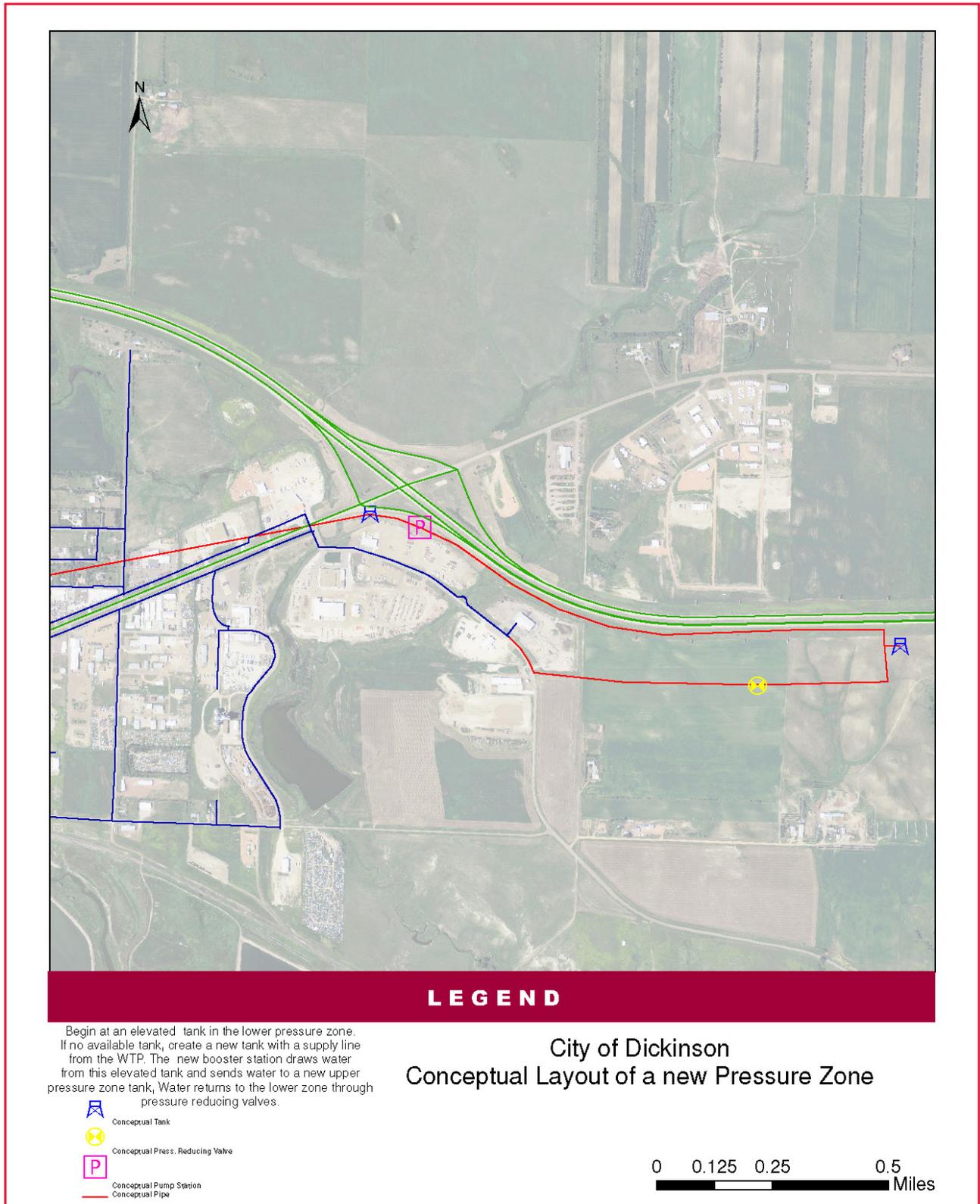
Figure 6-10: Schematic of the Service Areas of Existing Water Towers



SOURCE: KLJ



Figure 6-11: Conceptual Layout of Water System Improvements to the Planned Eastern Industrial Area



SOURCE: KLJ

New Pressure Zones to the South

In a similar fashion to the previous discussion, a new tank needs to be placed south of the Heart River. This tank would be supplied from the SWA Water Treatment Plant. Pressure reducing valves will be needed to tie Pressure Zone 2 South back to Pressure Zone 1.

River Pressure Zone

The area along the Heart River has higher existing static pressures due to its lower elevation. The static pressure would be raised further due to a new Pressure Zone 1 tank south of the river. Although the tank is not programmed higher than the existing tanks, by placing the river between tanks, the losses due to friction would be effectively less which would raise the pressure. To ensure the area along the Heart River is not over-pressurized, this area would be placed into a new River Pressure Zone. This pressure zone would also apply to areas south of the new proposed public works building that are adjacent to the river. When tying Pressure Zone 1 to the Pressure Zone 1 south of the river, taps to the network should be avoided in the river area to prevent over-pressurizing.

New Pressure Zones to the North and West

Areas north and west, and north and east, of the existing Pressure Zone 2 quickly climb out of the elevations easily served by the existing towers in several locations. In the northeast sector, the Sundance development should be moved into Pressure Zone 3. To the north and west, a booster station would be needed to tap the proposed west side Pressure Zone 2 tower to raise the water to new Pressure Zone 3 tower. The exact location of towers will need to be determined at the design stage. In the long-term, the booster station feeding to the north could also feed northeast to a new tower near the proposed Sundance development.

Fire Flows

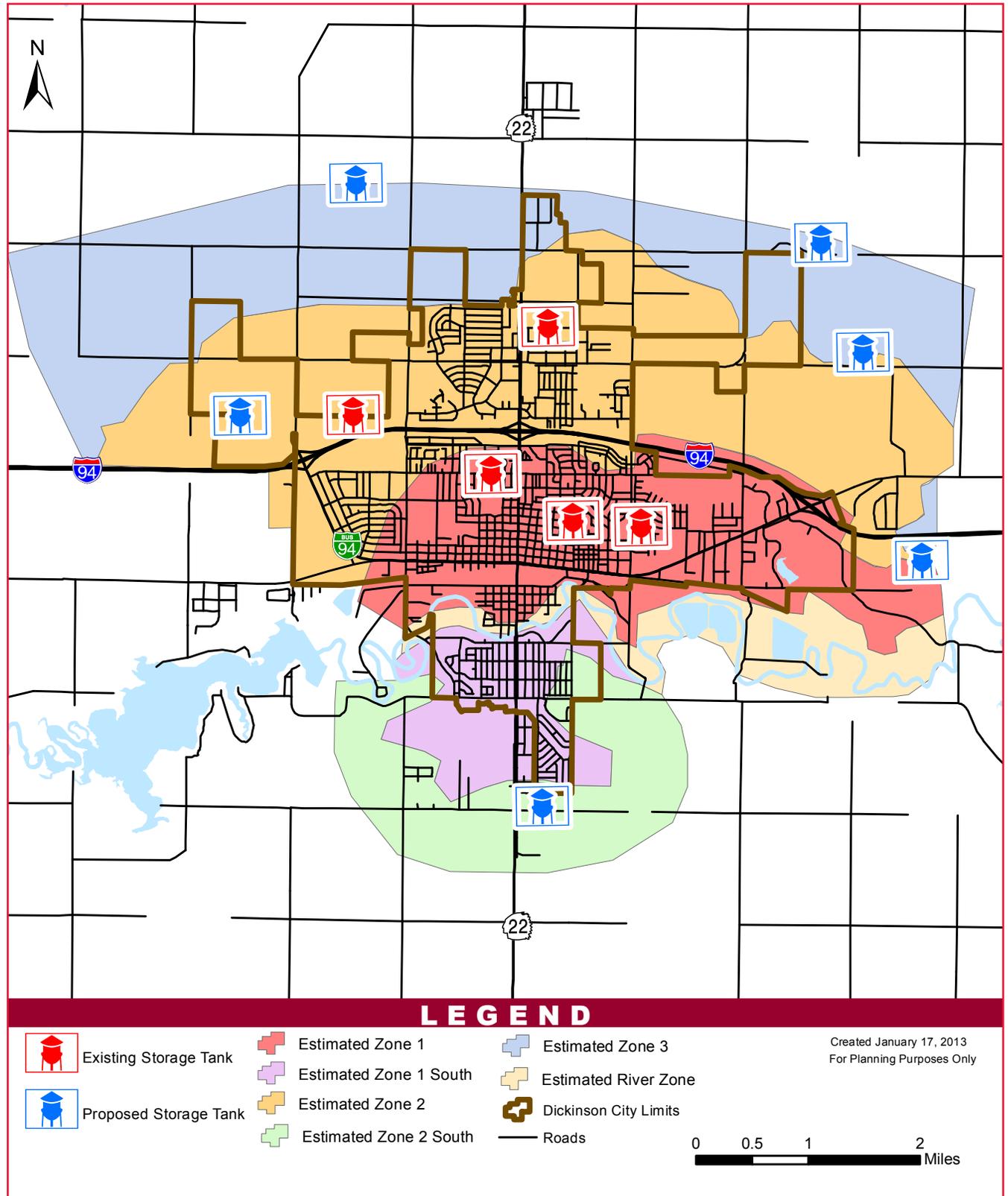
New development in the city of Dickinson should use a standard of 8 inches or larger water mains. Lines to new towers should be 18 inches or larger. Main transmission lines should be 12 inches or larger. As new development is planned, the exact sizes should be verified and validated by the system model to ensure fire flow standards are met.

Storage

Based on demand projections, new towers will be needed in all pressure zones. Figure 6-12 shows location of existing water storage facilities and general location of new proposed water storage facilities. Table 6-8 provides the storage capacity of existing and proposed water tanks. These values will need to be refined as part of the design process. Today an additional 2 MG of storage is needed and an additional 2.4 to 3.4 MG will be needed based on forecast growth. The recommended total storage today is 5.4 MG and 7.4 to 8.4 MG in 2035.



Figure 6-12: Locations of Existing Water Tanks and General Locations of Proposed Water Tanks



SOURCE: KLJ

Table 6-8: Storage Capacity of Existing and Proposed Tanks

Existing and Proposed Storage Tank	Tank Storage Capacity (Gallons)	Pressure Zones
Existing Storage Tank	525,000	Zone 2
Existing Storage Tank	500,000	Zone 2
Existing Storage Tank	843,000	Zone 1
Existing Storage Tank	500,000	Zone 1
Existing Storage Tank	1,000,000	Zone 1
Proposed Storage West Side Tank	1,000,000 to 1,500,000	Zone 2
Proposed Storage East Side Tank	500,000 to 1,000,000	Zone 2
Proposed Storage East Side Tank	500,000 to 1,000,000	Zone 2 or 3
Proposed Storage North West Tank	500,000	Zone 3
Proposed Storage North East Tank	500,000	Zone 3
Proposed Storage South Tank	500,000 to 1,000,000	South Zone 2
Total	7.4 to 8.4 MG	

SOURCE: KLJ

Water System Monitoring

As the water distribution system grows and becomes more complex, it is recommended the city installs SCADA monitoring equipment. At a minimum, water levels in each tank and status of each booster pump should be monitored in a central location.

Water Supply

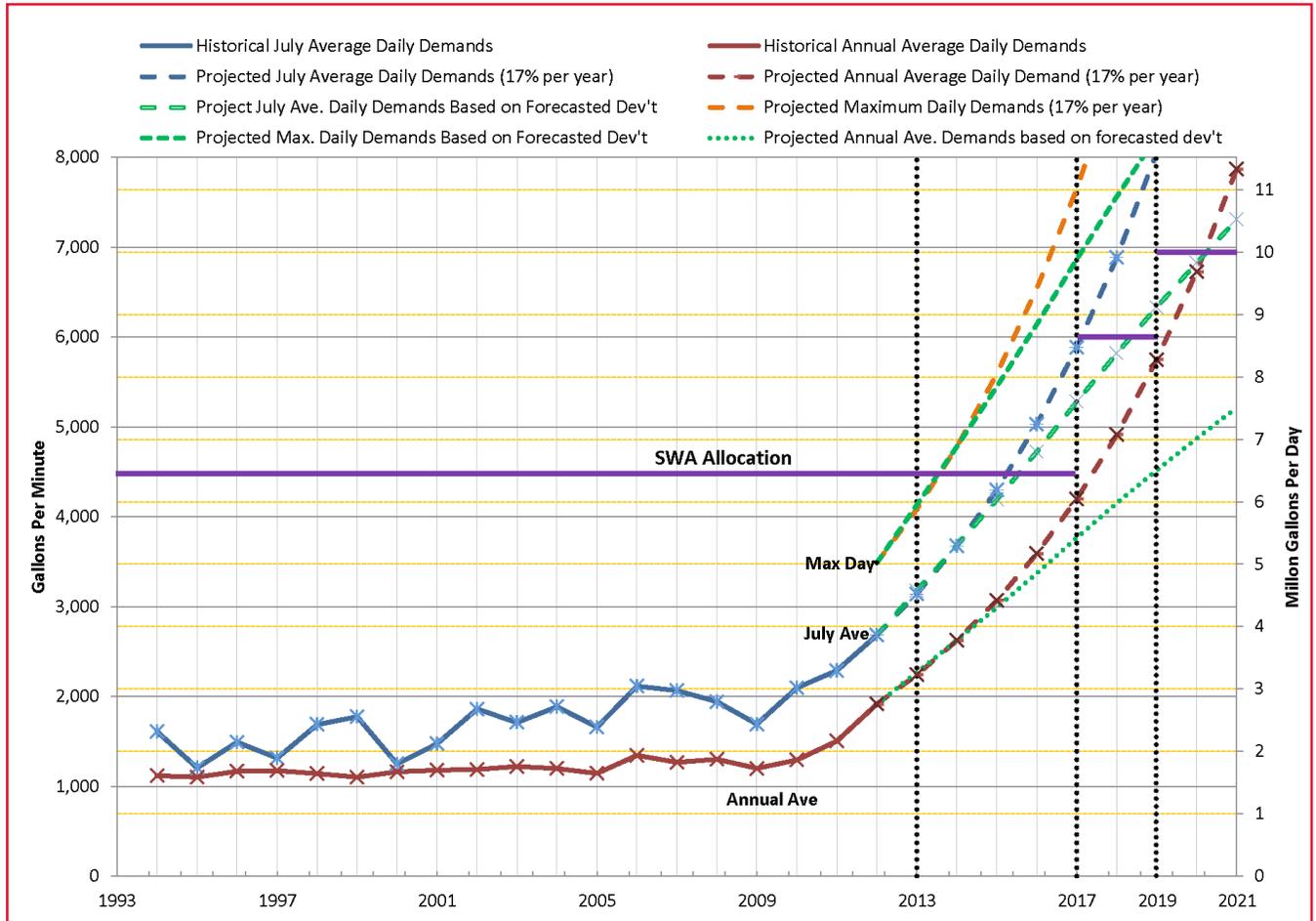
As noted above, the city’s current allocation of water from SWA is not adequate to provide water service for all of the forecast growth. The SWA planned water system project must be fully funded and constructed on schedule to accommodate forecast growth. A detailed analysis of the water demand from forecast growth was conducted. The phasing of the forecast growth was based on the additional water supply that is planned to be provided in 2017 and 2019. Figure 6-13 shows several measures of forecast water demand in relation to the planned additional supply water in 2017 and 2019.

Figure 6-8 shows the forecast maximum or peak day use, the average July use of water and the annual average use from 1993 to 2021. The year 2021 was selected because it is the peak year of forecast growth. All three measures were based on the continuation of the average 17 percent increase in water use over the past three years as well as forecasted water demand from the water model. The amount and timing of the existing and planned city water supply is also shown.

There are two important observations that can be made from the information. First, the peak water demand use is expected to exceed the city’s water supply during the summer of 2014 and continue through the planning period. As such, as early as summer 2014 the city may need to institute water conservation or restriction measures to reduce summer peak day water use. Second, the planned additional supply of water appears to be sufficient to meet demand generated by forecast development. However, through 2019 the city should carefully monitor expected water demand from approved development to ensure demand for water does not exceed supply.



Figure 6-13: Forecasted Water Demand and Additional Planned Water Supply



Notes: 1. The City's contracted allocation of water with SWA is 6 MGD, however, due to the fact that historic peak demand in the rural service area is 5.24 MGD, it is assumed that SWA will make available to the city an additional 0.5 MGD only in case of emergency. 2. Assumes the SWA Pipeline Project is fully funded by the state and the planned additional supply of water to the city will occur on schedule in 2017 and 2019.

Given the importance of water supply, a more detailed analysis of future water demand was conducted based on the amount, type and timing of expected future development provided by the City planner. Table 6-9 shows the forecast water demand based on forecast development phased to correspond to the planned additional water supply. The expected development over the entire planning period is estimated to generate a total demand of 5,542,000 GPD. Nearly 43 percent of estimated future water demand is generated during Planning Period 1 (2013 through 2016). Sixty percent of total expected demand is generated by future residential uses.

Table 6-9: Forecasted Water Demand By Planning Period, By Land Use

Type of Use	2013-2016	2017-2018	2019-2035	Total
Residential	1,299,000	765,000	1,243,000	3,307,000
Commercial	763,000	297,000	450,000	1,510,000
Industrial	300,000	158,000	267,000	725,000
Total	2,632,000	1,220,000	1,960,000	5,542,000

SOURCE: KLJ, Note: All figures are gallons per day

Tables 6-10 to 6-17 provide alternative methods to forecast water demand in relation to planned supply. Each figure shows forecast water demand along with the planned 2017 and 2019 additional water supply. The figures differ with regard to assumption made.

In Tables 6-10 and 6-11 it is assumed that summer month water restriction will be instituted, the City will not re-issue industrial bulk water use permits, and the City will stop the bulk water sale to the oil industry. The termination of bulk water sales should be able to be accomplished in 2014 when the wastewater treatment plant is expected to be operation and an abundance of reclaimed water will be available for sale. Table 6-11 shows the city should be able to maintain an adequate water supply through the planning period.

Table 6-10: Scenario 1A – Summer Water Restrictions and No Bulk Water Permits or City Sale of Water

Water Usage/Capacity	SWA Allocation
Total Capacity	6,500,000
2012 July Daily Average Usage	3,865,000
Remaining Capacity	2,635,000
No Bulk Water Permits or City Sale of Water to Oil Companies	392,000
Total Remaining Water Supply Through 2016	3,027,000

SOURCE: KLJ, Notes: 1. All figures are gallons per day. 2. Bulk water use and City sale of water based on average use during Jan. 2012 to Sept. 2012. 3. The City’s contracted allocation of water with SWA is 6 MGD, however, due to the fact that the historic peak demand in the rural service area is 5.24 MGD, it is assumed that SWA will make available to the city an additional 0.5 MGD in the near term.

Table 6-11: Allocation of Remaining and Planned Water Supply under Scenario 1A

Water Usage/Capacity	Water Supply
Remaining Water Allocation	3,027,000
Planning Period 1 Forecasted Development (2013-2016)	2,362,000
Estimated Remaining Water Supply at the end of 2016	665,000
Planned Additional Water Supply in 2017	2,160,000
Total Planned Water Supply in 2017	2,825,000
Planning Period 2 Forecasted Development (2017-2018)	1,220,000
Estimated Remaining Water Supply at the end of 2018	1,605,000
Planned Additional Water Supply in 2019	1,340,000
Total Planned Water Supply in 2019	2,945,000
Planning Period 3 Forecasted Development (2019-2035)	1,960,000
Water Supply After All Forecasted Development is Provided Water	985,000

SOURCE: KLJ, Note: All figures are gallons per day



In Tables 6-12 and 6-13 it is assumed summer month water restriction will be instituted, the City will continue to issue industrial bulk water use permits, and the bulk sale of water to the oil industry. Table 6-13 shows that by a slim margin the city should be able to maintain an adequate water supply through the planning period. The forecasted water demand nearly exceeds the city's water supply during Planning Period 1. As such, it is recommended the City terminate all bulk sale of water after reclaimed water becomes available in 2014.

Table 6-12: Scenario 1B – Summer Water Restrictions and Continued Bulk Water Permits or City Sale of Water

<i>Water Usage/Capacity</i>	<i>SWA Allocation</i>
Total Capacity	6,500,000
2012 July Daily Average Usage	3,865,000
Total Remaining Water Supply Through 2016	2,635,000

SOURCE: KLJ, Notes: 1. All figures are gallons per day. 2. Bulk water use and City sale of water based on average use during Jan. 2012 to Sept. 2012. 3. The City's contracted allocation of water with SWA is 6 MGD, however, due to the fact that the historic peak demand in the rural service area is 5.24 MGD, it is assumed that SWA will make available to the city an additional 0.5 MGD in the near term.

Table 6-13: Allocation of Remaining and Planned Water Supply under Scenario 1B

<i>Water Usage/Capacity</i>	<i>Water Supply</i>
Remaining Water Allocation	2,635,000
Planning Period 1 Forecasted Development (2013-2016)	2,362,000
Estimated Remaining Water Supply at the end of 2016	273,000
Planned Additional Water Supply in 2017	2,160,000
Total Planned Water Supply in 2017	2,433,000
Planning Period 2 Forecasted Development (2017-2018)	1,220,000
Estimated Remaining Water Supply at the end of 2018	1,221,000
Planned Additional Water Supply in 2019	1,340,000
Total Planned Water Supply in 2019	2,553,000
Planning Period 3 Forecasted Development (2019-2035)	1,960,000
Water Supply After All Forecasted Development is Provided Water	593,000

SOURCE: KLJ, Note: All figures are gallons per day.

In Tables 6-14 and 6-15 it is assumed summer month water restriction will not be instituted, the City will not re-issue industrial bulk water use permits and the City will stop the bulk sale of water to the oil industry. Under this scenario, Table 6-15 shows that the city will have a deficient water supply by the end of 2016 and also at the end of the planning period. This scenario confirms the need for the city to institute water restrictions and/or effective water conservation measures.

Table 6-14: Scenario 2A – No Summer Water Restrictions and No Bulk Water Permits or City Sale of Water

Water Usage/Capacity	SWA Allocation
Total Capacity	6,500,000
2011 Peak Daily Usage	4,921,000
Remaining Capacity	1,579,000
No Bulk Water Permits or City Sale of Water to Oil Companies	392,000
Total Remaining Water Supply Through 2016	1,971,000

SOURCE: SOUTHWEST WATER AUTHORITY, OCTOBER 2012

Notes: 1. All figures are gallons per day. 2. Bulk water use and City sale of water based on average use during Jan. 2012 to Sept. 2012. 3. The City's contracted allocation of water with SWA is 6 MGD, however, due to the fact that the historic peak demand in the rural service area is 5.24 MGD, it is assumed that SWA will make available to the city an additional 0.5 MGD in the near term.

Table 6-15: Allocation of Remaining and Planned Water Supply under Scenario 2A

Water Usage/Capacity	Water Supply
Remaining Water Allocation	1,971,000
Planning Period 1 Forecasted Development (2013-2016)	2,362,000
Estimated Remaining Water Supply at the end of 2016	-391,000
Planned Additional Water Supply in 2017	2,160,000
Total Planned Water Supply in 2017	1,769,000
Planning Period 2 Forecasted Development (2017-2018)	1,220,000
Estimated Remaining Water Supply at the end of 2018	549,000
Planned Additional Water Supply in 2019	1,340,000
Total Planned Water Supply in 2019	1,889,000
Planning Period 3 Forecasted Development (2019-2035)	1,960,000
Water Supply After All Forecasted Development is Provided Water	-73,000

SOURCE: SOUTHWEST WATER AUTHORITY, OCTOBER 2012

Note: All figures are gallons per day.

In Tables 6-16 and 6-17 it is assumed that summer month water restriction will not be instituted, the City will continue to issue industrial bulk water use permits, and the bulk sale of water to the oil industry. Under this scenario, Table 6-17 shows that the City will have a significant water supply deficiency by the end of 2016, the forecasted demand nearly exceeds the planned water supply in Planning Period 2 and there will be an insufficient water supply at the end of the planning period. It is clear the City should not implement policies that would realize this scenario.

Table 6-16: Scenario 2B – No Summer Water Restrictions and Continued Bulk Water Permits or City Sale of Water

Water Usage/Capacity	SWA Allocation
Total Capacity	6,500,000
2011 Peak Daily Usage	4,921,000
Total Remaining Water Supply Through 2016	1,579,000

SOURCE: SOUTHWEST WATER AUTHORITY, OCTOBER 2012

Notes: 1. All figures are gallons per day. 2. Bulk water use and City sale of water based on average use during Jan. 2012 to Sept. 2012. 3. The City's contracted allocation of water with SWA is 6 MGD, however, due to the fact that the historic peak demand in the rural service area is 5.24 MGD, it is assumed that SWA will make available to the city an additional 0.5 MGD in the near term.



Table 6-17: Allocation of Remaining and Planned Water Supply under Scenario 2B

<i>Water Usage/Capacity</i>	<i>Water Supply</i>
Remaining Water Allocation	1,579,000
Planning Period 1 Forecasted Development (2013-2016)	2,365,000
Estimated Remaining Water Supply at the end of 2016	-783,000
Planned Additional Water Supply in 2017	2,160,000
Total Planned Water Supply in 2017	1,377,000
Planning Period 2 Forecasted Development (2017-2018)	1,220,000
Estimated Remaining Water Supply at the end of 2018	157,000
Planned Additional Water Supply in 2019	1,340,000
Total Planned Water Supply in 2019	1,497,000
Planning Period 3 Forecasted Development (2019-2035)	1,960,000
Water Supply After All Forecasted Development is Provided Water	-467,000

SOURCE: SOUTHWEST WATER AUTHORITY, OCTOBER 2012
Note: All figures are gallons per day.

RECOMMENDATIONS

A description of improvements, prioritization of improvements and projections of costs for the various recommended water system improvements are found in Chapter 12. Figure 6-14 provides an overview of Dickinson’s recommended 2035 Water System. Below is additional discussion regarding recommended system improvements as well as improvements or conditions for specific areas.

1. The City should work closely with SWA on the coordination, planning, design and construction of the water treatment plant expansion.
2. The City should coordinate with and assist the SWA to design city facilities housed within the new water pumping station that will be located next to the existing water treatment plant. The new facility will need to have enough capacity to deliver water directly to Pressure Zones 1, 2 and the new south Zone 2. An agreement SWA and the City establishing each party’s cost sharing responsibility for this facility is necessary.
3. City of Dickinson water system improvements for 2013-2014 should include the following:
 - a. Continue development of the water model to include all areas within the city’s extraterritorial area. A grid work of future watermains needed to serve the entire system should be established and presented on a future water system map. The water model is recommended to be updated periodically to incorporate any additions or improvements made to the system.
 - b. Coordinate proposed roadway improvements with all proposed water system improvements to assure adequate water system facilities are installed within the footprint of these roadway construction areas.
 - c. Provide 1.0 to 1.5 MG of additional storage for Pressure Zone 2 on the west side of the City north of I-94. Locating an additional storage facility in this area, along with a dedicated watermain to fill this storage facility, should provide an adequate water supply for an area of the city that is rapidly developing.

d. Establish Pressure Zone 3 for the northerly portions of the city and provide 0.5 MG of storage west of Highway 22 to begin servicing this zone. Construct a new pumping facility adjacent to the new west side Pressure Zone 2 storage facility to fill the Pressure Zone 3 storage. Establish the boundary between Pressure Zones 2 and 3 along the south side of the Koch West Addition, Koch Meadow Hills Addition and the Korte property. System pressures for these areas will be slightly higher than the recommended 80 psi but the nature of development in that area necessitates establishment of a dependable water supply.

e. Begin construction of the recommended 14-inch watermain from west to east to serve Pressure Zone 3. This watermain will be the main trunk line for this zone. Development in the upper elevation regions of the Sundance Village Addition or surrounding areas should not be allowed until additional storage is provided in the east side of Pressure Zone 3 as depicted on Figure 6-14.

f. Install a 24-inch watermain from the water treatment plant easterly along Broadway to the vicinity of the 10th Avenue East and Villard Street East intersection. This main would replace several smaller watermains and provide sufficient water supply to serve the easterly sections of Pressure Zones 1, 2 and possibly 3.

g. Monitor development associated with the proposed Pressure Zone 2 South. Adjust the priority of these improvements if warranted.

4. Recommended 2015-2016 City of Dickinson water system improvements would include the following:

a. Continue the current watermain replacement program to include strategic watermain looping for improving areas with deficient pressures and fire flows. The City should continue the phasing of these types improvements within its central area.

b. Provide additional storage, booster pumping and dedicated watermains to address the pressure and fire flow concerns in the east portions of the City located south of I-94. This area currently is hydraulically distant from any existing storage. One option for expanding the water treatment plant includes constructing a 6 MG plant in the easterly portion of the City. Should this option is be implemented, it would significantly change how water could be introduced to this area of the City. The City does not currently treat its own water. The City should work closely with SWA to determine responsibilities for the coordination, planning, design and construction of additional water treatment capacity. It is recommended that water options be monitored and any changes should be reflected in the 2035 water system.

c. Continue monitoring boundaries between pressure zones and making system modifications using control valves, isolating areas or looping watermains to improve areas with low pressures or inadequate fire flows.

d. Begin construction of the 16-inch watermain along 10th Avenue East north of 21st Street East to supply water to this portion of Pressure Zone 2 and to Pressure Zone 3's booster pumping facility.

e. Monitor development associated with the proposed Pressure Zone 2 South. Adjust the priority of these improvements if warranted.

5. Recommended City of Dickinson water system improvements include the following:

a. Annually update the water model to factor in any additions or improvements made to the system.

b. Coordinate proposed roadway improvements with all proposed water system improvements to assure adequate water system facilities are installed within the footprint of roadway construction areas.

c. Continue the current watermain replacement program to include strategic watermain looping for improving areas with deficient pressures and fire flows. The phasing of these improvements within the central area of the City needs to continue.

d. Continue monitoring boundaries between pressure zones and make system modifications using control valves, isolating areas or looping watermains to improve areas with low pressures or inadequate fire flows.



- e. Within Pressure Zone 2, provide an additional 1.0 MG storage, booster pumping and dedicated watermain to address the pressure and fire flow concerns in the east portions of this zone north of I-94.
- f. Within Pressure Zone 3, provide an additional 0.5 MG of storage with booster pumping to address the pressure and fire flow concerns in the east portions of this zone.
- g. Establish Pressure Zone 2 South for the southerly portions of the city. Provide 0.5 MG of storage along ND Highway 22 to service this zone. Construct the dedicated 16-inch watermain from the new finished water pumping facility to fill the Pressure Zone 2 South storage. Make other system modifications, as needed, in this area to provide adequate pressures and fire flows.

WASTEWATER COLLECTION, CONVEYANCE AND TREATMENT FACILITIES

Domestic, commercial and industrial wastewater in the city of Dickinson are managed with a combination of collection, conveyance and treatment facilities. Collection facilities gather wastewater within defined basins. The collection facilities in this study are all gravity sewers. Conveyance facilities transport collected wastewater out of a defined basin; the facilities are either wastewater lift stations or main trunk sewers. The existing wastewater treatment facility for the city of Dickinson treats wastewater to a mandated water quality prior to discharging into the Heart River. Construction of a new wastewater treatment facility to accommodate future growth began in July of 2012. Final completion for all project phases will be in fall 2014.

Existing Facilities

The city of Dickinson wastewater collection, conveyance and treatment facilities have been constructed over time to collect wastewater from individual properties, transport wastewater to the existing wastewater treatment facility and treat to a permitted level, before discharging to the Heart River.

Existing Wastewater Treatment Facility

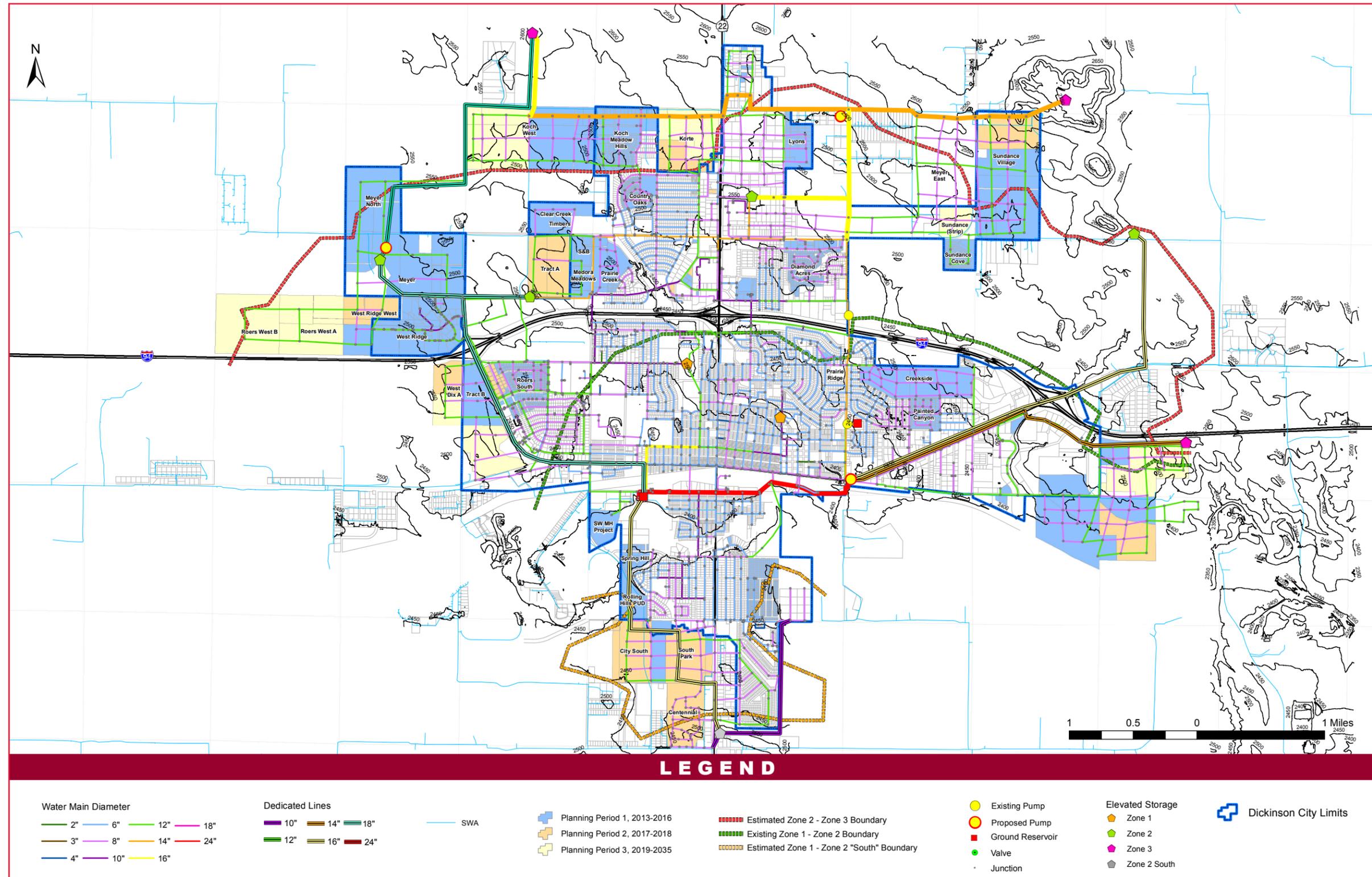
The existing Dickinson, ND wastewater treatment facility (WWTF) was constructed in several phases over the past 50 years. It was designed to treat an average daily wastewater flow of 2.23 MGD. Wastewater is mechanically cleaned and biologically treated before entering a series of four stabilization ponds where final biological treatment occurs. The Dickinson facility has a number of effluent disposal alternatives, including discharge to the Heart River, an overland flow system, and/or effluent irrigation to agricultural land.

The flow and loading to the existing wastewater treatment facility has increased significantly in recent years. In 2011, it was determined that a new wastewater treatment facility would be constructed to accommodate future growth. Historical flow and loading for the existing wastewater treatment facility are shown in the following table.



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Figure 6-14: Dickinson 2035 Water System



SOURCE: KLJ



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Table 6-18: Historical Flow and Loading for Wastewater Treatment Facility

Parameter	Design	2007	2008	2009	2010	Jan-Jun 2011
Flow						
Average (MGD)	2.23	1.39	1.64	1.75	1.8	2.15
Percent of Design		62%	74%	78%	81%	96%
BOD						
Average (lb/d)	3,665	3,303	3,320	3,657	3,753	4,274
Percent of Design		90%	90%	99%	102%	117%

SOURCE: APEX

Current Wastewater Treatment Facility Improvements

The Facility Plan Amendment in August 2011 presented projected wastewater flows and loading for future population thresholds. Wastewater flow projections are shown in the table below.

Table 6-19: Projected Wastewater Flow by Population

Population	Flow (mgd)				
	ADW	AWW	AAD	PHWW	PIWW
25,000	2.485	3.9	2.95	11.482	13.878
27,000	2.605	4.1	3.19	11.982	14.378
29,000	2.725	4.3	3.42	12.482	14.827
31,000	2.845	4.5	3.85	12.982	15.378
ADW	Average Dry Weather				
AWW	Average Wet Weather				
AAD	Average Annual Daily Flow				
PHWW	Peak Hourly Wet Weather				
PIWW	Peak Instantaneous Wet Weather				

SOURCE: APEX

Based on expected population increases, the decision was made to construct a new wastewater treatment facility. This new facility is designed to allow for re-use of the treated wastewater and is referred to as the Water Reclamation Facility (WRF). The WRF will meet the needs for a population of 31,000 and include provisions for build-outs to serve more than 45,000 and more than 60,000 people. The treatment process, integrated fixed film activated sludge (IFAS), was selected due to costs, expandability, operations and treatment reliability. WRF construction began July 2012 at a cost of \$30,000,000. The facility will be completed in October 2014.

Table 6-20: Water Reclamation Facility Improvement Costs

Improvements	Cost (2012 Dollars)
Water Reclamation Facility (WRF) Construction, 2012-2014	\$30,000,000
Influent Pump Station Construction, 2013-2014	\$8,400,000
Water Reclamation Facility Expansion to more than 45,000	\$16,312,000
Water Reclamation Facility Expansion to more than 60,000	\$9,946,000

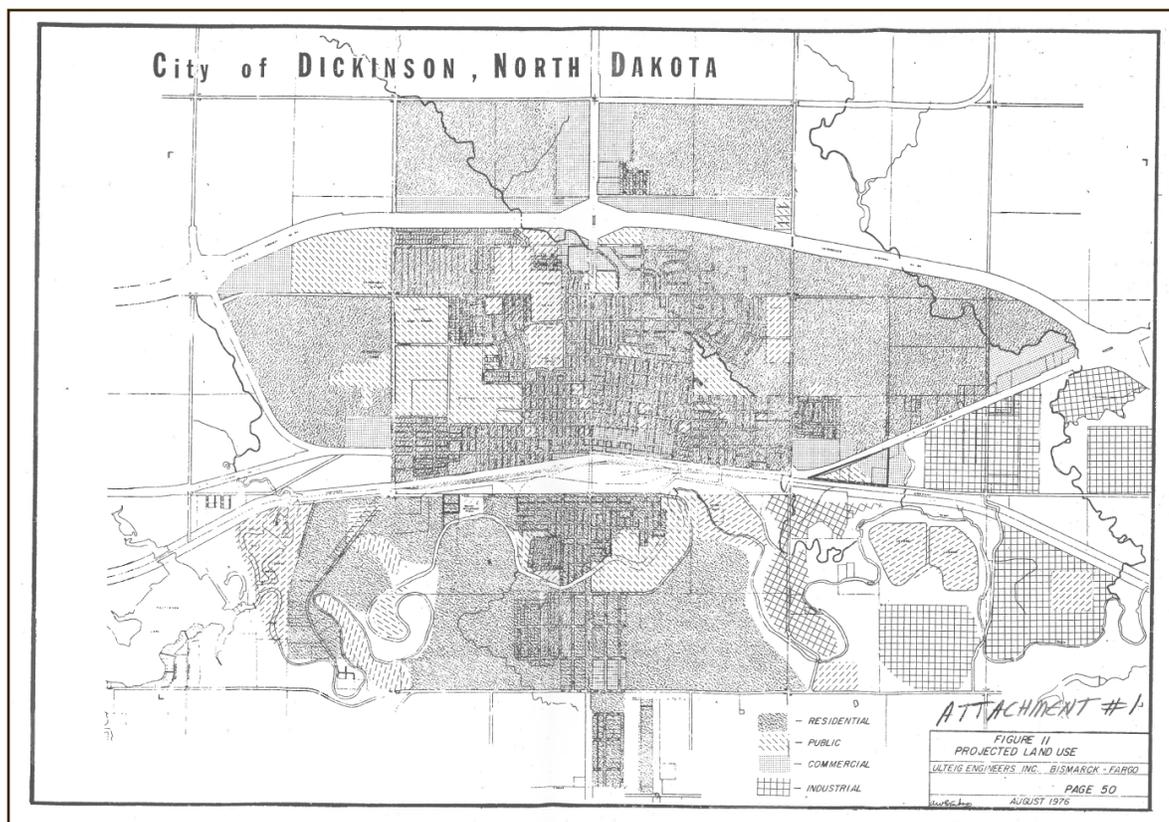
SOURCE: APEX

A new influent pump station will be constructed to deliver wastewater to the WRF. The influent pump station will be built in the vicinity of East Broadway Street and Livestock Lane. An extension of the existing 10th Avenue Interceptor will direct flows from the existing trunk sewer serving the existing wastewater treatment facility to the new influent pump station.

Collection and Conveyance System Overview

The existing collection and conveyance system was expanded in the late 1970s and early 1980s to accommodate expected growth at that time. Improvement planning was done as part of the 1976 Dickinson Facility Plan, as amended in 1980. The plan was based on a population forecast for 20,000-28,000 people by the year 2000. The planned service area at that time is shown in the figure below. The specific land uses aren't easily discernible in this scanned figure, but it does provide a general idea of the overall area that the existing collection and conveyance system was designed to serve.

Figure 6-15: Land Uses, 1976 Dickinson Facility Plan



SOURCE: APEX

Collection and conveyance system components are defined as follows:

- Basin – A service area where all wastewater flows are transported by gravity to a single location.
- Lateral – A pipe line that transports wastewater by gravity from an individual property to a main.
- Mains/Collectors – Pipe lines that collect wastewater and transport it by gravity within a basin. Most public-sector sewer pipe lines are described as mains or alternatively as collectors.
- Force Main – A force main is a pipe line that conveys pressurized water from a pump station.
- Lift Station and Pump Station – A lift station is a pumping facility where the predominant work being done is to lift the water from a source and discharge it by gravity to a nearby location. A pump station is a pumping facility where the



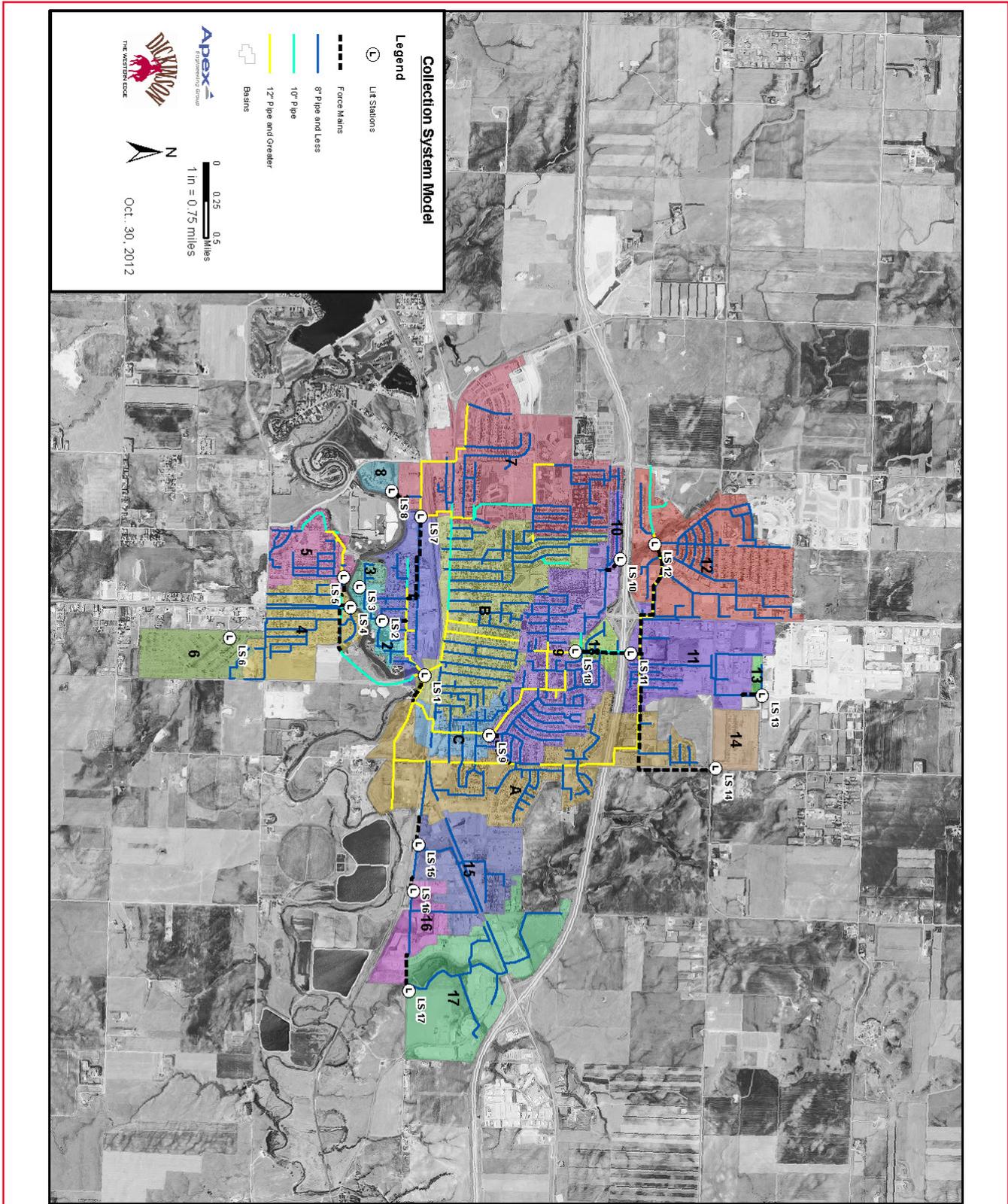
work being done includes lifting the water and pumping it under pressure through a force main to a remote location. For purposes of this report all wastewater pumping facilities will be referred to as lift stations.

- Trunk sewers – This is a term often used for large sewer pipe lines that convey flow across basin boundaries or collect flow from several individual basins.
- Interceptor – An interceptor is a gravity sewer that is installed to intercept wastewater flows in one or more established collection basins and transport that wastewater along a new route.

Collection System Basins

The City of Dickinson collection system consists of 21 basins. Wastewater within each basin flows by gravity to a single collection point. In 18 of the basins the wastewater is pumped from the collection point out of the basin by a lift station. In the remaining three basins wastewater flows by gravity out of the basin through a trunk sewer. The collection system basins are shown in the figure on the following page. Gravity sewer piping is shown as 8 inches – blue, 10 inches – green, and 12 inches or greater – yellow. Force mains are shown as dashed lines. The larger gravity sewer piping and force mains indicate main routes for transporting wastewater through the city of Dickinson.

Figure 6-16: Collection System Model



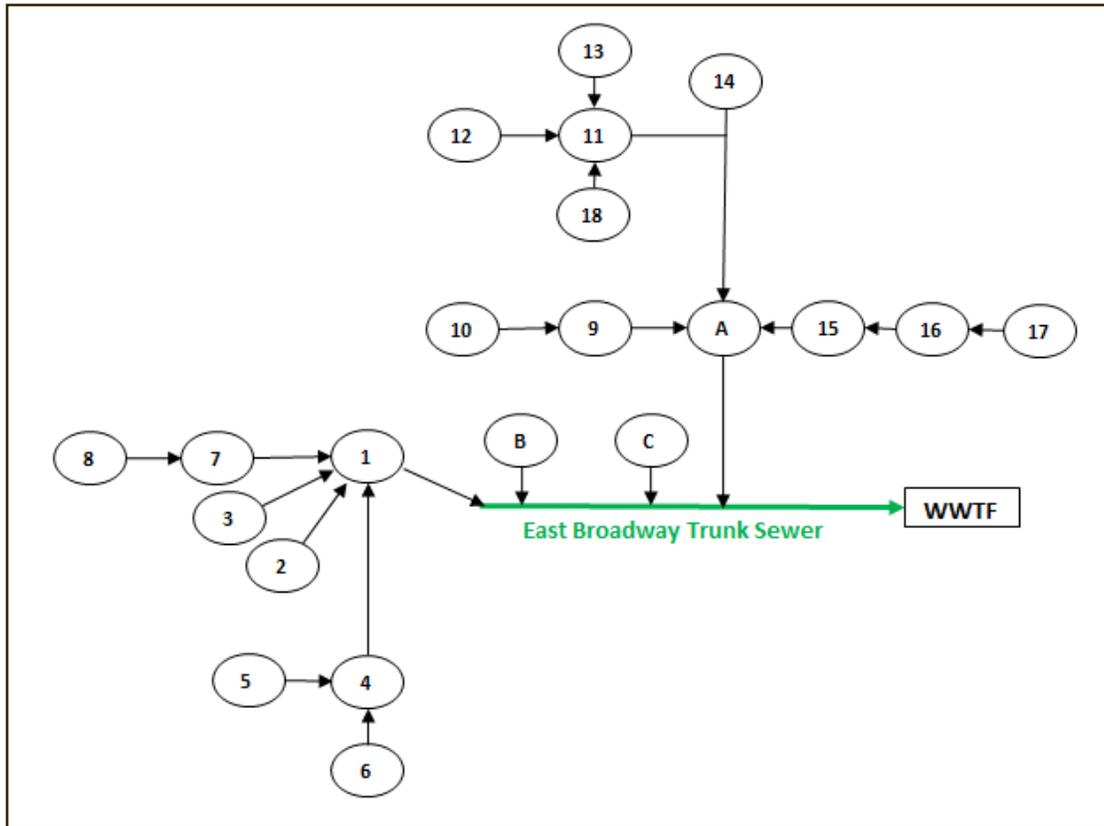
SOURCE: APEX



Conveyance System Overview

The city of Dickinson wastewater conveyance system consists of lift stations and trunk sewers that transport wastewater out of the basins and into other basins or to the existing wastewater treatment facility. The figure below is a schematic diagram of the city of Dickinson wastewater conveyance system. Numbered basins are served by a lift station; lettered basins are served by gravity only.

Figure 6-17: Dickinson Wastewater Conveyance System Schematic Diagram



SOURCE: APEX

Lift Stations

A wastewater lift station consists of two or more pumps that convey wastewater out of a wet well and discharge into a nearby gravity sewer or into a force main. Wastewater lift stations are designed based on current standards so required peak flow can be achieved with one pump out of service. Maximum flow with one pump out of service is defined as the firm capacity of the lift station. Firm capacities for the lift stations that are significant for this report are shown in Table 6-21.

Table 6-21: Wastewater Lift Station Details

Lift Station No.	Number of Pumps	Horsepower	Firm Capacity (gpm)
1	3	20	2,097
4	2	10	348
5	2	6	202
7	3	10	1,371
9	2	10	519*
11	2	42	1,280
12	2	21	301
14	2	5	131
15	2	10	290
16	2	10	339
17	2	10	238

SOURCE: APEX * LIFT STATION 9 INCLUDES AN OVERFLOW WEIR TO BASIN C. LISTED CAPACITY IS MAXIMUM FLOW PUMPED INTO THE 10TH AVENUE EAST INTERCEPTOR (2 PUMPS RUNNING).

Existing Capacities/Deficiencies

Four primary routes in the existing collection and conveyance system may be used to serve new development in the city of Dickinson. For discussion purposes these routes are referred to as the Broadway Collection and Conveyance System, 10th Avenue East Interceptor, South Dickinson Collection and Conveyance System and East Dickinson Collection and Conveyance System. Routes will be described and evaluated individually.

The East Broadway Trunk Sewer that conveys flows to the existing Wastewater Treatment Facility has a capacity deficiency resulting in occasional surcharges during rain events. This situation will be addressed as part of the planned Influent Pump Station improvements.

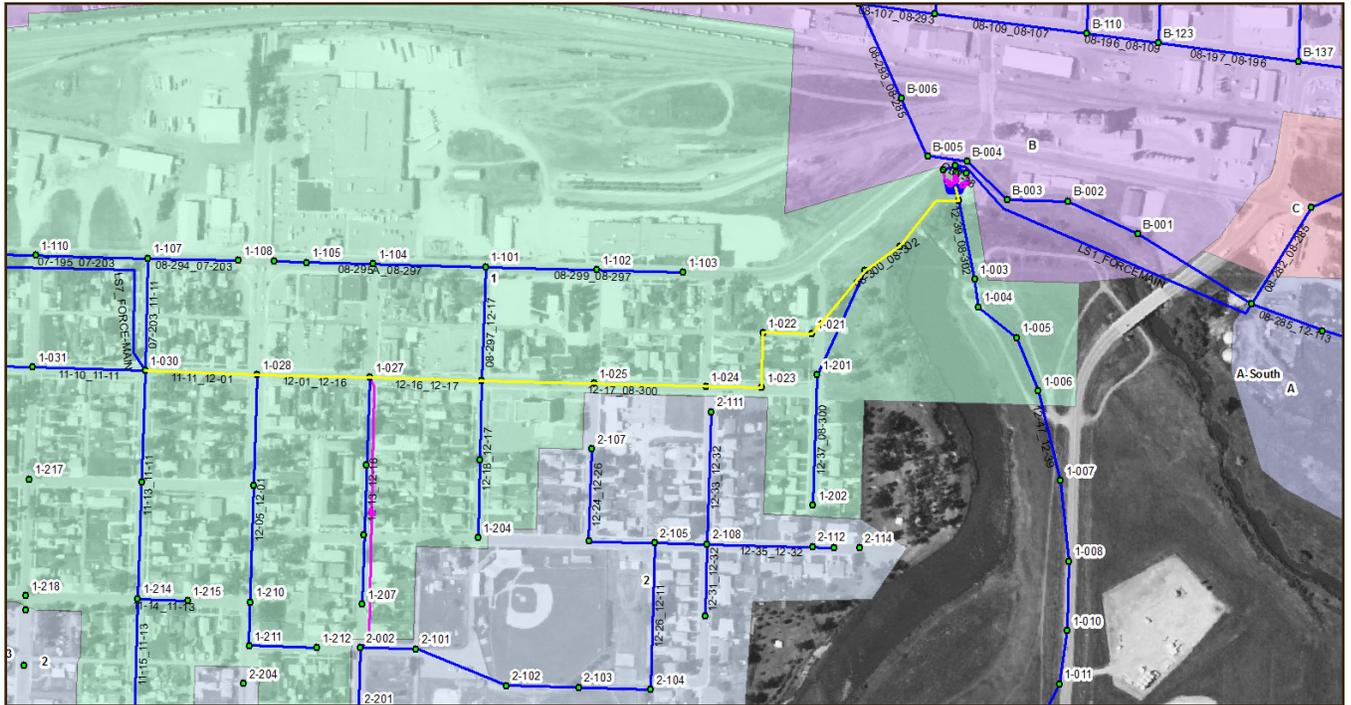
Broadway Collection and Conveyance System

The Broadway Collection Conveyance System collects wastewater in Basin 7 in the western part of the city near State Avenue. This wastewater flows by gravity to Lift Station 7 on Broadway Street near the Southwest Water Authority Water Treatment Facility on 11th Avenue Southwest. From Lift Station 7 the wastewater is pumped to the intersection of 1st Street SW and 1st Avenue SW where it enters a gravity sewer and travels east under 1st Street SW to Lift Station 1. From Lift Station 1 wastewater is pumped into the East Broadway Trunk Sewer where it flows again by gravity to the existing Wastewater Treatment Facility.

The limiting factors in this system are Lift Station 1, Lift Station 7 and the gravity sewer running under 1st Street SE from 1st Avenue SW to Lift Station 1 located to the east of 5th Avenue SE (see following figure).



Figure 6-18: Limiting Factors, Broadway Collection and Conveyance System



SOURCE: APEX

Lift Station 1 is only capable of meeting current peak flows when all pumps are operating. Current wastewater design standards call for a lift station to meet peak flows with one pump out of service. The lift station capacity with one pump out of service is referred to as the firm capacity. The difference between the peak flow and firm capacity is capacity deficiency. The capacity deficiency of Lift Station 1 is 840 gpm. Lift Station 7 has a remaining capacity of 213 gpm.

The next limiting factor in this system is the capacity of the gravity sewer under 1st Street SE. The remaining capacity in this gravity sewer under current peak flow conditions is 253 gpm. The gravity sewer transporting flows from the area to northwest of State Avenue and Villard Street to Lift Station 7 has a remaining capacity of 519 gpm.

Limiting factors for this route are summarized in the table below.

Table 6-22: Sewer System Limiting Factors, Broadway Collection and Conveyance

Broadway Collection and Conveyance	
Lift Station 1	840 gpm deficiency
Lift Station 7	213 gpm remaining capacity
1st St SE Gravity Sewer	253 gpm remaining capacity
Lift Station 7 Gravity Sewer	519 gpm remaining capacity

SOURCE: APEX



Table 6-23: Sewer System Limiting Factors, 10th Avenue Interceptor

10th Avenue Interceptor	
Museum Dr to E 10th St	185 gpm remaining capacity
E 10th St to E 8th St	457 gpm remaining capacity
E 8th St to E 3rd St	247 gpm remaining capacity
E 3rd St to E 2nd St	884 gpm remaining capacity

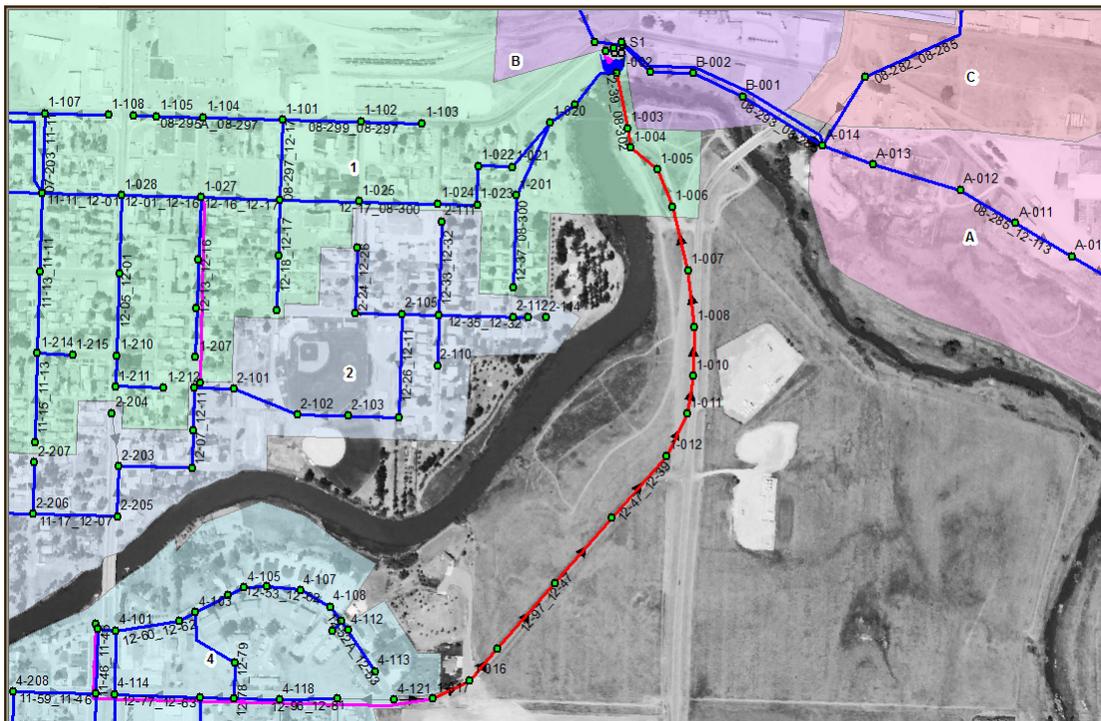
SOURCE: APEX

South Dickinson Collection and Conveyance System

The South Dickinson Collection and Conveyance System collects all wastewater south of the Heart River at either Lift Station 4 or Lift Station 5. Flows collected at Lift Station 5 are pumped to Lift Station 4. From Lift Station 4 flows are pumped to Lift Station 1 and pumped into the East Broadway Trunk Sewer where they flow by gravity to the existing Wastewater Treatment Facility.

The basins in this area (4, 5 and 6) were combined for flow monitoring and evaluation purposes. This area has a high peaking factor and I/I in comparison to other tested basins of similar age and development (peaking factors are listed in a table in the previous section). This project did not include identifying specific defects that allow I/I to enter the sewer system so the measured I/I is distributed evenly throughout this area in the model. The flow monitoring was performed at manhole 1-006 in the gravity sewer that receives flows from Lift Station 4 and conveys them along River Drive and 9th Avenue SE to Lift Station 1 (shown as red in the following figure). Any future I/I investigations of basins 4, 5 and 6 should also include this gravity sewer. Identification of major defects in this gravity sewer, for example, would reduce the peak flows going to Lift Stations 4, 5 and 6.

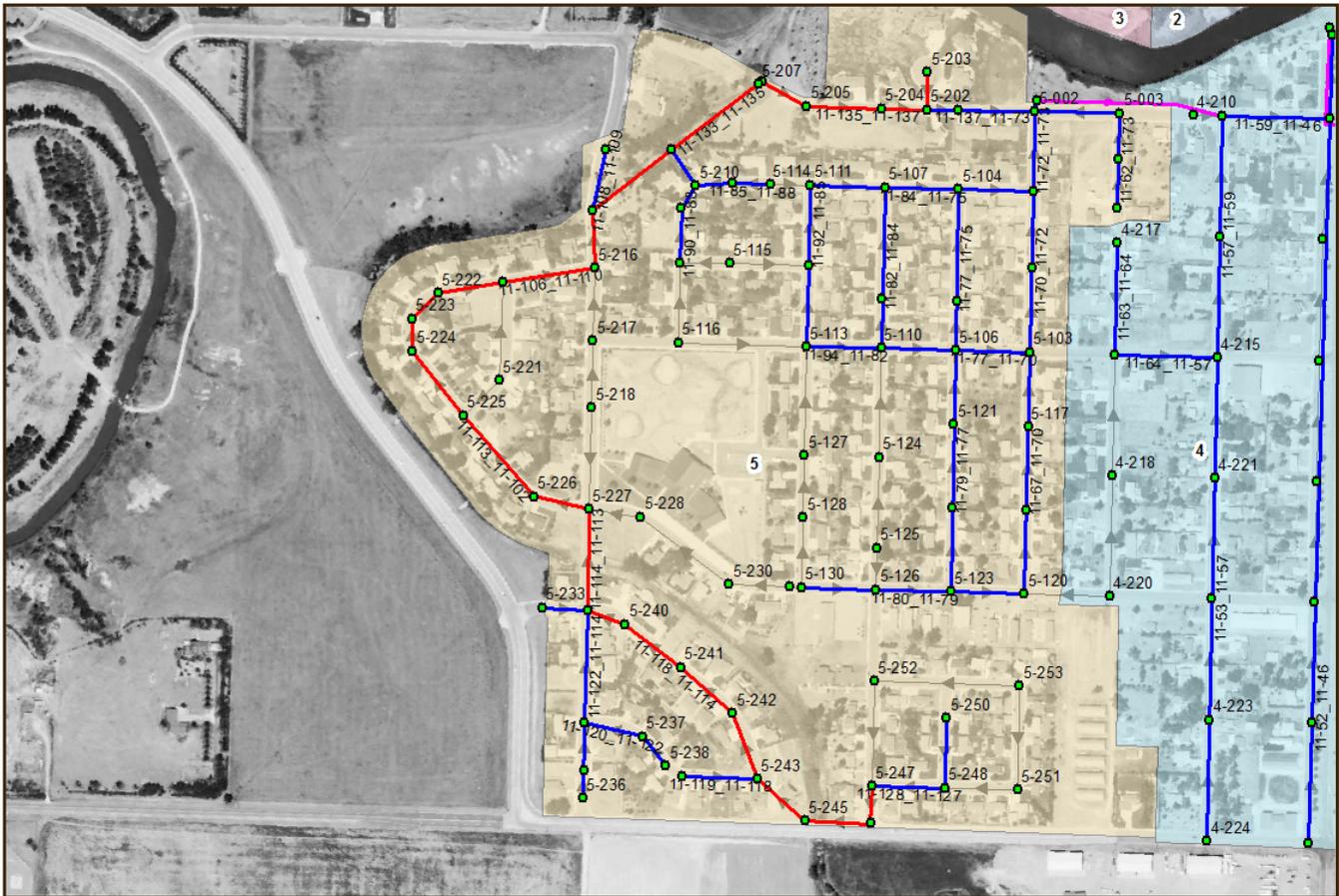
Figure 6-20: South Dickinson Collection and Conveyance System Gravity Sewer



The primary piping limitation for this system is the gravity sewer described above. This gravity sewer has a remaining modeled capacity of 28 gpm, or essentially zero. This was demonstrated by the rain event on June 7, which resulted in a surcharge at manhole 1-006 of about one inch.

The new development area in south Dickinson can be partially served by an existing gravity sewer that begins near the intersection of SW 8th Street and 5th Avenue SW and ends at Lift Station 5 as shown in red in the following figure of Basin 5. This gravity sewer has a remaining capacity of 304 gpm.

Figure 6-21: South Dickinson Collection and Conveyance System Gravity Sewer



SOURCE: APEX



Based on the area I/I rates discussed earlier, peak flow to Lift Station 5 for a 10-year rain event is 503 gpm. The field-tested firm capacity of Lift Station 5 (1 pump running) is 202, gpm resulting in a deficit of 301 gpm. The peak flow to Lift Station 4 for a 10-year event is 1377 gpm with a field tested firm capacity of 348 gpm, resulting in a deficit of 1029 gpm. As previously stated, I/I investigation in this area may reduce peak flows to these stations.

Lift station and piping capacity limitations for the South Dickinson Collection and Conveyance System are summarized in the table below.

Table 6-24: Sewer System Limiting Factors, South Dickinson Collection and Conveyance

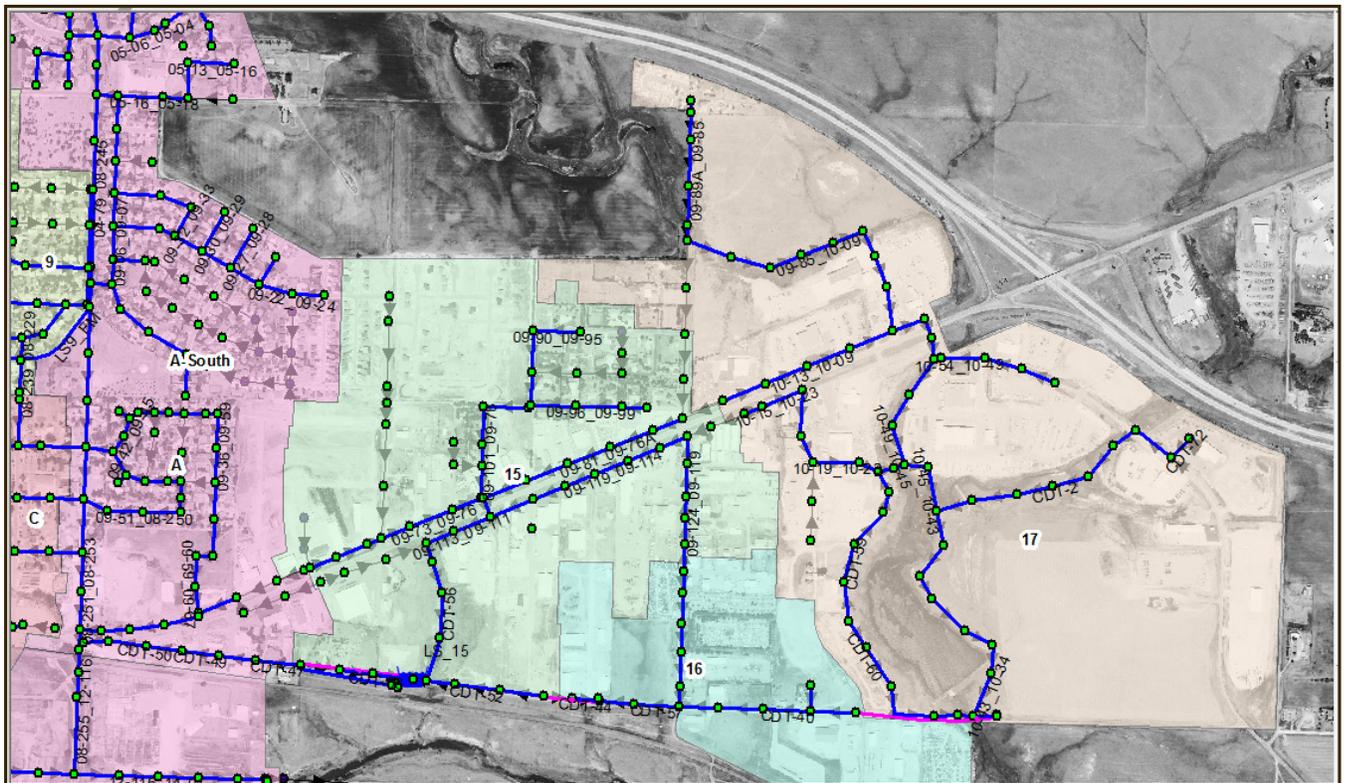
South Dickinson Collection and Conveyance	
Lift Station 5 Gravity Sewer	304 gpm remaining capacity
Lift Station 5	301 gpm remaining capacity
Lift Station 4	1,029 gpm remaining capacity
River Drive Gravity Sewer	28 gpm remaining capacity

SOURCE: APEX

East Dickinson Collection and Conveyance System

The East Dickinson Collection and Conveyance System service area is generally everything east of 15th Avenue East. Basins 15, 16 and 17 are located in this area, each served by a lift station. Lift Station 17 pumps to Lift Station 16. Lift Station 16 pumps to Lift Station 15 and Lift Station 15 pumps to the 10th Avenue East Interceptor.

Figure 6-22: East Dickinson Collection and Conveyance System



SOURCE: APEX

Basins in this area (15, 16 and 17) were combined for flow monitoring and evaluation purposes. Significant I/I problems in this area have been previously identified by city personnel with reports that Lift Station 15 is unable to keep up during significant rain events. Some sections of pipe in Basin 15 have been televised by the City to look for defects that allow I/I to enter the sewer system. In its current condition, this route has a significant capacity deficiency without any added development. Field investigations are recommended to identify specific defects and assist in determining corrective measures.

Impacts on Wastewater System from Forecasted Growth

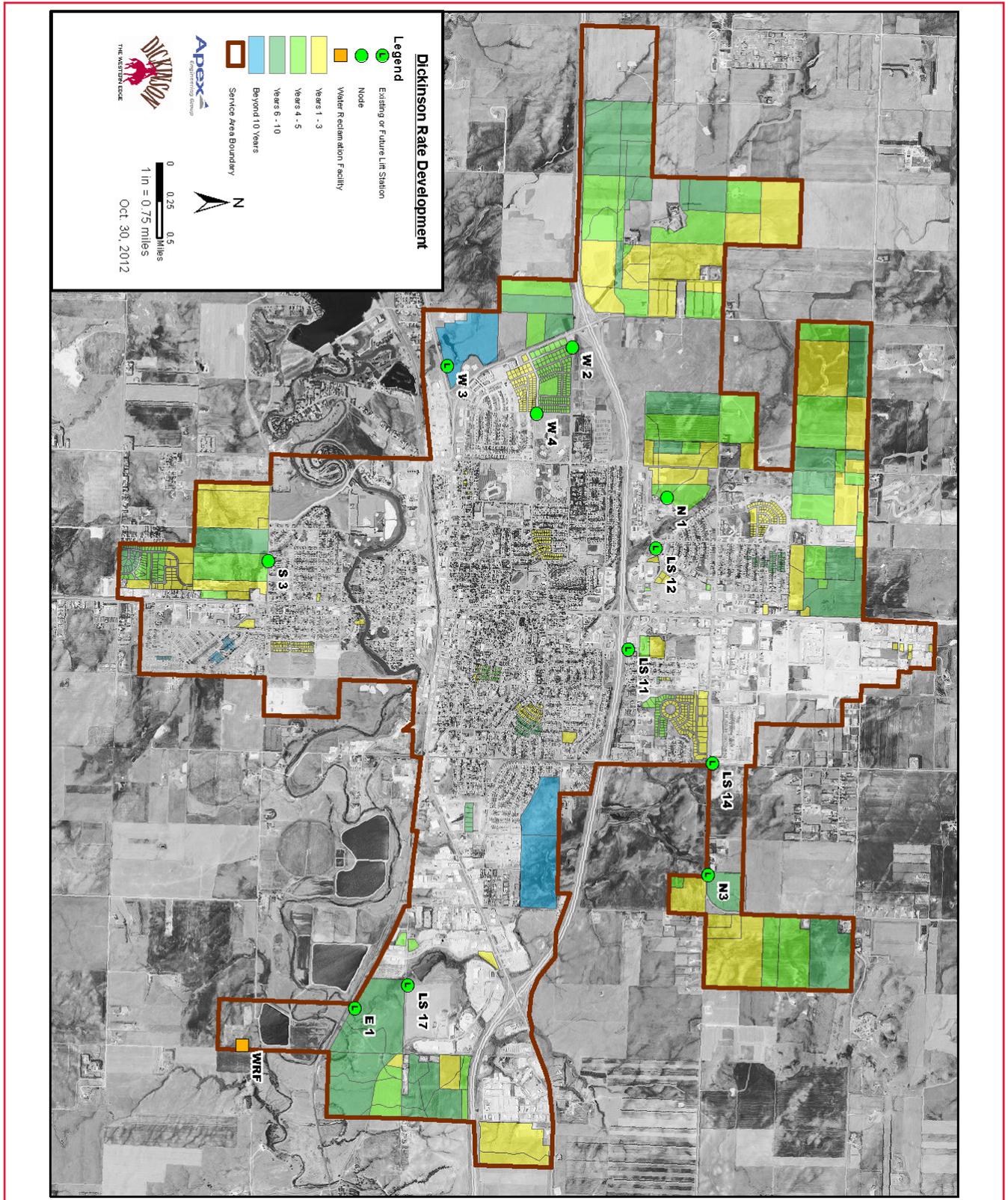
The City of Dickinson has exceeded the planned capacity of its existing wastewater collection and conveyance system. The system has been performing adequately for current conditions; however, major improvements will be needed to accommodate future growth.

Development Flows

The rate of expected development for the city of Dickinson is shown in Figure 6-22. Future flows are forecasted based on this expected development.



Figure 6-23: Rate of Development



SOURCE: APEX

Additional service population and commercial/industrial acreage served by the future development are summarized in the table below at nodes where wastewater flows can be collected by gravity. Nodes are included in Figure 6-22 showing expected development rates. Nodes that coincide with existing lift stations are designated by LS and the existing lift station number.

Existing residential areas located within the Service Area Boundary but not currently served by the city’s sewer system are assumed to be served in years 4-6 with infill to urban density. Commercial/industrial areas located in the Service Area Boundary but not currently served by the city of Dickinson sewer system are assumed to be served during years 4-6 with the exception of an area of existing commercial/industrial development in east Dickinson, which is discussed in a later section. Commercial/industrial development is not forecasted past 10 years.

Table 6-25: Forecasted Population and Acreage by Node

Node	Additional Service Population				Additional Commercial/Industrial Acres		
	1-3 Years	4-5 Years	6-10 Years	10+ Years	1-3 Years	4-5 Years	6-10 Years
N1	4,443	9,817	13,232	13,232	31	51	56
LS12	160	160	160	160	0	0	6
LS11	445	810	810	810	7	7	7
LS14	280	813	813	813	249	252	312
N3	1,315	2,486	3,603	3,603	10	10	10
LS17	0	500	1,250	1,250	212	212	212
E1	0	29	29	29	30	86	381
S3	965	4,121	5,226	5,564	65	71	71
W2	2,028	3,659	7,139	7,139	135	197	352
W3	0	0	0	575	13	75	126
W4	138	138	138	138	11	28	28

SOURCE: APEX

Forecasted wastewater flows are based on 100 gallons per day per capita and 1,500 gallons per day per acre for commercial and industrial development. Future additional average daily flow (ADF) and peak hour (PH) flow are summarized in the following table. Peak hour flows are calculated by multiplying the ADF by a peaking factor. The peaking factor used for this report is from the 10 States Standards For Wastewater Works and is based on the service population for each node. As the service population increases the peaking factor decreases.



Table 6-26: Forecasted Wastewater Flows by Node

Node	Additional Service Population					
	1-3 Years		4-5 Years		6-10 Years	
	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)
N1	315	1,038	677	2,005	906	2,568
LS12	10	42	10	42	17	69
LS11	35	142	58	232	58	232
LS14	277	1,234	313	1,243	375	1,490
N3	93	359	166	609	236	827
LS17	221	994	252	1,118	299	1,285
E1	32	142	92	410	399	1,789
S3	121	461	325	1,080	394	1,272
W2	267	956	434	1,463	813	2,518
W3	13	59	78	353	131	590
W4	20	86	38	161	38	161

SOURCE: APEX

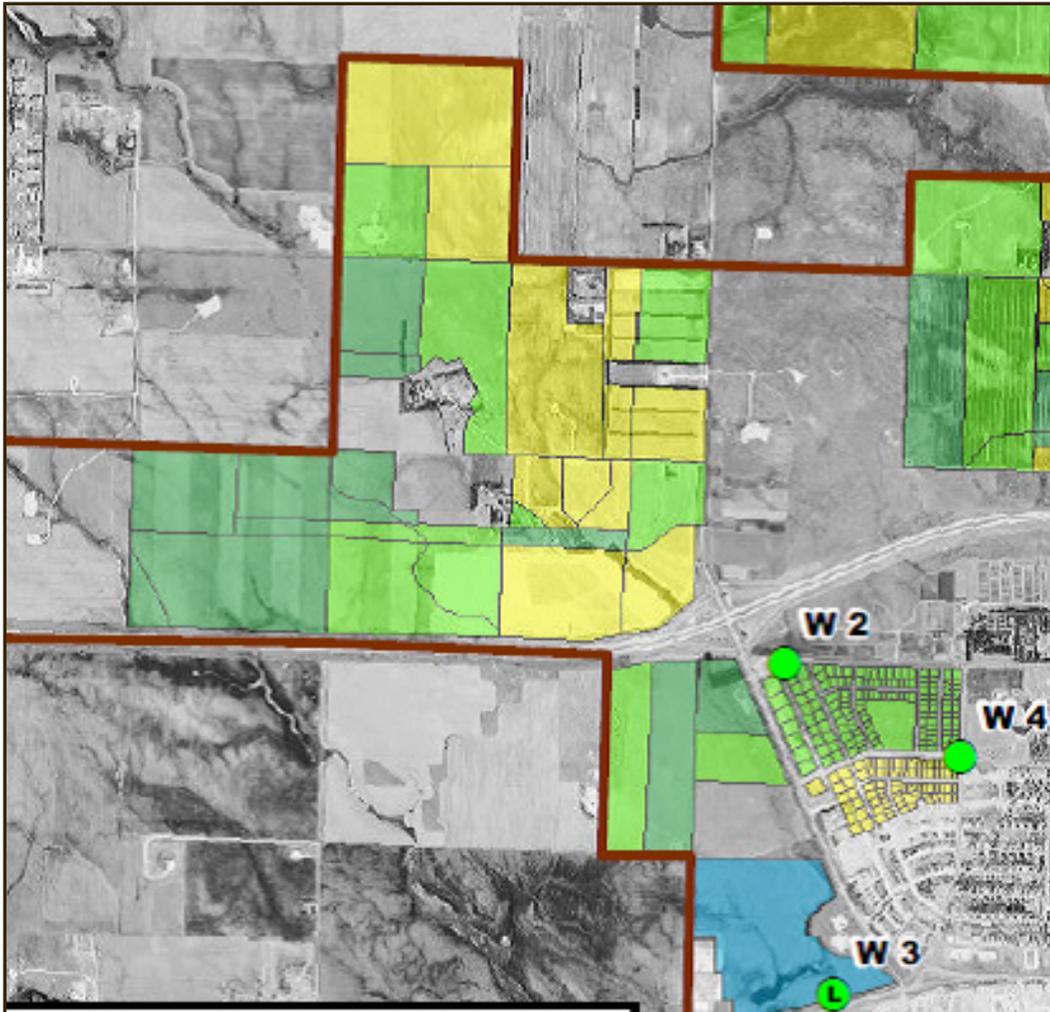
Impacts and Alternatives

The impacts of future flows and alternatives to accommodate these flows will be discussed separately for each geographical area.

West Dickinson

Wastewater flows from development on the west side of Dickinson will flow by gravity to one of three nodes. Node W2 will collect flows from the area north of I-94 and west of 30th Avenue West, as well as flows from the area immediately south and east of Node W2. Node W3 will collect flows from the area south of the I-94 interchange and north of Highway 10; Node W3 may also collect flows from Node W2. The remaining development located in the east part of this area will flow by gravity to Node W4.

Figure 6-24: West Dickinson Development Area



SOURCE: APEX

The previously listed ADF and peak hour flow (PH) for these nodes and capacities for the Broadway Collection and Conveyance System are listed in the following tables. Preliminary flows from the city of South Heart and from the MDU diesel topping facility are also listed. It is expected these flows will be received at Node W3. Flows for the city of South Heart have been estimated based on a population of 400 people in years 1-3, 500 people in years 4-5 and 600 people in years 6-10.



Table 6-27: Wastewater Flows for West Dickinson Development

Node	Additional Service Population					
	1-3 Years		4-5 Years		6-10 Years	
	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)
W2	267	956	434	1,463	813	2,518
W3	13	59	78	353	131	590
W4	20	86	36	161	38	161
S.H.	28	112	35	138	42	164
MDU	--	200	--	200	--	200

SOURCE: APEX

Table 6-28: Capacity of Broadway Collection and Conveyance System

Broadway Collection and Conveyance	
Lift Station 1	840 gpm remaining capacity
Lift Station 7	213 gpm remaining capacity
1st St SE Gravity Sewer	253 gpm remaining capacity
Lift Station 7 Gravity Sewer	519 gpm remaining capacity

SOURCE: APEX

As can be seen from the expected flows and the available capacities in the Broadway Collection and Conveyance System, future development cannot be served by the existing infrastructure.

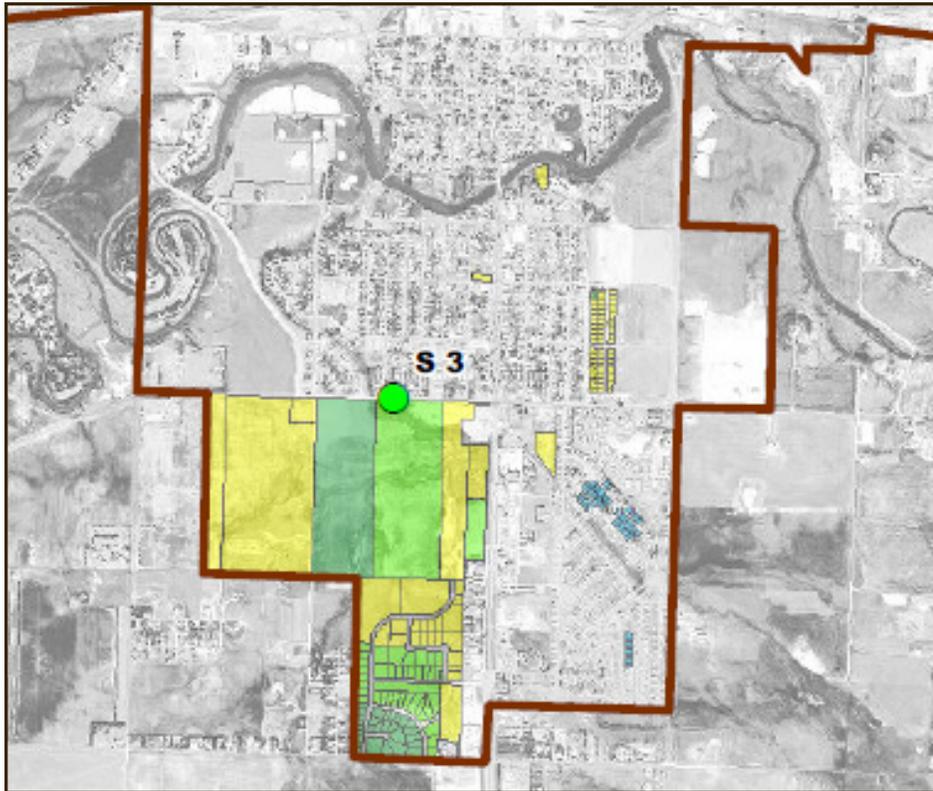
There are two alternatives to deliver this wastewater to the wastewater treatment facilities. The first alternative is to replace the existing Broadway Collection and Conveyance System. The other alternative is to construct a new route that crosses the Heart River near State Avenue and proceeds east down South 5th Street to the new Influent Pump Station.

The recommended alternative is to construct a new route to the south of the Heart River. This route requires less urban construction, has similar overall piping lengths, and will result in the wastewater passing through one less lift station en route to the new Water Reclamation Facility. This alternative also allows integration with future improvements in south Dickinson.

South Dickinson

Wastewater flows from the primary development on the south side of Dickinson will flow by gravity to Node S3.

Figure 6-25: South Dickinson Development Area



SOURCE: APEX

Previously listed ADF and PH for Node S3 and capacities for the South Dickinson Collection and Conveyance System are listed below.

Table 6-29: Wastewater Flows for South Dickinson Development

Node	Additional Flows					
	1-3 Years		4-5 Years		6-10 Years	
	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)
S3	121	461	325	1,080	394	1,272

SOURCE: APEX

Table 6-30: Capacity of South Dickinson Collection and Conveyance

South Dickinson Collection and Conveyance	
Basin 5 Gravity Sewer	304 gpm remaining capacity
Lift Station 5	301 gpm remaining capacity
Lift Station 4	1,029 gpm remaining capacity
River Drive Gravity Sewer	28 gpm remaining capacity

SOURCE: APEX

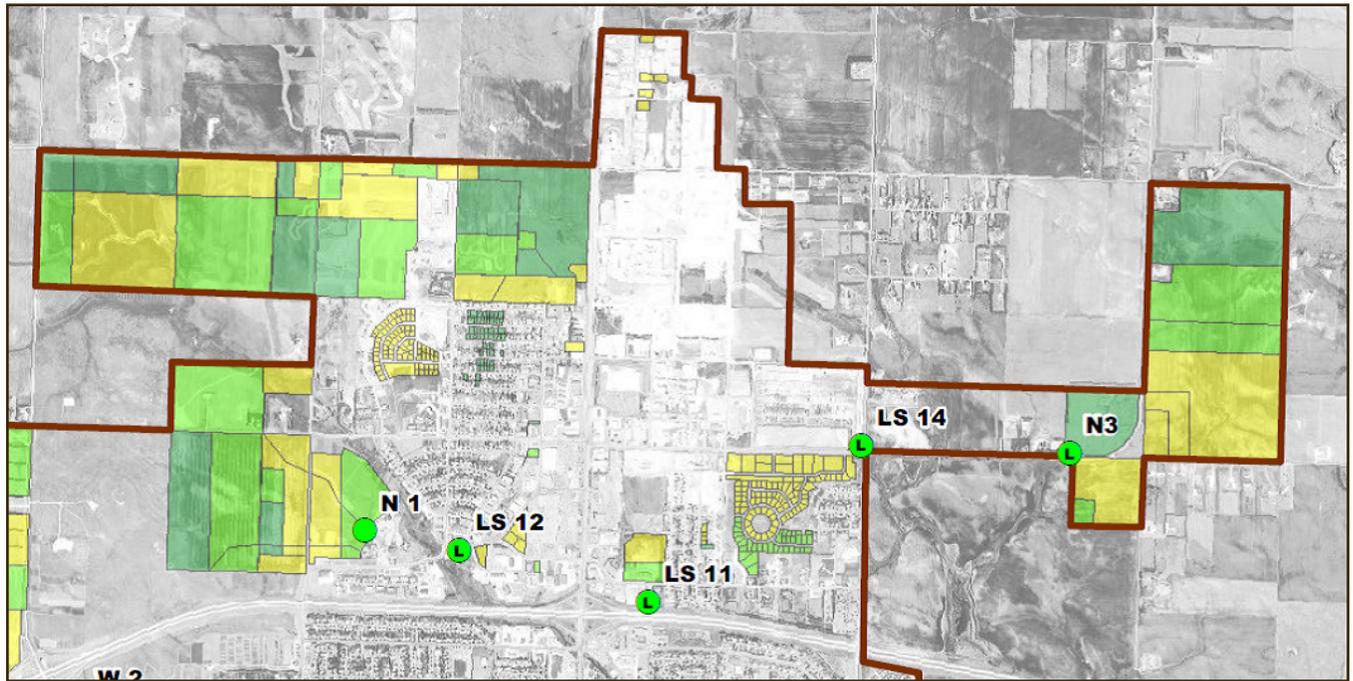


The gravity sewer in Basin 5 has remaining capacity, but the remainder of the South Dickinson Collection and Conveyance system does not. The previously discussed south route for wastewater from west Dickinson can be utilized to serve current and future flows for this area.

North Dickinson

Wastewater flows from development on the north side of Dickinson will flow by gravity to five nodes. Nodes N1 and LS 12 will collect flow from development areas north of I-94 and between Highway 22 and 30th Avenue West. Nodes LS 11 and LS 14 will collect flows from development areas north of I-94 and between Highway 22 and 10th Avenue East. Node N3 will collect flows from development north of I-94 and east of 10th Avenue East.

Figure 6-26: North Dickinson Development Area



SOURCE: APEX

Previously listed ADF and PH flow for the nodes in this area and the capacities of the 10th Avenue East Interceptor are listed below.

Table 6-31: Wastewater Flows for North Dickinson Development

Node	Additional Flows					
	1-3 Years		4-5 Years		6-10 Years	
	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)
N1	315	1,038	677	2,005	906	2,568
LS12	10	42	10	42	17	69
LS11	35	142	58	232	58	232
LS14	277	1,234	313	1,243	375	1,490
N3	93	359	166	609	236	827

SOURCE: APEX

Projected flows for node LS14 include a significant area of commercial and industrial development that is currently being developed. The flow projections include a planning level wastewater production rate of 1,500 gpm per acre per day; however, actual wastewater flows could be less depending on final development.

Table 6-32: Capacity of 10th Avenue Interceptor

10th Avenue Interceptor	
Museum Dr to E 10th St	185 gpm remaining capacity
E 10th St to E 8th St	457 gpm remaining capacity
E 8th St to E 3rd St	247 gpm remaining capacity
E 3rd St to E 2nd St	884 gpm remaining capacity

SOURCE: APEX

While the 10th Avenue East Interceptor has some remaining capacity, it will not be able to accommodate future flows from all areas north of I-94. General alternatives include 1) replacing the existing route including the 10th Avenue East Interceptor, 2) constructing a new route east of 10th Avenue East, 3) constructing a new route west to serve development areas west of Highway 22.

Replacing Existing Route – In addition to replacing the 10th Avenue East Interceptor, this alternative would replace a significant amount of existing infrastructure. The alternative would require upgrades to Lift Stations 11 and 12. It would also require pipe replacement along 15th Street West between Lift Station 12 and Highway 22 and along 14th Street East between Highway 22 and 10th Avenue East. Lift Station 14 requires a major upgrade for any of the alternatives, so its effect on weighing the alternatives is negligible. This alternative is complicated by the necessity of maintaining existing sewer service during construction. This alternative would also involve construction through highly developed areas and high traffic areas along much of the route.

Constructing a New East Route – A new route could be constructed along 25th Avenue East, one mile east of 10th Avenue East. The route could serve the development areas in the northeast (Node N3) and accommodate Lift Station 14. This route would run due south to East Villard Street. From East Villard Street the route would proceed southeast to a new lift station serving the industrial area in east Dickinson. This lift station is described further regrading improvements section for development in east Dickinson.

Constructing a New West Route – A new route could be constructed to connect to the previously discussed recommended improvements serving the development areas in west Dickinson. This alternative would accommodate flows from development north of I-94 between 30th Avenue West and Highway 22. This alternative would free up capacity in the 10th Avenue East Interceptor that could be used to accommodate future development areas north of I-94 and east of Highway 22.

Taking into consideration the amount of infrastructure required and disruption to existing service, construction of a new west route is the recommended alternative. All existing and future flows in this area will be collected at Lift Station 12. Lift Station 12 will be upgraded and a new force main will be installed to convey this flow to the improvements serving development in west Dickinson.



Total capacity into the 10th Avenue Interceptor at Node N2 is 3,164 gpm. Future flows into the 10th Avenue Interceptor, with this recommended improvement.

Table 6-33: Future Flows of 10th Avenue Interceptor with Improvement

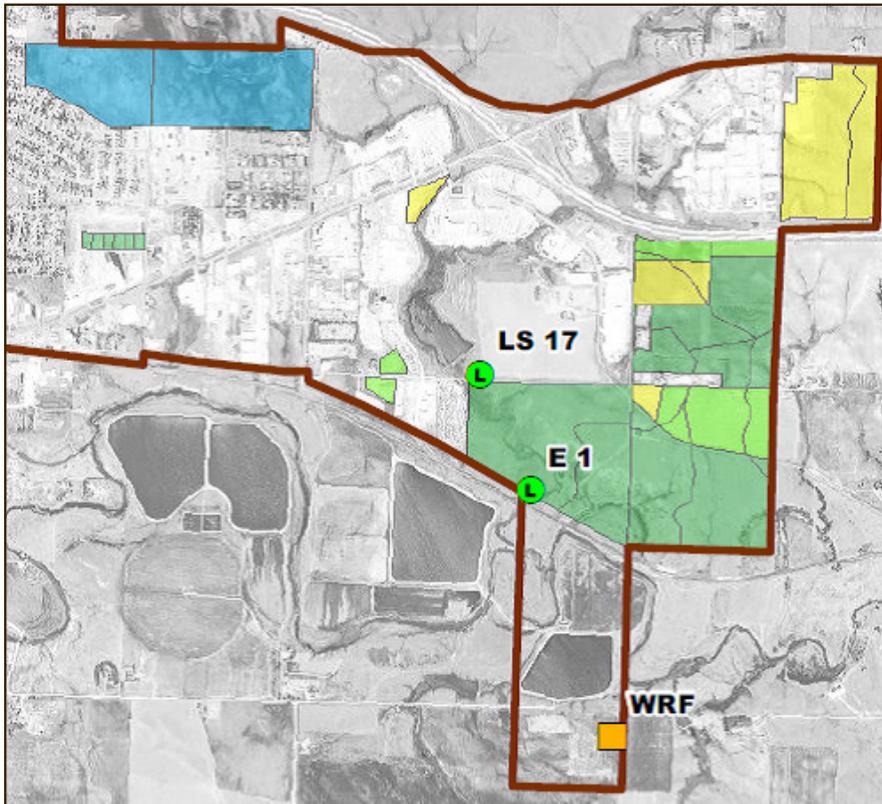
Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
N2	2,040	2,352	2,710	2,710

SOURCE: APEX

Wastewater flows from development in the eastern part of Dickinson will flow by gravity to node LS 17 or E1. LS 17 will collect flows from the commercial/industrial area north of I-94 and south of Highway 10 through the existing gravity sewer that extends to I-94. Note that none of the existing development in the area is currently served by city sewer. For planning purposes, it is assumed that existing development will be served in years 1-3 to coincide with providing sewer service to the adjacent development area to the east. Future flows from the development area planned for years more than 10 (shaded blue) will also flow by gravity to LS 17.

Remaining development areas in east Dickinson are split among a number of small watersheds which are shown in the figure. Wastewater from the area will not flow by gravity to a single location. Node E1 is a reasonable location to collect wastewater flows from this area and it would also provide the option of decommissioning the existing Lift Station 17 (LS 17) in the future.

Figure 6-27: East Dickinson Development Area



SOURCE: APEX

The average daily flow and peak hour flow for the nodes in this area are listed again in the following table.

Table 6-34: Wastewater Flows for East Dickinson Development

Node	Additional Flows					
	1-3 Years		4-5 Years		6-10 Years	
	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)	ADF (gpm)	PH (gpm)
LS17	221	994	252	1,118	299	1,285
E1	32	142	92	410	399	1,789

SOURCE: APEX

As noted previously, the existing East Dickinson Collection and Conveyance System has significant capacity deficiencies. If corrected, some future development may be served with existing infrastructure; however, a new lift station will be required as industrial acreage in this area develops. It is recommended a new lift station be placed in vicinity of Node E1 and a force main be installed from that lift station directly to the new Water Reclamation Facility. This alternative would also allow the decommissioning of Lift Station 17 and, by extending the gravity sewer, Lift Station 16 could be eliminated as well.

Flow and Rainfall Monitoring Analysis

Flow monitoring was conducted to obtain accurate information on the characteristics of system-wide wastewater flows. Flow monitoring provided the basis for the hydraulic analysis of the City’s sanitary sewer system. A detailed discussion of flow and rainfall monitoring and analysis is provided in Appendix D.

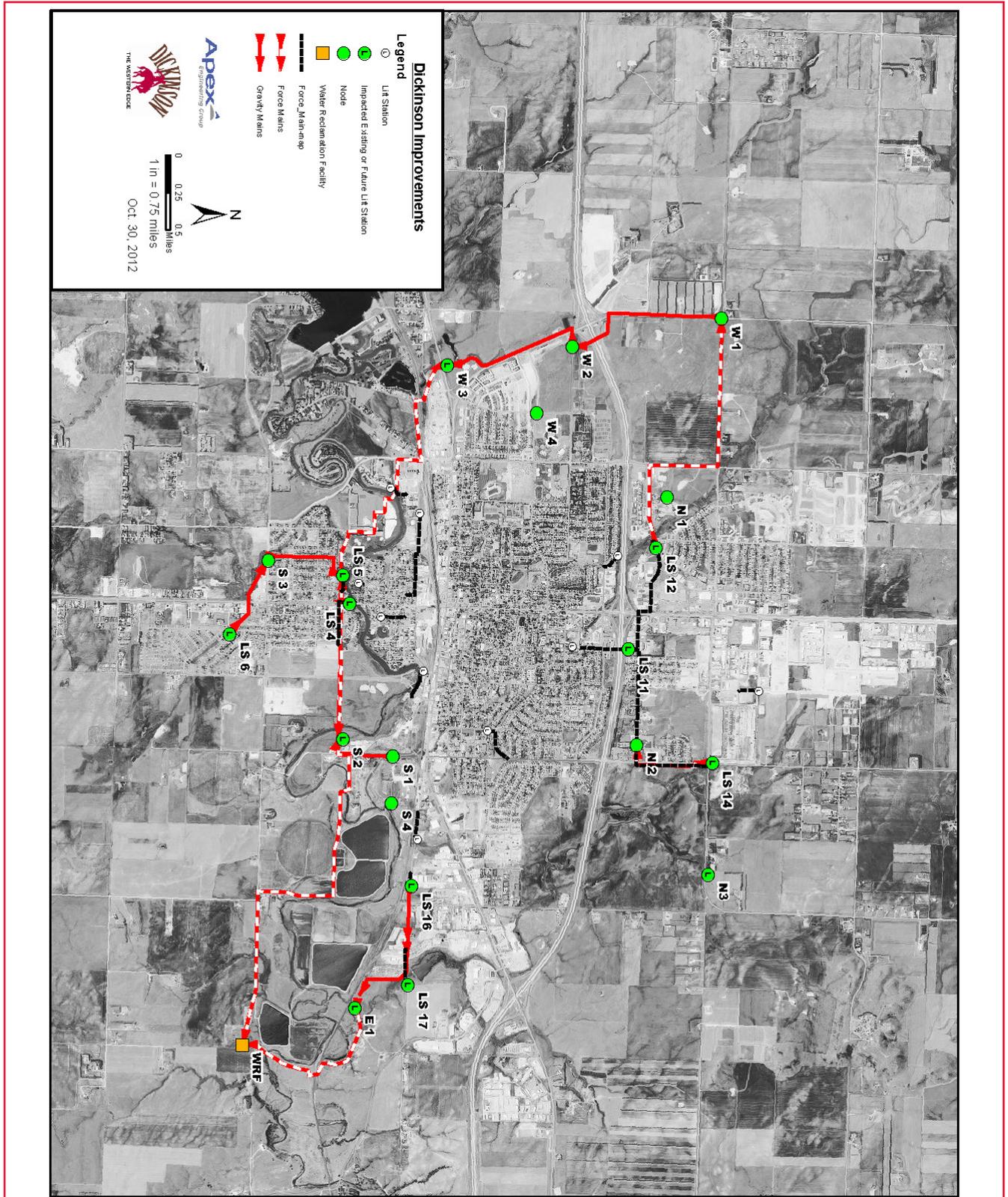
Improvements and Recommendations

Improvements and recommendations will be described referencing nodes shown on the following improvement map. Improvements will be organized by area served. All cost estimates in this section are based on 2012 dollars. Cumulative peak hour flows are less than the sum of the individual peak hour flows due to population-based peaking factors.

Gravity sewers within future developments required to convey wastewater to a listed node have not been estimated. Close coordination will be required to install gravity sewer mains in the developments that are adequately sized to convey flows from upstream development areas. Flows to nodes W2, N1 and E1, for example, will need to be coordinated with specific development plans.



Figure 6-28: Wastewater System Improvements



SOURCE: APEX

Northwest Area Improvements

Lift Station 12 Upgrade and Force Main

Required upgraded Lift Station 12 capacity is 3,699 gpm.

Table 6-35: Northwest Dickinson Lift Station Upgrade and Force Main Projected Capacity

Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
N1	1,038	2,005	2,568	2,568
LS12 (existing)	1,385	1,385	1,385	1,385
LS12 (additional)	42	42	69	69
LS12 Cumulative	2,312	3,166	3,699	3,699

SOURCE: APEX

There are two possible force main routes. One route would go south on State Avenue and west on Empire Road before connecting to other improvements at Node W2. The other route would go north on State Avenue and west on 21st Street before connecting to other improvements at Node W1. The north route is slightly longer and has somewhat greater elevation changes. The south route has more urban construction and requires a crossing of I-94. The north route is shown on the improvement map and is the basis for budgeting.

Estimated Cost: \$7,956,000

West Area Improvements

West Side Gravity Sewer (Nodes W1 to W2)

This gravity sewer will receive flow from Lift Station 12 and also serve development in the area. The following flow estimations are based on all flows in this area accumulating at the downstream node W2. Final sizing of this sewer needs to consider intermediate connections to new development. Final routing should consider routes within the development area to the west. Gravity sewer budgets are based on minimum grades.

Estimated Cost: \$1,901,000

West Side Gravity Sewer (Nodes W2 to W3)

The required gravity sewer capacity is 5,941 gpm.

Table 6-36: West Dickinson Gravity Sewer Projected Capacity

Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
W1	2,737	3,557	4,076	4,076
W2	956	1,463	2,518	2,518
Node W2 Cumulative	3,441	4,609	5,941	5,941

SOURCE: APEX



Estimated Cost: \$2,500,000

West Lift Station and Force Main

The West Lift Station will be constructed in the vicinity of Node W3 with a capacity of 6,347 gpm. This capacity includes 498 gpm peak hour capacity for future industrial or residential developments.

Table 6-37: West Dickinson Lift Station and Force Main Projected Capacity

Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
Node W2 Cumulative	3,441	4,609	5,941	5,941
Node W3	59	353	590	659
South Heart	112	138	164	189
MDU	200	200	200	200
Reserve Capacity	498	498	498	498
Node W3 Cumulative	3,978	4,824	6,280	6,347

SOURCE: APEX

The force main will run from Node W3 to the new influent pump station at Node S2.

Estimated Cost: \$11,608,000

South Area Improvements

Gravity Sewer (Nodes LS6 to S3), Decommission Lift Station 6

New development in the area will allow for Basin 6 to flow by gravity into Basin 5, eliminating the need for Lift Station 6.

Estimated Cost: \$845,000

Gravity Sewer (Nodes S3 to LS5)

This gravity sewer will serve the total build out population in this area and the existing area currently served in Basin 6.

Table 6-38: South Dickinson Gravity Sewer Projected Capacity

Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
S3	461	1,080	1,272	1,329
LS6	249	249	249	249
S3 Cumulative	684	1,276	1,463	1,518

SOURCE: APEX

Gravity Sewer (Nodes LS4 to Node LS5), Decommission Lift Station 4

New infrastructure along 5th Street SW will allow elimination of Lift Station 4 by installing a gravity sewer between nodes LS4 and LS5 during construction.

Estimated Cost: \$691,000

Lift Station 5 Upgrade and Force Main

The improvement consists of an upgrade to Lift Station 5 and a force main from Lift Station 5 to the new Influent Pump Station. The estimated required flow for the upgraded Lift Station 5, subject to an I/I investigation as discussed earlier, is 1,646 gpm.

There is a reasonable chance the hydraulics for the West Lift Station and Lift Station 5 will work so the upgraded Lift Station 5 can pump into the force main from the West Lift Station, rather than requiring a new force main to the Influent Pump Station. This will require detailed modeling during design stages of the West Lift Station and Lift Station 5 Upgrade. The budget below is based on worst-case that a completely separate force main is required. If required, this force main should be installed concurrently with the force main from the West Lift Station.

Table 6-39: South Dickinson Lift Station Upgrade and Force Main Projected Capacity

Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
S3 Cumulative	684	1,276	1,463	1,518
LS4 Existing	659	659	659	659
LS5	440	440	440	440
LS5 Cumulative	830	1,408	1,591	1,646

SOURCE: APEX

Estimated Cost: \$4,073,000

Basin 4, 5 and 6 I/I Investigation

As discussed earlier, this area shows a relatively high amount of I/I entering the gravity sewer. Field investigation methods along with remediation may reduce the required infrastructure in this area. Remediation costs cannot be predicted without knowing the defects. The \$300,000 includes \$50,000 for investigation and \$250,000 for remediation.

Budget Cost: \$300,000

Lift Station 1 Capacity Upgrade

As previously discussed, Lift Station 1 has an existing capacity deficiency. The budget item includes increasing the capacity and general station rehabilitation.

Estimated Cost: \$845,000

Northeast Area Improvements

Lift Station 14 Upgrade and Force Main

The existing Lift Station 14 will be upgraded with a capacity of 2,165 gpm and a new force main will be installed from Lift Station 14 10th Avenue East Interceptor at Node N2.



Table 6-40: Northeast Dickinson Lift Station Upgrade and Force Main Projected Capacity

Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
LS14 Existing	233	233	233	233
LS14 Additional	1,279	1,556	1,932	1,932
LS14 Cumulative	1,512	1,789	2,165	2,165

SOURCE: APEX

Estimated Cost: \$3,724,000

Collection System Odor and Corrosion Control

Several areas of the city have current odor issues. These issues will likely grow as the city expands and wastewater travels further to the treatment facility. While odors are a public nuisance issue, they also indicate severely corrosive conditions in the sewer system infrastructure. The 10th Avenue Interceptor is an area experiencing significant odor issues and an existing valuable asset to the city of Dickinson.

An odor and corrosion control evaluation typically costs between \$50,000 and \$100,000 depending on the scope of the investigation. Solutions cannot be estimated prior to investigation; however, there are buildings at existing lift stations where chemical addition can be added without need to build new structures.

Budget Cost: \$750,000

Decommission Lift Station 13

If planned for, future development will be able to serve Basin 13 by gravity. This will allow for the elimination of Lift Station 13. The estimated cost is for decommissioning only and does not include increasing the size of gravity sewer in the adjacent development area to accommodate this flow.

Estimated Cost: \$50,000

East Area Improvements

Extension of Sewer Service North of I-94

As previously discussed, extending sewer service to the area north of I-94 will require installing a gravity sewer running under the interstate.

Estimated Cost: \$150,000

Gravity Sewer (Nodes LS16 to LS17), Decommissioning Lift Station 16

Extending gravity sewer from Lift Station 16 to Lift Station 17 will allow for Lift Station 16 to be eliminated.

Estimated Cost: \$816,000

Gravity Sewer (Nodes LS17 to E1), Decommissioning Lift Station 17

Extending gravity sewer from Lift Station 17 to the new lift station at Node E1 will allow for Lift Station 17 to be eliminated.

Estimated Cost: \$1,106,000

East Lift Station

The new East Lift Station will serve the development area in east Dickinson and pump to the new Water Reclamation Facility.

Table 6-41: East Dickinson Lift Station Projected Capacity

Node	Flows			
	1-3 Peak Hour (gpm)	4-5 Peak Hour (gpm)	6-10 Peak Hour (gpm)	10+ Peak Hour (gpm)
Node LS17	2,535	2,363	2,396	2,396
E1 Additional	142	410	1,789	1,789
E1 Cumulative	2,678	2,991	4,534	4,534

SOURCE: APEX

Estimated Cost: \$4,642,000

Basin 15, 16, 16 I/I Investigation and Remediation

As discussed earlier, this area has known I/I and capacity. Field testing methods along with remediation may identify the sources of I/I in the area and reduce required infrastructure. Remediation costs cannot be predicted without knowing defects. The \$300,000 includes \$50,000 for investigation and \$250,000 for remediation.

Budget Cost: \$300,000

Septage Receiving Station

A septage receiving station has been planned to provide septage haulers in the city of Dickinson and surrounding region with an appropriate location for dumping septage. The septage receiving station will remove oils, debris and gravel prior to the flows entering the sewer system. The septage receiving station will have controlled access and will allow for septage to be received in all seasons.

Estimated Cost: \$1,278,000

Above recommended wastewater improvements, including phasing, are provided in the Capital Improvements chapter.



Stormwater System

Overview of Existing Stormwater System

The city has an extensive underground storm sewer collection system developed in areas where overland flow was not practical or created drainage problems for adjacent properties. The majority of underground storm sewer is located within street right-of-way and consists of precast concrete pipe, manholes and inlets. Figure 6-30 provides a map of the overall stormwater/drainage system.

Storm drain facilities are located in every section of the community and for the most part the storm sewer system is meeting requirements of preventing flooding and erosion. The largest drainage way begins at the northwest corner of Dickinson at the intersection of State Avenue and 21st Street West and then meanders southeast through the community until continuing to flow south at the intersection of Villard Street and 10th Avenue East. The drainage way consists of a combination of mostly open channel flows with structures such as culverts for street crossings. The open channel also consists of several different sections and combinations of earth and grass, gabions, rock riprap and concrete side slopes. Stormwater generally flows from northwest to southeast through a combination of drainage channels, structures such as culverts and underground stormwater piping.

The City recently instituted a policy of requiring retention ponds for new development. The City also adopted stormwater management standards requiring post-development drainage from a site not to exceed pre-development conditions. These measures will slow the flow of stormwater into the existing drainage system and improve the quality of water that is ultimately discharged into the Heart River.

Existing Stormwater System Analysis

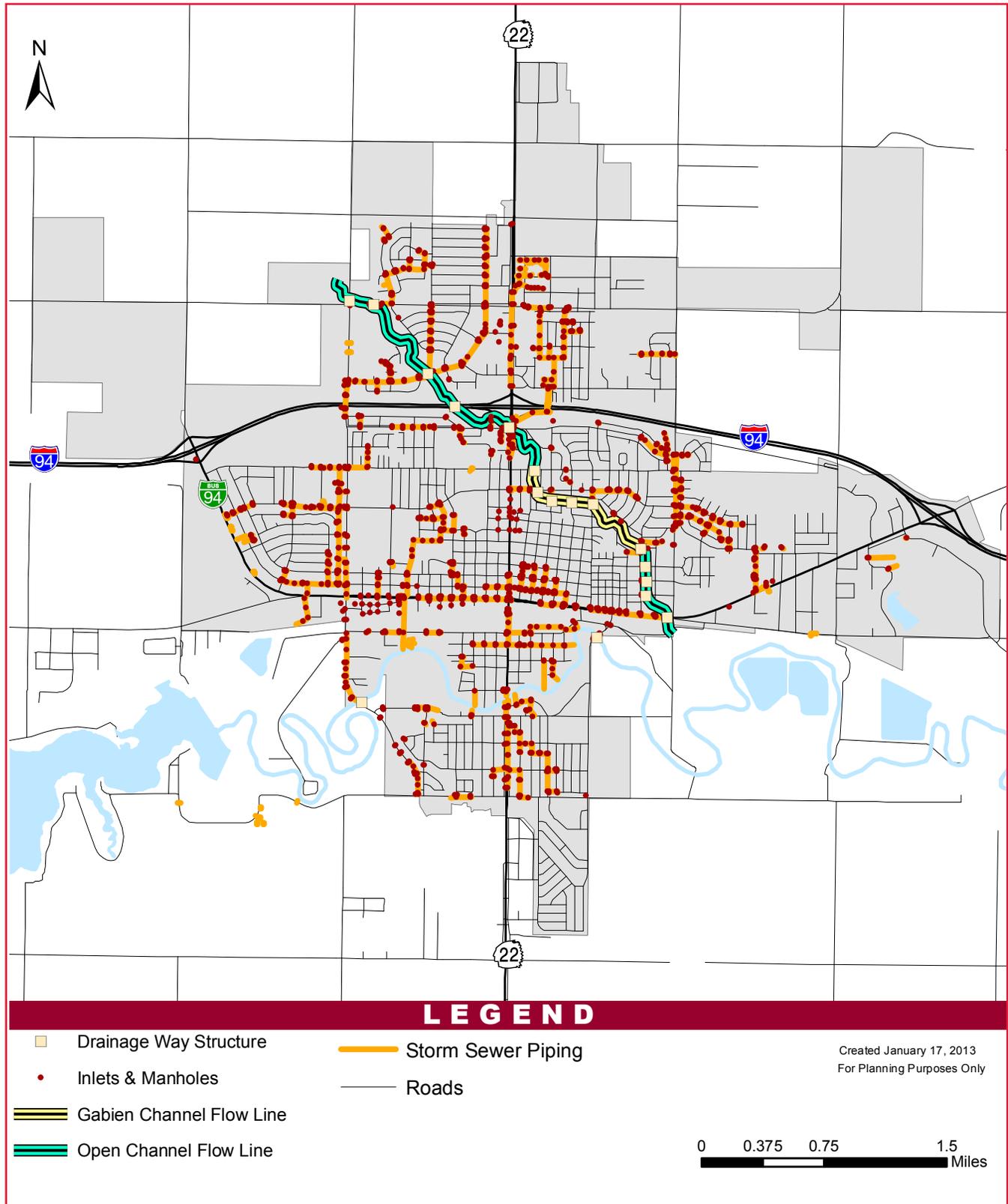
Some areas in the city exist where the existing stormwater system is insufficient to handle the drainage during a heavy rainfall. In these areas isolated flooding occurs. The most obvious example of this is at the Highway 22 railroad underpass. The stormwater pump below the underpass should be inspected regularly to ensure pump effectiveness is not reduced by sand build-up or other material. Larger capacity pumps may need to be installed to correct the flooding problem. In addition, the downstream pump stormwater mains may need to be up-sized. Another area where the storm system is insufficient is at the intersection of 1st Street North and 1st Avenue East. Figure 6-31 shows the general areas in the city where rainstorm flooding occurs.

Maintenance of the city's main open channel drainage way is another issue. Several drainage sections are obstructed by debris or vegetation. Figure 6-32 shows an obstructed section of the open drainage way. These conditions create more channelized drainage that increased velocity of the stormwater results in erosion and damage to material that reinforces the bank of the drainage way.

Figure 6-29: Flooding at the Highway 22 Underpass



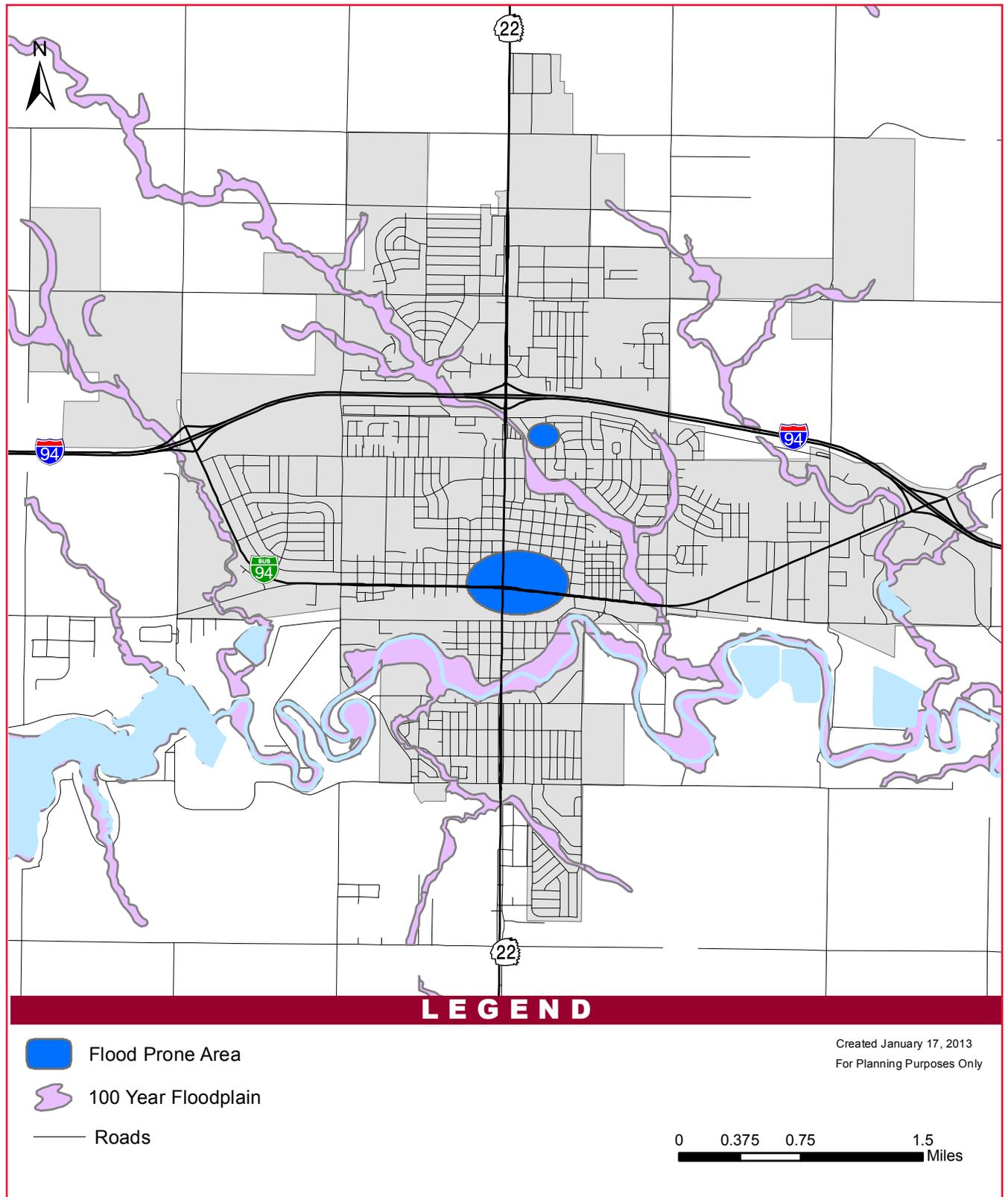
Figure 6-30: Map of the Overall City of Dickinson Stormwater/Drainage System



SOURCE: KLJ



Figure 6-31: Flood Prone Areas in the City of Dickinson



SOURCE: KLJ

Gabions used to reinforce the open drainage way have also been problematic. Gabions are difficult to maintain and clean and tend to break apart during maintenance and heavy storm events. It is recommended to no longer use gabions to reinforce the drainage way.

Analysis of Impacts on the Stormwater System from Forecasted Growth

It is predicted that within the next twenty years, the city of Dickinson will double in size. Due to this growth a specific plan for collection, retention and discharge of storm water is needed. Concerns with the existing condition of the storm water system include overflowing the existing system, flooding of the downtown area, and higher discharge rates into the river. The city requirements necessitate a stormwater management plan which should address these concerns.

The storm water management plan should include modeling of the capacity of the existing system with and without the population growth. According to the City of Dickinson Storm Water Regulations (Section 38.14.240 of the City Municipal Code), the proposed plan will need to assure that discharge remains constant and that all existing channels are not subject to higher flows leading to increased erosion. The storm water management plan should also contain a detention strategy to prevent flooding and overflowing of the existing system. The detention strategy would work with existing topography, and it would also assist in preserving discharge rates.

In addition, Dickinson's stormwater system maintenance responsibilities will significantly increase as the city grows. To manage increased maintenance it is recommended the City establish a formal stormwater maintenance program and establish dedicated program funding. A stormwater maintenance fee could be added to city water bills or a small mill levy could be considered.

National Flood Insurance Community Rating System

The National Flood Insurance Program (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Any community in compliance with the minimum requirements of NFIP may participate. Participation in the CRS will result in discounted premiums for flood insurance policy holders (between 5 percent to 45 percent discounts are provided depending on the rating of proposed floodplain management activities and will reduce the likelihood or magnitude of damage resulting from a flood).

Stormwater Treatment

Stormwater treatment is currently not required by the State Public Health Department. However, as the department continues to promulgate stormwater management regulations, it is possible that stormwater treatment regulations will be required by the State. The purpose of such regulations is to protect the quality of downstream water resources. The City should prepare for possible state stormwater treatment regulations. The conventional practice to treat stormwater is to provide separate on-site stormwater facilities for treatment. The following are green stormwater systems that should also be considered.

Green Stormwater Systems

Green stormwater systems reduce damage to rivers and streams by using best management practices or integrated

Figure 6-32: Vegetation and Broken Gabions Obstructing the Drainage Way





management practices in building and site design. Disconnecting flow from storm sewers and re-directing runoff to natural systems such as rain gardens, bio-swales, bio-cells, filter strips, native plantings and landscape enhancements allows stormwater to infiltrate into the ground, reviving existing aquifers. Natural systems also remove harmful pollutants and suspended solids from parking lots, streets and roadways, improving ecological integrity of rivers and streams.

Rain Gardens

A rain garden is a shallow depression with an amended soil mixture composed of sand, topsoil and compost. Rain gardens are usually planted with native species that remove pollutants from stormwater. Rain gardens are not a water conveyance system. Generally cells should be designed to capture 90 percent of all rain events (1.25 inches) or smaller. Since rain gardens are designed to infiltrate and cleanse water, all surface water should infiltrate within 72 hours. Soil tests should be completed prior to locating rain gardens.

Bio-swales

In contrast to rain gardens, bio-swales are an infiltration and conveyance system usually designed as part of an overall system that outlets into a naturalized detention basin.

Bio-retention Cells

Bio-retention cells are a naturalized depression that slows stormwater runoff, releasing it at a slower rate to discourage erosion and reduce turbidity. Typically bio-retention cells require soil amendments of compost and topsoil.

Naturalized Detention Basins

Naturalized detention basins are shallow wetlands or open water ponds containing a natural buffer that temporarily stores runoff. Buffer strips increase water quality of wetlands by allowing water to infiltrate, cleanse, cool and recharge existing hydrologic systems. Plant selection should be limited to native aquatic and wet mesic plants.

Green Roofs

Green roofs (also known as roof top gardens and vegetated roof systems) are on-site systems designed to retain, slow, cool and cleanse rainwater falling on the roof of a building. Green roofs can be retrofitted for existing buildings and should be encouraged in new developments. Typically, roof tops are planted with drought tolerant plant species in an engineered soil. Rooftop soil is lightweight, containing a large quantity of pumice (or similar material) and compost that holds water in the medium and drains slowly. Water evaporates into the atmosphere, reducing peak flows into urban streams and mitigating the urban heat island effect.

Green roof systems include:

Figure 6-33: Example of a Rain Garden



Figure 6-34: Example of a Green Roof



- Extensive green roofs, typically designed with 2-4 inches of engineered soil and planted with only the hardiest vegetation.
- Semi-intensive green roofs, usually with 4-8 inches of engineered soil. When an engineered soil medium of six inches or more is used, choices of plants dramatically increase. Ornamental grasses and many herbaceous perennials may be included in the planting palette.
- Intensive green roofs usually have more than eight inches of engineered soil. These are often plazas and other areas carrying a heavy design load.

Green roofs also protect the roof, insulate the building, and enhance Heating Ventilation and Air Conditioning (HVAC) systems. Green roofs have been proven to triple the roofing system lifetime, cutting down on long-term building costs while adding an ecological benefit. Insulating capabilities reduce heat loss and cool air before it enters the HVAC systems. While green roofs are not extensively used in the region, they have been implemented in Fargo, ND and are being considered in other large cities in the state.

Native Landscaping

Plant selection in the public environment should reinforce community themes and use local materials. Consistent palettes of plant material used within planters, streetscapes and other locations can strengthen the composition of individual elements in the public realm. Dickinson's semi-arid climate can be harsh and plants with proven performance should be used. The following section recommends a plant palette for the corridor.

Native grasses slow stormwater runoff and add color to the streetscape. Grasses appropriate to the Dickinson area include but are not limited to:

- Little Bluestem
- Sideouts Grama
- Prairie Dropseed

Tools to Mitigate Infrastructure Improvements Costs Needed for New Development

There are two general types of tools to mitigate infrastructure improvements costs needed for new development. The first type are programs where the City directly manages capital expenditures. A Capital Improvement Program and an Urban Service Area are two such programs recommended in the Comprehensive Plan. Capital improvement programming is discussed in detail in Chapter 12. The Urban Service Area is discussed below.

Urban Service Area

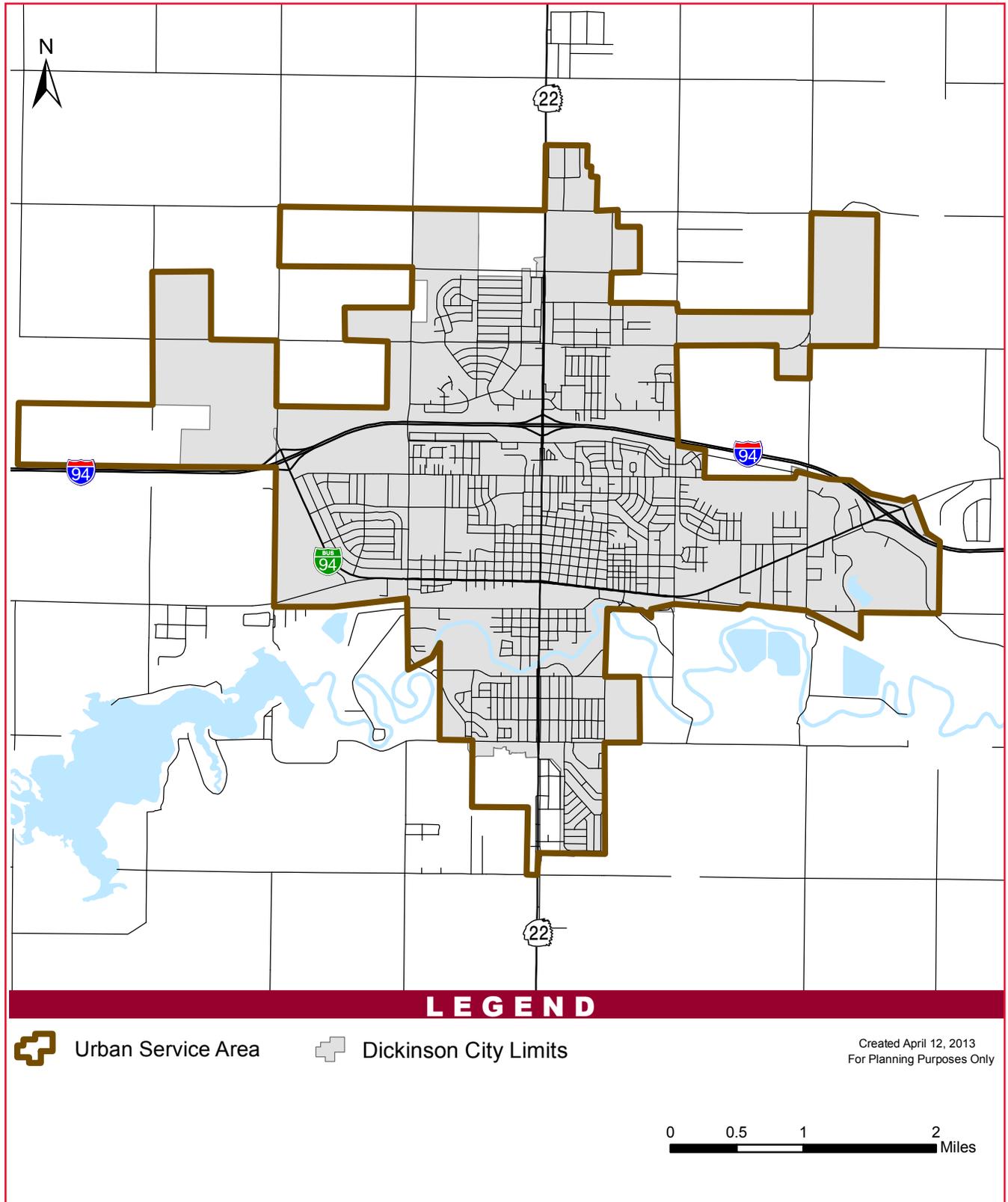
An Urban Service Area is a growth management tool that defines the geographic area where the City can reasonably provide urban services. City services that can be managed within an Urban Service Area include sewer, water, major roads, police and fire protection and other city facilities. The CIP provides the basis for determining if the City has programmed capital improvements in a given area. Benefits of implementing an Urban Service Area include:

- Promotes compact and contiguous development patterns than can be effectively served by city services
- Discourages leapfrog or sprawling development
- Allows the City to effectively manage expenditures for urban services

An Urban Service Area's primary purpose is to inform property owners and developers of growth areas in which the City has programmed capital improvements to facilitate future growth. A property owner within the Urban Service Area can expect provision of urban services within a given time frame.



Figure 6-35: City of Dickinson Urban Service Area



SOURCE: KLJ

If a property owner outside the USA wishes to develop the property, the owner has two options. The first option is to request that needed capital improvements be added to the CIP. The second option is to pay the cost of the improvements.

Since the City has recently approved several large annexations and developers expect the provision of urban services, the Urban Service Area boundary is in effect the outer-most boundary of the annexed areas. The only way to manage the city's capital improvement costs associated with the development of the annexed areas is to establish a CIP based on the City's financial ability to program capital expenditures. If that is not done, the City still has the opportunity to manage the programming of capital expenditures that are outside the Urban Service Area so long as the City does not include capital expenditures outside the Urban Service Area.

The City of Dickinson Urban Service Area was established after extensive coordination with City officials and staff and is shown in Figure 6-35. The City may formally revise the Urban Service Area at any time. At a minimum, revisions of the Urban Service Area boundary should be considered each year when the CIP is updated during the annual budget process.

Government Finance Tools Using City and Private Sector Resources

The second type of general tools to mitigate infrastructure improvements costs needed for new development assigns financial responsibility to developers. It is important to note that most of the needed infrastructure improvements are directly attributed to future growth. To help offset the city's significant financial burden of providing infrastructure to facilitate future growth, the City is encouraged to consider implementing one or more of the following revenue generating programs funded by future development creating the need for large sewer and water expenditures. Each program is discussed in detail in the Implementation chapter.

- Connection Fees
- Adequate Public Facilities Program
- Annexation/Development Agreements

Additionally, except when a developer formally agrees to provide affordable housing, the City should not use special assessments to fund infrastructure, including streets, located within the boundary of a new development. Special assessments are initially funded through the issuance of a City bond, and special assessment revenue funds the City's payment of debt. Given the significant amount of forecast growth, the City's bond rating could be put at risk if all forecast capital improvements were financed by the City. Additionally, if the City assumes the financial risk, and expected development does not occur, or if it does not occur at the expected rate, a shortfall of special assessment revenue could be created.

A majority of capital expenditures identified in the Capital Improvement Plan are significant improvements to or expansions of the City's water, sewer and transportation system needed to accommodate future growth. These infrastructure projects extend urban services into previously unserved areas and create opportunities for new growth. Developers benefitting from these capital projects should be required to provide the City with either direct financial contributions or they should be required to participate in an Improvement District.

Objectives and Policies

Objective 1: Coordinate Infrastructure and Future Land Use Planning

Policy 1.1. – Actively manage Urban Service Area to facilitate city infrastructure expansion over the next 5 to 10 years. Any revision to the Urban Service Area boundary shall require City Commission approval of a comprehensive plan amendment.

Policy 1.2 – Understanding that annexation of developed properties places a burden on the City to provide urban services to such properties, the City shall evaluate the feasibility and costs associated with retrofitting urban services in areas developed to rural standards and consider the costs when acting on an annexation request.



Policy 1.3. – Establish an inter-local agreement with Southwest Water Authority to standardize a procedure for reimbursing the SWA for outstanding costs associated with SWA water infrastructure improvements in annexed areas.

Policy 1.4. – Encourage developers and builders to provide capacity in a project’s stormwater detention facilities to accommodate drainage from new or planned roads that abut the site

Objective 2: Establish Strategies to Fund Planned Infrastructure Improvements

Policy 2.1 – To the greatest extent possible, the City shall avoid using the development impact fee program for new development, except when a new development formally agrees to provide affordable housing. To implement the affordable housing provision of this policy, the City will need to adopt a housing policy that defines affordable housing and establish the amount of affordable housing that would qualify for the use of the development impact fee program.

Policy 2.2 – Except when a developer formally agrees to provide affordable housing, special assessments shall not be used to fund any infrastructure, including street improvements, within the boundary of a new development. To implement the affordable housing provision of this policy, the City will need to adopt housing policy that defines affordable housing and establish the amount of affordable housing that would qualify for the use of the special assessments within the boundary of new development.

Policy 2.3 – For major city infrastructure and transportation projects required to extend urban services to planned growth areas, the City shall consider establishing Improvement districts or require developers to provide direct financial contributions as a means to fund such major capital expenditures that are directly attributed to new development.

Figure 2.4 – The City shall consider establishing a connection fee program for city major water, sewer and transportation projects required to extend such infrastructure to planned development areas. The connection fee program should be designed with the objective of upon build-out of the benefitting service area the sum of all connection fees should equal the original cost of the capital improvements.

Policy 2.5 – All land development applications shall include an off-site infrastructure impact assessment and report. The report shall identify impacts to the existing city sewer, water and stormwater systems expected to arise or be generated from the proposed development and identify system improvements needed to correct the impacts. Cost estimates for all needed improvements shall be included in the report. The land development applicant shall be responsible for providing all improvements to the sewer, water and stormwater systems that are generated by the proposed development. In lieu of providing the needed infrastructure improvements, the City Commission may require the applicant to provide the City a financial contribution based on the proposed development’s proportional impact on the infrastructure system(s). In such cases, the applicant shall submit a cost estimate of the needed transportation improvement(s) prepared by a licensed engineer. The proportional infrastructure impact contribution shall be equal to the ratio of estimated demand on the infrastructure system(s) generated by the proposed development and the existing demand on the infrastructure system(s) times the estimated cost of the needed infrastructure improvement(s). Development order or development agreement shall specify when the needed infrastructure improvement(s) shall be constructed or when the proportional infrastructure impact contribution shall be submitted to the City.

At the discretion of City staff, the policy provisions may be waived when negligible impacts on the infrastructure systems are reasonably expected due to the size, density or intensity or location of a land development application.

Policy 2.6 – All new, replacement or maintenance-related infrastructure projects funded by the City should be included in the City’s capital improvement program.

Objective 3: Establish and Fully Fund Infrastructure Maintenance and Operations Programs

Policy 3.1 – Annual maintenance programs should be established for the water, wastewater and stormwater systems. The City should fully fund approved maintenance programs.

Policy 3.2 – Program the purchase and installation of water monitoring equipment to facilitate the daily operation of the water system. The monitoring equipment should be installed on all water tanks and booster pumps and be monitored at a central location.

Policy 3.3 – The entire stormwater system should be flushed annually to clear the system of leaves and other debris. The City should purchase a pressure jet truck and a vacuum truck to implement this maintenance program.

Policy 3.4 – Periodically conduct inflow and infiltration studies of the wastewater collection system and establish a long-term program to fund replacement of broken or defective sewer mains.

Objective 4: Proactively Manage the City's Water Supply

Policy 4.1 – Actively lobby all parties associated with the approval and funding of the SWA Pipeline Project. Without full funding and adherence to the planned project schedule, the city will not have a sufficient water supply to serve all forecasted development.

Policy 4.2 – Annually monitor water consumption rates to provide adequate water treatment capacity for future growth.

Policy 4.3 – Summer water restrictions may need to be instituted as early as summer 2014. The City should investigate the feasibility and effectiveness of various measures and be prepared to institute the preferred measures when the need arises.

Policy 4.4 – Do not issue bulk water use permits or sell bulk potable water after the wastewater treatment plant is operational and facilities, policies and fees are in place to sell re-use water.

Policy 4.5 – Evaluate existing differentiated water rates effectiveness and consider raising rates for higher water level use.

Policy 4.6 – Actively promote water conservation in the community. Water conservation measures that should be considered include:

- Require plumbing fixtures that exceed the State Building Code's water efficiency standards
- Require use of native plants for landscaping in land developments
- Promote use of xeriscaping and drought resistant vegetation

Policy 4.7 – Examine the feasibility and cost of using city well water for irrigation of city parks and other city owned property.

Objective 5: Correct all Infrastructure Deficiencies that Negatively Impact the Safety of the Community

Policy 5.1 – Establish a long-term funding program to correct existing fire flow deficiencies. Replacement of under-sized or constricted water mains that serve critical facilities, places of assembly and dense residential areas should be given the highest priority. Whenever possible, water main replacement should be done in conjunction with road improvement projects.

Policy 5.2 – Continue establishment of redundant or inter-connected water lines to ensure water supply for fire suppression.

Policy 5.3 – In existing flood-prone areas, construct stormwater detention facilities or enlarged stormwater piping. Whenever possible, locate detention facilities on city owned property. If retention facilities are provided on private property, a public maintenance easement should be established.

Policy 5.4 – Consider participating in the National Flood Insurance Program Community Rating System (CRS).



Housing

Chapter 7

Housing is a central topic of the comprehensive plan. The city’s current high demand for housing is forecasted to continue for at least another 10 years. The supply of housing units has not been able to keep up with demand, resulting in significant difficulties for new residents to obtain housing as well as sharp increases in housing costs.

This chapter provides a detailed description of existing housing characteristics and identifies specific housing issues. Responses to community survey questions about housing supplement housing data from various sources. Information from all sources was used to develop policies to address specific housing issues. Finally, housing forecasts for the planning period will be provided. The future demand for housing in the city is extraordinarily high largely due to the strong forecast for job growth attributed to continued energy development in western North Dakota. Based on the forecast, the city has the potential of increasing its current stock of housing by 80 percent over the next 10 years. With such a strong growth rate, existing housing issues will be exacerbated without proactive housing policies.

NUMBER AND TYPE OF HOUSING UNITS

Table 7-1 shows the total number of housing units recorded in the 2000 and 2010 US Censuses for Dickinson, Stark County and North Dakota. During the 10-year period, 832 housing units were added in the city, presenting an 11.8 percent increase.

Table 7-1: Total Housing Units, Dickinson, Stark County and North Dakota, 2000-2010

	2000	2010	Number Change	Percent Change
Dickinson	7,033	7,865	832	11.8%
Stark County	9,722	10,735	1,013	10.4%
North Dakota	289,677	317,498	27,821	9.6%

SOURCE: 2000 AND 2010 US CENSUS

Table 7-2 shows the change in the type of residential structures between 2000 and 2010. During the decade, the city experienced nearly a 75 percent increase in the number of single family attached structures (duplexes and townhomes). The city also experienced significant increases in apartment buildings with more than 20 units and mobile homes.

Table 7-2: Number of Dwelling Units per Structure, City of Dickinson, 2000-2010

Type of Residential Structure (Units per Structure)	2000		2010		2000-2010
1-unit, detached	4,382	62.4%	4,817	61.4%	9.9%
1-unit, attached	286	4.1%	500	6.4%	74.8%
2 units	239	3.4%	260	3.3%	8.8%
3 or more units	1,884	26.8%	1,993	24.6%	5.8%
20 or more units	666	9.5%	795	10.1%	19.4%
Mobile Home	230	3.3%	334	4.3%	45.2%
Total housing units	7,021	100%	7,844	100%	10.9%

SOURCE: US CENSUS



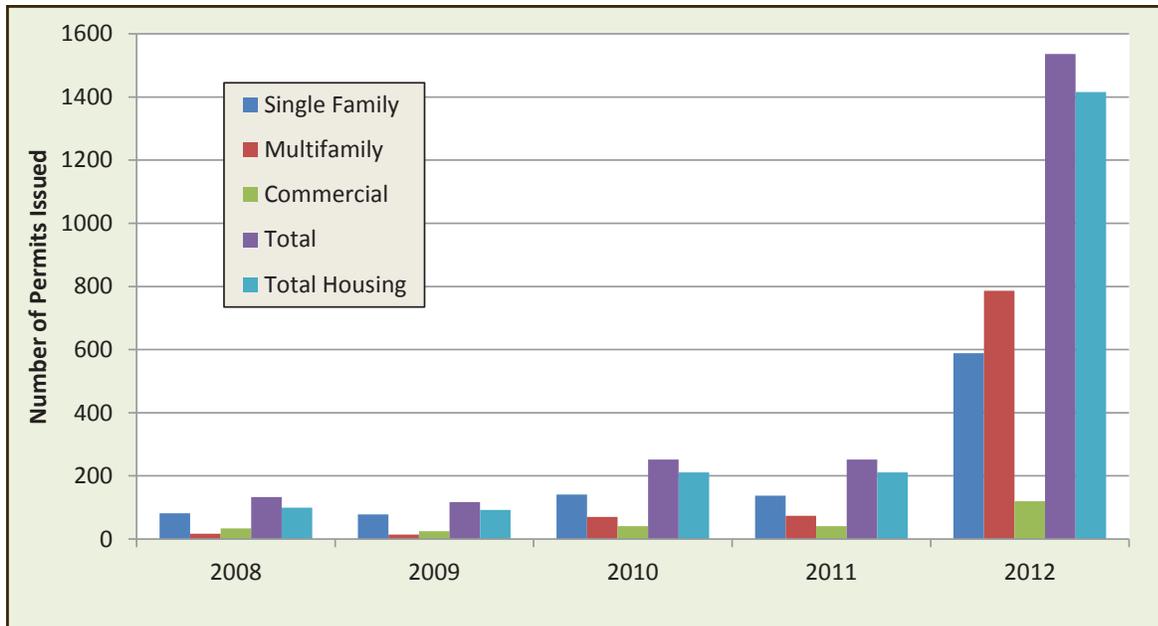
The data contained in Table 7-2 only includes the housing units built prior to April 2010 when the US Census was conducted and does not include the sharp increase in residential building permits issued by the City after the census. Table 7-3 and Figure 7-1 show permitting activity in the city since 2008, the year energy development in western North Dakota began to significantly increase. The total number of building permits for all construction types significantly increased in 2010 and the rate of growth in building permits has increased in each subsequent year. The majority of permits issued since 2008 are for various types of single family housing units. There was a dramatic increase in building activity in 2012. The largest growth category was multi-family housing.

Table 7-3: Building Permits Issued, City of Dickinson, 2008-2012

Unit Type	2008		2009		2010		2011		2012	
	#	% change								
Single Family	82	--	78	-4.9%	141	80.8%	137	-2.8%	589	329.9%
Multi Family	17	--	14	--	70	400.0%	74	5.7%	786	962.7%
Commercial	34	--	25	-26.5%	41	64.0%	41	0.0	120	192.7%
Total	133	--	117	-12.0%	252	115.4%	252	0.0	1536	509.5%
Total Housing	99	--	92	-7.1%	211	129.3%	211	0.0	1416	571.1%

SOURCE: NORTH DAKOTA ASSOCIATION OF BUILDERS

Figure 7-1: Building Permits Issued, City of Dickinson, 2008-2012



SOURCE: NORTH DAKOTA ASSOCIATION OF BUILDERS

Strategy: Maintain a ratio of approximately 65/35 for single-family detached/attached homes and multifamily unit structures, which will provide all residents with housing options to meet lifestyle and cost-related needs.

Household Characteristics

Table 7-4 shows the household characteristics for the city, Stark County and North Dakota in 2010. The most significant observation is the high percentage of non-family households (unrelated persons living together) in the city compared to Stark County and North Dakota. This high percentage is attributable to rapid energy-related growth. The 2000 Census identified 37.5 percent of households in Dickinson as being non-family households, and it can be assumed that the percentage should return to this level after the boom is over. With the exception of unmarried couples, non-family households are predominantly renters. This high percentage is attributed to rapid energy-related growth. The 2000 Census recorded 37.5 percent of households in Dickinson as being non-family households and it can be assumed the percentage should return to this level after the boom is over. Given the relatively high percentage of non-family households, the City should encourage development of rental housing to meet these households' housing needs.

Table 7-4: Household Characteristics, Dickinson and North Dakota, 2010

<i>Household Characteristics</i>	<i>Dickinson</i>	<i>Stark County</i>	<i>North Dakota</i>
Total Households	7,521	6,860	181,192
Average Household Size	2.25	2.31	2.30
Family Households	4,308	5,088	170,916
Percent of Total Households	57.3%	74.2%	60.8%
Average Family Size	2.89	2.90	2.91
Non-Family Households	3,213	1,772	110,276
Percent of Total Households	42.7%	25.8%	34.6%

SOURCE: US CENSUS BUREAU, 2010 CENSUS

Housing Tenure

Housing tenure is a term used to describe whether a housing unit is owned or rented. Table 7-5 shows the housing tenure profile in 2000 and 2010 for Dickinson, Stark County and North Dakota. Compared to Stark County and the state, the city has a greater percentage of occupied housing units that are rented. Between 2000 and 2010, the city's increase in renter occupied units exceeded the increase in owner occupied units. During the decade the city experienced a 23.3 percent increase in renter occupied units, compared to a 13.3 percent increase for the state. The significant increase in renter occupied units in the city suggest that new residents are either choosing rental housing and/or fewer new residents are able to afford home ownership.



Table 7-5: Housing Tenure of Occupied Housing Units, Dickinson, Stark County and North Dakota, 2000-2010

	Dickinson		Stark County		North Dakota	
	2000	2010	2000	2010	2000	2010
Total Occupied Units	6,517	7,517	8,932	10,085	257,152	281,192
Owner Occupied Units	4,169	4,625	6,276	6,860	171,299	183,943
Percent of Total	64.0%	61.5%	70.3%	68.0%	66.6%	65.4%
Renter Occupied Units	2,348	2,896	2,656	3,225	85,853	97,249
Percent of Total	36.0%	38.5%	29.7%	32.0%	33.4%	34.6%
Owner Occupied 2000-2010 Number Change	456		584		24,040	
Owner Occupied 2000-2010 Percent Change	10.9%		9.3%		14.0%	
Renter Occupied 2000-2010 Number Change	548		569		11,396	
Renter Occupied 2000-2010 Percent Change	23.3%		21.4%		13.3%	

SOURCE: US CENSUS BUREAU, 2000 AND 2010 CENSUS

Table 7-6 provides data on the population residing in owner occupied and renter occupied housing units in 2010 for Dickinson, Stark County and North Dakota. The data for the city is similar to that of Stark County and North Dakota, and are consistent with the data provided in Table 7-5. Approximately two-thirds of the city population resided in an owner occupied unit and one-third resided in a rental housing unit. It is interesting to note 27.3 percent of renters lived alone. Assuming the percentage remains relatively constant moving forward, the City and developers of apartments should make efforts to meet the demand by constructing a sufficient number of studio or one-bedroom apartments.

Table 7-6: Housing Tenure and Population, City of Dickinson, Stark County and North Dakota

<i>Household Population by Housing Tenure</i>	Dickinson	Stark County	North Dakota
Population in Owner-Occupied Units	11,491	17,154	457,030
Percent of Total Population in Households in Occupied Units	67.8%	78.8%	70.6%
Average Household Size in Owner-Occupied Units	2.48	2.50	2.48
Owner-Occupied Unit, Persons Living Alone	1,035	1,478	41,156
Percent of Population in Owner-Occupied Units	9.0%	8.6%	9.1%
Population in Renter-Occupied Units	5,462	6,136	190,505
Percent of Total Population in Households in Occupied Units	32.2%	28.2%	29.4%
Average Household Size in Renter-Occupied Units	1.89	1.90	1.96
Renter-Occupied Unit, Persons Living Alone	1,491	1,639	47,407
Percent of Population in Renter-Occupied Units	27.3%	26.7%	24.9%

SOURCE: US CENSUS BUREAU, 2010 CENSUS

Community Survey 1 asked respondents to indicate how much attention should be devoted to various city issues. Two issues were related to housing availability. Two-thirds of respondents indicated much attention should be devoted to the availability of homes to purchase, and 82 percent of respondents indicated much attention should be devoted to the availability of rental housing. Results of the community survey suggest there is a strong unmet demand for both owner and renter occupied housing units.

Housing Costs

Housing costs in the city are presented both in terms of the value of owner and renter occupied housing units. Much of the data presented in this section is from 2010 American Community Survey and given the significant housing shortage in the city that has persisted since 2010, data likely underestimate current housing costs.

Value of Owner Occupied Housing Units

Table 7-7 shows the median value of owner occupied housing units in 2010 for Dickinson, Stark County and North Dakota. Based on US Census data, the median value of an owner occupied housing unit was six percent higher than the state’s median value in 2010. The data prepared by the North Dakota Housing Financing Agency (see Figure 7-2) suggests the 2010 Census underestimates the median values of owner occupied housing units in the city. It is important to note the housing value data in the census is based on the homeowner’s view of the value of their property. In April 2010, city homeowners may have fully recognized the strength of the housing market.

Table 7-7: Median Value of Owner Occupied Housing Units, Dickinson, Stark County and North Dakota, 2010

	<i>Dickinson</i>	<i>Stark County</i>	<i>North Dakota</i>
Median Value	\$118,000	\$115,300	\$111,300

SOURCE: 2010 AMERICAN COMMUNITY SURVEY

The 2012 North Dakota Statewide Housing Needs Assessment: Housing Forecast report compiled housing value data for eight regions in the state. Dickinson was designated in the Roosevelt-Custer Region VIII that included the following counties: Adams, Billings, Bowman, Dunn, Golden Valley, Hettinger, Slope and Stark County. Table 7-8 provides a profile of the value of owner occupied housing units in 2010 for the city and Region VIII. Compared to Region VIII, significantly fewer owner occupied housing with values under \$90,000 and a greater percentage of homes valued between \$125,000 and \$200,000.

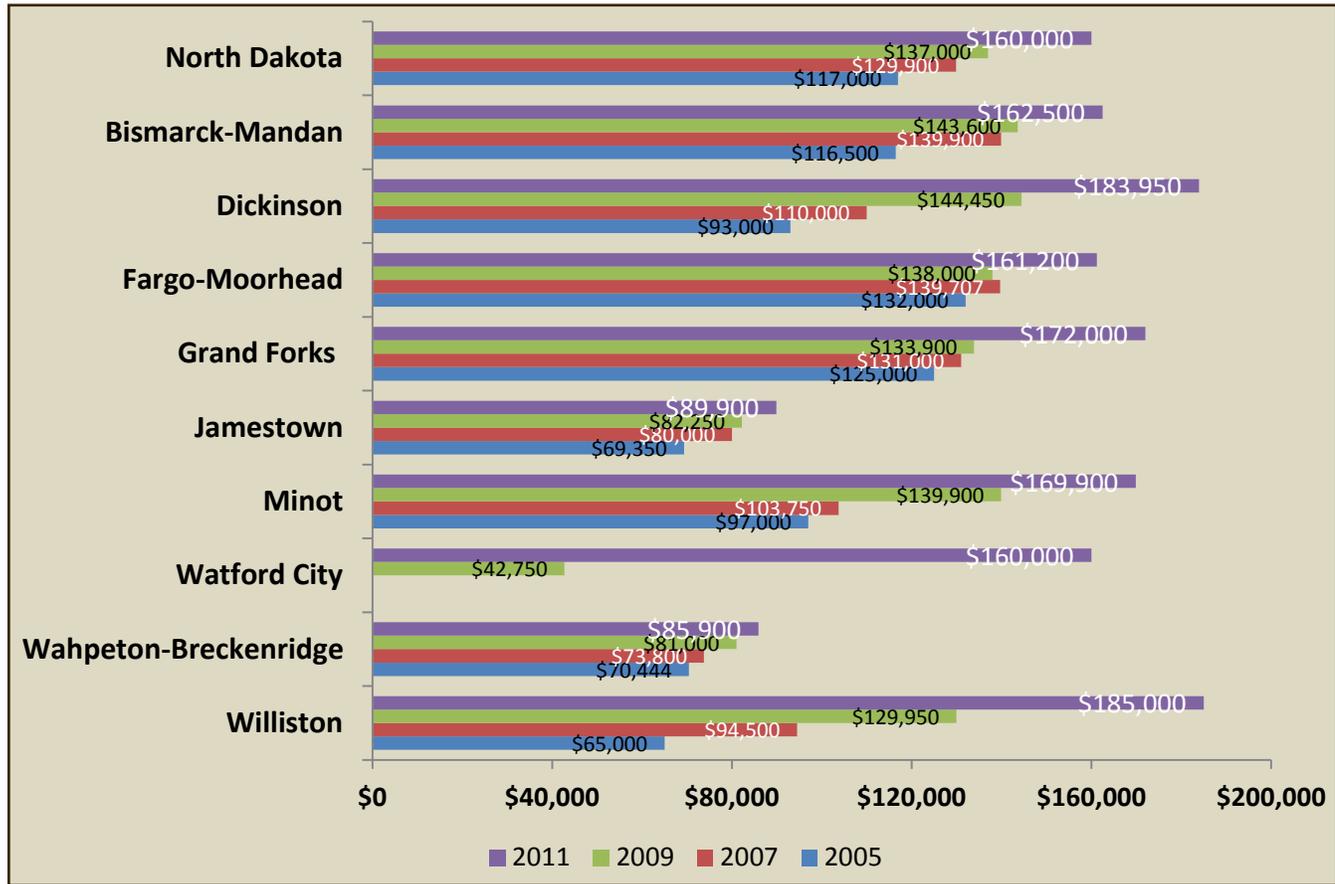


Table 7-8: Value of all Owner Occupied Housing Units, Dickinson and Region VIII, 2010

Owner-Occupied Housing Units by Value	Dickinson	Region VIII
Total	4,805	11,983
Less than \$40,000		
Number	302	1,182
Percent of Total	9.3%	15.7%
\$40,000 to \$69,999		
Number	447	2,000
Percent of Total	9.3%	16.7%
\$70,000 to \$89,999		
Number	592	1,607
Percent of Total	12.3%	13.4%
\$90,000 to \$124,000		
Number	1,305	2,225
Percent of Total	27.2%	18.6%
\$125,000 to \$199,000		
Number	1,487	2,648
Percent of Total	30.9%	22.1%
\$200,000 or More		
Number	672	1,621
Percent of Total	14.0%	13.5%

SOURCE: 2012 NORTH DAKOTA STATEWIDE HOUSING NEEDS ASSESSMENT: HOUSING FORECAST

Figure 7-2: Median Home Prices by City in North Dakota



SOURCE: NORTH DAKOTA HOUSING FINANCE AGENCY AND NORTH DAKOTA BOARD OF REALTORS

*Note – Data is still being compiled for communities for year 2005, 2007 and 2011.

The increased demand for housing has had a tremendous effect on housing sale prices. As shown in Table 7-9 and Figure 7-3, the average sale price for a home increased from \$151,045 in 2009 to \$194,651 in 2011, representing nearly a 30 percent increase in three years. The median sale price increased from \$144,450 in 2009 to \$183,950 in 2011, representing more than a 27 percent increase in three years.

It is important to note the data provided in Table 7-9, Figure 7-2 and Figure 7-3 represent only homes listed on the Multiple Listing Service (MLS) and do not include exclusive listings or sale by owner properties. When comparing average versus median sale prices, it is important to remember very high or very low homes sales can skew the average price up or down. As such, median sale prices tend to reflect a more statistically accurate measurement of the home values.

The average sold price or list price ratio shows the difference between the listed price for a home and the actual selling price. A value of 100 percent means that a home sold for the listed price. As can be seen from the data, homes sold for slightly less than the listed price, although the gap has minimized over the past three years from 96.1 percent in 2009 to 98.5 percent in 2011.

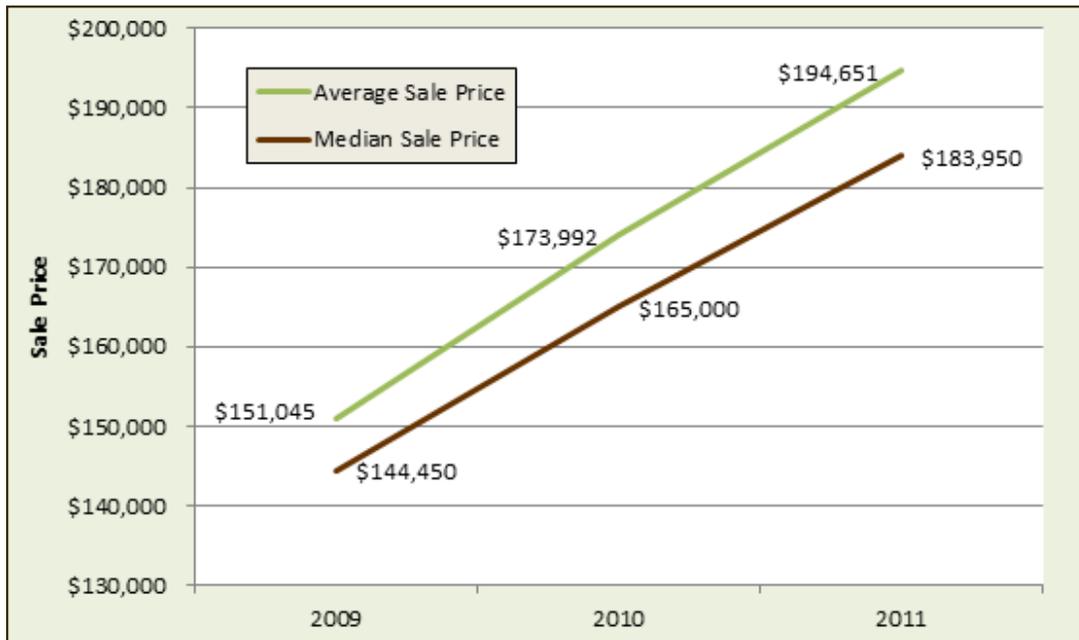


Table 7-9: Dickinson Home Sale Prices 2009-2011

Year	Average Sale Price	Price Increase	Percent Change	Median Sale Price	Price Increase	Percent Change	Average Sold Price/List Price Ratio
2009	\$151,045	-	-	\$144,450	-	-	96.1%
2010	\$173,992	\$22,947	15.2	\$165,000	\$20,550	14.2	97.3%
2011	\$194,651	\$20,659	11.9	\$183,950	\$18,950	11.5	98.5%

SOURCE: NORTH DAKOTA BOARD OF REALTORS

Figure 7-3: Average Sale versus Median Sale Home Price, City of Dickinson



SOURCE: NORTH DAKOTA BOARD OF REALTORS

Gross Rent

Gross rent is defined as the amount of the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else). Gross rent is intended to eliminate differentials which result from varying practices with respect to the inclusion of utilities and fuels as part of the rental payment.

Table 7-10 shows the 2010 median gross rent of renter occupied units paying cash (as opposed to in-kind payments) for Dickinson, Stark County and North Dakota. The American Community Survey shows a sharp increase in rents from 2010 to 2011. It is expected that these numbers have continued to rise through 2012.

Table 7-10: Median Monthly Rent of Renter Occupied Housing Units Paying Cash Rent, Dickinson, Stark County and North Dakota, 2010 and 2011

Median Gross Rent	Dickinson	Stark County	North Dakota
2010	\$584	\$547	\$555
2011	\$628	\$652	\$605

SOURCE: 2010 AMERICAN COMMUNITY SURVEY

Table 7-11 provides gross rent data presented in ranges of gross rent for Dickinson and Region VIII. Generally, compared to Region VIII, the city has relatively fewer rental units with monthly rents less than \$450 and relatively greater rental units with monthly rents more than \$450.

Table 7-11: Median Gross Monthly Rent of Renter Occupied Housing Units Paying Cash Rent, Dickinson and Region VIII, 2010

Renter Units	Dickinson	Region VII
Total	2,311	3,408
Less than \$250		
Number	181	357
Percent of Total	7.8%	10.5%
\$250 to \$349		
Number	198	378
Percent of Total	8.6%	11.1%
\$350 to \$449		
Number	215	523
Percent of Total	9.3%	15.3%
\$450 to \$549		
Number	434	568
Percent of Total	18.8%	16.7%
\$550 to \$749		
Number	766	965
Percent of Total	33.1%	28.3%
\$750 or More		
Number	517	617
Percent of Total	22.4%	18.1%

SOURCE: 2012 NORTH DAKOTA STATEWIDE HOUSING NEEDS ASSESSMENT: HOUSING FORECAST

Housing Affordability

As noted above, the supply of housing in the city has not kept up with the strong demand for housing, resulting in recent sharp increases for housing. Nearly three-quarters of respondents to Community Survey 1 felt much attention should be devoted to the cost of purchasing a home and more than 82 percent responded that much attention should be devoted to the cost of housing rent. Using the community survey results, input from several public meetings and conversations with City officials and community stakeholders, it is reasonable to conclude the housing cost is a major issue for the entire community.



Persons with modest wages or fixed incomes are struggling to pay escalating housing costs. Employers are having difficulties retaining and recruiting workers due to the shortage and high cost of housing. Some residents have chosen to move from the city in search of more affordable housing elsewhere. However, the rising home prices are benefiting residents who bought before the significant increase in home values and the increase has given residents increased equity in their homes. The equity can then be used to help pay for needed improvements to homes or can be used for other financial purposes.

Affordable housing is a function of the supply of low-cost housing and the income levels of households/individuals. Housing affordability is generally defined by how much of a household’s income is devoted to housing costs (mortgage/rent plus utilities). For individual households, housing is considered affordable when no more than 30 percent of household income is expended on housing costs.

Homeownership and Rental Costs

Table 7-12 provides data on the amount monthly housing costs for homeowners in Dickinson. The percentage of homeowner households whose housing costs exceeded 30 percent of their household income dropped from year 2000 to year 2010. In 2000, 14.7 percent of homeowner households had housing costs greater than 30 percent of their household income. In 2010, that percentage dropped to 13.0 percent. The finding could be a result of sampling techniques used by the Census to measure household income. Another possible explanation is the price of owner occupied housing units was in the early stages of escalation in April 2010 when the census was conducted. Regardless of the results of the 2010 US Census, the availability and cost of purchasing an owner occupied housing unit is a major community issue in 2012.

Table 7-12: Monthly Homeowner Costs as a Percentage of Household Income, Dickinson ND, 2000 and 2010

Monthly Owner Costs as a Percentage of Household Income	2000		2010	
	Number	Percent	Number	Percent
Less than 20.0 percent	2,296	60.3%	3,009	32.6%
20.0 to 24.9 percent	607	15.9%	751	15.6%
25.0 to 29.9 percent	287	7.5	407	8.5
30.0 to 34.9 percent	146	3.8	221	4.6
35.0 percent or more	414	10.9%	406	8.4%
Not computed	56	1.5%	11	0.2%
Total	3,806	100%	4,805	100%

SOURCE: US CENSUS BUREAU, 2000 AND 2010 CENSUSES

Data in Table 7-13 clearly shows rental housing in the city became less affordable between 2000 and 2010. In 2000, 33.7 percent of renter households had housing costs greater than 30 percent of their household income. In 2010, that percentage increased to 40.6 percent. In 2010, 35 percent of renter households paid gross rent that was greater than 35 percent of their household income.

Table 7-13: Gross Rent as a Percentage of Household Income, Dickinson, 2000 and 2010

Gross Rent as a Percentage of Household Income	2000		2010	
	Number	Percent	Number	Percent
Less than 15.0 percent	481	20.8%	457	19.3%
15.0 to 19.9 percent	384	16.6%	313	13.2%
20.0 to 24.9 percent	297	12.8%	374	15.8%
25.0 to 29.9 percent	237	10.2%	193	8.2%
30.0 to 34.9 percent	107	4.6%	133	5.6%
35.0 percent or more	674	29.1%	828	35.0
Not computed	134	5.8%	68	2.9%
Total	2,314	100	2,366	100

SOURCE: US CENSUS (EXCLUDES UNITS WHERE GRAPH CANNOT BE COMPUTED)

Table 7-14 provides valuable information regarding a household’s ability to purchase a home or rent a housing unit. The monthly affordable housing costs were estimated at 30 percent of each income category and the affordable purchase price was based on a lender’s formula. The main assumptions made in calculating the affordable purchase price included a 30-year loan fixed at 4 percent interest, 5 percent down payment, property taxes at 1.25 percent of the loan, mortgage and hazard insurance at 0.6 percent of the loan and total debt at no more than 20 percent of income.

Households with extremely low and very low household incomes are expected to reside in rental housing. The 2010 median gross rent in Dickinson was \$584 (US Census); however, based on input from the community, rental prices have significantly increased through 2012. Households with extremely low and very low household incomes will experience significant challenges in finding an affordable renter-occupied housing unit. In addition, with current median home prices estimated between \$160,000 and \$190,000, the following income groups may have difficulty purchasing a home:

- All households with extremely low and very low household incomes
- A majority of household with low incomes
- A significant portion of moderate income households

As a result, high demand for rental housing will likely exist within the city of Dickinson. Table 7-14 shows future demand for rental housing, affordable rental housing and affordable owner occupied housing units.



Table 7-14: Housing Affordability by Household Income Groups, City of Dickinson, 2010

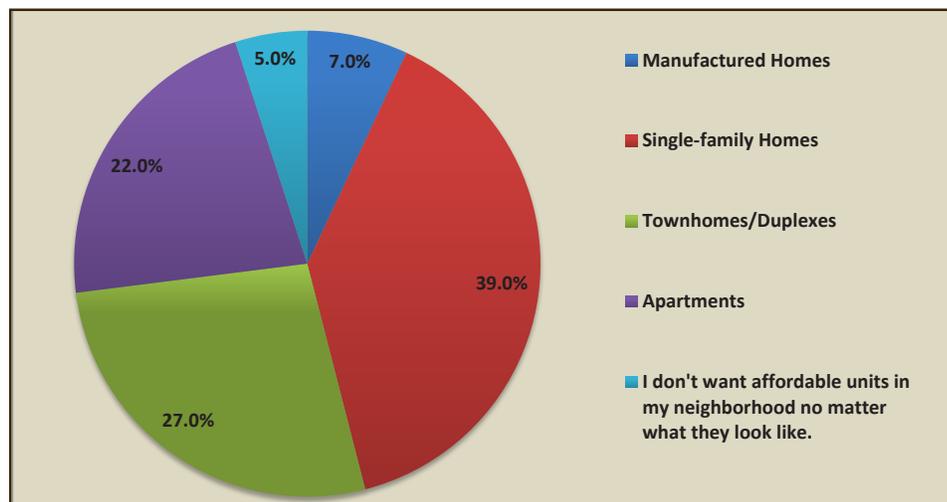
Income Categories Based on Income as Percentage of the Median Family Income (MFI) FY 2010												
	Extremely Low: 0% to 30% MFI		Very Low: 31% to 50% MFI		Low Income: 51% to 80% MFI		Moderate: 81% to 115% MFI		Upper: Above 115% MFI		Tax Credit: 51% to 60% MFI	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Annual Income Ranges	\$0	\$19,142	\$19,143	\$31,904	\$31,905	\$51,046	\$51,047	\$73,378	\$73,379 and above		\$31,905	\$38,284
Monthly Affordable Housing Costs	\$0	\$479	\$480	\$798	\$799	\$1,276	\$1,277	\$1,834	\$1,834 and above		\$798	\$957
Affordable Purchase Price	\$0	\$39,178	\$65,182		\$104,442		\$150,371		\$181,238		\$78,356	

SOURCE: 2012 NORTH DAKOTA STATEWIDE HOUSING NEEDS ASSESSMENT: HOUSING FORECAST USING DATA FROM THE US DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT AND THE CENTER FOR SOCIAL RESEARCH AT NDSU

Community Survey 2 included a question asking “What type of affordable housing units would you like to see constructed in Dickinson?” Survey respondents indicated they would like to see more single family homes, townhomes/duplexes and apartments constructed as affordable housing options. Figure 7-4 shows the results of the survey question with single-family homes representing the largest type of affordable unit desired.

The community appears to also support development of affordable housing. Only 5.5 percent of respondents chose a response of “I don’t want affordable units in my neighborhood regardless of what they look like.” However, to make this a reality, the City should consider developing incentives for affordable units that are both attractive and functional. Because of the strong real estate market in Dickinson, construction of affordable units may be difficult unless the City can help incentivize such development.

Figure 7-4: Response to the question, “What type of affordable housing units would you like to see constructed if the development community were to create attractive units?”

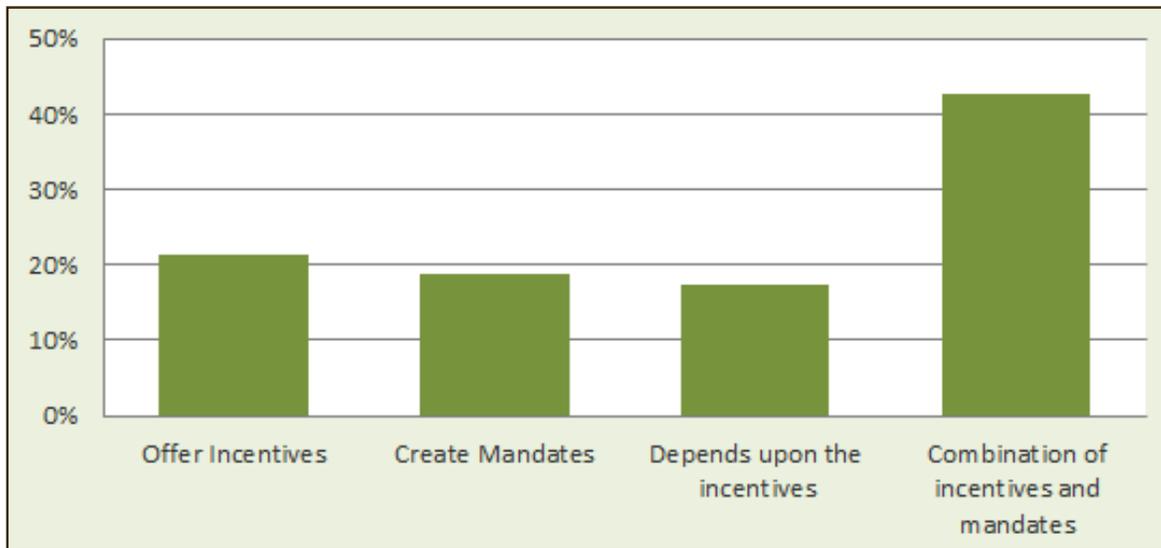


SOURCE: COMMUNITY SURVEY #2

Strategy: Establish an affordable housing project on city-owned land south of SW 8th Street or on property south of I-94 and west of 10th Avenue or on other city-owned property. A portion of the land could be set aside or sold for a nominal (\$1) fee to Community Action Partnership or other non-profit developers such as Habitat for Humanity or Lutheran Social Services.

Community Survey 2 included a question that addressed the subject of the city use of mandates and incentives to promote the development of affordable housing. Figure 7-5 shows the response to the survey question that asked “Should the City offer incentives (more home per acre, fee waivers) for developers to build affordable housing or should the City require that developers construct affordable housing?” The results suggest the community prefers some type of City assistance to increase the development of affordable housing.

Figure 7-5: Response to the question, “Should the City offer incentives (more homes per acre, fee waivers) for developers to build affordable housing or should the City require that developers construct affordable housing?”



SOURCE: COMMUNITY SURVEY #2

The North Dakota Housing Finance Agency’s (NDHFA) Housing Incentive Fund (HIF) allows individuals, businesses and financial institutions to receive a dollar-for-dollar state income tax credit in exchange for their contributions. Dollars given can be targeted to a specific project or community. Currently, Dickinson has two projects that have applied for the tax credits, which would produce 34 affordable units.

The 2012 North Dakota Statewide Housing Needs Assessment: Housing Forecast report estimated that in 2010 there were 714 households in the city that would qualify for the tax credit, and by year 2025 there could be an estimated 1,380 qualifying households. To qualify for the tax credit a household’s income needs to be between 51 and 60 percent of the median family city income. In 2010, the median family city income was \$63,807. To qualify for the tax credit households need to have an income between \$32,542 and \$38,284. For more information regarding NDHFA’s HIF program including income limits, development costs and other program questions, please visit: <http://www.ndhfa.org/default.asp?nMenu=05379>.



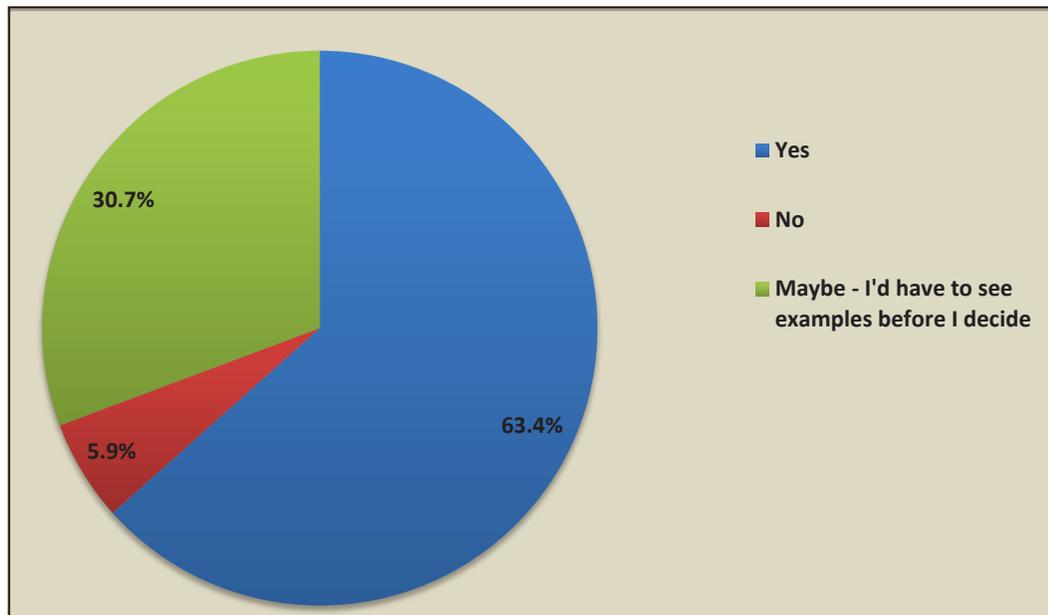
Strategy: Encourage developers to utilize NDHFA’s HIF program, which allows developers to receive up to a 25 percent tax credit on potential projects, to stimulate affordable housing development for rental and owner housing needs.

Strategy: Create a housing partnership to develop affordable housing. The partnership would consist of a non-profit community development corporation such as the Community Action Partnership, a lending consortium and an information and counseling service. Community Action Partnership could utilize the NDHFA HIF program to leverage funds for affordable housing. The lending consortium usually consists of credit unions and banks that would be willing to finance affordable housing projects. NDHFA would also serve as the information/counseling service.

Manufactured Homes

Manufactured homes can be an affordable housing option for many households. Two manufactured home communities in the city were developed several decades ago and lack the design features and amenities included in today’s manufactured home communities. To address the public perception to the two existing manufactured home communities, Community Survey 2 included the following question: “Should manufactured/mobile home developments include performance standards such as architectural design guidelines, larger lot sizes, open space and landscaping?” Figure 7-6 shows the response to the question. Results indicate the community supports development of well-designed manufacturing communities.

Figure 7-6: Response to the question, “Should manufactured/mobile home developments include minimum performance standards such as architectural design guidelines, larger lot sizes, open space and landscaping?”



SOURCE: COMMUNITY SURVEY #2

Strategy: Encourage development of manufactured home development and require mobile home and manufactured housing developments to incorporate performance standards such as design guidelines, larger lot sizes, landscaping and open space recreation areas.

Temporary Housing

The rapid growth in energy development over the past five years has generated a tremendous workforce of temporary energy-extraction employees. Most workers are from out of state and regularly commute back to their home communities. As such, the vast majority of the workers rely on various temporary housing. The workers have found temporary housing from the following sources:

- Hotel rooms contracted out for extended periods of time by the oil companies
- RV and mobile home parks
- Subletting of homes
- On-site housing of employees
- Temporary crew camp facilities

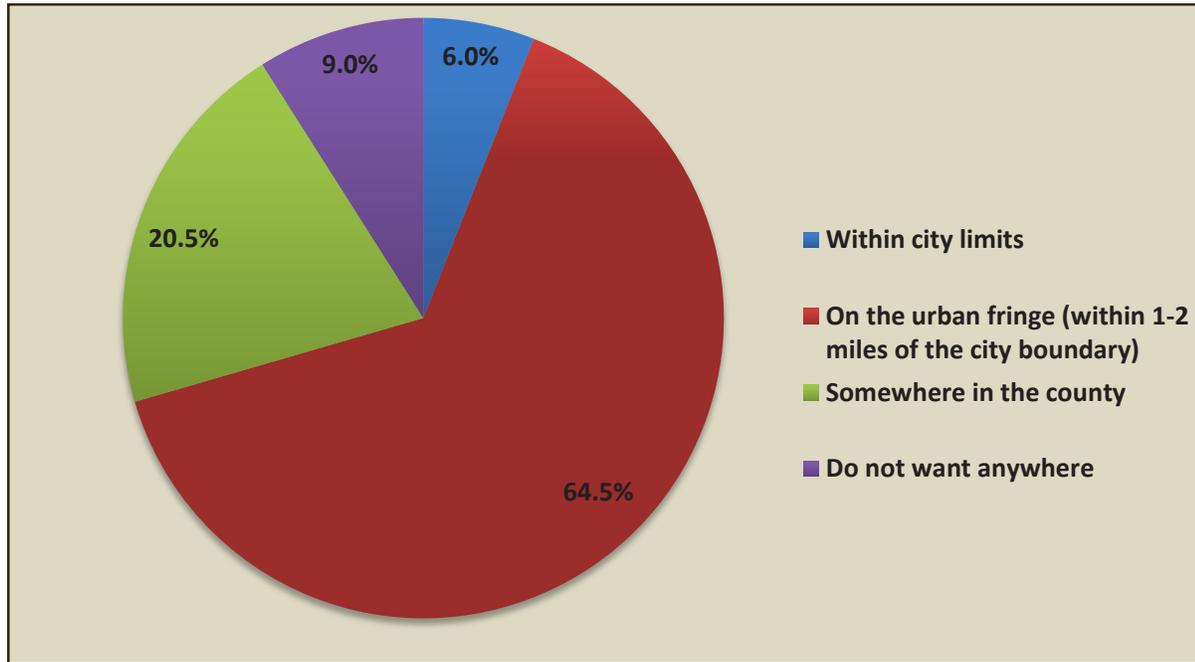
Crew camp facilities, if designed and managed properly, offer several benefits including alleviating demand for permanent housing units, generating city revenue, providing infrastructure improvements paid by crew camp owners and creating redevelopment opportunities when temporary crew camp facilities are no longer needed.

To help alleviate the housing demand and reduce the likelihood of overbuilding housing, temporary crew camps should be encouraged and built in the city. Future crew camp sites should be placed where infrastructure currently exists or will be built by the crew camp developers. In addition, facilities should be situated where they can be converted to another use or easily dismantled. Compatibility with nearby residential uses should be a central factor in determining an appropriate location for crew camps. Crew camps should be located in areas that are predominantly commercial or industrial in nature.

Figure 7-7 shows the result of a Community Survey 1 question, which asked “Where should crew camps be located?” The majority of respondents (65 percent) indicated crew camps should be located within 1-2 miles of the city boundary. However, if impacts of crew camps can be properly mitigated, they could be developed within the existing city boundary to maximize the efficiency of infrastructure and law enforcement services.



Figure 7-7: Response to the question, “Where should crew camp housing facilities be located?”



SOURCE: COMMUNITY SURVEY #1

Strategy: Utilize existing crew camp policies and development standards to minimize impacts to the community and locate future crew camps in commercial or light industrial areas, preferably near existing crew camp facilities.

Strategy: Develop plans for future reuse of crew camp facilities or the land where crew camp facilities have been removed from the site. Potential reuse options include senior style apartment complexes, housing for Dickinson State University students or commercial/industrial type projects.

Future Housing Demand

As discussed in the Population Characteristics, Trends and Projections chapter, NDSU prepared three employment and housing forecast scenarios. The scenarios differed in the assumed future rate of energy development in western North Dakota and the amount of the forecasted demand the city was able to meet. The City Commission chose a forecast scenario that assumed 1) the future energy development would be at a rate equal to the average of the slow and rapid growth of energy development and 2) that the city would exceed its current share of regional housing (50 percent) and meet 70 percent of the forecasted demand for permanent housing.

Temporary and permanent energy-sector workforces have different housing needs. As such, housing forecasts were prepared for the total number of housing units (temporary and permanent housing) and the number of permanent housing. The demand for temporary housing includes crew camps, long-term hotel leases and other non-traditional housing while the demand for permanent housing will be met by conventional housing products.

Table 7-15 and Figure 7-8 show the forecasted total, permanent and temporary housing demand for the city. Table 7-16 provides summary information on the peak year for permanent and temporary housing demand, the number of new permanent housing units required to meet peak demand, and the percent change in permanent housing units to meet peak demand and other measures to assist the city planning for growth in residential development. The City will need to track

new units permitted to compare the supply of permitted housing units to the forecasted demand. By monitoring the supply of new housing in relation to demand, City planning staff will be able to evaluate if over-building is occurring or whether supply is not keeping up with the forecasted demand resulting in upward pressures on the cost of housing.

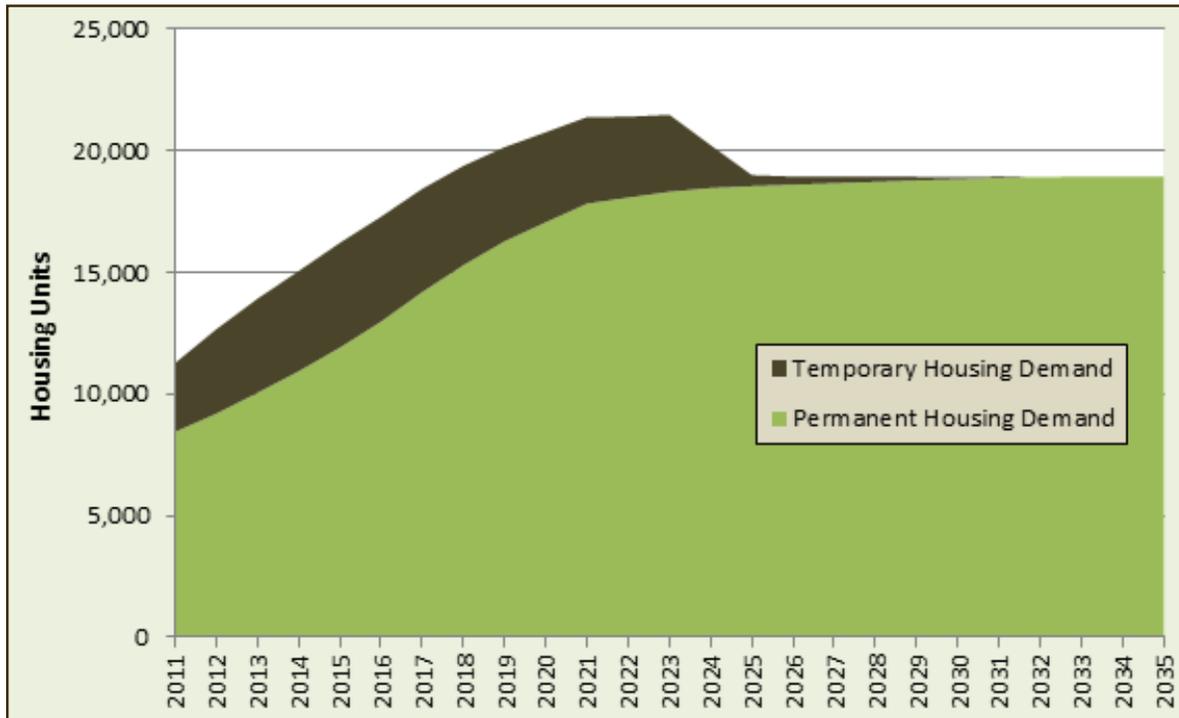
Table 7-15: Forecasted Housing Demand, City of Dickinson, 2011-2035

Year	Total Housing Demand	Permanent Housing Demand	Percent Change From Prior Year	Temporary Housing Demand	Percent Change from Prior Year
2011	11,263	8,435	--	2,828	--
2012	12,659	9,189	8.9%	3,470	22.7%
2013	13,913	10,040	9.3%	3,873	11.6%
2014	15,054	10,928	8.8%	4,126	6.5%
2015	16,211	11,903	8.9%	4,308	4.4%
2016	17,285	12,971	9.0%	4,314	0.1%
2017	18,436	14,185	9.4%	4,251	-1.5%
2018	19,380	15,294	7.8%	4,086	-3.9%
2019	20,152	16,274	6.4%	3,878	-5.1%
2020	20,761	17,059	4.8%	3,702	-4.5%
2021	21,381	17,824	4.5%	3,557	-3.9%
2022	21,400	18,074	1.4%	3,326	-6.5%
2023	21,476	18,313	1.3%	3,163	-4.9%
2024	20,228	18,468	0.8%	1,760	-44.4%
2025	18,996	18,544	0.4%	452	-74.3%
2026	18,940	18,601	0.3%	339	-25.0%
2027	18,927	18,662	0.3%	265	-21.8%
2028	18,929	18,722	0.3%	207	-21.9%
2029	18,928	18,779	0.3%	149	-28.0%
2030	18,906	18,833	0.3%	73	-51.0%
2031	18,933	18,881	0.3%	52	-28.8%
2032	18,922	18,922	0.2%	0	-100.0%
2033	18,933	18,933	0.1%	0	--
2034	18,939	18,939	0.0%	0	--
2035	18,943	18,943	0.0%	0	--

SOURCE: NDSU



Figure 7-8: Forecasted Housing Demand, City of Dickinson, 2011-2035



SOURCE: NDSU

Table 7-16: Summary of Housing Demand, City of Dickinson 2011-2035

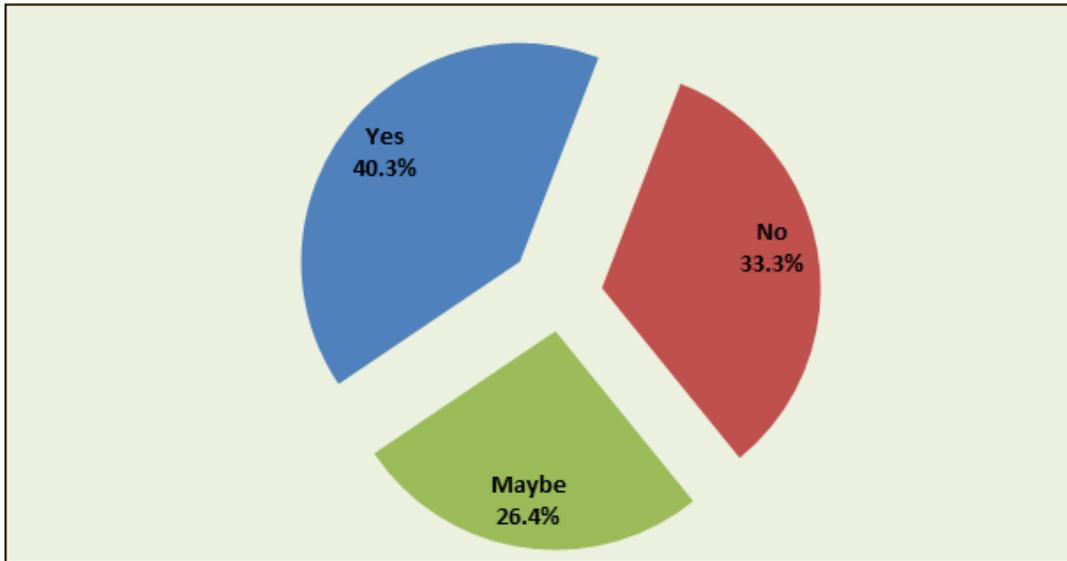
	Permanent Housing	Temporary Housing
Peak Demand (Units)	18,943	4,314
Year for Peak Demand	2035	2016
Peak Years in Growth of Demand	2016-2017	2011-2012
Annual Number of Units Added (Peak Year Demand)	1,000	--
Number Change (2011 to 2035)	11,078	--
Percent Change (2011 to 2035)	140.9%	--

SOURCE: KLJ

To meet the forecasted supply of housing, Dickinson should consider establishing a new residential zoning district that would allow a greater density than the R-3 zoning district. A new high density residential zoning district could help alleviate the strong housing demand by providing developers with an option to construct more units per acre which would help to bring down the costs of housing and promote the cost-effective use of city infrastructure.

Figure 7-9 shows the result of a Community Survey #2 question which addressed the issue of establishing a new high density zoning district. The response to this question suggests community support for a new high density zoning district. Only one-third of the respondents rejected the idea outright.

Figure 7-9: Response to the question, “To increase the supply of housing, should the City create a new residential zoning district at appropriate locations that would allow more dwelling units to be built on a given area of land than is currently allowed?”



SOURCE: COMMUNITY SURVEY #2

Strategy: Create a new, high-density residential district that would allow more than 25 units per acre, thus increasing the number of homes per acre which can help reduce housing costs while also promote the cost-effective use of city infrastructure.

The 2012 North Dakota Statewide Housing Needs Assessment: Housing Forecast provides valuable information on the number and type of households that constitute the aggregate forecasted demand for housing. Table 7-17 shows the forecasted demand for owner occupied housing units by age group. Between 2010 and 2025 the demand for owner occupied housing units is forecasted to increase by more than 70 percent. The greatest forecasted demand for owner occupied housing units will be from persons aged 25 to 44 years.



Table 7-17: Owner Occupied Housing Units by Age of Householder, City of Dickinson, 2010-2025

Age Group	2010 # of Units	2015 # of Units	2020 # of Units	2025 # of Units	Percent Change 2010-2025
Less than 25 years	105	125	143	157	49.5%
25-44 Years	1,360	2,270	3,012	3,080	126.5%
45-64 years	2,130	2,409	2,994	3,183	49.4%
65 years and older	1,210	1,296	1,477	1,801	48.8%
Dickinson Total	4,805	6,100	7,626	8,221	71.1%
Region VIII Total	15,882	20,675	24,981	26,817	68.9%

SOURCE: CENTER FOR SOCIAL RESEARCH AT NDSU AND 2006-2010 AMERICAN COMMUNITY SURVEY, 5-YEAR ESTIMATES

Table 7-18 shows the forecasted demand for renter occupied units by age group. Between 2010 and 2025 the demand for renter occupied housing units is forecasted to increase by 114 percent. The demand for renter occupied housing units is relatively greater than Region VIII. Strong demand for renter occupied units is forecasted for persons aged 25 to 64. Between 2010 and 2025 the demand for renter occupied housing units for persons aged 25 to 44 years is forecasted to increase more than 200 percent, and the demand for persons aged 45 to 64 years is forecasted to double. Given the very strong forecasted demand for renter occupied units, the City should encourage development of apartments and other rental housing products.

Table 7-18: Renter Occupied Housing Units by Age of Householder, City of Dickinson and Region VIII, 2010-2025

Age Group	2010 # of Units	2015 # of Units	2020 # of Units	2025 # of Units	Percent Change 2010-2025
Less than 25 years	493	690	788	863	75.1%
25-44 Years	711	1,625	2,156	2,204	310.0%
45-64 years	511	807	1,002	1,066	108.6%
65 years and older	651	671	764	931	43.0%
Dickinson Total	2,366	3,793	4,710	5,064	114.0%
Region VIII Total	3,899	5,979	7,273	7,795	99.9%

SOURCE: CENTER FOR SOCIAL RESEARCH AT NDSU AND 2006-2010 AMERICAN COMMUNITY SURVEY, 5-YEAR ESTIMATES

Table 7-19 shows the forecast of homebuyer type who are expected to purchase a home in the city between 2010 and 2025. The forecasted number of homebuyers in all income groups and first time homebuyers is expected to double between 2010 and 2025. The forecasted doubling of home purchases by low income households will likely not be met unless the supply of affordable housing increases significantly. Housing developers should attempt to meet the forecasted demand of households eligible for the NDHFA's HIF tax credit program.

Table 7-19: Households by Homebuyer Type, City of Dickinson, 2010-2025

Homebuyer Type	2010 # of Units	2015 # of Units	2020 # of Units	2025 # of Units	Percent Change 2010-2025
First Time Buyer	1,185	2,123	2,766	2,851	140.0%
Low Income	2,145	3,202	4,043	4,242	97.8%
Moderate Income	1,240	1,858	2,393	2,491	100.9%
Upper Income	1,771	2,656	3,419	3,559	101.0%
Eligible for Tax Credit	1,861	1,966	2,241	2,732	46.8%

SOURCE: CENTER FOR SOCIAL RESEARCH AT NDSU AND 2006-2010 AMERICAN COMMUNITY SURVEY, 5-YEAR ESTIMATES

- Notes:
1. First Time Homebuyer defined as less than 45 years with household income from \$30,000 to \$74,999.
 2. Low Income Homebuyer defined as less than 65 years with household income less than \$50,000.
 3. Moderate Income Homebuyer defined as ages 25 to 64 with household income from \$50,000 to \$74,999.
 4. Upscale Homebuyer defined as ages 25 to 64 with household income of \$75,000 or more.

Housing Programs and Incentives

Housing availability and cost will continue to be a major concern for many residents as forecasted energy development in western North Dakota is expected to continue over the next decade. To help meet the strong demand for housing of all types, including affordable housing, the use of housing programs and incentives is recommended. The City should consider implementing, or supporting the implementation by others, the following housing programs and incentives.

Community Land Trust

The National Community Land Trust Network is a nationwide organization that helps promote community land trusts (CLT) as well as assists communities in establishing such land trusts. A typical CLT is defined as a non-profit entity that owns land and leases it for a nominal fee thereby reducing housing costs. Participating residents get the benefit of owning a home while being able to afford the purchase because the land belongs to the CLT, thus removing a significant cost in the home purchase price. A provision is established in the resale of the home limiting the amount of profit for the owner to ensure the home will remain relatively affordable over a long period of time.

The goal of a CLT as defined by the National Community Land Trust Network is to provide access to land and housing to people who are otherwise denied access, increase long-term community control of neighborhood resources, empower residents through involvement and participation in the organization and preserve the affordability of housing permanently. CLTs are well suited for communities struggling with the issue of housing affordability because CLTs do not need additional subsidies each time the house resells; the permanent affordability is built into the land lease in perpetuity.

For more information on CLTs visit: <http://www.cltnetwork.org//index.php>.



Resident Owned Communities

Resident owned communities (ROC) are growing in popularity. A ROC is essentially a manufactured home park, mobile home or trailer park whereby residents purchase land from the private owner and establish a not-for-profit organization similar to a homeowners association. The key to successfully implementing a ROC is having buy-in from all residents to work together and buy the land. Several organizations exist to help mobile home park residents establish a ROC, including ROC USA and NeighborWorks Montana, a statewide housing organization funded with the goal of promoting sustainable homeownership. Neighborworks Montana would be a valuable resource if Dickinson decided to promote the establishment of ROCs in the community.

Figure 7-10: ROC House in a NeighborWorks Montana Community in Great Falls, MT



SOURCE: NEIGHBORWORKS MONTANA

For more information on ROCs visit: <http://www.nwmt.org/roc.html> or <http://rocusa.org/>.

Funding Incentives including NDHFA's HIF Program

Low income housing tax credits (LIHTC) and the HIF program provide developers tax credits to facilitate financing for affordable housing development. LIHTCs are given on a national basis and funded through the US Department of Housing and Urban Development (HUD). However, local housing programs and NDHFA can assist home builders and developers in applying for LIHTC and HIF tax credits.

Property tax exemptions are another tool the City can use to promote development of affordable housing. The City could include property tax exemption provisions in development agreements that establish price points for a specified number of housing units, the number, type and size of housing units and other factors that would yield a specified amount of affordable housing.

The US Department of Agriculture-Rural Development awards grants and low-interest loans specifically targeted for constructing affordable housing units. Rental assistance and housing preservation grants are also offered to ensure low-income housing units are retained and not demolished for market-rate housing. Visit http://www.rurdev.usda.gov/HMF_MFH.html for more information.

Land Development Incentives

Dickinson can implement several land development strategies to provide incentives for affordable housing units. Incentives may include providing density bonuses for subdivisions that provide affordable housing units, revising zoning guidelines to encourage smaller lot sizes, infill development and a new high-density residential zone and providing financial assistance with infrastructure costs.

Homeless Coalition

The Region 8 Southwest Homeless Coalition is responsible for assisting homeless persons and families in the Dickinson area find shelter and food. The coalition also partners with the North Dakota Coalition for Homeless People, which is located in Bismarck. As noted on the coalition's website, "The Coalition believes that housing and other basic human needs should be within everyone's reach in an affordable and dignified manner. Our vision is to be a statewide team of agencies collaborating to end homelessness."

The City's support of the homeless coalition would assist it in its mission to help those who are less fortunate find housing and food. The coalition has prepared a 10-year strategic plan to end homelessness in the region (the plan can be accessed at: <http://www.ndhomelesscoalition.org/images/10year/Dickinson10YearPlan.pdf>). The City should continue to work with the program to expand the services listed below and support the strategies contained in the 10-year plan, especially as more people relocate to the Dickinson area.

Services

- Develop supportive housing for homeless individuals and families.
- Work to prevent further homelessness.
- Improve access to services for the homeless.
- Share information and strategies among local homeless coalitions.
- Advocate for local initiatives to improve housing and services for the homeless.
- Promote involvement, collaboration and leadership from local service providers and units of government through the development and implementation of a statewide Continuum of Care plan.

Objectives and Recommended Policies

Objective 1: Increase quantity and quality of rental units to accommodate low and fixed-income residents.

Policy 1.1 – Establish a density bonus for development projects that include affordable housing. Density bonuses should be based on the number of affordable units in the project and should be implemented using a sliding scale (e.g. more affordable units equals higher density).

Policy 1.2 – Coordinate with non-profit development groups to create affordable housing projects and promote the North Dakota Housing Finance Agency's Housing Incentive Fund (HIF), which allows developers to construct affordable rental units and to receive up to a 25 percent tax credit.

Policy 1.3 – Encourage developers to utilize low-income tax credits provided by HIF to support the development of affordable rental properties. The program could be incorporated into the housing partnership strategy to develop a unified approach for affordable dwelling units.



Policy 1.4 – The City shall consider participating in the US Department of Housing and Urban Development HOME Investment Partnerships, Self-Help Home Ownership and Home Ownership Zone programs to increase the number of affordable housing units in the city.

Policy 1.5 – City staff shall place a priority on the review projects with affordable housing. The City shall also consider waiving application fees and other city fees for projects with a specified percentage of units dedicated to affordable housing (e.g. 1-9 units equals 50 percent reduction in fees and 10 more units equals no fees).

Objective 2: Develop incentives to construct quality, affordable single-family homes and provide more housing options.

Policy 2.1 – Promote affordable housing development to accommodate housing needs of service sector workers. Consider grant or loan programs administered by the Department of Commerce, Bank of North Dakota and USDA Rural Development.

Policy 2.2 – Allow accessory dwelling units on single-family detached properties subject to lot area, height and floor area standards to increase the supply of affordable housing. Accessory dwelling units should be permitted in subdivisions that receive preliminary plat approval after the adoption of the comprehensive plan. The City shall consider allowing accessory dwelling units in all subdivisions.

Policy 2.3 – Encourage creation of Community Land Trusts and Resident-Owned Communities in the city.

Policy 2.4 – Monitor the amount and types of housing being built to ensure supply is meeting demand, and use the collected data to prevent incentivizing of projects that could lead to excess supply.

Objective 3: Strengthen neighborhoods by developing pedestrian scale retail services.

Policy 3.1 – Promote development of commercial retail uses at strategic locations such as within walking distance of DSU, in the downtown to support existing professional service businesses, and within planned residential areas to provide convenient access to retail businesses.

Policy 3.2 – Establish new zoning regulations to encourage mixed residential development and establish a new high density zoning district with a maximum density of 25 or more units per acres.

Policy 3.3 – Encourage high-quality mobile home and manufactured housing subdivision developments at appropriate locations and establish with performance standards in the zoning ordinance that address the design and private common amenities in manufactured home communities.

Objective 4: Encourage crew camp development at appropriate locations and crew camps design that can be redeveloped for other uses.

Policy 4.1 – Crew camps should not be established in areas that would directly impact existing or planned residential areas. Crew camps should be established in predominantly intensive commercial or industrial areas.

Policy 4.2 – Consider the recommended amendments to the crew camp ordinance provided in Appendix B intended to address ambiguities and unaddressed issues in the existing ordinance.

Policy 4.3 – Encourage crew camp facilities designed for reuse options such as student housing for Dickinson State University, senior style apartments, low-income housing or a homeless shelter.

Objective 5: Support Southwest Homeless Coalition activities to create a homeless or transitional shelter.

Policy 5.1 – Encourage the development of a homeless or transitional shelter assist the coalition in implementing the strategies contained in the coalition's 10-year strategic plan.



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City Services

Chapter 8

The provision of quality and cost-effective city services is essential to meet the needs of existing residents and businesses. As the city poises for rapid growth it will be faced with the challenge of maintaining the quality of city services in the most efficient and cost-effective manner. This chapter describes the city services of police and fire protection, public works and the public library, and identifies issues for each service. In addition, this chapter provides guidance and ways to maintain sustainable minimum levels of service for police and fire protection as the city braces for rapid growth.

Police Service

Public safety services are provided by the Dickinson Police Department. The Police Department is the largest single city department in terms of personnel costs. It is headquartered at the Law Enforcement Center located on Museum Drive near the interstate, which is shared by the City Police Department, County Sheriff Department, dispatch and the multi-county correctional facility.

The Police Department is currently budgeted for 36 FTE sworn officers. Staffing is broken down as follows:

- Administration – 3
- Criminal Investigation Unit (CIU) – 4
- Patrol Division – 27 (one officer assigned to traffic/truck enforcement)
- School Resource Officer (SRO) – 1 (salary subsidized by the Dickinson Public School System)
- Drug Task Force – 1
- Non-Sworn Full-time Staff – 15
- Non-Sworn Part-time Staff – 2

There are four shifts with a minimum staffing level of four officers on patrol at all times, with the goal of having five officers on patrol at all times for 2013. The Department is currently able to have two officers at the scene of two simultaneous medium risk events. They have implemented patrol zones, with the city split into a West Zone and an East Zone. There is a minimum of two officers in each zone at a time. Patrol zones increase proactive patrol visibility, allow compilation of statistics for crime data, citizen complaints, patrol activities and educational activities. Patrol zones also help regulate patrol vehicle mileage and facilitate development and implementation of a neighborhood watch program.

In addition to patrol activities and responding to service calls, the Department is also active in several community programs such as neighborhood watch, participation in Badlands Crime Stoppers, the School Resource Office, Youth Police Academy and the Child Abduction Team. These programs establish community relations with officers and assist in preventing and solving crimes.

Most jurisdictions within the southwest region of North Dakota rely upon the tactical services provided by the Dickinson Police Department. Eleven Dickinson police officers that are state-certified in tactical response are members of the South West Tactical Team (SWTT). The SWTT provides tactical response in the region and tactical response training for police officers in the region. The Police Department was recently awarded an Energy Impact Grant from the State of North Dakota to assist in the purchase of an armored special response vehicle for the SWTT.

Recent Trends in Crime

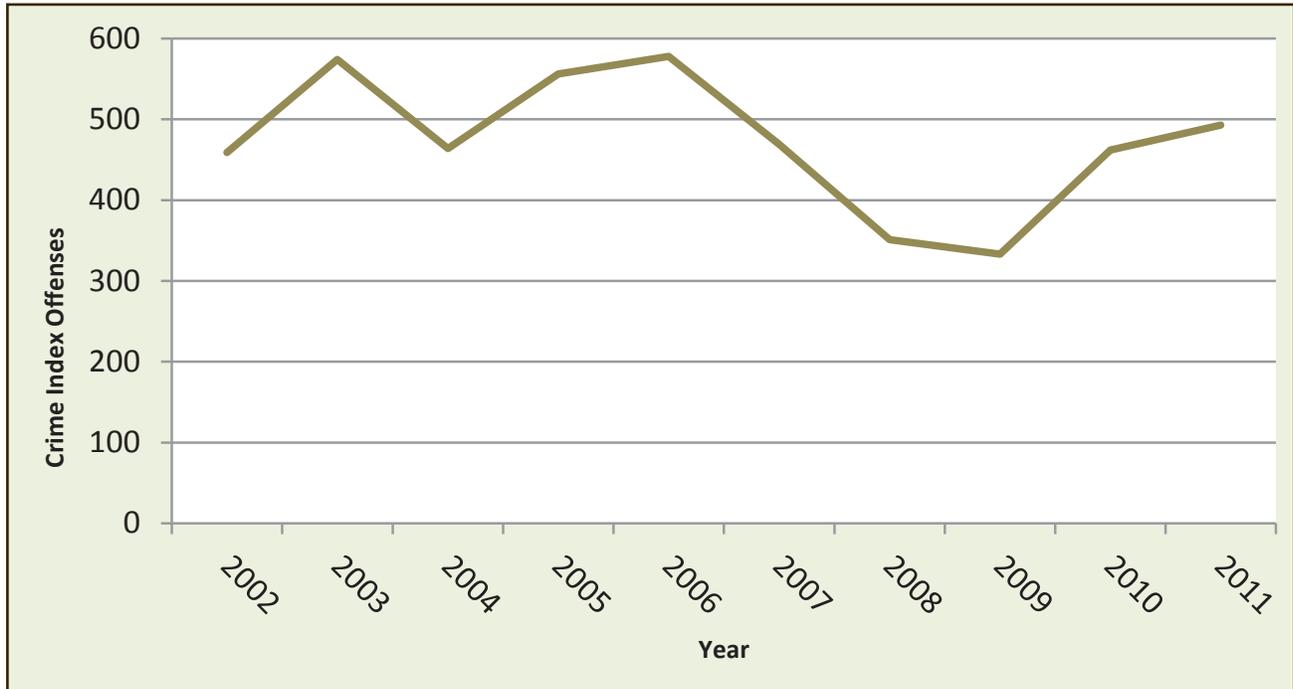
The recent rapid growth in the city has led to an increase in crime. Community survey 1 included a question regarding the recent trend in the level of crime. More than three-quarters of respondents felt crime in the city has increased over the past three years.

Figure 8-1 shows the total crime index in Dickinson over the previous decade. Offenses in the index included the following felonies: murder/non-resident manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny/theft and motor



vehicle theft. Offenses have been rising since 2009, and the number of offenses is nearing high levels experienced earlier in the decade. A dramatic increase in the availability of narcotics has been a contributing factor to the increasing number of crimes.

Figure 8-1: Crime Index in Dickinson, 2002-2011

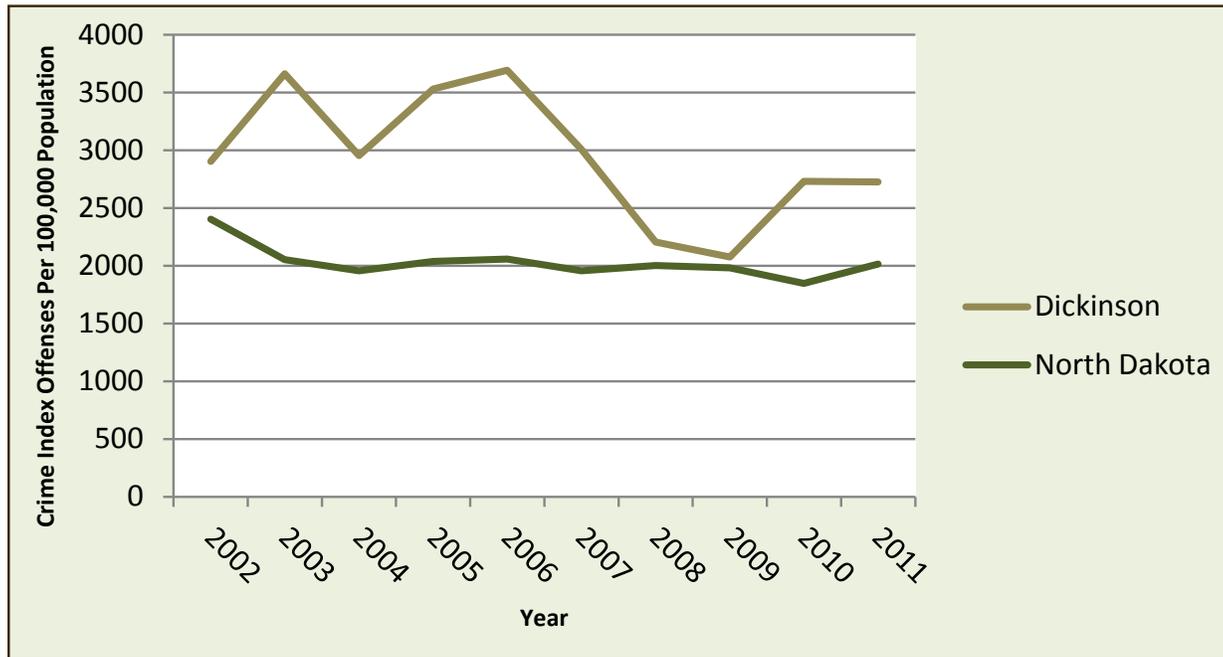


SOURCE: NORTH DAKOTA OFFICE OF THE ATTORNEY GENERAL, 2012

Figure 8-2 shows the crime index per 100,000 population for both Dickinson and North Dakota. The crime index rate has been generally higher in Dickinson than the state as a whole. Dickinson's rate has risen since 2009, but is still significantly lower than levels seen earlier in the decade.

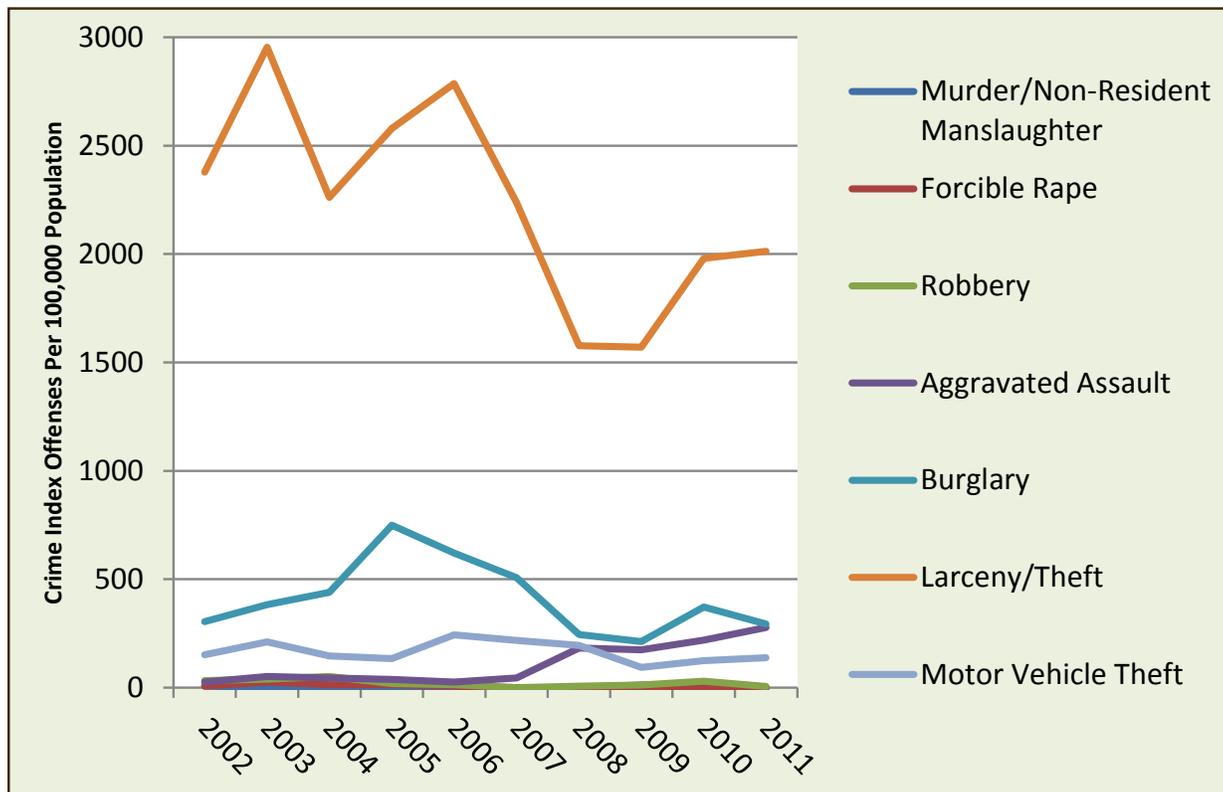
Figure 8-3 shows the city crime index by type of offense. Aggravated assault is the only offense that had seen a significant increase above rates seen earlier in the decade.

Figure 8-2: Crime Index, Dickinson and North Dakota, 2002-2011



SOURCE: NORTH DAKOTA OFFICE OF THE ATTORNEY GENERAL

Figure 8-3: Crime Index by Type of Offense, Dickinson, 2002-2011



SOURCE: NORTH DAKOTA OFFICE OF THE ATTORNEY GENERAL



Calls for service (CFS) have rapidly increased in recent years. In 2010, the Department responded to 18,159 CFS. In 2011, the Department responded to 22,871 CFS, an annual increase of 26 percent over 2010. Using partial-year data, it is estimated the Department will respond to approximately 27,000 CFS in 2012, representing an 18 percent increase from 2011 and a 49 percent increase from 2010.

Police Service Issues

The Dickinson Police Department is understaffed. The Bureau of Justice Statistics (BJS) compiles data on local police departments in the United States. It publishes information on the average ratio of FTE sworn officers per 1,000 residents, shown in Table 8-1. Based on a 2012 population of 23,915, the Dickinson Police Department would need approximately 48 FTE sworn officers to be in-line with national averages. BJS staffing estimates utilizing national averages in relation to Dickinson’s projected population are shown in Table 8-2.

Table 8-1: FTE Officers per 1,000 Residents, United States

Number of Residents	FTE Officers per 1,000 Residents
250,000 or more	2.5
100,000 to 249,000	1.9
50,000 to 99,999	1.8
25,000 to 49,999	1.8
10,000 to 24,999	2.0
2,500 to 9,999	2.2
1,000 to 2,499	2.6
All Sizes	2.5

SOURCE: DICKINSON POLICE DEPARTMENT AND BUREAU OF JUSTICE STATISTICS

Table 8-2: BJS National Standard FTE Officers, Dickinson 2012-2035

Year	Population	FTE Officers Based on BJS National Averages
2012	23,913	48
2015	28,535	51
2020	39,213	71
2025	40,923	74
2030	41,538	75
2035	41,609	75

SOURCE: BUREAU OF JUSTICE STATISTICS AND NDSU

The Police Department has also compiled detailed data on staffing needs that reflects the time requirements of various policing activities. There are two types of police activities: proactive and reactive. Proactive activities include preventative patrol and self-initiated activities such as involvement in community programs. Reactive activities include community-generated workloads such as calls for service. Assuming a proactive/reactive ratio of 55/45, the Police Department should currently have 46 FTE sworn officers. A proactive/reactive ratio of 60/40 increases the need to 51 FTE sworn officers.

At current staff levels, the Police Department is experiencing a significant challenge in meeting operational goals. The discrepancy between actual and calculated staff has led to overworked officers throughout the Department. The investigative unit has seen a dramatic increase in workload largely because overworked officers are referring cases to investigators. The Department has struggled to maintain its goal of having four officers on patrol at all times due to staffing deficits, vacations and training responsibilities. In addition, the Department is responding to more simultaneous medium risk events, such as bar fights, weapons-related calls and domestic disturbances, which require a multiple officer response. As a result, shift supervisors need to prioritize which calls officers will respond to first. This has been noted by the community. In response to a question on the subject in Community Survey 1, 80 percent of respondents felt the response time for emergency services needed at least some attention.

The Police Department completed a five-year staffing study indicating the number of projected personnel through 2017. Results are shown in Table 8-3. The projections are significantly below recommended staffing levels utilizing BJS national averages for the years 2012 and 2015, and shown in Table 8-2.

Table 8-3: Police Department Staffing Projection

Year	Sworn Officers	Non-Sworn Staff
Current	36	15 full, 2 part
2013	39	17
2014	41	19
2015	42	19
2016	42	19
2017	43	20

SOURCE: DICKINSON POLICE DEPARTMENT

Staffing shortages would still most likely be present even if adequate funds were budgeted for all necessary positions. The Police Department is having difficulties hiring and retaining staff due to cost of living in the area in relation to salary. The average tenure of a police officer with the Department is 1.5 years. The succession of new police officers has an impact on public safety because it takes time for a new officer to become acquainted with the community and feel comfortable on the job. It is also expensive to be frequently training new officers. Low starting wages and lack of affordable housing make it difficult to attract new personnel to fill available positions.

The City recently acquired six FEMA trailers to be utilized as affordable housing for City staff. Public safety staff is given a priority when units become available. Rent for the trailers is \$700 per month. They are intended to aid in recruitment efforts by providing temporary housing for new employees.

Patterson Lake Apartments is a 24-unit development that will help alleviate some housing concerns for law enforcement personnel. The \$3.4 million complex, funded by several state and local partners, will provide affordable housing for essential services employees and those on fixed incomes. The state’s newly-created Law Enforcement Housing Pilot Program contributed \$744,000 to the project. Four units will be specifically reserved as affordable housing for the Dickinson Police Department, although they are already reserved for current staff. The project is expected to be complete in February 2013.



Strategy: Continue to support affordable housing options for law enforcement personnel and other essential services. The FEMA trailers and Patterson Place complex provide a successful template for future projects, but do not provide enough housing units to address long-term needs of the Police Department.

The Police Department has also identified the need to upgrade facilities. The Law Enforcement Center is 30 years old and over capacity, with police officers sharing offices. It will be difficult to increase staffing levels with the existing facility space. There are only five or six stalls for city vehicles, which is inadequate for the city's current fleet of 15 to 18 vehicles. More indoor parking space is needed for security purposes and to avoid cold vehicle starts during winter months.

The Police Department lost use of the Patterson Lake shooting range. The Department is currently using a rifle and pistol club located 40 miles from the city. There are also four firing lanes in the basement of the Law Enforcement Center, but usually only two are operating at any one time. An outdoor shooting range is currently programmed for 2014.

Dispatch at the Law Enforcement Center serves Dickinson City Police, rural fire, Dunn County, Belfield and other nearby areas. Staff is City employees, and dispatch equipment is owned by the county. There are two dispatchers on duty at all times. There has been discussion of regionalizing the dispatch and transferring it to the county. However, funding for a regionalized dispatch center has not been secured.

Several facility options are possible to alleviate overcrowding at the Law Enforcement Center. The Police Department would like to add substations in the northern and southern portions of the city. The city-owned Armory Building has the potential to accommodate Police Department facility needs. The National Guard is the only tenant in the building, but there are no funds programmed for a new National Guard facility. As a result, the Armory Building is currently unavailable for police use. A new Public Safety Center is planned on the north side of the city that will house substations for both the Police and Fire Departments. A substation on the south side of the city could be shared with the Rural Fire Hall. This substation would be modest, only requiring a small office, telephone and garage space. Space constraints, however, are an issue.

Strategy: Ensure multiple-use city facilities provide adequate building and ancillary area for all city service providers involved.

Figure 8-4: Dickinson Law Enforcement Center

Level of Service

The workload of the Police Department will continue to increase with population gains. The implementation of patrol zones and the planned construction of an additional substation will help to increase efficiency, but the number of sworn officers will need to be regularly monitored in order to maintain an acceptable minimum level of service. BJS staffing data can be utilized as general guidelines, but service is more accurately measured by enforcement ability and community impact. The minimum level of service is identified as follows:

- The ability of patrol staff to respond to two simultaneous medium risk events.
- Continue to participate in community programs such as neighborhood watch,



Badlands Crime Stoppers, the School Resource Office, Youth Police Academy and the Child Abduction Team. Maintain regional programs such as the South West Tactical Team (SWTT).

Fire Protection

Fire protection services within the city are the responsibility of the Dickinson Fire Department. The role of the Department is to provide public education concerning fire and life safety issues, enforce the Fire Code and respond to incidents which may involve fire, hazardous material, natural disasters or accidents. The Department has one fire station located near the intersection of Highway 22 and Villard Street.

The Fire Department currently has 37 firefighters, including six full-time staff. Full-time staff includes the fire chief, fire prevention specialist, fire engineer, two fire inspectors and a firefighter. In addition, the Department has a part-time receptionist, two chaplains and four reserve firefighters. The rest of the staff are volunteers. Volunteers are paid a stipend from the city while on-call.

The Dickinson Fire Department works in conjunction with the Dickinson Rural Fire Department (DRFD), which serves a 380 square mile area in Stark County and Dunn County. DRFD provides mutual aid with local fire departments and is headquartered in the southern part of the city.

Fire Prevention

The Dickinson Fire Department conducted 1,577 fire inspections in 2011. This total number has been generally consistent in recent years. Selected types of inspections are shown in Table 8-4. The increase in construction inspections and alarm/sprinkler test inspections has impacted the Department’s ability to perform other inspection responsibilities. The Fire Department hired an additional fire inspector in 2012 to address the increasing demand for inspections.

Table 8-4: Fire Inspections Completed, 2010 and 2011, Selected Types

Type	2010	2011	Percent Change 2010-2011
Routine	721	575	-20.3%
Follow-up	611	504	-17.5%
Construction	85	160	88.2%
Alarm/Sprinkler Test	27	92	240.8%
Walk/Drive Through	121	215	77.7%

SOURCE: DICKINSON FIRE DEPARTMENT

The public education component of the fire prevention program runs year-round, with activities peaking in October during National Fire Prevention Week. The Fire Department presented age-appropriate fire safety lessons to 1,102 preschool-college students in 2011, and assisted area businesses with emergency plans and fire extinguisher training. The Department also conducts fire drills in all public and private elementary schools, as well as the dormitories at Dickinson State University.

Incident Response

There were 399 total incidents requiring response in 2012, an increase of 40 percent since 2011, 66 percent since 2010, and 83 percent since 2009. Detailed information about incidents in 2011 is shown in Table 8-5.



Table 8-5: Incident Report by Type, 2011

<i>Type of Incident</i>	<i>Number</i>
False Alarm and False Call	76
Hazardous Conditions (No Fire)	66
Good Intent Call	40
Fire	35
Service Call	34
Special Type	32
Rescue and EMS	2
Explosion	1

SOURCE: DICKINSON FIRE DEPARTMENT

Table 8-6 shows the type of fire incidents in 2011. The largest occurrence, vehicle fires, includes construction vehicles and semis. The increased presence of these types of vehicles can be directly attributed to the city's growth.

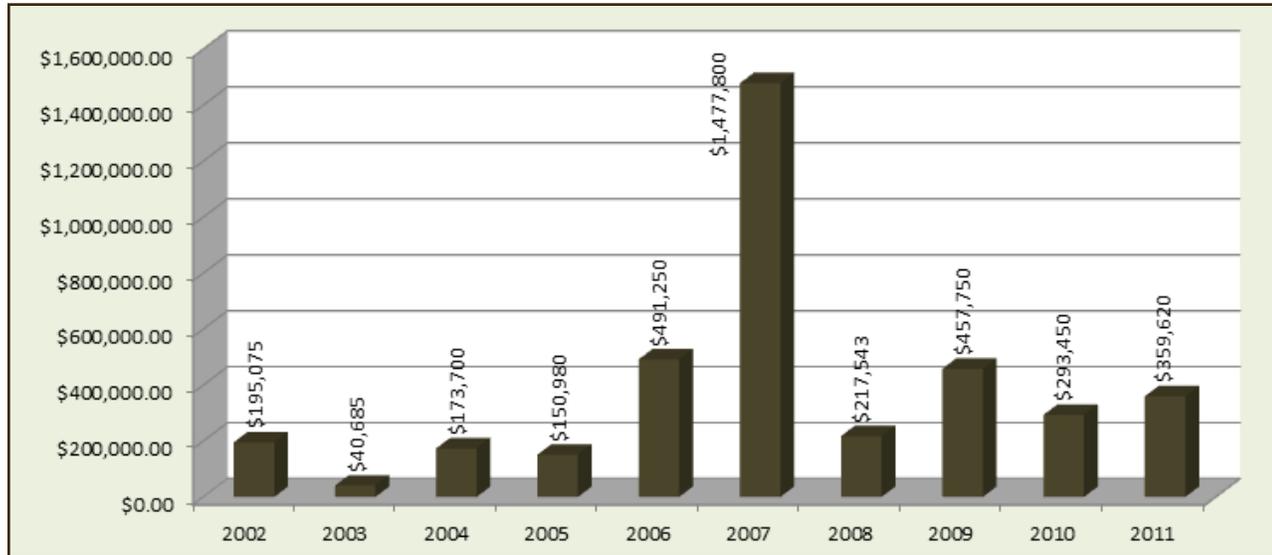
Table 8-6: Type of Fire Incidents, 2011

<i>Type of Incident</i>	<i>Number</i>
Vehicle Fire	13
Dumpster/Rubbish Fire	8
Grass Fire	8
Building Fire	7
Cooking Fire	4
Equipment Fire	1

SOURCE: DICKINSON FIRE DEPARTMENT

Figure 8-5 shows the total fire dollar loss from 2002-2011. The generally small increase in fire dollar loss between 2008 and 2011 in conjunction with significant population gains is indication of an effective fire protection program.

Figure 8-5: Fire Dollar Loss, 2002-2011



SOURCE: DICKINSON FIRE DEPARTMENT

Fire Protection Issues

The primary fire protection issue is the Fire Department’s ability to achieve national guidelines for fire response times. The National Fire Protection Association (NFPA) guideline for structure fires is to have 15 firefighters on site within 9 minutes 90 percent of the time. Although the NFPA guideline is not a mandate, it provides a good basis to evaluate the Department’s response time performance. The Dickinson Fire Department responded to five general alarm structure fires in 2011. The Department did not meet NFPA response guidelines for any of the fires, largely due to the city having only one fire station. Many volunteer firefighters must travel a long distance to get to the station and fire crews are reliant on the increasingly-busy Highway 22 when heading north-south.

The Public Safety Center is currently planned as a substation for the north side of the city to supplement the current headquarters. This would help to decrease response times by having a station in closer proximity to potential incidents and volunteers. Another way to facilitate faster response times is to install updated traffic light pre-emption devices to facilitate movement through traffic. Many of the devices currently in use are outdated or malfunctioning.

Another issue for the Fire Department is the age of fire equipment. The Department is currently considering a five-year replacement cycle for apparatus. Table 8-7 lists the age and recommended service life of each of the Department’s apparatus. It does not include non-apparatus vehicles and equipment. The recommended service life is not an absolute number, and lifespan is dependent on the amount of use and general wear and tear for each individual vehicle. It is the intent of the Department to bid on a new apparatus in 2013 with delivery in 2014 to replace Unit 506.



Table 8-7: Apparatus Age and Service Life

Type	Unit Number	Year Built	Age (Years)	Recommended Service Life (Years)
Pumper	501	2009	3	20
Rescue/Aerial	502	2004	8	30
Pumper	503	1985	27	20
Rescue/Aerial	504	1996	16	30
Pumper	506	1980	32	20
Pumper	507	1981	31	20

SOURCE: DICKINSON FIRE DEPARTMENT

A general standard is that pumper apparatus travel no more than 1.5 miles to reach an incident. Due to the single station location, Dickinson Fire Department pumper apparatus often travel well beyond this guideline, which increases potential wear and tear on the vehicles. A new substation would help place apparatus within closer proximity to incidents and extend service life.

An ongoing challenge for any volunteer fire department is recruitment and retention of volunteers. This is primarily due to the time commitment of training and the flexibility needed when on-call. Even if a full amount of volunteers were available, they need to be located at varied locations and work places to facilitate a quick response. In 2011, 48 percent of Department volunteers had less than five years of experience, which is a reflection of the generally high turnover rate for firefighters.

Strategy: Enhance efforts to recruit Fire Department volunteers and encourage local employers to accommodate voluntary participation in the Fire Department.

Strategy: Increase the number of full-time firefighters to reduce reliance on volunteers and enhance response time.

Minimum Level of Service

Response times provide measurement of a Fire Department’s ability to respond to emergency incidents in a timely fashion that reduces property damage and saves lives. The Dickinson Fire Department has been unable to meet the NFPA guideline for structure fires, primarily due to having only a single fire station which increases travel times. While NFPA guidelines are not a mandate, they provide a good guideline for a future minimum level of service. The recommended minimum level of service for the Dickinson Fire Department is based upon NFPA guidelines:

- Have 15 firefighters on site of a structure fire within 9 minutes 90 percent of the time.

This level of service should be realistic once a new fire substation is established at the planned Public Safety Center and additional full-time firefighters are hired.

Public Works

Public works functions for the city of Dickinson are the responsibility of the Water Utility, Streets Department and the Solid Waste Department. A detailed discussion of the Water Utility is available in the Infrastructure chapter.

Construction of a new Public Works building is expected to begin in 2013. The new facility will provide a centralized office location for city public works functions.

Street Department

The Street Department provides services to ensure safe and well-maintained city streets and alleys, which is accomplished through regular maintenance and a quick response to citizen concerns. Street Department staff also assists other city departments with landscaping and maintaining city flags and banners. The department contracts street maintenance, snow removal and paving projects.

The Street Department has increased efficiency in recent years due to greater intergovernmental coordination. Oil for maintenance of gravel roads is shared between the city and county. Gravel roads in the city are maintained with County motor graders. A salt/sand facility was established at the local North Dakota Department of Transportation office and is shared by city, county and state maintenance crews.

Snow removal is perhaps the most visible function of the Street Department during the winter months. Street plowing is generally done by the city, although contractors are used when needed. Contractors also clear city parking lots. Snow is removed from major streets and streets that provide access to the hospital, schools and other critical facilities. The removed snow is dumped at the following sites:

- Young's Park
- 600 block of West Broadway
- Dickinson State University
- Water tank area on 10th Avenue East
- Park area on 4th Avenue East

These dump sites are currently adequate, but more sites will be needed in the future as the city continues to grow.

Strategy: Identify potential snow dump sites to be utilized in the future as road miles increase with new development.

Street Department Issues

Staffing is the biggest challenge facing the Street Department. The department is currently budgeted for up to 10 FTE employees. However, for several months the department has been unable to fill two positions. An employee recently switched to part-time service, so the department currently has only 7.5 FTE employees. New employees require extensive training on the equipment, and they often leave by the time training is completed because they can't find an affordable place to live. A lack of operators may lead to under-utilization of city equipment and increased reliance on private contractors.

Solid Waste Department

The mission of the Solid Waste Department is to provide effective and environmentally sound collection and disposal of refuse for the city and the surrounding area. Primary duties include solid waste collection for residential and commercial customers and operation of the municipal landfill. Department operations are primarily funded by solid waste collection fees and landfill receipts.

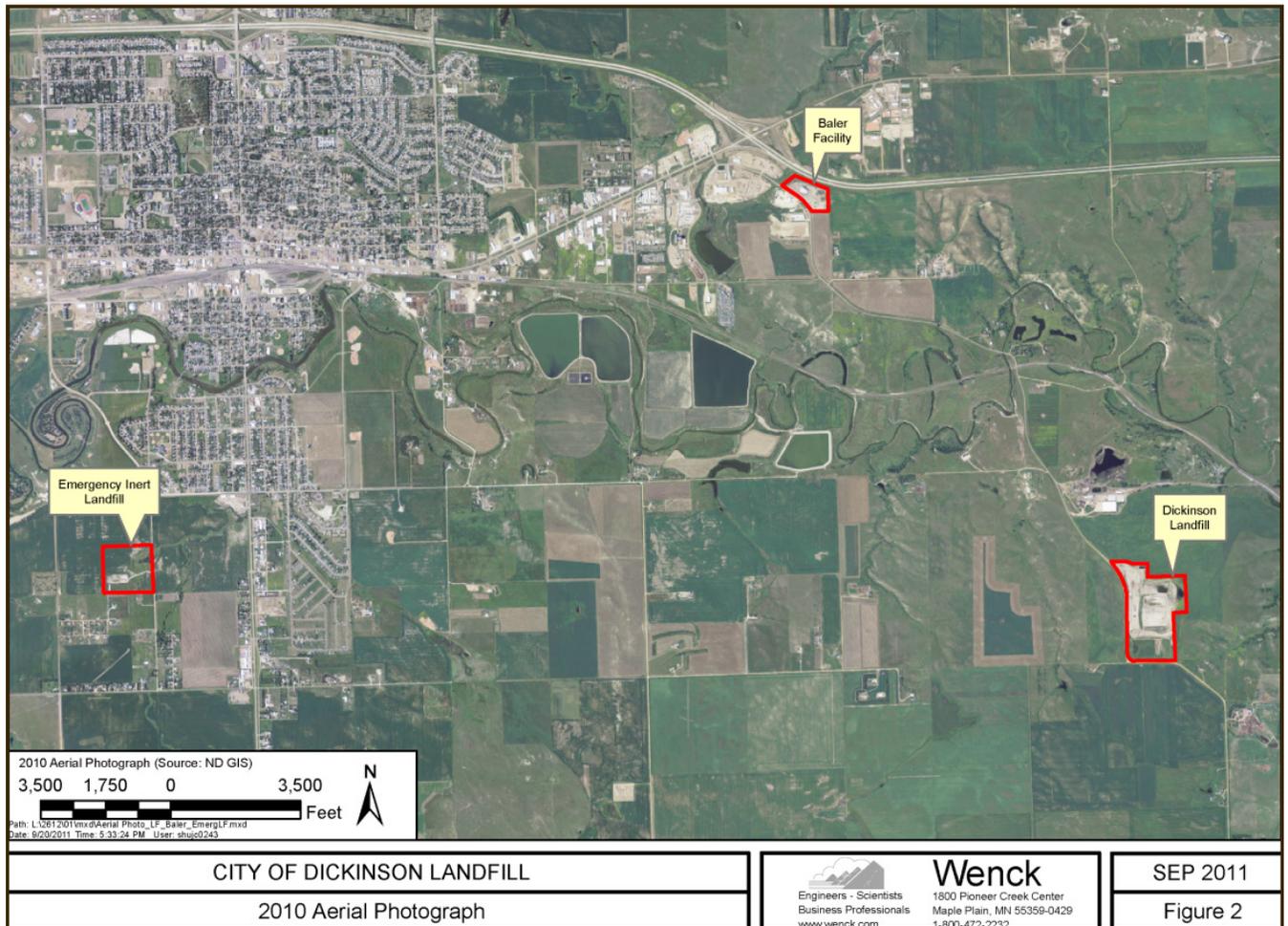
The city offers refuse collection to any resident or business located in city limits. The Solid Waste Department has more than 5,800 residential accounts and more than 600 commercial accounts. Residential collection occurs four days per week, with a different collection area served each day. Commercial collection is available six days per week, and the frequency of collection is determined by the rate paid by individual businesses. There is no collection of recyclable waste, but the city offers three drop-off locations.



The municipal landfill is approximately 82 acres and is divided into sections for municipal solid waste (MSW) and inert waste. The MSW section is intended for general household refuse. The inert waste section is intended for construction material, shingles and other industrial waste materials. The City also operates an emergency 40-acre inert waste landfill intended for lime sludge generated by the water treatment plant and storm debris.

The Baler Building is the Department’s headquarters and the facility includes scale and baling equipment. All MSW is brought to the facility and compressed into one-ton bales before being deposited in the landfill. This reduces blowing trash and increases the effective lifespan of the landfill. The two landfills and baler facility are shown below in Figure 8-6.

Figure 8-6: Solid Waste Department Facility Locations



SOURCE: MASTER PLAN CITY OF DICKINSON SOLID WASTE PROGRAM PREPARED BY WENCK ASSOCIATES, INC

The landfill accepts drop-offs Monday through Friday from 8:00 am to 4:30 pm during the winter months. Hours of operation are extended to Saturday 8:00 am to 1:30 pm during the summer. The landfill serves the City of Dickinson and other communities in southwest North Dakota listed below.

Dickinson	South Heart	Belfield	Medora
Killdeer	Dunn Center	Manning	Gladstone
Taylor	Richardton	Hebron	Glen Ullin
Almont	Flasher	Carson	Elgin
New Leipzig	Burt	Mott	Regent
New England	Golden Valley	Zap	New Hradec
Rural Surrounding Areas	Theodore Roosevelt National Park		

The type of waste deposited in the landfill is shown in Table 8-8. Household waste, inert waste and construction material comprises 91 percent of all collected solid waste. Disposal of construction waste, oilfield waste and shingles has doubled from 2008 to 2010, while disposal of household waste, inert waste and sludge increased modestly during the period.

Table 8-8: Composition of Landfill Waste

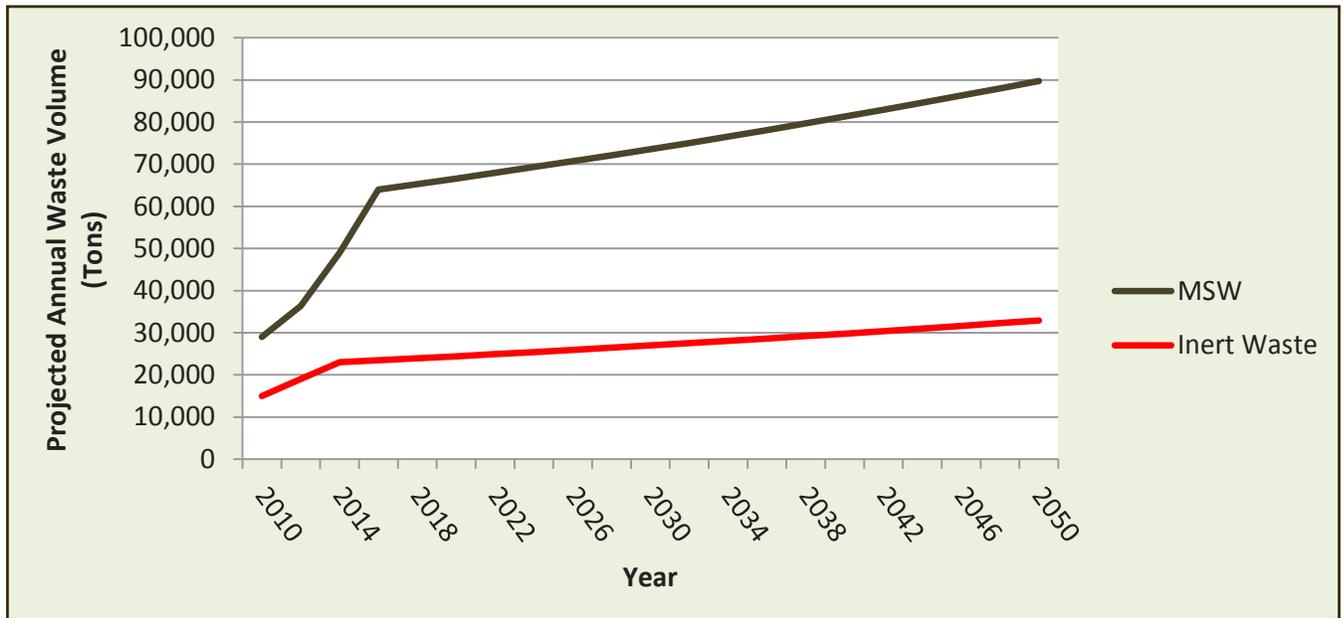
<i>Material</i>	<i>Percent of Total Landfill Waste</i>
Household Waste	62.9%
Inert Waste	14.7%
Construction Material	13.3%
Oilfield Waste	4.6%
Shingles	4.0%
Sludge	0.5%

SOURCE: MASTER PLAN CITY OF DICKINSON SOLID WASTE PROGRAM PREPARED BY WENCK ASSOCIATES, INC



Wenck Associates, Inc. recently completed a solid waste master plan for the city. The plan included projections of the life expectancy of the city's landfill facilities. Projected MSW and inert waste collections are shown in Figure 8-7. Collections are expected to rapidly increase through 2016, then increase annually by one percent to 2050.

Figure 8-7: Projected MSW and Inert Waste at Dickinson Landfill, 2010-2050



SOURCE: MASTER PLAN CITY OF DICKINSON SOLID WASTE PROGRAM PREPARED BY WENCK ASSOCIATES, INC

The MSW section of the landfill has an estimated life expectancy of 23 to 30 years and the inert waste section has an estimated life expectancy of 5 to 7 years. The plan identified several options for vertical and horizontal expansion of both sections of the landfill. Various proposed expansions of the MSW section would increase life expectancy by 12 to 35 years. Various proposed expansions of the inert section would increase life expectancy by 8 to 50 years. Funds to purchase land for a horizontal landfill expansion are currently programmed by the City for 2014, and a new storage cell is programmed to be developed in 2015.

The solid waste master plan explored the idea of expanding the city's recycling program to help reduce the waste stream into the landfill and its life expectancy. The city currently has a limited recycling program, with drop sites for voluntary recycling of yard wastes, cardboard, cold ashes and used motor oil. These sites are open for nonprofit organizations to operate recycling programs, and currently the Best Friends Mentoring Program utilizes these sites for recycling aluminum cans. There are no recycling programs for tin, plastic or paper in the city.

The solid waste master plan determined that an active recycling program could reduce the waste stream by 20 percent, which would increase the life of the landfill. However, due to the great distances between the city and recyclable markets, and the additional manpower required to operate a recycling program, it was determined that a recycling program would most likely be more expensive than simply expanding the landfill.

Strategy: Examine the market for specific elements of the waste stream to determine if a limited recycling program would be cost effective. Construction material is a waste source that should be examined due to its recent growth and projected future growth.

In addition, the plan identified immediate equipment needs for the Solid Waste Department. Major equipment needs include a dozer, a landfill compactor and an upgraded scraper. This equipment will help achieve a greater density of compaction to increase the lifespan of the landfill. It will also enable the landfill to continue to meet North Dakota Department of Health guidelines. A new dozer and compactor are currently programmed in the city's capital plan.

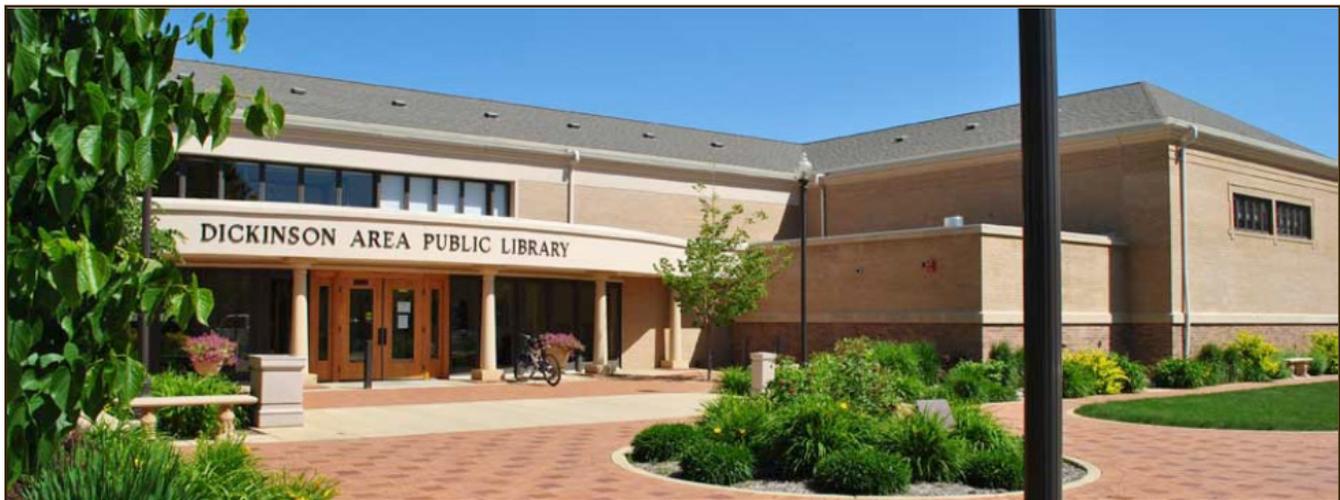
Solid Waste Department Issues

An issue facing the Department is the significant increase in the volume of commercial, construction and oilfield waste. Bulky refuse from these industries is not able to be compressed in the baler. Small waste items mixed with the bulky waste requires separation. The North Dakota Department of Health recently cited the City for violation of waste containment. Property owners located near the landfill complained about wind-blown debris on their property. This violation was caused by unsorted debris being hauled by commercial and industrial customers, which resulted in small items not being compressed into bales. In response, the Solid Waste Department issued new regulations that require all refuse to be properly sorted before drop-off. Oilfield wastes need to be pre-approved by the Solid Waste Department before disposal. Close monitoring is necessary to ensure these new regulations are effectively enforced.

Another issue identified by the master plan is the need for additional staff as the city continues to grow. The department currently has 16 full-time staff in addition to a varying number of part-time personnel. The master plan identified three additional landfill operators that will be needed by 2015 to facilitate the rising number of inspections associated with waste hauling. The master plan also identified need for two additional laborers at the baler facility as waste volumes increase. In addition, as the city grows there will be a need to add new collection routes. The additional collection routes may require additional equipment and staff.

Public Library

Figure 8-8: Dickinson Public Area Library



The Dickinson Area Public Library building was constructed in 1908 and was partially funded with a donation from Andrew Carnegie. It opened to the public on January 3, 1910 with approximately 1,000 volumes. The building has been subject to several expansions and is now more than 24,000 square feet in size and has 90,000 volumes. In addition to books, the library also has CDs, DVDs, newspapers and magazines available. The library provides wireless internet service and offers an online catalog and reference databases for patrons, which is a valuable resource for those who do not have personal internet access or want to utilize the specialized databases for things such as genealogical research. Public hours are shown below.



Labor Day to Memorial Day:

68 Hours

Monday – Thursday, 9:00 am to 9:00 pm

Friday, 9:00 am to 6:00 pm

Saturday, 9:00 am to 5:00 pm

Sunday, 1:00 pm to 4:00 pm

Memorial Day to Labor Day (Summer):

61 Hours

Monday – Thursday, 9:00 am to 8:00 pm

Friday, 9:00 am to 6:00 pm

Saturday, 9:00 am to 5:00 pm

Sunday, Closed

Library staff provided the following 2011 library use statistics:

- Total Circulation: 114,515 items
- Total Visits: 111,334
- Collection: 92,698 books, 3,154 audio recordings and 4,931 video recordings
- Registered Borrowers: 18,317
- Public Internet: accessed 17,142 times

Partial year statistics for 2012 indicate a 30 to 40 percent increase of weekend library patronage.

The library also operates a bookmobile that provides monthly service to areas in Stark, Billings and Slope County and provides weekly service to Fairfield and Medora. The bookmobile operates every Monday, Tuesday, Wednesday and first and third Thursday of every month (approximately 15 days per month). It travels approximately 1,200 miles per month.

The library currently has four full-time and two part-time librarians, one part-time custodian and approximately 10 seasonal part-time employees. The city has not added a full-time professional librarian position since 2006.

Public Library Issues

Library staff report that staffing is an issue. While the number of patrons has steadily increased, the number of weekend and evening staff has not. Because the building is large and spread out over two levels, and approximately 2,280 patrons enter the building each week, employee safety is increasingly becoming a concern. Staff has limited time to work on projects that would enhance library services such as programming for teens, young adults and elderly persons. The library has one custodian who works 30 hours per week and is responsible for cleaning, equipment maintenance and yard work. The increasing amount of custodial duties warrants a full-time position.

The Dickinson Area Public Library conducted a staff study of other similar-sized libraries in the region. Study results show the Dickinson library has the least number of full-time staff in proportion to types of services offered and operating hours.

Another issue identified by library staff is library closure during the summer. During summer 2011, the library conducted a customer survey and found extended library hours were strongly desired by patrons. Having the library open on Sundays

during the summer would allow the library to more effectively meet the needs of parents and individuals who work during typical operating hours.

Operating and usage statistics for the Dickinson Area Public Library and comparably-sized libraries are shown in Table 8-9. Dickinson’s population is projected to double between 2013 and 2021, which will put increased stress on library resources.

Table 8-9: Selected Public Library Operating and Usage Statistics, 2011

<i>Library</i>	<i>Visits</i>	<i>Non-Summer Hours</i>	<i>Summer Hours</i>	<i>FTE Staff</i>
Dickinson Area Public Library	111,334	68 days (7 days)	61 (6 days)	8
Williston Community Library	98,712	59 (7 days)	55 (6 days)	10
Minot Public Library	133,660	68 days (7 days)	64 (6 days)	17
Morton-Mandan Public Library	103,050	65 (7 days)	65 (7 days)	8

SOURCE: ND STATE LIBRARY (VISITS, STAFF); PUBLIC LIBRARY WEBSITES (HOURS)

An ideal option would be to immediately increase budgetary resources. The Dickinson Area Public Library is already operating at maximum capacity given current staff and funding levels, and an immediate increase in resources would ensure the library is able to continue providing a high level of service to area residents. The Minot Public Library, which had 133,660 visits in 2011, may provide a guide for increasing operating resources. At a minimum, the Dickinson Area Public Library should match the operating hours of the Minot Public Library and increase staff levels as appropriate.

Year-round, seven-day operation is becoming a popular trend with public libraries, and it is desired by patrons of the Dickinson Area Public Library. The library should gradually add hours and staff as population continues to increase, eventually reaching annual operation of at least 68 hours per week.

A phased implementation plan may be a cost-effective way to achieve this goal achieve the goal of year-round, seven-day operation if additional resources are not immediately available. The library could initially transition to year-round, seven-day operation at around 65 hours per week (creating only a small increase in total annual operating hours). This would allow the library to meet the public’s desire for year-round, seven day operation without significantly increasing operating costs. The library could gradually add hours and staff as population continues to increase, eventually reaching annual operation of at least 68 hours per week.

A phased implementation plan may be the most cost-effective way to increase library services. The library could initially transition to year-round, seven-day operation at 63-65 hours per week. This would allow the library to meet the public’s desire for year-round, seven-day operation without significantly increasing operating costs. The library could gradually add additional hours and staff as population continues to increase, eventually reaching annual operation of 68 hours per week.

Dickinson Museum Center

The Dickinson Museum Center is an art and museum complex that consists of the Joachim Museum, Prairie Outpost Park and Pioneer Machinery Museum. The Museum Center charges no admission and is primarily funded and managed by the City of Dickinson, with additional assistance from the Southwestern North Dakota Museum Foundation, the Stark County Historical Society and donations.

The Museum Center’s hours of operation are as follows:



Memorial Day to Labor Day:

9:00 am to 5:00 pm daily

Labor Day to Memorial Day:

9:00 am to 5:00 pm M-F

The Museum Center has two full-time staff and seasonal staff in the summer. Primary duties include cataloging the collections, planning/organizing exhibits and events and coordinating volunteers.

Constructed in 1982, the Joachim Museum contains art and history exhibits of regional significance, a research room and offices for museum staff. It is governed by a board of directors and managed by the Museum Center Coordinator.

Prairie Outpost Park first opened in 1976, primarily due to the efforts of the Stark County Historical Society. The park currently includes five historic and six reproduction buildings, along with other historic objects from the area. The historic structures have been moved from various locations in southwestern North Dakota. Several of the reproduction structures were built by outside groups who continue to oversee their ongoing maintenance. These groups include Czech Heritage, Inc., the Deutsche Leute Chapter of the Germans from Russia Heritage Society and the local Scandinavian historical society.

Prairie Outpost Park has two facilities available for rent. The Heritage Pavilion is a picnic shelter that has an indoor kitchen area and seating for more than 125 people. The Ridgeway Church, originally built in 1915 and moved from the town of Taylor, is available for weddings and other special events.

The Pioneer Machinery Building contains exhibits and artifacts of early agricultural methods in the area. The Stark County Historical Society constructed the building in the early 1990s. They continue to maintain the exhibits and it serves as their headquarters.

Dickinson Museum Center Issues

Museum patronage is expected to increase as projected population increases, and additional staff and facility space will be needed to accommodate this expansion. The Joachim Museum is in need of more storage space for its increasingly-large collection. Additionally, more display space is needed to allow for the expansion and enhancement of exhibits. The Museum Center will soon begin a visioning process to determine future facility and staffing needs.

Another issue is the condition of buildings in Prairie Outpost Park due to accumulated deferred maintenance. Some structures need minor updates (such as a fresh coat of paint), while others need more extensive restoration. Maintenance is necessary for the safety and historical integrity of these structures, and it is the most cost-effective way to ensure that they will be available for future generations to enjoy.

Financial Tools to Mitigate the Costs of New City Facilities

The city's rapid growth will generate a need for new and expanded facilities to maintain acceptable levels of service. Future facility needs include a new Public Safety Center, the new Public Works facility, new police and fire substations and the planned landfill expansion. These new facilities carry substantial costs that are directly attributed to future growth. To help offset city costs for future facilities, the City is encouraged to consider implementing one or more of the following revenue generating programs.

- Adequate Public Facilities Program
- Annexation/Development Agreements

The programs are discussed in detail in the Implementation chapter.

Objectives and Policies:

Objective 1: Evaluate city departments to ensure adequate resources are available to provide needed services as the city continues to grow.

Policy 1.1. – Replace outdated or non-functioning traffic light preemption devices and control panels to increase Fire Department response times.

Policy 1.2. – Continue to monitor the increasing Fire Department workload associated with construction inspections, plan reviews and code interpretations, training responsibilities and emergency response and program the new full-time staff when warranted. To offset part of the additional personnel costs, amend and add Fire Department fees comparable to other North Dakota Fire Department fees.

Policy 1.3. – Evaluate the effectiveness and feasibility of maintaining the existing volunteer-based fire department.

Policy 1.4. – Incorporate crime prevention through environmental design standards in the zoning and subdivision ordinance to increase public safety and increase police surveillance capabilities.

Policy 1.5. – Maintain and enhance police community programs (e.g. neighborhood watch, business watch, youth academy, Badlands Crime Stopper, citizens police academy, Daddy-Daughter, Ready Set Glow, etc.) that build relationships with the Police Department and enhance public safety and the Department's ability to prevent and solve crimes.

Policy 1.6. – Have the Police Department meet with trucking companies and construction contractors in the community to develop truck traffic/routing strategies.

Policy 1.7. – Continue the Police Department's coordination with the North Dakota Highway Patrol to implement overweight truck enforcement activities.

Policy 1.8. – Continue Police and Fire Department coordination with the City engineer to analyze engineering strategies to reduce traffic congestion, including new or improved traffic control devices.

Policy 1.9. – Utilize the City mechanic to perform routine maintenance on police patrol vehicles to reduce vehicle maintenance costs.

Policy 1.10. – Develop year-round, seven-day hours of operation for the Dickinson Area Public Library. The library could provide 63-65 hours of operation per week and maintain the same number of overall annual operating hours.

Policy 1.11. – Continue existing level of bookmobile service in Stark, Billings and Slope County.

Policy 1.12. – Maintain adequate staffing and equipment to enhance the physical appearance of all city and park district properties including public streets.

Policy 1.13. – Design the new public works facility to accommodate a future east side fire substation and retain the city-owned fire training site for a future south side fire substation.

Policy 1.14. – On a long-term basis, plan for a small police substation in the south portion of the city if the city experiences significant growth in the area.

Policy 1.15. – Implement plans for an outdoor firing range to reduce the cost and time associated with traveling 40 miles to the existing rifle and pistol club. This will enable increased firearm training, particularly for the tactical team.



Policy 1.16. – Continue to include all planned city service facilities and acquisition of major equipment in the Capital Improvement Program.

Policy 1.17 – The City should consider establishing adequate public facilities policy and regulations to maintain minimum levels of police and fire protection services as the City grows. To implement this policy the City may need to formally establish minimum level of service for police and fire services and establish policy and a program to require financial contributions from developers when minimum levels of service cannot be maintained due to a new development. Financial contributions from developers would only apply to capital projects; personnel costs would not be included.

Objective 2: Prepare a City Facilities Master Plan to efficiently guide the location and funding for new or expanded city facilities.

Policy 2.1. – The City Facilities Master Plan should provide the following analysis:

Policy 2.1.1 – A 10-year forecast of the demand for city services and determine if existing facilities are adequately sized or designed to maintain existing levels of service.

Policy 2.1.2 – Study all city facility options including new, expanded and relocated facilities, as well as the reuse of existing facilities.

Policy 2.1.3 – Explore the feasibility of shared-use facilities.

Policy 2.1.4 – Identify funding options that include but are not limited to new and increased fees, establishment of a City Facilities Impact Fee Program and user fees.



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Recreation and Cultural Resources

Chapter 9

Recreation and cultural resources play a significant role in defining a community and significantly contribute to the quality of life enjoyed by its residents. By maintaining and enhancing recreation and cultural amenities, the city will be able to continue to attract new residents who want such amenities in their community. This chapter provides an overview of existing recreation and cultural resources and includes a Master Trails Plan adopted by the Dickinson Park Board.

Introduction

Dickinson began in 1881 from the expansion of the Northern Pacific Railroad from the Missouri River to the Montana Territory. A way station was built in the Heart River Valley that was called Pleasant Valley Siding, where the primary business was buffalo hunting, trading and agriculture.

Today, much of Dickinson's economic strength is still agriculturally based, and since 2008 has been significantly impacted by the oil boom, which is contributing to rapid growth in western North Dakota. As expected, growth of Dickinson continues, recreational land and cultural facilities need to be maintained and enhanced to meet the City's goals of maintaining a high quality of life for residents.

Cultural and recreational facilities help to convey Dickinson's rich history and distinctive traditions, while offering locations for events, celebration, remembrance and recreation.

Dickinson is surrounded by natural resources that provide nearly limitless opportunity for outdoor recreation. The Heart River and the influence of the geology of the nearby Badlands make it a truly unique "western" experience for residents and visitors alike.

Parks and open spaces must relate closely to their natural resources. Whether the land is undevelopable, preserves habitat or has cultural significance, cultural and recreational facilities should conform and respond to the natural landscape.

Figure 9-1: Stark County Courthouse



Figure 9-2: Theodore Roosevelt Sculpture, Stark County Courthouse





Showcasing the community's natural resources through public spaces can create many advantages including:

- Tourism
- Birding
- Site-seeing
- Activities
- Programmed recreational sports
- Hiking
- Camping

Cultural Resources

The City of Dickinson has a rich history, and many cultural resources define the community. As a community grows, it is important to establish new ways to preserve and promote cultural facilities for future generations. Figure 9-7 shows the location of the primary cultural facilities in the city.

The **Dickinson Museum Center** is an art and museum complex that consists of the Joachim Museum, Prairie Outpost Park and Pioneer Machinery Museum. The Museum Center charges no admission and is open year-round. It is the result of a public-private partnership between multiple organizations, with a majority of funding coming from the City of Dickinson. The complex includes exhibits that allow visitors to learn about the history and culture of the region. The Museum Center is also involved with miscellaneous special projects such as the digitization of archival photos, assisting the Historic Preservation Committee and administering an annual summer youth program.

The **Stark County Historical Society** is committed to preserving the history and culture of Stark County and the surrounding area. It is recognized as the official historical society in the county by the State Historical Society of North Dakota. It was formed in the mid-1970s, and is run by an all-volunteer staff. It receives annual funding of \$5,000 from Stark County. The Historical Society's headquarters are located in the Pioneer Machinery Museum, where it also maintains the exhibits.

The **Dakota Dinosaur Museum** is a 13,400 square foot museum that opened in 1994. It contains full-scale dinosaur replicas that were made by artists from around the country, as well as authentic fossils, minerals and other paleontological specimens that were collected from the region. The museum is a non-profit organization that is governed by a volunteer board of directors and run by volunteers. Building construction was subsidized by the

Figure 9-3: Bluffs at Rocky Butte (Youngs) Park



Figure 9-4: Dickinson Museum Center



Figure 9-5: Dakota Dinosaur Museum



City with hospitality tax revenues, but annual operating expenses are completely funded with revenue from admission, the gift shop and donations. The museum is open May 1 – Labor Day and has had more than 500,000 visitors since 1994.

The **Theodore Roosevelt Center** at Dickinson State University is home to a digital presidential library that serves as a repository for all Theodore Roosevelt-related documents, photographs and ephemera. It is the result of a partnership between the university, the Library of Congress, Harvard College Library, the National Parks Service, and other schools and organizations with Theodore Roosevelt collections. Its governing board consists of historians, scholars, librarians, and educators. In addition to the digital library, the Center hosts an annual Theodore Roosevelt Symposium, which brings in nationally-prominent researchers to discuss various aspects of Roosevelt’s life. The City of Dickinson has historically provided a \$20,000 subsidy for the symposium.



The **Ukrainian Cultural Institute** is a non-profit organization dedicated to preserving Ukrainian culture in North Dakota. The organization was originally created in 1980 and purchased its current facility in 1995. The facility includes exhibits about Ukrainian culture, library, gift shop, staff office space and a kitchen. Verenyky-phrohy, locally known as “cheese buttons,” is produced in the kitchen and sold in the Institute’s gift shop and several grocery stores throughout the state. The Institute is funded primarily through memberships, donations and sales of food and gift shop items.

Figure 9-6: Ukrainian Cultural Institute



Another non-profit organization committed to preserving Ukrainian culture in the region is the North Dakota Ukrainian Dance Association. Along with promoting dance throughout North Dakota, the organization hosts Ukrainian Summer Camp, where people of all ages learn the art and history of Ukrainian culture. The organization is funded primarily through memberships and donations. The Ukrainian Cultural Institute and the Ukrainian Dance Association host the North Dakota Ukrainian Festival, which is held in Dickinson and Belfield every summer. The festival includes food, performance and exhibits about Ukrainian culture.

The **Department of Fine and Performing Arts** at **Dickinson State University** provides the community with many cultural opportunities. The Dickinson State University Art gallery is located on campus and is open to the public. The Department also hosts several theatre productions each year. The theatre season generally includes five departmental shows and two student productions, all of which are open to the public. The primary performance venue is the 735-seat Dorothy Stickney Auditorium; smaller-scale performances are held in the Backstage Theatre. The Department is also home to a student dance performance company, Form and Fusion, which provides dance components to university theatre productions and stages its own recital in the spring.

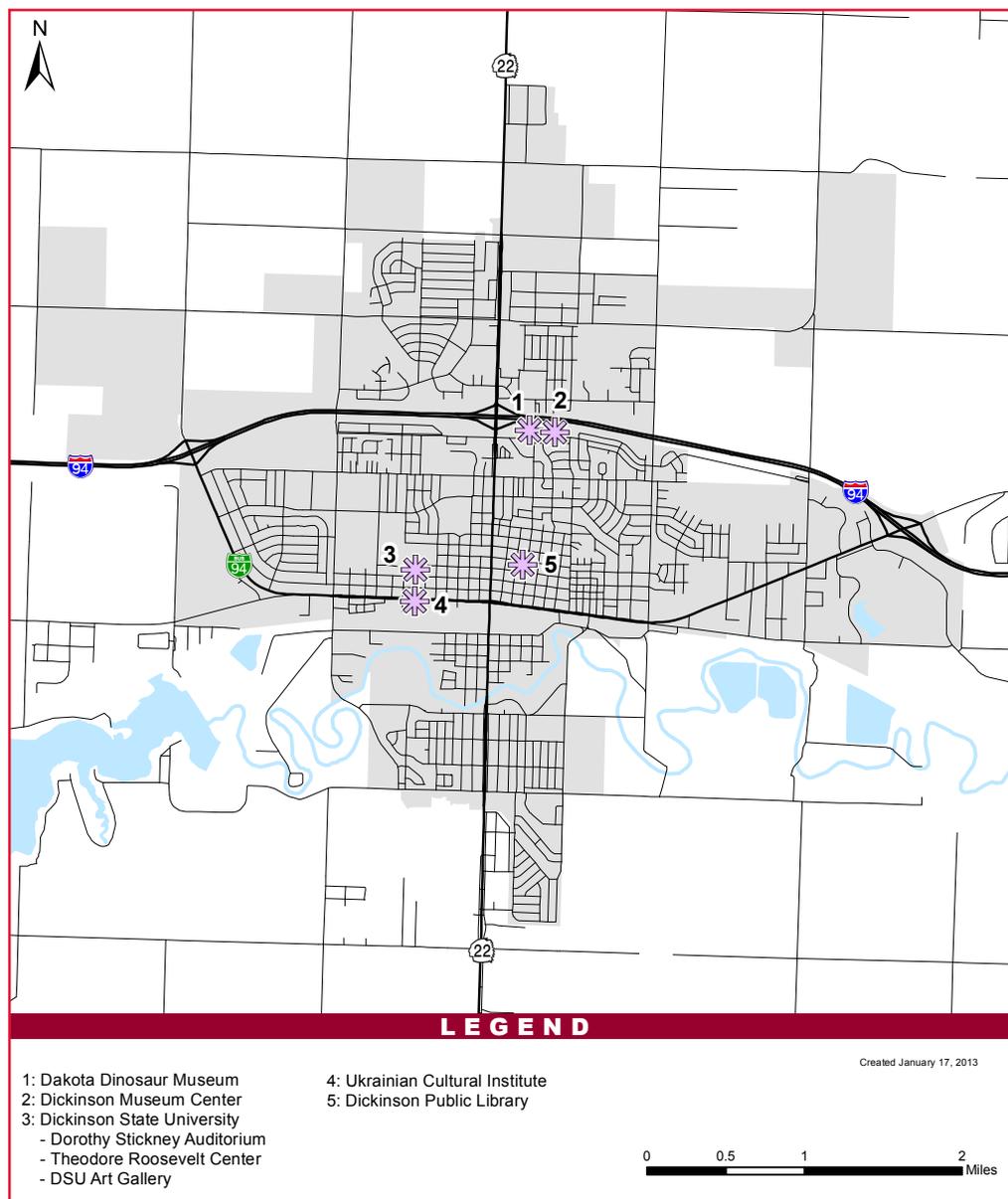




The **Dickinson City Band** is a musical ensemble comprised of community members of all ages and skill levels. The band holds weekly rehearsals and seasonal public performances. Everyone is welcome to join, and there are no auditions. It is a great community-building activity for residents who are interested in music, and its performances add to the cultural fabric of the city. The band was formed in 1885 and was active for more than 80 years. It was revived in 2000 and has once again become a central part of the community. Band members pay a small membership fee to help cover operating expenses and the band also takes donations from individual and business sponsors.

The **Dickinson Area Public Library** is more than 24,000 square feet in size and has more than 90,000 volumes. It also has a collection of CDs, DVDs, newspapers and magazines. The library provides free internet service for patrons and subscribes to numerous online research databases. In addition, the library operates a bookmobile that provides monthly service to areas in Stark, Billings and Slope County and provides weekly service to Fairfield and Medora.

Figure 9-7: Location of Cultural Resources



SOURCE: KLI

Educational Facilities

Dickinson currently has five public elementary schools (grades K-6), one public elementary school under construction, one public junior high school (grades 7-8) and one public high school (grades 9-12). The city also has an alternative public school, Southwest Community High School, which offers a GED program for students ages 16-21 who have withdrawn from the traditional high school. Two private school systems exist: Hope Christian Academy (grades Pre-8), and Trinity (grades K-12). Hope Christian Academy is expanding into grades 10-12 over the next three years. Figure 9-9 shows the location of existing and planned school locations in the city of Dickinson.

In many instances, educational facilities complement city park and recreational facilities due to the willingness of the school district and DSU to make their recreational facilities available to the community. An example includes the community use of Fisher Field at the Badlands Activity Center (DSU) that is available for daily workout and exercise routines. The spirit and practice of shared-use recreational facilities maximizes the use of existing and future recreational facilities in the community, while minimizing fiscal impacts of operations and maintenance.

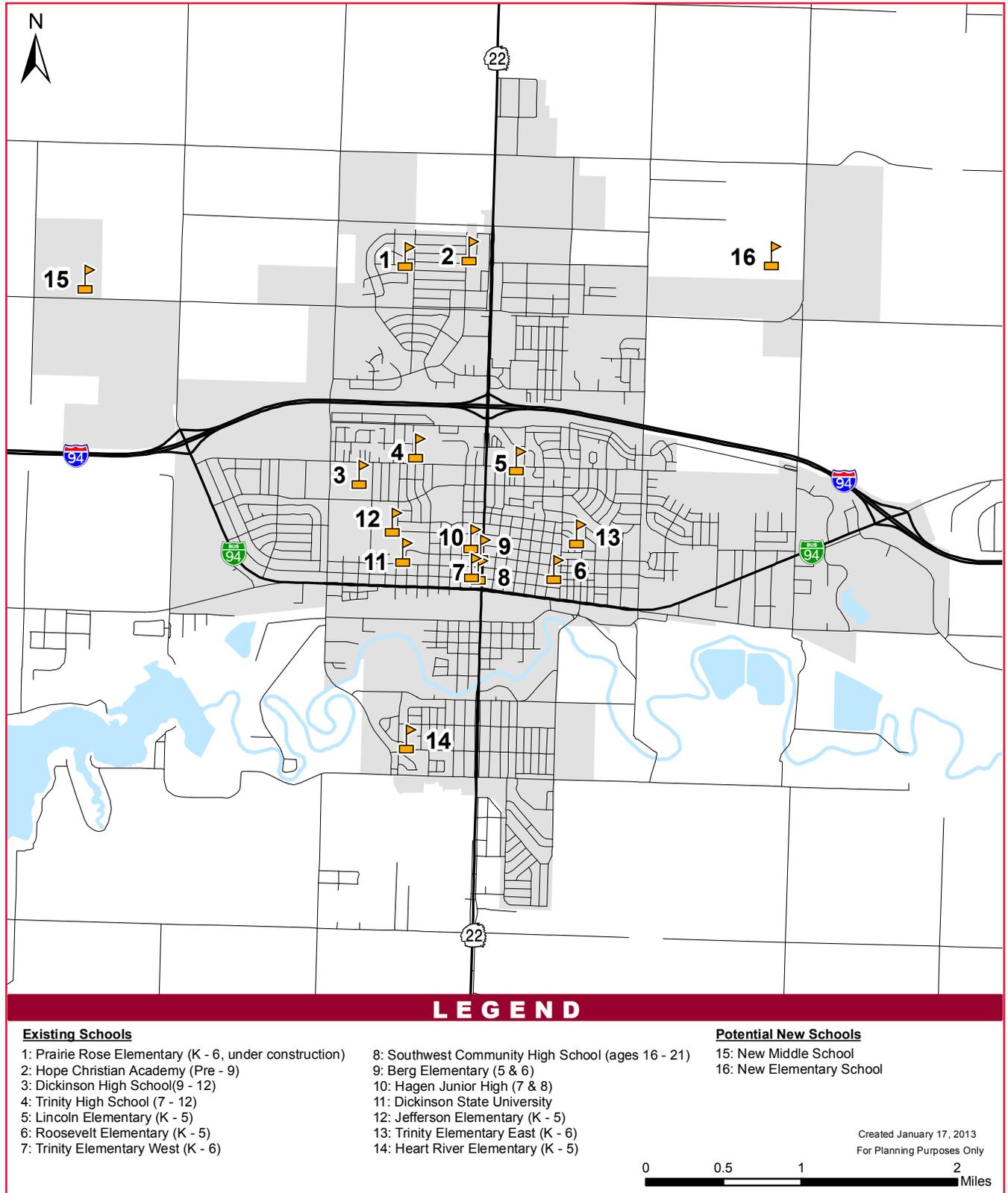
As the community and educational facilities grow, it is important the established shared use of recreational facilities is continued. In addition, the school district and City need to coordinate the location of new schools based on the implementation of the future land use map so new school sites are surrounded by residential development.

Figure 9-8: Dickinson Public Schools





Figure 9-9: Existing and Future K-12 Schools



SOURCE: KLJ

Recreational Resources

Park and recreational facilities are operated and maintained by the Dickinson Park Board which is a member of the North Dakota Parks Association. The Park Board is administered by five elected members and employs more than 25 full-time staff with additional seasonal staff. Dickinson Parks and Recreation mission is to “provide recreational opportunities to enhance quality of life for the community and its visitors.” The park facilities provide dynamic spaces for residents to enjoy many outdoor and indoor activities and should be designed to accommodate everyone within the community. Figure 9-14 shows the location of existing parks in and around the city. Most of Dickinson’s park and recreational facilities accommodate all age groups and user abilities. Table 9-1 provides an inventory of park facilities and the size of each park and Table 9-2 shows the location of undeveloped park land. To assist in the future planning of Dickinson Parks, a description of different park classifications is provided to help plan the size and level of amenities at various types of city parks.

Mini-Parks

Mini-parks are typically small facilities within a neighborhood setting. The size of a mini-park ranges in size between 2,500 square feet and one acre. Whether the park is private or public, the function of a mini-park is to target a concentrated or limited population in isolated developments that promote unique recreational opportunities.

Neighborhood Parks

Neighborhood parks are typically public spaces ranging in size between 5 to 10 acres. Neighborhood parks provide recreational opportunities to educational facilities, residential developments and/or commercial business that are within ¼ mile to ½ mile in walking distance to the park. The major focus of neighborhood parks is informal active and passive recreation within a residential area.

School-Park

School-parks are typically public or private spaces that provide different levels of park service: neighborhood, community, sports complex parks and/or special-uses. New school locations should be coordinated with the Park Board to avoid redundant recreational facilities.

Community Park

A community park provides a service of area from ½ mile to 3 miles in distance and ranges in size between 30 to 50 acres. A community park provides the highest level of recreational amenities and serves most if not all city residents. Community parks generally meet community based recreational needs and preserve natural resources and open space within the city.

Figure 9-10: Park Amenities, Eagles Park





Sports Complex

Typically, sports complexes are developed for high programmatic uses and range in size based on type and quantity of sport. A minimum of 25 acres should be planned for a sports complex, but generally should be planned for 40 to 80 acres in size when the sports complex serves a regional area extending beyond a single community. Sufficient parking and access to major transportation routes for tournament hosting is an important design consideration.

Special Uses

A special use park is designed and planned for a specific individual use and range in size to accommodate that certain use. Examples of a special use park are dog parks and watercraft launches areas.

Existing and Recommended Minimum Level of Service

A tool for analyzing the existing levels of service of parks is to compare gross acres of developed park land in relation to population. A nationally recognized level of service for parks is 10 acres per 1,000 residents. Applying the total developed park land (313 acres) shown in Figure 9-14, the city's current level of park service is 13 acres per 1,000 residents. While the City is currently providing an adequate level of service for parks, the City will need to coordinate with the Park Board to ensure the minimum level of service for parks is maintained and the community's recreational needs are met. Policy 1.1 of this chapter recommends preparation of a Parks Master Plan. The Parks Master Plan should supplement the acreage-based minimum level of service with a level of service based on the type and amount of recreational facilities provided in the city's parks.

Figure 9-11: Optimist Neighborhood Park



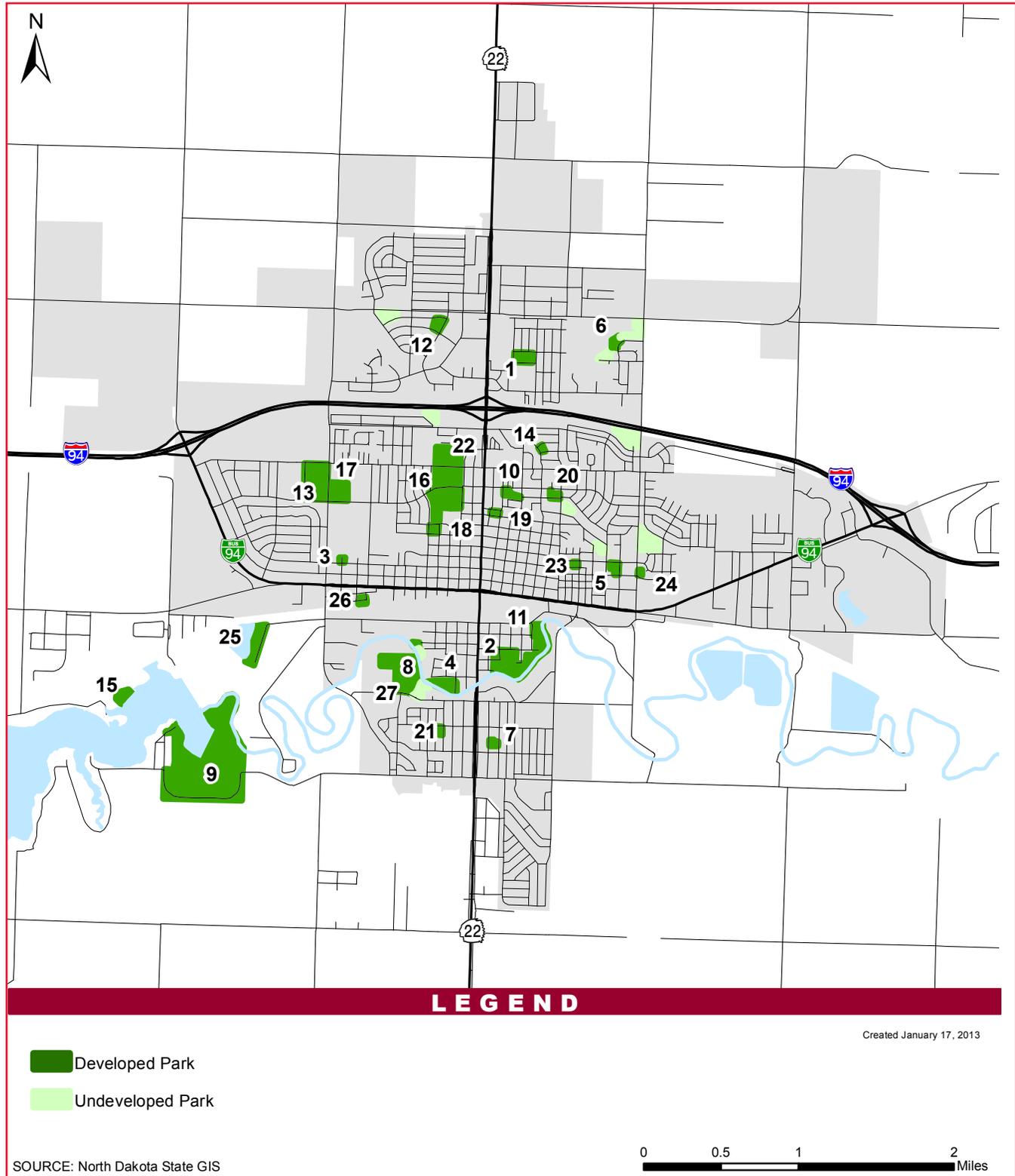
Figure 9-12: Memorial Community Park



Figure 9-13: Special Use Dog Park



Figure 9-14: Existing Developed and Undeveloped City Parks



SOURCE: North Dakota State GIS

SOURCE: CITY PARK AND RECREATION DEPARTMENT AND NORTH DAKOTA STATE GIS



Table 9-1: Recreational Facilities at Developed City Parks

Map Index Number	City Park	Area (Acres)	Softball Field	Baseball Field	Ball Field Area	Basketball	Soccer	Tennis	Volleyball	Disc Golf	Skate Park	Playground	Swimming Pool	Band Shell	Skating Rink	Boat Ramp
1	All Seasons Park	4.55	1			1			1			1				
2	Southside Baseball Field and Park	19.52		1		1							1			
3	College Park	0.64										1				
4	Eagles Park	10.50						2	2		1	1				
5	Eastside Complex	2.00			1	1.5		2				1				
6	Fisher Park	7.21				1			1			1				
7	Grass Park	0.50				1			1							
8	Gress Softball Complex	23	6									1				
9	Heart River Golf Course	110.00														
10	Hospital Park	1.26										1				
11	Jaycee Park	16.00							2	1						
12	Kostelecky Park	2.61				1			1			1				
13	West River Community Center	46.00		3			7				1	1				
14	Lincoln Park	0.75										1				
15	Lions Park	2.45														1
16	Memorial Park	12.00				1		2		1			1	1	1	
17	North Softball Complex	7.21	4									1				
18	Optimist Park	1.89										2				
19	Pine Tree Park	1.00														
20	Pleasant Valley Park	1.26				1			1			1				
21	Pride Park	1.30				1						1				
22	Rocky Butte Park	25.00								1						
23	Simpsons Park	0.66				1						1				
24	Suncrest Park	0.63				1										
25	Turtle Park	12.40							2			1				
26	Westend Park	0.64			1											
27	Dickinson Dog Park	2.00														
	Total	313.0	11	4	2	11.5	7	6	11	3	2	17	2	1	1	1

SOURCE: KLJ

Table 9-2: Undeveloped City Parks

Map Index Number	Park Name/Location	Area (Acres)
1	Interstate Park	6.00
2	Behind Fisher Park	7.00
3	Across from Century Apartments	2.75
4	West of Social Services Building	1.60
5	Across from St. Benedicts Nursing Home	0.95
6	Water Tower Hill	0.82
7	Gress Complex	30.80
8	Old BMX Track	2.00
Total		51.92

SOURCE: KLI

Dickinson’s Premier Recreational Facilities

The West River Community Center is a 93,000 square foot facility that was completed in 2004. The state-of-the-art facility offers many recreational options including swimming pools, fitness areas, racquetball courts, gymnasiums, tennis courts, a climbing wall, an indoor playground, an indoor golf simulator and childcare facilities. It also hosts events such as 5K run/walks, adult and youth sports leagues, and birthday parties. It is open year-round, seven days a week, with the exception of holidays. The facility is owned and operated by Dickinson Parks and Recreation, and is almost completely funded by membership and event fees. The City of Dickinson is providing a subsidy of \$50,000 for 2013, which is less than five percent of the facility’s operating budget.

Figure 9-15: West River Community Center



The Dickinson Recreation Center is located adjacent to the West River Community Center. The Recreation Center includes a 1,000-seat arena that is an ice arena during winter months. The facility also has a large classroom space. The arena and classroom can be rented for special events throughout the year.

Dickinson Parks and Recreation is planning a \$20 million expansion to the Community Center complex, which will include an outdoor pool, facility expansion and a second sheet of ice at the adjacent Dickinson Recreation Center. The expansion is intended to accommodate expected growth in the community over the next 20 years. Funding would come from a variety of sources, including a scheduled increase in membership fees.

Park Maintenance

Attractive and well-maintained parks enhance the overall quality of place and the recreational experience of park users. Based on the results of Community Survey 2, it appears city residents feel more should be done with regard to park maintenance. Nearly 60 percent of the survey respondents ranked maintenance of existing parks as their first or second



most important item the Park Board should implement. The Park Board should ensure there are adequate resources to maintain existing and future city parks.

Strategy: Evaluate the possibility of partnering with other entities to develop and operate, or contribute to the maintenance of new parks and recreation.

Master Trails Plan

The shared-use paths and pedestrian sidewalks in Dickinson accommodate individuals who bicycle or walk. Results of Community Survey 1 indicate 3.2 percent of residents walked or cycled to work, which is consistent with the US census travel-to-work data. Most walking and cycling that occurs in Dickinson is for recreational purposes. One of the questions in Community Survey 1 asked to rate their satisfaction with different aspects of Dickinson's transportation system. One aspect included the availability of safe bicycle/pedestrian facilities. Only 19 percent of respondents ranked the availability of safe bicycle/pedestrian facilities as excellent or good, while 45 percent of respondents ranked the facilities as poor or bad. Based on community survey results, it appears residents want safe and enhanced trail or bicycle/pedestrian facilities.

The overall goal of the Master Trails Plan is to expand the existing trail system. Specific objectives include:

- Connecting gaps in the existing trail system
- Providing an interconnected trail system that provides access to parks and other city amenities
- Extending the trail system to all areas of the city
- Trails constructed by the City will predominantly be located with existing or expanded street rights-of-way, while developer-provided trails may be located within or outside a right-of-way

Existing Trail System

The existing transportation system in the city for pedestrians and bicyclists is a combination of shared-use paths or trails, sidewalks, striped bike lanes and use of roads by bicyclists. The Park Board and the City have been successful in developing sections of shared-use trails frequently used by residents. The Park Board's goal is to expand the existing trail system and specifically provide a greater level of interconnections in the trail network. It appears the community strongly supports the approach. Community Survey 2 found nearly 48 percent of respondents ranked the creation of an interconnected trail system as the most important item they would like to see the Park Board implement and 56 percent of respondents ranked it as their first or second most important item.

Several paved shared-use paths are in and around Dickinson park facilities that largely serve recreational walking and cycling. Existing shared-use trails are illustrated in Figure 9-17.

Figure 9-16: Paved Shared-use Path in Dickinson



Pedestrians and bicyclists will continue to use sidewalks even as the City's trail system expands over time. As the community grows it is important to expand and maintain city sidewalks. Cyclists in the city want to be able to travel safely on streets. Dickinson should amend its street design standards to provide a complete street design option that includes adequate shoulders and bike lanes on routes that are frequently used by cyclists. ADA compliant sidewalks, ramps and crosswalks should be included in the street design of new and improved streets.

Future bicycle and pedestrian facilities should also be planned in conjunction with planning future transit. Transit riders will need to be able to walk to and from transit stops and adequate sidewalk and trails should be in place to accommodate these travelers. In addition, the City should work with developers to include bicycle and pedestrian amenities into their plans and designs to ensure new neighborhoods include these facilities.

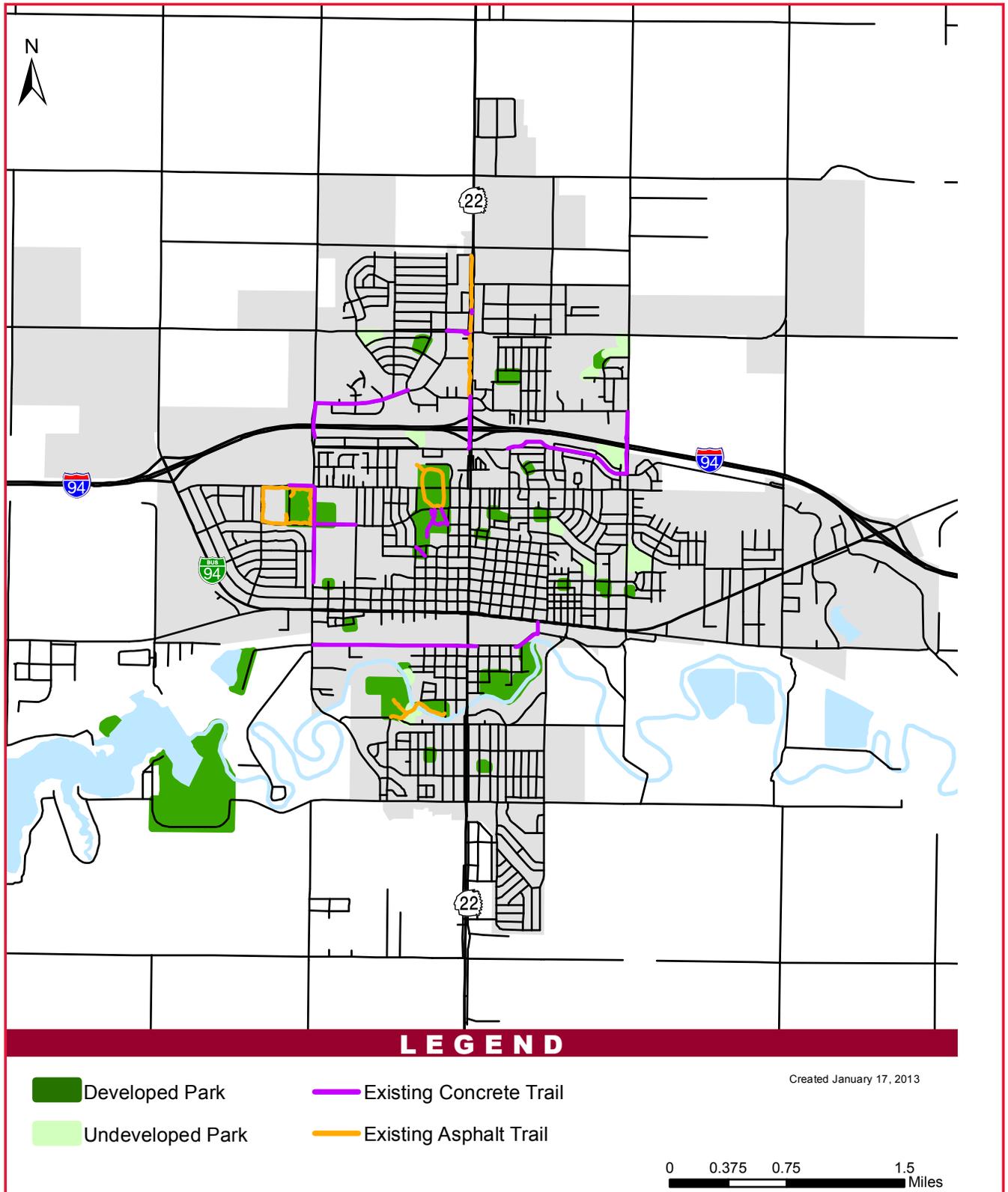
The Master Trail Plan

KLJ worked with the Dickinson Park Board and its staff in developing the Master Trail Plan. An existing trails plan was reviewed and enhanced to meet the above cited objectives for the Master Trail Plan. The draft Master Trail Plan was presented to the Park Board at its Annual Workshop Meeting during which comments were received. On October 8, 2012, the Park Board adopted the Master Trail Plan. The Master Trail Plan consists of master trail system map, map and phasing schedule for the development of trails, design standard for trails and policies to facilitate implementation of the Master Trail Plan.

The Master Trail Plan is shown in Figure 9-18. The Master Trail Plan shows the location of existing and planned trails and existing city parks. Figure 9-19 shows the phasing of the Master Trail Plan and Table 9-3 provides a summary of the phasing plan, including the total trail length and cost estimates for each phase.

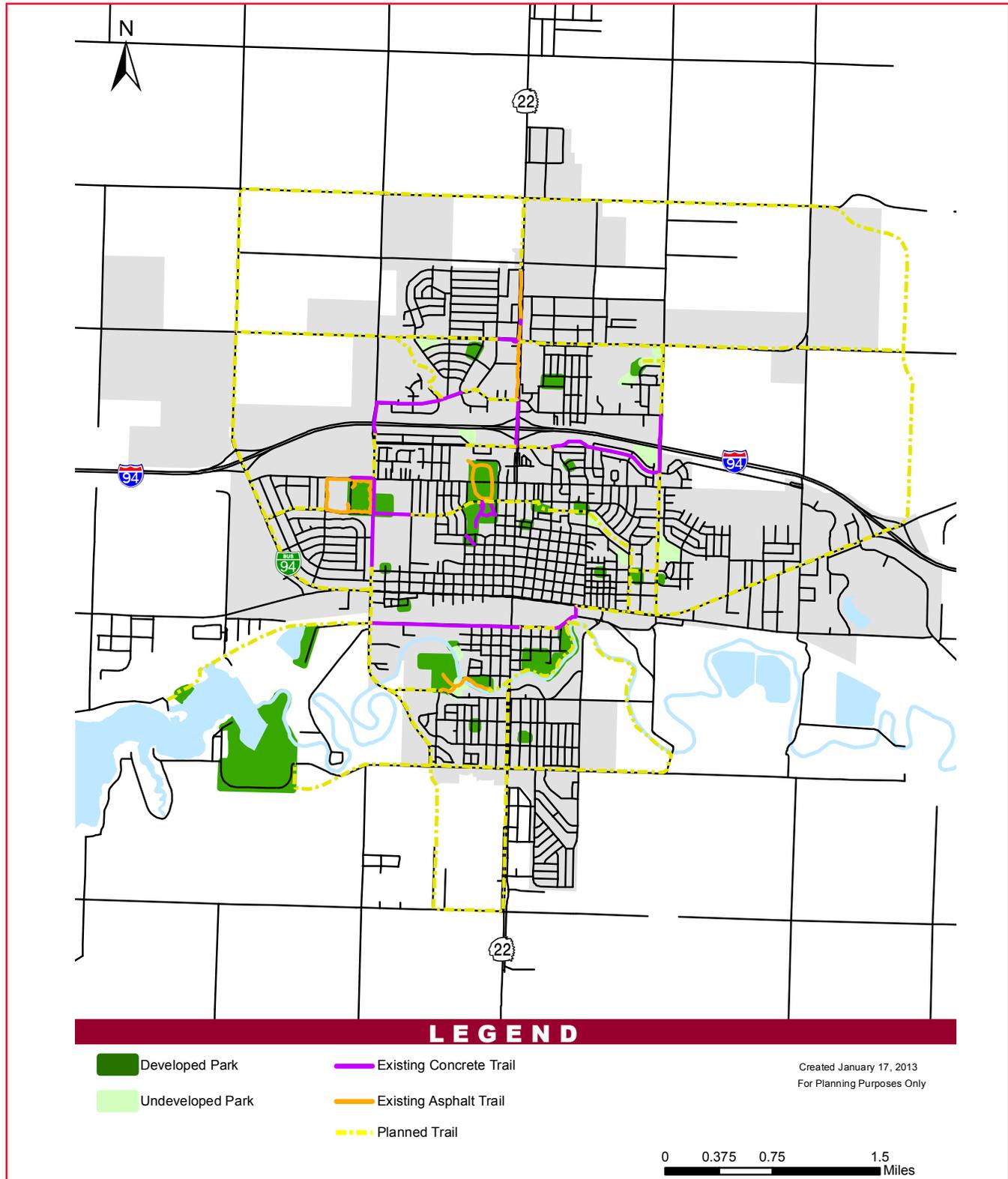


Figure 9-17: Existing Trails in Dickinson Future Bicycle and Pedestrian Facilities



SOURCE: KLJ

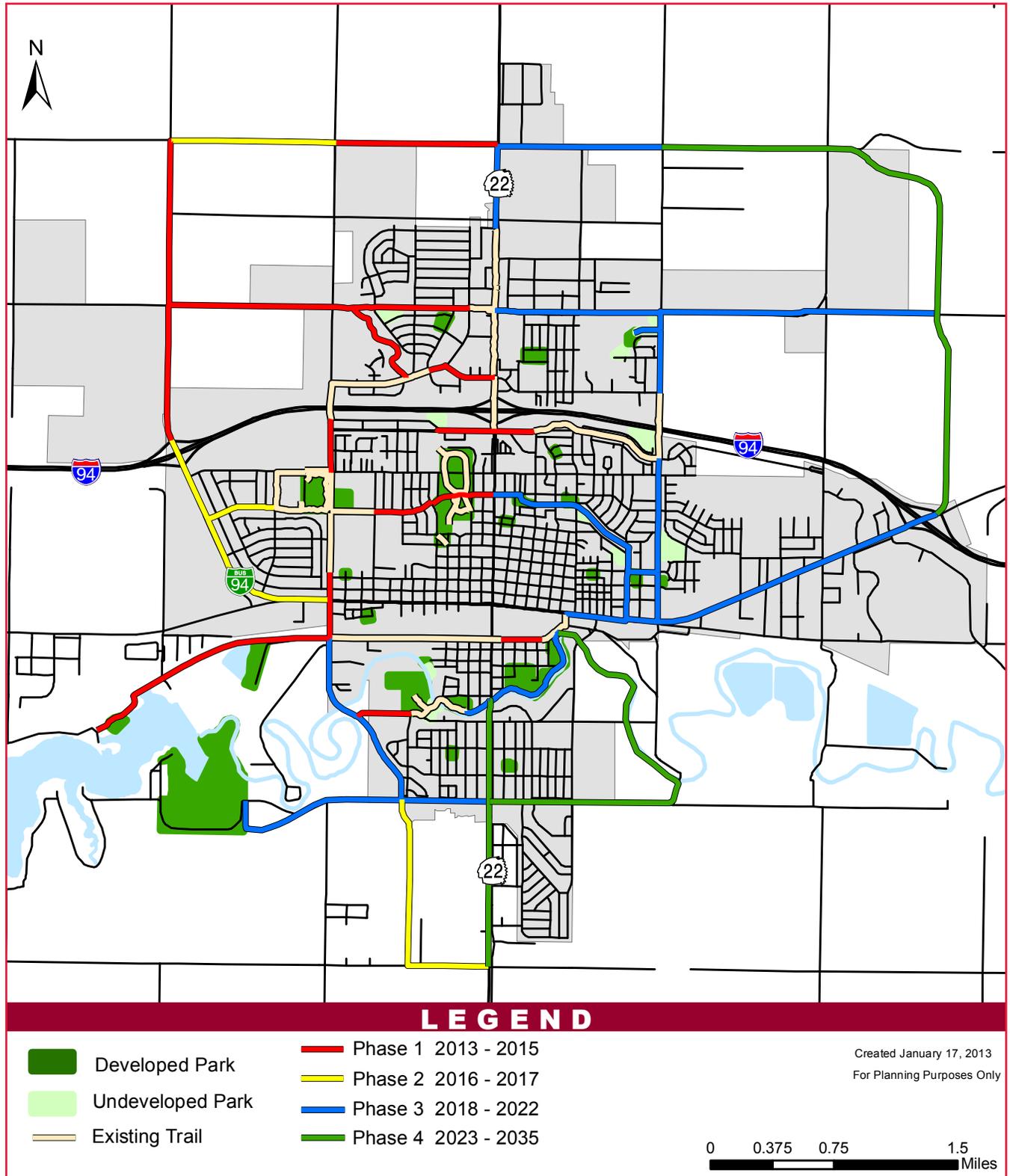
Figure 9-18: Trails Master Plan



SOURCE: DICKINSON PARK BOARD AND KLJ FIELD OBSERVATIONS



Figure 9-19: Trails Phasing Plan



SOURCE: DICKINSON PARK BOARD

Table 9-3: Trail Length and Cost Estimates by Phase

Master Trail Plan Phase	Total Miles of Trails	Miles in Principal Arterial Right-of-Way	City Miles	Cost to City	City Allocation
Existing Trails	8.7	0.0	0	\$0	\$0
Phase 1: 2013-2015	9.9	2.8	7.1	\$2,485,000	\$900,000
Phase 2: 2016-2017	4.5	4	0.5	\$175,000	\$600,000
Phase 3: 2018-2022	13.6	4.4	9.2	\$3,220,000	\$1,500,000
Phase 4: 2023-2035	7.9	5.4	2.5	\$875,000	\$3,900,000
Total	44.6	16.6	19.3	\$6,755,000	\$6,900,000

SOURCE: KLJ

Notes: 1. Cost to the City is based on \$350,000 per mile of new trails.

2. The City allocation of funds is based on the assumption the City will annually budget \$300,000 for new trail construction.

Full implementation of the Master Trail Plan will increase the miles of trails from the current 8.7 miles to 44.6 miles during the 24-year planning period, representing more than a five-fold increase in trail miles. Full implementation of the Master Trail Plan is estimated to cost more than \$12.5 million during the 24 year planning period. The total estimated cost for planned trails along state highways is nearly \$5.5 million and the total estimated cost for planned trails along city streets is \$7.1 million. Based on the assumption the City will budget \$300,000 each year for new trail construction, the City will be able to construct all planned trails along city streets during the planning period. However, the assumed City expenditures on new trail construction will not be sufficient to fully develop new trails designated in Phases 1 and 2. To meet the phasing schedule, the City will either need to budget more than \$300,000 per year during Phases 1 and 2 and/or secure outside funding.

Master Trail Plan Policies and Standards

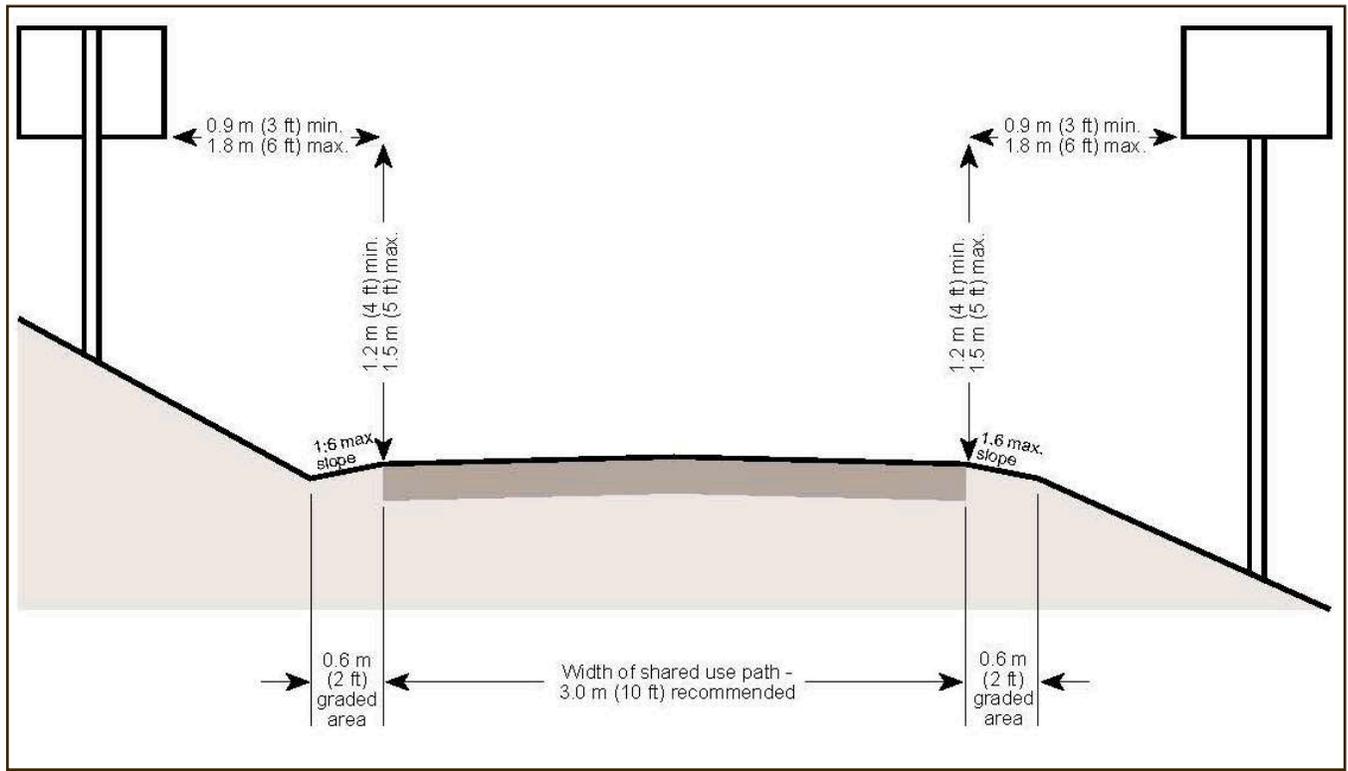
Objective 2 in the Objectives and Policies section of this chapter provides several policies to guide the implementation of the Master Trail Plan.

The design of trails should, to the greatest extent possible, adhere to the following standards.

- To maximize safety for trail users, best design practices from industry guidelines such as the ASHTO Design Guide should be implemented.
- The surface of trails should take into consideration both initial construction costs and long-term maintenance costs.
- The Park Board should establish design standards for amenities such as benches and trash cans along trails.
- Below is the preferred cross section for a 10-foot wide trail that will safely accommodate the passing of two bicyclists.



Figure 9-20: Trails Cross Section



SOURCE: KLJ

Objectives and Policies

Objective 1: Distribute parks and recreation areas across the geographic area of the city to provide convenient access to all city residents.

Policy 1.1 – Prepare a comprehensive Parks Master Plan to achieve the following objectives:

Policy 1.1.a – Evaluate the type and location of recreational amenities at existing parks.

Policy 1.1.b – Determine location of new parks based on the geographic distribution of existing parks and the demand for new parks in future growth areas.

Policy 1.1.c – Establish a maintenance plan for existing parks adequately funded by the Park Board. The maintenance plan should program the repair and replacement of all park facilities including but not limited to all paved surfaces, playgrounds, shelters, signage, irrigation, ball fields, etc.

Policy 1.1.d – Establish acreage and recreational facility standards for neighborhood and community parks.

Policy 1.1.e – Establish a program to annually assess the indoor recreational needs of the community.

Policy 1.1.f – Identify existing undeveloped parkland that is not needed to meet existing and future recreation needs and identify a strategy to dispose of such parkland. The City of Dickinson shall be given first consideration in acquiring the properties.

Policy 1.1.f – Create a unifying physical identity and appearance for city parks. The use of uniform facilities such as shelters, signage, benches, trash receptacles, recycling bins and other amenities will provide a clean identifiable appearance to the park system. Doing so will minimize the need for stocking parts and facilitate the repair of facilities.

Policy 1.2 – Maintain the minimum level of service of 10 acres of parkland per 1,000 city residents.

Policy 1.3 – Coordinate with the Park Board to identify unutilized or under-utilized existing city-owned property that may be used for future parkland.

Policy 1.4 – The City and the Park Board should coordinate in planning for and developing downtown civic/recreational amenities. The objective of the amenities is to create a pleasant outdoor gathering place that will increase activity in the downtown. Amenities that should be pursued include an urban landscaped park and a plaza, both of which should be designed to accommodate special events.

Policy 1.5 – All preliminary plats with resident zoned land shall be forwarded to the Parks and Recreation Department for review and the Parks and Recreation Department shall provide the City a recommendation regarding park dedication versus fee in lieu of dedication, and specifically recommend the location of dedicated parkland or public trails.

Policy 1.6 – For park dedications in areas where there is a need for a neighborhood or community park, whenever possible, the park dedication shall be located on the project boundary adjacent to vacant land zoned or planned for residential use. When the adjacent property is developed, require the park dedication to abut the previously dedicated park land on the adjacent residential development.

Policy 1.7 – Prior to the acquisition of any new parkland, a Phase 1 Environmental Assessment and a Cultural Resource Survey should be conducted to determine if there is on-site hazardous waste or cultural resources that would preclude or significantly increase the cost of developing the park.

Policy 1.8 – Amend the City of Dickinson Zoning Ordinance to require private recreation areas for multi-family projects in excess of 100 dwelling units. The Zoning Ordinance amendment should establish standards for the minimum area, location and minimum recreational amenities for the required recreation area.

Policy 1.9 – Pursue landscaping and pedestrian improvements in key locations throughout the city.

Objective 2: The Park Board should actively implement the Trails Master Plan.

Policy 2.1 – All land development applications that abut a planned trail shall be forwarded to the Parks and Recreation Department for review and the Parks and Recreation Department shall provide recommendations regarding the dedication of right-of-way, establishment of public access easements and the widening of existing sidewalks to implement the trails master plan.

Policy 2.2 – The Park Board should fully fund maintenance of all existing and future trails.

Policy 2.3 – The Park Board should submit annual funding requests to the City for the construction of trail segments based on the priorities and phasing program contained in the Master Trails Plan.

Policy 2.4 – The Park Board should coordinate with City Police during preparation of construction plans for trails to determine if there is need for lighting along specific trail segments when no street lights are present or potential safety concerns.

Policy 2.5 – To reduce costs, the Park Board should coordinate construction of trails with road or other infrastructure projects.



Objective 3: The City of Dickinson and the Park Board should coordinate to enhance recreational opportunities at Patterson Lake.

Policy 3.1 – The City of Dickinson and the Park Board should coordinate with the Bureau of Land Management (BLM) to seek funding for maintenance of existing recreational facilities and authorization and funding for the development of new recreational facilities.

Policy 3.2 – The Park Board maintenance plan should include and fully fund maintenance of existing and future recreational facilities at Patterson Lake.

Policy 3.3 – The Park Master Plan should identify future improvements to the recreational facilities at Patterson Lake including planning level cost estimates for the improvements.

Policy 3.4 – The City of Dickinson and the Park Board should initiate discussions with BLM of the feasibility of BLM relinquishing jurisdiction of portions of its Patterson Lake property for the purpose of establishing a state, county or city park.

Objective 4: Efforts are needed to preserve and enhance the city’s cultural and historic heritage.

Policy 4.1 – The City should maintain an inventory of all publicly-owned cultural and historic resources. The inventory should include an assessment of maintenance/preservation needs, operational issues and the need to enhance or expand facilities. Preparation of the inventory should be done in coordination with the Dickinson Historic Preservation Board.

Policy 4.2 – The Dickinson Historic Preservation Board should seek funding to update its inventory of all historic properties and places in the city.

Policy 4.3 – By 2014, the Dickinson Historic Preservation Board should submit a report to the City Commission concerning the feasibility, impacts and funding opportunities to establish one or more historic districts in the city.

Policy 4.4 – Dedicate a portion of the construction budget for applicable capital improvements to public art and streetscape enhancements.



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Natural Resources

Chapter 10

Water Resources

The largest body of water in the Dickinson area is Patterson Lake, shown in Figure 10-1. Patterson Lake is a reservoir created in 1951, with the damming of the Heart River. The dam was constructed to create a drinking water supply, irrigation water supply, recreational facility and provide flood protection. The lake's water surface area is approximately 1,191 acres and is managed by the Bureau of Land Management.

A 2002 study by the North Dakota Department of Health classified Patterson Lake as an impaired water body. Recreational uses were determined to be impaired due to excessive nutrients. In addition to excessive nutrients, aquatic life was determined impaired because of sediment and low dissolved oxygen. The Heart River, immediately upstream of Patterson Lake was classified as impaired for aquatic and recreational uses due to excessive nutrients, sediment, habitat, organic enrichment and bacteria.

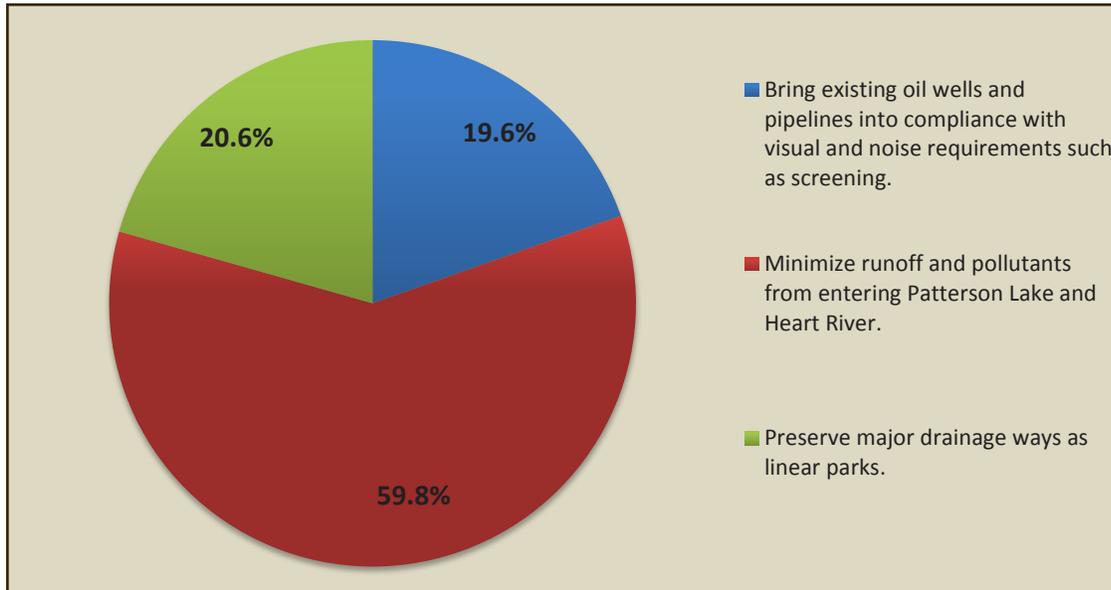
Figure 10-1: Patterson Lake



The community survey conducted as part of this study revealed that residents primary environmental concern is the protection of Patterson Lake and the Heart River. Results are shown in Figure 10-2.



Figure 10-2: Response to the question, “What environmental strategy would you prefer to see implemented?”



SOURCE: COMMUNITY SURVEY #1

Figure 10-3 identifies the primary surface water features in and around Dickinson. The Heart River passes through the city, and 100-year floodplain follows the path of river drainages and their tributaries. A portion of the floodplain passes through Dickinson and is most prominent in the southern part of the city. Few wetland areas are located in the study area, with the most prominent being Patterson Lake and municipal reservoirs south of the city.

Figure 10-4 shows the drainage basins and sub-basins near Dickinson. The study area is primarily in a single drainage basin. The lowest elevation within the study area is along the Heart River, in the southern part of the city. The area with the highest elevation is north of the city.

Figure 10-3: Water Features near Dickinson

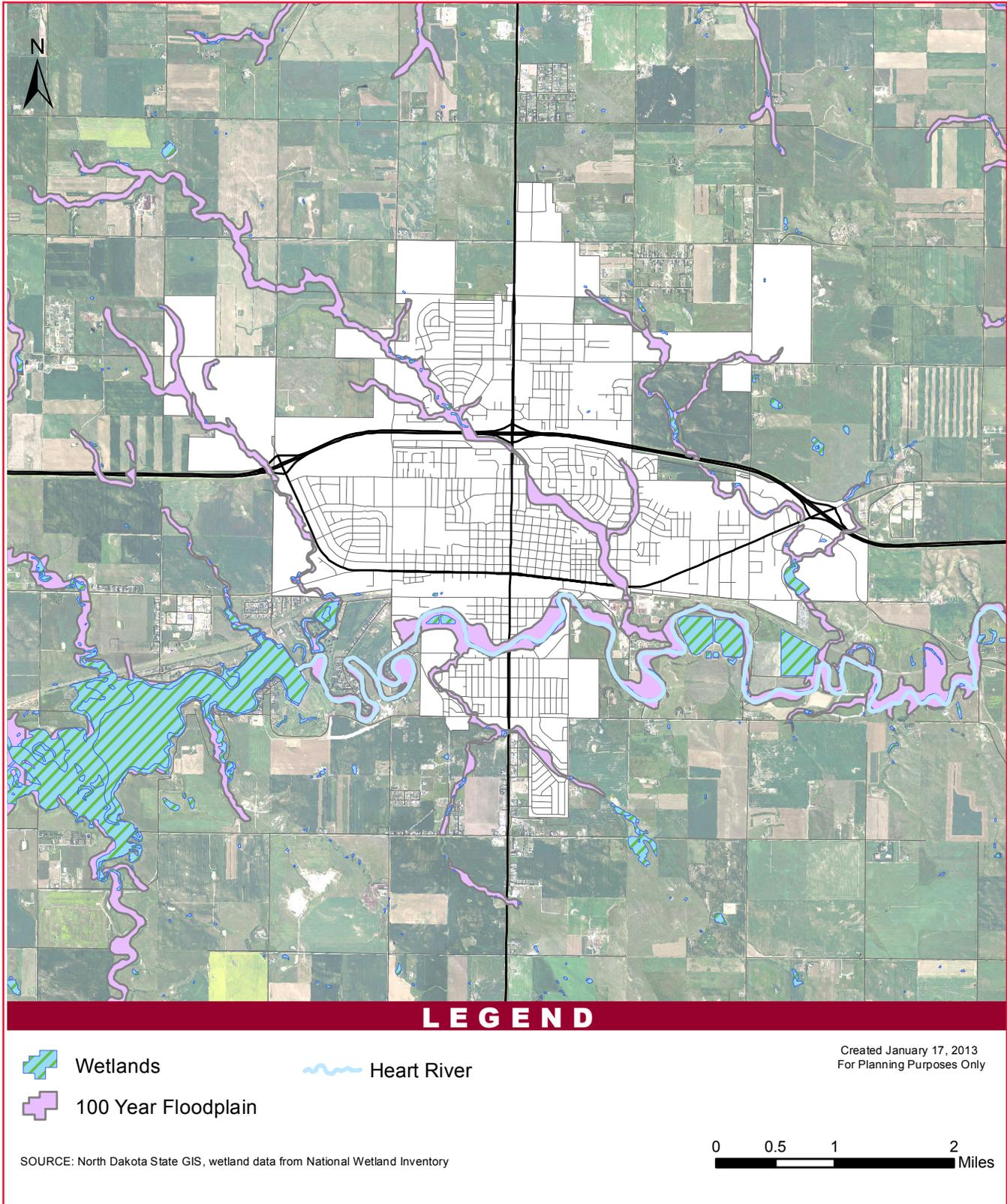
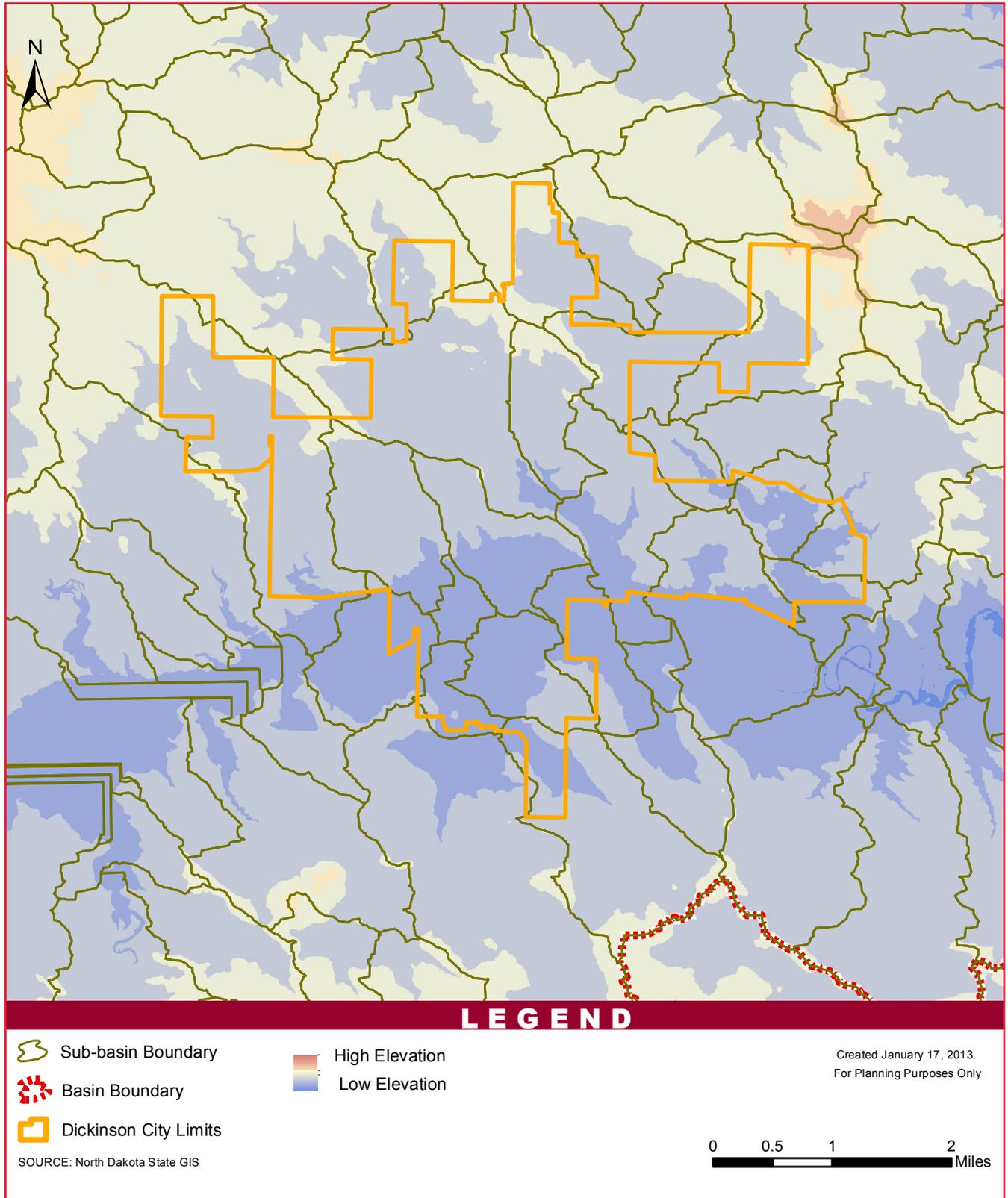




Figure 10-4: Drainage Sub-Basins near Dickinson

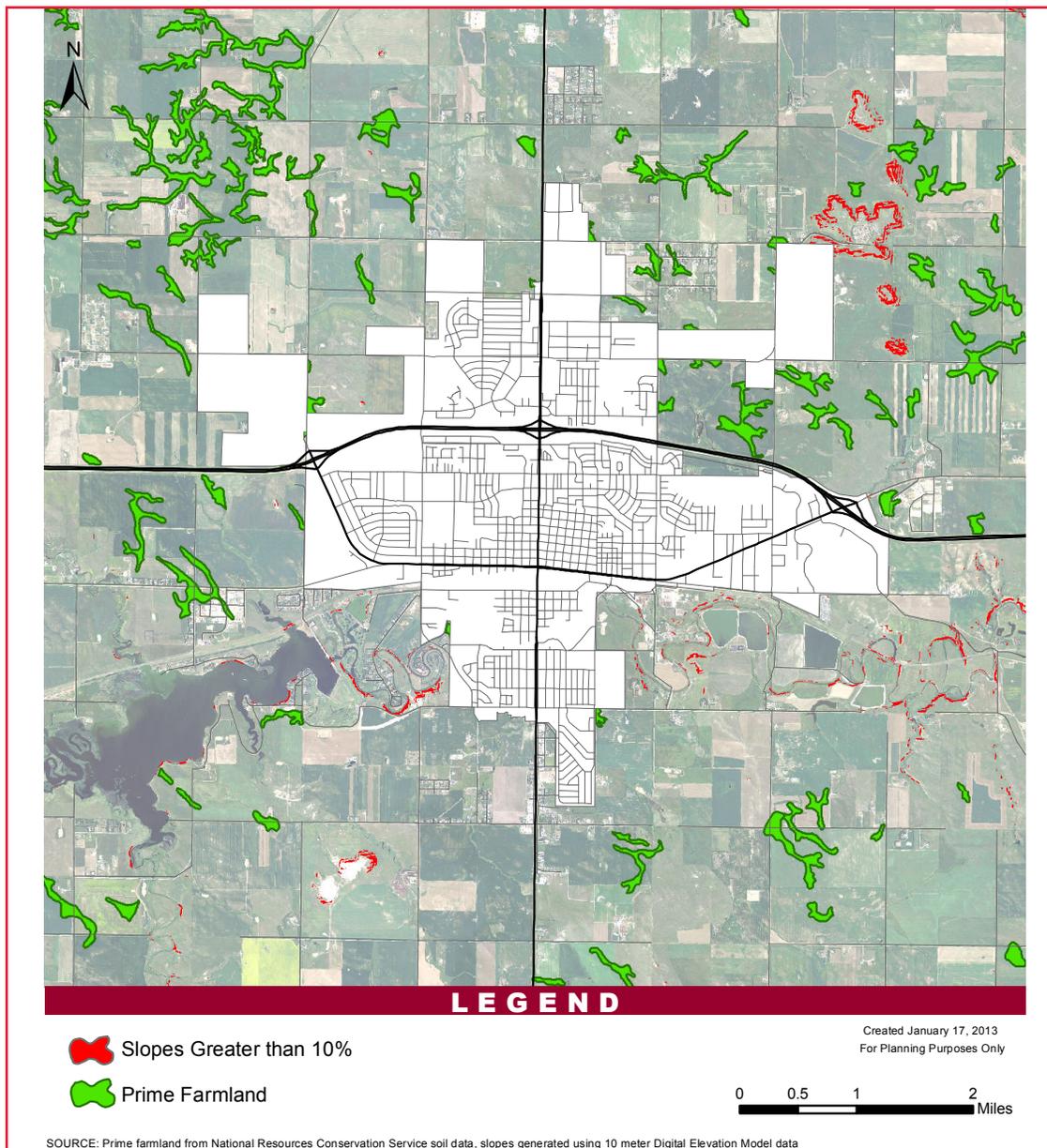


Land Features

Figure 10-5 identifies prime farmland and steep slopes in the study area. Prime farmland data is catalogued by the Natural Resources Conservation Service, a division of the US Department of Agriculture. Prime farmland has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops. The farmland has the soil quality, growing season and moisture supply needed to produce economically sustained high yields of crops. Prime farmland is scattered in small tracts throughout the area.

Steep slopes have a grade of more than 10 percent. Most areas of steep slope are located east of the city, with the largest concentration to the northeast.

Figure 10-5: Land Features near Dickinson





Habitat and Wildlife

The study area is located in the Missouri Slope eco-region, which is a western mixed-grass to short-grass prairie. Historically, land use in this area has been dominated by agricultural uses, such as dryland farming and cattle grazing. In addition to agriculture, oil and gas development has significantly influenced land use in western North Dakota. The rapid expansion of energy development, created by the current oil boom has fragmented habitat, disturbed wintering and breeding habitat, and disrupted migration routes of numerous wildlife species including the white-tailed deer, mule deer, bighorn sheep, greater sage-grouse and non-game grassland birds.

In accordance with Section 9 of the Endangered Species Act (ESA) of 1973, public and private entities are specifically prohibited from “taking” a threatened or endangered species. To “take”, as defined in section 3 of the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The term “harm” refers to significant habitat modifications or degradation, which may kill or injure fish and wildlife species or impair essential behavioral patterns.

The United States Fish and Wildlife Service (USFWS) October 2011 Endangered, Threatened and Candidate Species and Designated Critical Habitat in North Dakota counties, lists identified the black-footed ferret, gray wolf and whooping crane as endangered species that may be found within Stark County. In addition, the Sprague’s pipit is listed as a candidate species. The bald and golden eagle are also protected species through the Bald and Golden Eagle Protection Act (BGEPA) of 1940. Additional information about protected species in Stark County can be found in Table 10-1.

Table 10-1: Protected Species Potentially Located within Stark County

Endangered Species	Habitat	Status in Stark County
Black-Footed Ferret	Areas around prairie dog towns of at least 80 acres.	Species has not been confirmed in North Dakota for 30 years and is presumed extirpated.
Gray Wolf	Boreal forest, temperate deciduous forest and temperate grassland.	The study area is not located near any known wolf populations.
Whooping Crane	Shallow wetlands for roosting, and various cropland and emergent wetlands for feeding.	The study area is located within the whooping crane migration corridor and the area provides suitable habitat.
Candidate Species		
Sprague’s Pipit	Rolling, upland mixed-grass prairie habitat with high plant species diversity.	Hay/pasture lands and native prairies in the area provide suitable habitat.
Other Protected Species		
Bald Eagle	Open areas, forests, rivers and large lakes.	The study does not contain recorded habitat by the bald eagle.
Golden Eagle	Open prairie, plains and forested areas.	The study area does contain recorded golden eagle habitat. The closest nest has been sighted 0.84 miles southwest of the 6-mile study area.

SOURCE: US FISH & WILDLIFE SERVICE AND DICKINSON STATE UNIVERSITY

There are often USFWS easements within a project study area. Information concerning wetland and grassland easements was requested from the USFWS. Through correspondence, it was identified the USFWS does not currently administer any wetland or grassland easements within the identified 6-mile study area. The status of easement locations can change as the USFWS and private landowners may enter into agreements at any time. Through analysis of other resources considering federal lands, no USFWS Waterfowl Production Areas, US Forest Service National Grasslands, Bureau of Land Management, or US Army Corps of Engineers (USACE) properties lie within the study area. While the USACE does not own or manage land within the study area, they do have regulatory authority over wetlands, rivers and streams, or waters of the US, and should be consulted when developing a property, as wetlands are often not clearly evident or the definition of what constitutes a wetland is often in question.

State entities may also have an interest in existing and future land use within the study area. The North Dakota Game and Fish Department (NDGF) has agreements in place with private landowners for the Private Lands Open To Sportsmen, or PLOTS program. The agreements are in place in portions of the study area, as shown in Figure 10-6. Private landowners can enter into these agreements that expire if not renewed. It is important to check these identified areas regularly if new projects are proposed. The NDGF does not have any other interests within the study area.

Strategy: Maintain up-to-date information about locations of properties in the PLOTS program to determine areas that may be off-limits for immediate development.

The North Dakota Parks and Recreation Department (NDPRD) administers the North Dakota Natural Heritage Inventory biological conservation database. A search of this database identified several significant ecological communities within Township 139 N, Range 97 W; Sections 8, 12, 16 and 26. The results are shown in Figure 10-7. In portions of the study area floodplain forests exist, which usually contain tree species such as American Elm and Green Ash. In section 26, T139N, R97W, the database identified a Needle-and-Thread mixed-grass prairie. A number of migratory bird and raptor species and fish species were also identified within the database. None of these occurrences necessarily warrant protection, as most of the wildlife occurrences are observations at one particular point and location in time, but it would be beneficial to avoid disturbance of these habitats.

Within the city of Dickinson and in portions of sections 6 and 17 of Township 139 N, Range 96 W, numerous Land and Water Conservation Fund (LWCF) projects were identified. LWCF projects are generally associated with parks and recreation areas and have received federal funding to build or improve facilities such as parks, playgrounds, walking trails and boat ramps. While there are no restrictions for these areas in terms of private development, restrictions do exist if federal funds are used for implementation of future projects impacting these areas.



Figure 10-6: North Dakota Game and Fish PLOTS Land Agreements

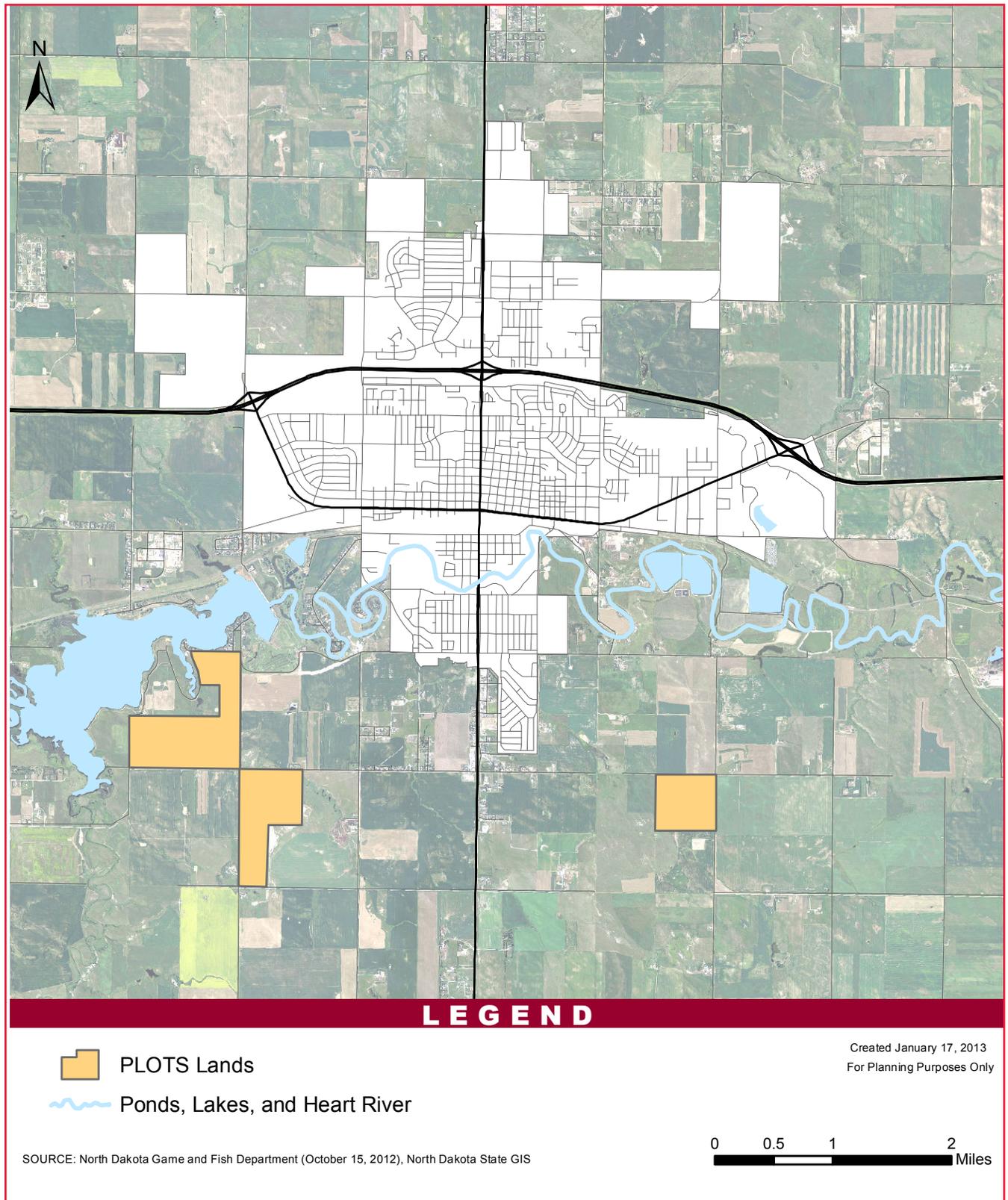
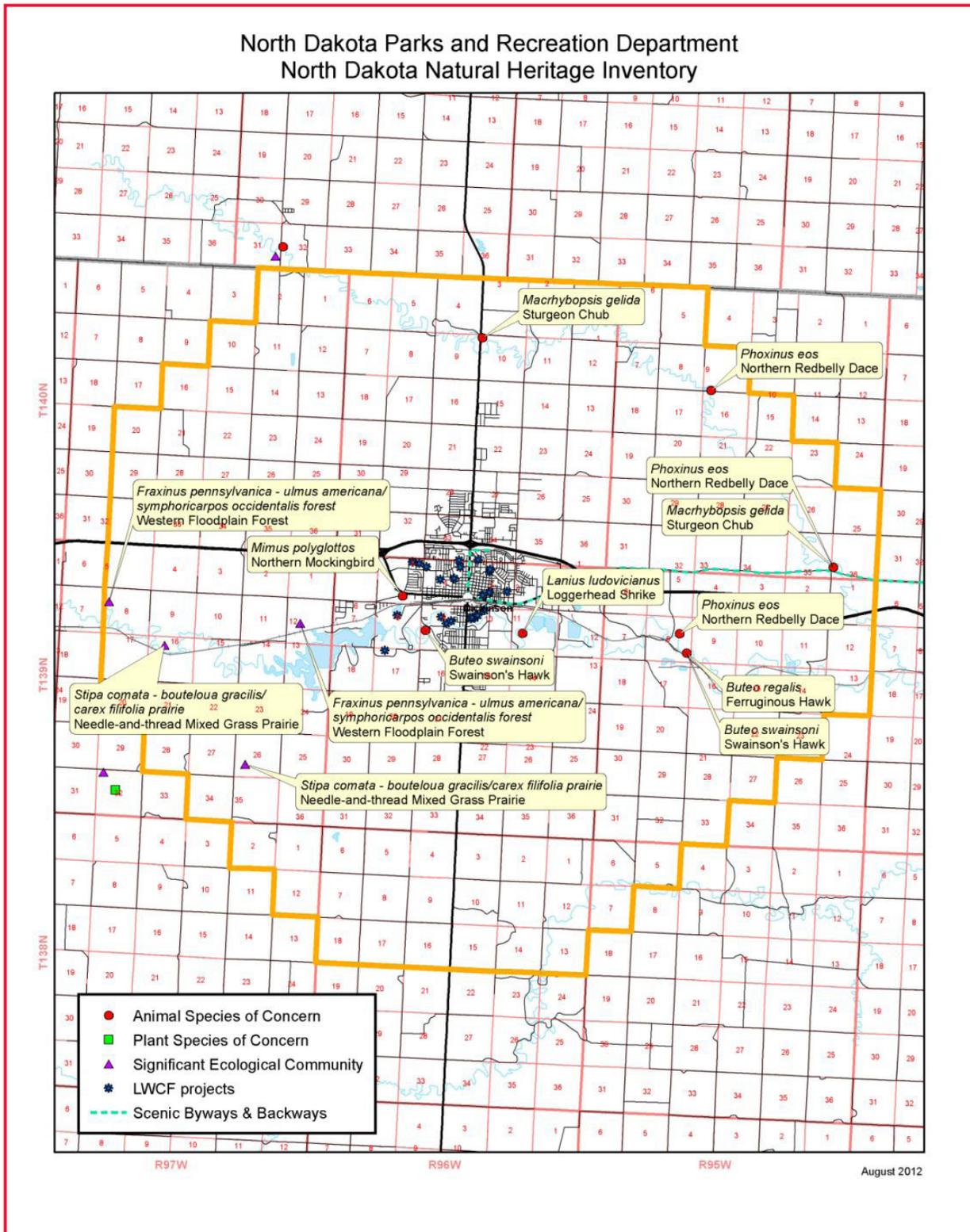


Figure 10-7: North Dakota Natural Heritage Inventory, Wildlife and Plant Species Occurrences

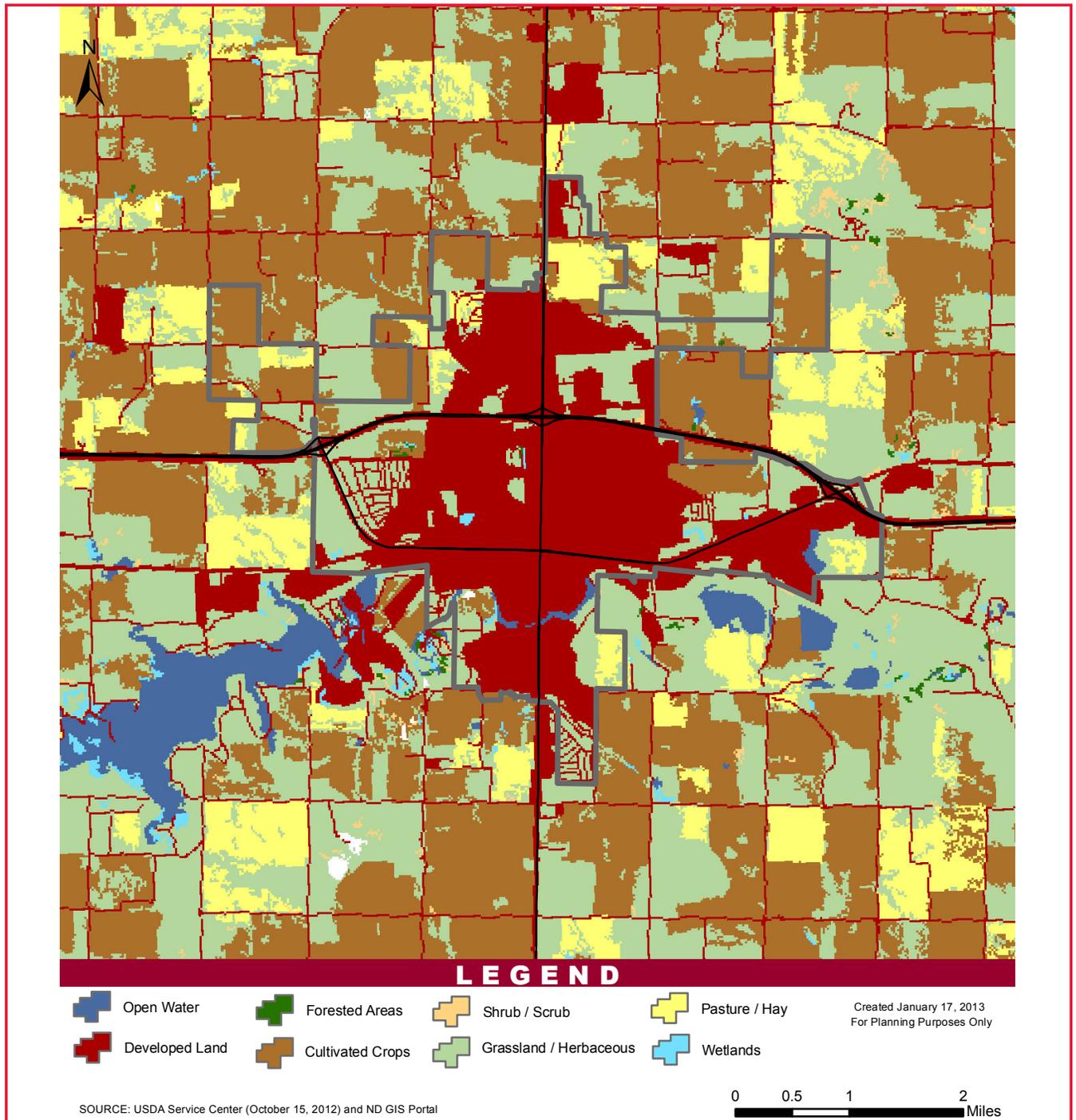


SOURCE: NORTH DAKOTA PARKS AND RECREATION DEPARTMENT



In addition to information obtained from resource agencies, additional areas exist where wildlife are likely to frequent. Land cover information from the US Department of Agriculture is shown in Figure 10-8. Areas of open water and woody wetlands provide suitable waterfowl habitat and resting areas. Woody wetlands and forested areas provide habitat for upland game species. Cultivated crops provide habitat for waterfowl and migratory birds for foraging. Areas identified as herbaceous and hayland/pasture provide migratory bird and upland game habitat.

Figure 10-8: Land Cover near Dickinson



Recommended Natural Resource Protection Regulations

Recommended new and amended regulations were prepared to enhance the city's ability to protect or preserve natural resources. The recommended regulations are found in Appendix B. The following is a summary of the recommended regulations.

Tree Protection

The recommended tree protection regulations discourage removal of mature trees. Two options to mitigate loss of mature trees are provided. The first option is planting replacement trees. The second is contributing funds to a city tree protection trust fund which is dedicated to planting new trees in city parks, street and entranceway beautification programs and landscaping projects on city-owned property.

Wetland Preservation

The recommended wetland preservation regulations apply only to wetlands not under the jurisdiction of the US Army Corp of Engineers. Removal, alteration or encroachment in non-jurisdictional wetlands is discouraged and standards are provided to protect preserved wetlands.

Surface Water and Native Habitat Preservation

The recommended regulation encourages the preservation of surface water, including natural drainage ways and native habitat. When such resources are preserved, standards provided for the use of the resources are private recreation, open space and other common amenities, as well as public stormwater facilities.

Earthmoving

The recommended regulations apply only when earthmoving activities are proposed and no drainage, grading or stormwater management permits have been issued. Under those circumstances, the regulations are intended to protect adjacent property owners from changes to the natural drainage pattern and enhance the quality of surface waters.



Objectives and Recommended Policies

Objective 1: Encourage the preservation and protection of native habitat during land development activities.

Policy 1.1. – Review and adopt development regulations contained in Appendix B to protect water resources and preserve or mitigate the loss of mature trees resulting from land development activities.

Policy 1.2. – Encourage the preservation of native habitat corridors for open space or public trails during the review of land development regulations.

Policy 1.3. – The preservation of native habitat corridors should be done in coordination with the Master Trails Plan.

Policy 1.4. – Establish a five-year compliance schedule to bring existing oil wells and pipelines into conformance with the noise emission and visual mitigation standards in Chapter 40 of the City Code of Ordinances.

Policy 1.5 – The City should preserve the rural and agricultural character of lands outside the Urban Service Area.

Objective 2: Encourage continued maintenance and development of the city's urban forest.

Policy 2.1. – Develop and maintain a long range Urban Forestry Plan to ensure the continuity and establishment of the urban forest.

Policy 2.2. – Maintain status as a designated Tree City USA.



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Implementation

Chapter 11

Generally, local governments have five types of tools to implement a comprehensive plan. Tools include regulations, policy, government finance, education and coordination.

Regulatory tools are implemented with regulations authorized by North Dakota Century Code (NDCC) and NDCC Home Rule provisions, and are adopted into law by local government. Policies express a community's interest in pursuing a course of action on particular topics or issues. Unlike regulations, local government has discretion in the implementation policies. Government finance tools represent a community's financial commitment to fund policy and strategies implementation. Education tools, such as the Comprehensive and Transportation Plans, include a number of activities to inform the public, appointed and elected officials and City staff that facilitate effective decision making. Finally, coordination tools are measures within local government (intra-governmental coordination) or between a local government and other local governments and regional, state and federal agencies that result in more efficient service delivery or a shared response to a common concern.

Widely accepted smart growth principles and tested growth management techniques are provided to allow the City to proactively plan and manage future growth.

Comprehensive Plan implementation tools are summarized below. The listed tools are not all inclusive, but rather intended to provide examples that are commonly used by communities across the state and nation. Several tools are currently used by the City and Stark County while others warrant serious consideration means to implement the Comprehensive Plan.

Regulatory Tools

Subdivision Regulations

Subdivision regulations control creation or modification of the division of land into new parcels or tracts. They also control the subdivisions design and provide standards for adequate provision of infrastructure without adversely impacting public services and the environment.

The City has recently adopted subdivision regulations updated by staff. The comprehensive plan process included a thorough review of existing subdivision regulation's and provided recommendations to improve and enhance regulations. City staff have recently adopted subdivision regulations based upon the recommendations. Subdivision regulation review can be found in Appendix B. Several recommendations may have been addressed by the recently updated subdivision regulations; however, the City is encouraged to identify, review and adopt the recommended revisions that were not addressed in the subdivision regulation update.

Zoning Regulations

Zoning regulations, including the zoning map, are a regulatory tool that controls the type, location, intensity and land development design. A primary purpose of zoning regulations is to minimize and mitigate land use incompatibility.

The Consultant Team conducted a comprehensive review of the city's existing zoning regulations. Recommended revisions to the zoning ordinance address the following topics:

- Zoning provisions requiring clarification
- Procedural provisions
- Application review criteria



- Residential district standards
- Community design

The city currently has extraterritorial zoning jurisdiction of land located two miles beyond city limits. Pursuant to the North Dakota Century Code (NDCC), the City may elect to extend its extraterritorial zoning jurisdiction to four miles when the city's population exceeds 25,000 persons. Extraterritorial zoning is a valuable tool to regulate land use and establish development standards outside the city limits. The NDCC grants municipalities the power to conduct a census. When the city's population is clearly in excess of 25,000 persons, the City should conduct a census in accordance with US Census Bureau rules to substantiate the City's ability to establish a four-mile extraterritorial jurisdiction.

Design Standards

Design standards are contained in numerous city regulations, including zoning and subdivision regulations. Design standards protect the safety and welfare of the community as well as the natural environment. Design standards can also be established to enhance the appearance and function of development. Overly restrictive design standards can impede or add excessive costs to development. If properly crafted, design standards can significantly enhance the built environment without placing undue burden on developers and builders. Recommended revisions to the city zoning regulations found in Appendix B include numerous community design standards intended to enhance the appearance of the built environment in the city.

Floodplain Regulations

Floodplain regulations are intended to regulate the use of land located within an officially designated 100-year floodplain to protect buildings and its occupants from risk associated with flooding. Some communities choose to participate in the National Flood Insurance Program Community Rating System (CRS). CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Any community in compliance with the minimum requirements of NFIP may participate. Participation in the CRS will result in 5 to 45 percent discounts on flood insurance premiums depending on the rating of enhanced floodplain management activities.

Environmental Regulations

Recommended enhancements to existing environmental protection regulations are provided in Appendix B and should be considered as part of the implementation of the Comprehensive Plan. The recommended regulations are intended to supplement existing city, state and federal environmental regulations.

Zoning Compliance Permits

Zoning compliance permits are a tool to ensure development activities are in compliance with the city's zoning regulations. The City requires issuance of zoning compliance permits for most types of improvements to private property; however, enforcement is another key aspect of zoning compliance. Dickinson should maintain adequate staffing of code enforcement officers to ensure all zoning and other property maintenance regulations and standards are met.

Building Permits

Building permits are a tool to ensure building construction is in compliance with the State of North Dakota Building Code. Building permits are required for all buildings, and other types of construction.

Policy Tools

Neighborhood, Sector or Corridor Plans

The Comprehensive Plan can be further implemented through detailed planning of specific city areas. The Downtown Visioning project is an example of an area-specific planning study.

Annexation Policy

A city expands its boundaries and its jurisdictional authority through the process of annexation. NDCC 40-51.2 gives Dickinson the ability to annex property for the following reasons:

- Encourage natural and well-ordered development of municipalities of the state
- Extend municipal government to areas which form a part of the whole community
- Simplify government structure in urban areas
- Recognize interrelationship and interdependence between a municipal corporation and areas contiguous or adjacent thereto

Urban Renewal Districts and Renaissance Zones

Establishment of urban renewal districts and renaissance zones is an implementation tool that facilitates redevelopment of selected areas in a city. NDCC 40-58 (Urban Renewal) and 40-63 (Renaissance Zone) gives municipalities authority to establish urban renewal districts and renaissance zones in areas that meet the statutory definition of blighted areas and authorizes the municipality to expend funds in the area to stimulate private investment. Tax increment finance (TIF) districts are often used to recapture a city's expenditure of funds for public improvements in the redevelopment area. Prior to establishing an urban renewal district, renaissance zone or TIF district, the municipality is required to prepare and adopt an urban renewal plan.

Government Finance Tools Using City Resources

Capital Improvement Program (CIP)

Capital improvement programming is often overlooked as a planning tool. The CIP is an important tool to plan for public expenditures associated with growth. A multi-year capital improvement program also supports establishment and delineation of an urban service area and facilitates negotiation of annexation agreements. The Capital Improvements chapter provides detailed policies and guidelines for the establishment and update of a multi-year CIP.

Special Assessments, Improvement Districts and Development Impact Fees

In past energy boom/bust cycles, the city was left with many unpaid special assessments as a result of undeveloped property forfeitures due to unpaid taxes. This left the City with a significant debt burden. Current and planned development proposals require a significant investment in public infrastructure. To avoid a potential debt burden the City should not use special assessments to fund infrastructure improvements, including streets that are located within the boundary of a new development. The City should also consider establishing improvement district only in existing developed areas or when major city infrastructure improvements are required to provide urban services to one or more developments in new growth areas. Finally, the use of the development impact fee program should be narrowly targeted for desirable development projects such as downtown redevelopment projects or projects that provide affordable housing. Policies are provided in the Infrastructure Chapter that provides specific guidance in the use of special assessments, improvement districts and development impact fees.



Fee Incentives

Reduction or full municipal fees waiver is a tool to support implementation of specific Comprehensive Plan goals and objectives. Often financial incentives are used to support affordable housing or redevelopment projects. The tool can also be used to support specific economic development policy.

Local Government Owned Land

Land owned by local government, including school districts, is a valuable resource that can be used to implement Comprehensive Plan goals and objectives. Undeveloped public land can be used to financially leverage private development that meets a community's high demand need. By reducing or eliminating land acquisition costs the jurisdiction provides a significant financial incentive to facilitate development that supports the land use implementation, housing or economic development policy. When this implementation tool is used the local government should enter into a development agreement to ensure the developer provides the desired outcome.

Tax Increment Financing (TIF)

Tax Increment Financing (TIF) is authorized by NDCC 40-58-20 as part of an urban renewal district. It is a local funding mechanism that allows cities to direct property tax dollars that accrue from new development, within a specifically designed district, to public investments within the district. TIF is a tool that can encourage and support investment in areas where growth has been hindered by a lack of sufficient infrastructure and/or blight presence. TIF does not increase property taxes for individuals and businesses located within a designated district. Rather, it only affects the way taxes are distributed after they have been collected. A base taxable value is determined upon TIF district establishment, and any additional tax revenue that accrues due to new development over a specified time frame is used to finance a variety of district improvements. Eligible improvement activities include:

- Land acquisition
- Rehabilitation and renovation
- Demolition and removal of structures
- Planning, marketing and analysis
- General redevelopment activities
- Constructing, improving and connecting to infrastructure

Government Finance Tools Using City and Private Sector Resources

Connection Fees

Connection fees are a viable way for the City to collect revenue to assist funding capital improvements directly attributed to new development. Connection fees address the goal of new development paying for itself, thereby reducing future tax burden of existing property owners. Developers and builders will pass the cost of connection fees to new residents and commercial tenants just as is done with special assessments. Connection fees can be levied towards any public facility impacted by new development. It is recommended connection fees be assigned to new major roads and sewer and water systems. To be legally and politically defensible, connection fees need to be carefully developed to ensure fees are proportionate to the impacts on the city's transportation and infrastructure systems. A rational nexus between the connection fees collected and the costs associated with the impacts of new development is needed. Connection fee revenue should only be used for expanded or new city facilities. Revenue should not be used for maintenance or correcting existing deficiencies. Due to the complexity of developing a connection fee program, we recommend the City retain consultant services to perform the analysis needed to substantiate defensible connection fees.

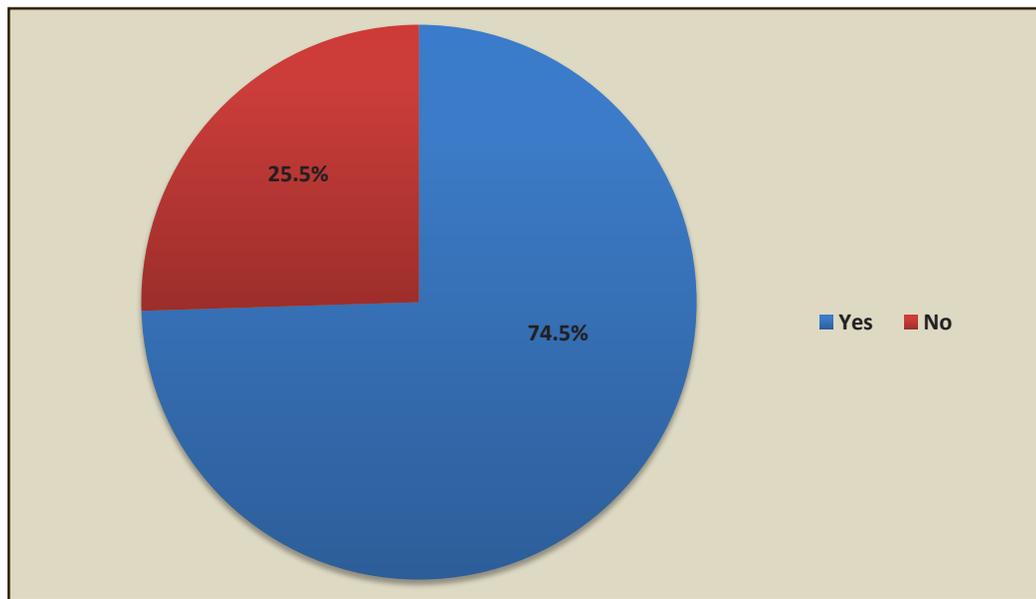
Urban Service Area

An Urban Service Area designation is a growth management tool that defines the geographic area where the City can reasonably provide urban services. The types of city services that can be managed with an Urban Service Area include sewer, water, major roads, police and fire protection and other city facilities. The CIP provides the basis for determining if the City has programmed capital improvements in a given area. The benefits of implementing an Urban Service Area include:

- Promotion of compact and contiguous development patterns effectively served by city services
- Discouragement of leapfrog or sprawling development
- Effective management of expenditures for urban services

It appears the community supports the establishment of an Urban Service Area. Figure 11-1 shows nearly three out of four respondents indicated support for the concept of an urban service area.

Figure 11-1: Response to the question, “Should Dickinson establish distances for how far outside city boundaries sewer, water and transportation infrastructure will be extended for future growth?”



SOURCE: COMMUNITY SURVEY NO. 2

The primary purpose of an Urban Service Area is to inform property owners and developers of growth areas in which the City has or has not programmed capital improvements to facilitate future growth. A property owner within the Urban Service Area can expect the provision of urban services as programmed by the CIP and can request the City to advance the programmed time of specific capital improvements contained in the CIP.

A property owner outside the Urban Service Area is effectively notified that the City has not programmed capital improvements in the area. If the property owner wishes to develop the property, the owner has two options. The first is to request that needed capital improvements be added to the CIP. The second is to not wait for the City's programming of capital improvements and pay the improvement costs.

Due to the fact that the City has recently approved several large annexations, and developers expect the provision of urban services, the Urban Service Area boundary is in effect for the outer-most boundary of the annexed areas. The only way to



manage the City's capital improvement costs associated with development of the annexed areas is to establish a CIP based on the City's financial ability to program capital expenditures.

The City may formally revise the Urban Service Area at any time. At a minimum, revisions of the Urban Service Area boundary should be considered each year when the CIP is updated during the annual budget process.

Adequate Public Facilities Program

An Adequate Public Facilities program is a growth management tool that conditions development approval on the availability and adequacy of public facilities and services. New development would not be approved unless infrastructure and facilities are available to support it. Such a program allows the City to defer the approval of developments based on a finding that public facilities would not be adequate to support proposed development.

Adequate public facilities program benefits include:

- Promotion of contiguous and infill development because of proximity to existing urban infrastructure and services.
- Better management of timing of new development.
- Reinforces the linkage between the comprehensive future land use plan and the capital improvement plan.
- Provides the City adequate time to reprogram capital improvements in response to development proposals.

An adequate facilities program can apply to any city service including sewer, water, transportation and police and fire protection. We recommend the City consider establishing an adequate facility program that would apply to transportation improvements and new police and fire department facilities to help off-set the very significant future expenditures identified in the Capital Improvement chapter.

An adequate public facilities program consists of three components. The first component involves establishment of minimum levels of service. Measureable minimum levels of service need to be established for each applicable public service. For instance, a minimum level of service for roads is the level of congestion that varies from level A (free-flowing traffic) to level F (gridlock traffic). For fire protection, the minimum level of service can be expressed by the national response time standards.

An adequate public facility program requires a proposed development to demonstrate that the required minimum level of services are, or will be, available to serve the development. For example, the developer would be required to calculate the fire department response time to the proposed development and calculate the projected levels of service on roads that provide access to the proposed development.

The second component is the establishment of a requirement to provide adequate public facilities. When the minimum level of service can no longer be achieved as a result of a proposed development, both the developer and City have an obligation to provide improvements that would maintain the minimum level of service. In some cases the required improvements can be quite costly. For example, if the minimum level of service for fire protection is not maintained the most likely corrective measure is the construction of a new fire station; or if a traffic study demonstrates that minimum level of service at a major road intersection is not maintained, one or more turn lanes may be required.

For such costly improvements, we recommend the developer be required to financially contribute a cost share of the improvement proportionate to the impact generated by the proposed development. For the intersection improvement example the financial contribution could be based on the projected traffic volume in proportion to the existing traffic volume.

The third component is the City's implementation of adequate public facilities program during its review and action on land development applications. If an application meets the program requirement the City may approve the project. If an application requires significant City capital expenditures due to project location or other factors, the City can deny the application. Finally, if a project's impacts are manageable, the City can officially defer action on the application. A deferral provides the City sufficient time to program needed capital improvements. If a development proposal is deferred, the City would program the required improvement in the CIP. Deferral timing should be based on improvement cost. Relatively modest improvements would be deferred one or two years. Costly improvements would more appropriately be programmed in the out-years of the CIP.

There are two ways to allow a proposed development to proceed. First, a developer can choose to provide required improvements at his/her expense instead of waiting for the programmed improvement(s). The second option is for the City and developer to enter into a development agreement that specifies the improvement(s) timing and both parties' financial obligation toward the improvement(s).

Annexation Policy/Annexation Agreements

Cities use two tools to facilitate and guide future annexations. The first is a Limits of Annexation map that delineates areas surrounding a city that can be reasonably supported by urban services and infrastructure. The map is prepared in coordination with the capital improvements program and functions much like an urban service area designation described in the government finance tool section. The second is annexation agreements use. Entering into an annexation agreement with a property owner prior to development plan submission gives a local jurisdiction opportunity to assign infrastructure and other development-related costs and responsibilities to the owner and subsequent owner(s) of the annexed property.

The Land Use Chapter provides a recommended annexation policy. The policy focuses on requiring the property owner/developer to provide the City information that will allow an estimate of total costs extending urban services to the annexed property.

Development Agreements

Development agreements address the same issues as an annexation agreement. The only difference is a development agreement is established either before or after a property is annexed when the developer is seeking entitlements through approval of a land development application.

Education Tools

Planning Studies and Data Collection

The Comprehensive and Transportation Plan provide a great deal of information and data on numerous aspects of the city. The plan provides an extensive list of policies and strategies to implement comprehensive plan objectives. In most cases, the information and data contained in the plans will be sufficient to justify and implement the policies and strategies. However, there may be cases where the City may need to conduct more detailed follow-up planning studies and collect additional information to support an implementation activity. Establishing impact fees or an urban renewal district are two examples of implementation measures that will require additional data collection and analysis. In addition, ongoing data collection will support monitoring and updating the Comprehensive and Transportation Plan.



Monitoring

The recommended policies and strategies contained in the Comprehensive and Transportation Plan are based on an assessment of current data. Policies and strategies will remain relevant as conditions in the city are aligned with current trends. However, unanticipated circumstances or opportunities may likely arise that will warrant a re-evaluation of recommended policies or strategies, whether they have been implemented or not. To support a re-evaluation of policies or strategies, data applicable to various planning topics should be collected and reported on an annual basis. The data will, in effect, provide the City with a series of community indicators that will facilitate early detection of changing circumstances or the emergence of new trends.

KLJ recommends preparation of an annual State of the City report that can be used to evaluate the success of achieving comprehensive plan objectives and implementing comprehensive plan strategies and policies. The report should include data that can be used to substantiate the need to affirm or revise policy based on changing circumstances and priorities. The annual reports will provide valuable information that can be used in the next plan update as well as justify needs when the City requests funding from various outside sources.

The State of the City Report should quantitatively measure the well-being of the community. The report should include community indicators on various aspects of the city and include data from the following sources:

Table 11-1: Data Sources

Community Indicator	Data Source(s)
Actual versus forecast levels of development by type of development	City Planning Department
School enrollment, including Dickinson State University	Dickinson Public School District, Trinity Schools, Hope Christian School and DSU
The level and types of crime	City Police Department
Hospitality tax revenue	City Finance Department
Hotel occupancy rates	Convention and Visitors Bureau
The mix of housing types developed	City Planning Department
Local sales tax revenue	City Finance Department
Total taxable sales and purchases	North Dakota Tax Commissioner
Median value of owner-occupied housing units	North Dakota Board of Realtors
Duration homes are listed on the market prior to sale	North Dakota Board of Realtors
Residential vacancy rates	Local property management companies
Residential rents	Local property management companies
Number of new business starts	Stark County Development Corporation
Number of closed businesses	Stark County Development Corporation
Number of business expansions	Stark County Development Corporation
Commercial vacancy rates	Local commercial real estate agents
The number and type of new jobs	Job Service North Dakota
Industrial vacancy rates	Local industrial real estate agents
The local unemployment rate	Job Service North Dakota
Median value of market rate land sales	City Assessor
Oil and natural gas production in the region and state	ND Department of Mineral Resources, Oil and Gas Division
Number of new oil rigs in the region and state	ND Department of Mineral Resources, Oil and Gas Division
Traffic counts at key locations	NDDOT and City Engineering
Number of over-weight truck permits	NDDOT
Oil exploration activities	KLJ and ND Department of Mineral Resources, Oil and Gas Division
City-wide water use	City Finance Department and Southwest Water Authority
Airport enplanements	Federal Aviation Administration, Dickinson Airport
Population Estimates	KLJ, Planning Department, ND State Data Center

SOURCE: KLJ

To institutionalize implementation of the comprehensive and transportation plans, the City budget should identify all expenditures that directly fund implementation of recommended strategies, policies and capital improvements. This practice will assist in keeping the comprehensive and transportation plan relevant over time for City departments, the City Commission and the community.



Coordination Tools

Intra-Governmental Coordination

Functions of local government are logically divided into departments. The departmentalization of local government services tend to discourage sharing information and coordination between departments. All City staff should be encouraged and rewarded to find ways to more efficiently provide services. Many times efficiencies can be obtained by departments sharing resources and information.

In addition, individual departments should be assigned the task of implementing recommended strategies and policies contained in the Comprehensive Plan. This is an excellent way to spread ownership of the Comprehensive and Transportation Plan. Annual department reports should provide progress reports on implementation activities.

Inter-Governmental Coordination

The same principles discussed above apply to coordination between the City and municipal and county governments in the region as well as between the City and regional, state and federal agencies. Inter-governmental coordination provides an opportunity to regularly share information about plans and programs and enhance working relationships.

We recommend meeting with regional, state and federal agencies on a semi-annual basis as well as having quarterly meetings with Stark County. Individual City Commission members can be designated as the liaison for each selected regional and state agency. The intangible benefits of this coordination include maintaining open lines of communication and greater mutual understanding of perspectives and needs.

Objectives and Policies

Objective 1: Establish regular coordination meetings (quarterly or monthly) with Stark County, the Parks and Recreation Board, the Dickinson School District, Southwest Water Authority and other local, regional and state agencies to share information, coordinate planned activities and enhance working relationships.

Policy 1.1. – Forward copies of all approved residential development to the Dickinson School District to facilitate the District’s planning for expanded or new school facilities.

Policy 1.2. – Forward all residential development proposals to the Parks and Recreation District for the District’s review and comment regarding implementation of the park dedication ordinance.

Policy 1.3. – Upon receipt of an annexation request, submit copies of the application to Stark County, Southwest Water Authority, Rural Fire and private utility companies for their information, review and comment.

Policy 1.4. – Establish an inter-local agreement with Southwest Water Authority to standardize a procedure for reimbursing the Authority of outstanding costs associated with water infrastructure improvements in annexed areas.

Policy 1.5. – Coordinate with Stark County and the Parks and Recreation Department to identify additional opportunities to share equipment, material and other resources.

Policy 1.6. – Combine all existing inter-local agreements in a central database for ease of information retrieval.

Objective 2: Increase the efficiency of providing services through the sharing of resources and reallocation of responsibilities between city departments and between the city and other local and county agencies.

Policy 2.1. – Coordinate with Stark County and the Parks and Recreation District to identify additional opportunities to share equipment, material and other resources.

Policy 2.2. – Coordinate with Stark County and the Parks and Recreation District to identify cost effective means to share or reallocate maintenance responsibilities.

Policy 2.3 – Coordinate with Stark County to identify cost effective assignment of road maintenance responsibilities in the extraterritorial zoning area.



Capital Improvements

Chapter 12

Introduction

Capital improvement planning is essential for implementing the Transportation plan and many components of the Comprehensive plan. This chapter is intended to aid in the capital improvement planning process by providing a prioritized list of recommended community investments based on assumed future growth.

The capital improvements listed at the end of this chapter provide a compilation of all capital improvements and studies recommended by the Comprehensive and Transportation plans. The list includes projects that correct existing infrastructure deficiencies as well as projects that will be needed to accommodate expected or forecasted growth.

The capital improvements list allows the City to plan and prioritize community investments. Additionally, the list provides information to the following groups:

- The development community of the scope and timing of infrastructure investments needed to accommodate future growth
- State officials and agencies of the capital improvements needed by the City due to recent and forecasted rapid growth
- The public of how and when City services will be expanded or added

To incorporate the capital improvements list into an officially adopted Capital Improvement Program, the City is advised to take into consideration the following factors:

- The prioritization of competing capital improvement projects
- Projected City revenues and expenditures for the next four years
- The likelihood of securing outside funding, including the amount of outside funding and local matches
- The City's ability to secure financial contributions from developers
- The public safety benefit of capital improvements
- Short-term (less than four years) and long-term revenue generated by a capital improvement project

Capital improvements listed at the end of the chapter are divided into three planning periods: 2013-2014, 2015-2016 and 2017-2035. To the greatest extent possible, the phasing of capital improvements needed due to future growth is based upon the expected timeline of future development projects. The list provides the following information:

- Priority listing of capital improvements for each planning period
- Planning level cost estimates for each planning period. Estimates take into account inflation and the higher construction costs in western North Dakota
- Planning level funding source estimates for the first two planning periods for water and transportation projects
- An area designation for each capital improvement, when applicable
- An explanation of the need for each capital improvement
- Consequences of not funding each capital improvement
- For water system improvements, whether improvements will require establishment of a new pressure zone

Note that the suggested priorities and timelines are subject to change as the City develops its annual CIP.



Capital Improvement Funding Strategies

Considering the capital expenditures included in the 2013 budget and capital improvements listed in this chapter, the City is facing a significant funding challenge. The City must aggressively pursue and secure funding from every potential source. Appendix C provides an extensive compilation of funding sources that can facilitate implementation of the CIP. The funding sources are categorized by key strategies contained in the Comprehensive and Transportation plans and include a wide range of federal and state programs, including grant and loan programs, foundation funding programs and federal and state tax programs. Information provided for each funding source includes:

- A general program description
- An identification of eligible projects or activities
- The maximum award, including local match
- Program contact information

In addition to pursuing and securing outside funding, the City needs to establish a strategic framework identifying funding sources for different types of capital improvements. Table 12-1 provides a recommended strategic funding matrix that includes existing and potential funding sources and a classification of capital improvements.

Table 12-1: Strategic Funding Matrix

Types of Capital Improvements	Existing City Revenue Sources	New City Revenue Sources	Existing State Revenue	State Oil Tax Revenue	Federal and State Funding Programs	Developer Financial Contributions
Correct Existing Infrastructure Deficiencies	X	X			X	
Maintain Existing and New Infrastructure	X	X	X			
Major Infrastructure to Extend Services to New Development				X	X	X
Infrastructure that Directly Serves New Development				X		X
New or Expanded City Facilities	X			X	X	X

SOURCE: KLJ

Correct Existing Infrastructure Deficiencies

Existing and new City revenue, and federal and state programs, are the only likely sources of funding to correct existing infrastructure deficiencies. To the greatest extent possible, Enterprise Funds should be used for this purpose. Special assessments or improvement districts should also be used to fund projects that correct infrastructure deficiencies. Given the magnitude of infrastructure deficiencies, the City should also consider increasing user fees. Examples of existing infrastructure deficiencies include the significant portions of the city with inadequate fire flows and water storage.

Maintain Existing and New Infrastructure

Existing City and state revenue funding are funding sources for existing infrastructure. The City's maintenance responsibilities will grow approximately in proportion to the significant amount of expected development. City revenues will need to keep pace with the rapid expansion of sewer, water and transportation infrastructure. This can be referred to as the *hidden cost* of development. If City revenues do not keep pace with increased maintenance costs, the City will need to either redirect revenue to infrastructure maintenance or develop new sources of City revenue.

Major Infrastructure to Extend Service to New Development

Most of the capital improvements listed in the Capital Improvement Plan are directly attributed to new development. Examples include required road widening to accommodate the traffic generated from new development, a costly new sewer trunk line to extend service to new development in the northwest portion of the city and major new water system improvements that are required because some of the new developments cannot be served by the city's two existing water system pressure zones. The state is expected to provide funding for these types of growth-generated infrastructure needs. However, much of the infrastructure needs generated by new development will be needed in the next few years. Given the magnitude of infrastructure improvement costs, it is unlikely that state funding will be sufficient. Therefore, the City will need to secure financial contributions from developers to make up the likely shortfall in state funding. The City should give serious consideration to the funding programs presented in Appendix C. The City should not use special assessments, improvement districts or development impact fees to fund such projects; doing so would significantly increase the City's debt and put its bond rating in jeopardy.

Infrastructure that Directly Serves New Development

Given the capital improvement funding challenges facing the City, all infrastructure costs within a development project should be fully paid by the developer. The City of Minot is currently implementing this approach and many other rapidly growing cities in North Dakota are considering the same approach.

Due to the strong land development market and the significant amount of needed capital improvements identified in the CIP, much of which is directly attributed to expected and forecasted development, it is recommended that the City not use special assessments, improvement districts or development impact fees for any infrastructure improvements within the boundary of a new development. For new facilities and infrastructure that are required to be extended to provide service to new developments, the City should seek financial contributions for the developer(s), establish improvement districts and/or establish connection fees that over time will reimburse the City for the original cost of the capital improvements.



New or Expanded City Facilities

As the demand for city services increases with the forecasted rapid population growth, the City will need to fund new or expanded facilities. Already, the City is programming construction of a new public works facility and a new fire substation. To the extent possible, new or expanded city facilities should be paid with existing City revenue sources or federal and state funding programs. However, since the need for future city facilities will be largely driven by future development, the City should consider implementing one or more of the funding programs presented in Appendix C.

Impacts on Housing Costs

The recommended strategic funding matrix places much more financial responsibility on developers to provide needed capital improvements. It is reasonable to expect the increased costs will be passed on to the end users, particularly new home owners and renters. To partially mitigate increased housing costs, the following two policies are recommended.

1. When the City is successful in securing federal or state funds for major infrastructure that extend services to new development, the City should require that a portion of the public subsidy for the infrastructure improvements needed for new development be reverted back to the community by requiring the developer to provide affordable housing. To implement this recommendation, the City will need to establish policy and regulations that translates a set percentage of the federal or state funding to a given amount of affordable housing. City policy and regulations will also be needed to define what constitutes affordable housing.
2. The City should establish policy that limits the use of development impact fees to only affordable housing projects. The City would need to establish policy and regulations to define what constitutes affordable housing. Implementation of this recommendation could also support the City's goal of promoting more housing in the downtown area.



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Phase 1: 2013 -2014, Water System Improvements											
Priority	Area	Description of Improvements	Total Cost	Pre-Construction Costs	Local Cost	State/Federal Programs	Oil Impact Revenue	Need to Establish New Pressure Zone	Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
1A	Existing Water Plant	New Finished Water Pumping Station (joint effort between SWA and City)	\$8,000,000	\$600,000	\$4,000,000	\$4,000,000	\$4,000,000	Yes/No	Energy Impact - Caused Facility Upgrade and Correct Existing Conditions	Will not be able to deliver the needed water supply to the system	State/Local
1B	ETA	Continue with Water Planning effort for all areas within the City's ETA and develop and validate Water System Master Plan Map		\$100,000	\$100,000		\$50,000	Yes/No	Energy Impact - Caused Facility Upgrade and Correct Existing Conditions	City will not have the information needed to make decisions on future improvements	State/Local
2A	Zone 2 West	1.0 MG to 1.5 MG Storage Tank	\$4,470,000	\$670,500			\$4,470,000	No	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
2B	Zone 2 West	18-inch Dedicated Watermain (21,100 LF)	\$7,385,000	\$1,107,750			\$7,385,000	No	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3A	Zone 3 West	0.5 MG Storage Tank	\$2,670,000	\$400,500			\$2,670,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3B	Zone 3 West	18-inch Dedicated Watermain (14,200 LF)	\$4,970,000	\$745,500			\$4,970,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3C	Zone 3 West	Booster Pumping Station to Fill Zone 3 Elevated Storage	\$1,120,000	\$168,000			\$1,120,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3D	Zone 3 West and East	14-inch Trunk Watermain (21,000 LF)	\$7,350,000	\$1,102,500			\$7,350,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
4	Zone 1 East	24-inch Watermain (6,600 LF)	\$3,300,000	\$495,000	\$3,300,000			No	Correct Existing Conditions	Will not be able to deliver the needed water supply to this portion of the system	Local
5	Various Areas	Replacement of Degraded Watermains and Additional Watermain Looping in Existing System	\$3,000,000	\$450,000	\$3,000,000			Yes	Correct Existing Conditions Over a Ten-Year Period	Will not be able to provide desired system pressures and fire flows	Local
Total Phase 1 Cost			\$42,265,000		\$10,400,000	\$4,000,000	\$32,015,000	Notes:			
Pre-Construction Costs				\$5,839,750	\$1,560,000	\$600,000	\$4,802,250	1. Pre-construction costs assumed to be 15% of total cost (Engineering, Construction Observation, Administration and Legal). 2. Increased current dollar cost estimate by 25% due to increased construction costs in western North Dakota. 3. Increased current dollar cost estimate by 4% annually for inflation (add 8% to current dollar cost estimate). 4. Sources of Local Costs include city and/or developer funding.			

SOURCE: KLJ



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Phase 1: 2013 -2014, Wastewater Improvements							
Priority	Area	Description of Improvements	Total Cost	Pre-Construction Costs	Explanation of Need	Consequence of Not Funding	Funding Sources
No	Northwest	Lift Station 12 Upgrade, New Force Main Route 1 (Node LS12 to Node W1)	\$8,590,000	\$1,070,000	New Development	Restrict Development in Northwest and Northeast	City, Developer, State
Yes	West	West Lift Station (Node W3) and Force Main (Node W3 to Node S2)	\$12,260,000	\$1,500,000	New Development	Restrict Development in West	City, Developer, State
Yes	West	West Side Trunk Sewer Phase 1 (Node W2 to Node W3)	\$2,640,000	\$330,000	New Development	Restrict Development in West	City, Developer, State
Yes	West	West Side Trunk Sewer Phase 2 (Node W1 to Node W2)	\$2,010,000	\$250,000	New Development	Restrict Development in West	City, Developer, State
No	South	Lift Station 5 Upgrade and Force Main (Node LS5 to Node S2)	\$4,310,000	\$540,000	New Development	Restrict Development in South	City, Developer, State
No	South	Gravity Sewer (Node LS4 to Node LS5), Decommission Lift Station 4	\$730,000	\$91,000	Increases Available Capacity at Lift Station 1	Inefficient Use of O&M Resources	City, Developer
No	South	Lift Station 1 Capacity Upgrade	\$890,000	\$111,000	Existing Capacity Issue Compounded by Development	Restrict Development, Increase Chance of Sewer Backups	City, Developer, State
No	South	Basin 4, 5, 6 I/I Investigation and Remediation	\$320,000	\$40,000	Existing Capacity/Condition Issues	Restrict Development	City, Developer, State
No	East	East Lift Station (Node E1) and Force Main (Node E1 to WRF)	\$4,900,000	\$612,000	New Development	Restrict Development	City, Developer, State
No	East	Gravity Sewer (Node LS16 to Node LS17), Decommission Lift Station 16	\$870,000	\$109,000	Efficiencies Related to New Development Improvements	Inefficient Use of O&M Resources	City, Developer, State
No	East	Gravity Sewer (Node LS17 to Node E1), Decommission Lift Station 17	\$1,170,000	\$146,000	Efficiencies Related to New Development Improvements	Inefficient Use of O&M Resources	City, Developer, State
No	East	Basin 15, 16, 17 I/I Investigation and Remediation	\$320,000	\$40,000	Existing Capacity/Condition Issues	Restrict Development	City, Developer
No	East	Septage Receiving Station	\$1,350,000	\$170,000	Regional Septage Receiving Facility	Regional Septage Haulers Cannot Off-load in Dickinson	City, State, Federal
No	Northeast	Lift Station 14 Upgrade and Force Main (Node LS14 to Node N2)	\$3,940,000	\$492,500	New Development	Restrict Development in Northwest and Northeast	City, Developer, State
No	Northeast	Collection System Odor and Corrosion Control Planning (City Wide)	\$100,000	\$12,500	Existing Issues Compounded by Expanding System	Corrosion in Existing System, Public Nuisance	City, Developer, State
		Total Phase 1 Cost	\$44,400,000		Notes: 1. All pre-construction costs are estimated to be 12.5% of total project costs. 2. Inflation factor related to Dickinson, ND included in cost estimates. 3. Costs Estimates increased by 8% to account for two years of inflation. 4. Project priorities will vary depending on development location and timing. 5. Funding sources include existing city revenue, new city revenue, existing state funding, federal and state grants and loans and developer contributions. 6. All of the above could be eligible for Community Development Block Grants through HUD.		
		Pre-Construction Costs		\$5,514,000			

SOURCE: KLI



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Phase 1: 2013 -2014, Transportation Improvements														
Priority	Street	Limits		Project	Proposed Street Classification	Length (miles)	Preliminary Cost Assignment					Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
		Begin	End				Total Cost	Pre-Construction Costs	Local Cost	State/Federal Programs	Oil Impact Revenue			
1	10th Ave W	29th St	40th St	New Construction Two Lanes	Collector	0.5	\$2,525,000	\$378,750	\$1,725,000	\$800,000 (capped)		New Development	Added Congestion	City, Federal, Urban Roads
2a	State Ave/ Railroad	Railroad Underpass		Railroad Underpass	Minor Arterial	n/a	\$32,400,000	\$4,860,000		\$32,400,000	X	Safety and Connectivity	Continued Delays from Trains	State Energy Impact
2b	Reliever Route	I-94	40th St	Widen to Five Lanes	Principal Arterial	2.0	\$17,280,000	\$2,592,000		\$17,280,000	X	New Development	Added Congestion	State Energy Impact
3	21st St W	State Ave	Reliever Route	Widen to Three Lanes	Collector	1.0	\$4,680,000	\$702,000		\$4,680,000	X	New Development	Added Congestion and Discontinuity	State Energy Impact and Developers
4	State Avenue	21st St	40th St	Widen to Three Lanes	Collector	1.0	\$4,320,000	\$648,000		\$4,320,000	X	New Development	Added Congestion	State Energy Impact and Developers
5	25th Ave E	I-94 B	10th St E	New Construction Two Lanes	Collector	0.5	\$2,700,000	\$405,000		\$2,700,000	X	New Development	Disconnected Street System	State Energy Impact
6a	I-94/ND Hwy 22	Interchange Study		Interchange Study	Interchange	n/a	\$1,000,000	\$1,000,000		\$1,000,000	X	Growing Traffic, Inadequate Capacity	Increased Delay/Congestion	State Energy Impact
6b	3rd Ave/ND Hwy 22	I-94	20th St SW	Corridor Study and Engineering	Principal Arterial	1.8	\$500,000	\$500,000		\$500,000	X	Growing Traffic, Inadequate Capacity	Increased Delay	State Energy Impact
7	40th Street	ND Hwy 22	4th Ave E	Widen to Five Lanes	Principal Arterial	0.5	\$4,320,000	\$648,000		\$4,320,000	X	New Development	Added Congestion	State Energy Impact
8	21st St W	ND Hwy 22	10th Ave W	Corridor Improvement	Minor Arterial	0.5	\$2,484,000	\$372,600		\$2,484,000	X	New Development	Added Congestion	State Energy Impact
9	State Ave/ Empire	Intersection		Install Signal	Intersection	n/a	\$324,000	\$48,600	\$103,680	\$220,320		Growing Traffic	Increased Delay	City, Federal, Urban Roads
10	State Ave/ Fairway	Intersection		Install Signal	Intersection	n/a	\$324,000	\$48,600	\$103,680	\$220,320		Growing Traffic	Increased Delay	City, Federal, Urban Roads
11	Dickinson Bypass	I-94	ND Hwy 22	New Construction Three Lanes	Principal Arterial	7.8	\$33,696,000	\$5,054,400		\$33,696,000	X	Growing Truck Traffic	Added Congestion	State Energy Impact
T1	Along Railroad	State Ave	Lions Park	New Trail		1.6	\$563,500	\$84,525	\$180,320	\$383,180		Expand Non-motorized Modes of Travel	Discontinuity	City and Federal Trails Program
							Total Phase 1 Costs	\$107,116,500		\$2,112,680	\$105,003,820	Notes: 1. Pre-construction costs assumed to be 15% of total cost. 2. Cost estimates increased by 25% due to increased construction costs in western North Dakota. 3. Cost estimate increased by 8% to account for two years inflation. 4. City currently has \$300,000 per year programmed for trails improvements. 5. State and federal grants may provide additional trails funding.		
							Pre-Construction Costs		\$17,342,475					

SOURCE: KLJ



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Phase 2: 2015 -2016, Water System Improvements											
Priority	Area	Description of Improvements	Total Cost	Pre-Construction Costs	Local Cost	State/Federal Programs	Oil Impact Revenue	Need to Establish New Pressure Zone	Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
1	ETA	Continue with Water Planning effort for all areas within the City's ETA and develop and validate Water System Master Plan Map		\$100,000	\$100,000			Yes/No	Energy Impact - Caused Facility Upgrade and Correct Existing Conditions	City will not have the information needed to make decisions on future improvements	State/Local
2A	Zone 2 or 3 East	1.0 MG Storage Tank, South of 1-94	\$4,470,000	\$670,500			\$4,470,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
2B	Zone 2 or 3 East	14-inch Dedicated Watermain (15,500 LF)	\$5,425,000	\$813,750			\$7,385,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
2C	Zone 2 or 3 East	Booster Pumping Station to Fill Zone 2 or 3 Elevated Storage	\$2,670,000	\$400,500			\$2,670,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
2D	Zone 2 or 3 East	12-inch Zone 1 and 3 Trunk Watermain Ties (10,000 LF)	\$3,500,000	\$525,000			\$4,970,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
2E	Zone 2 or 3 East	Miscellaneous Valving	\$750,000	\$112,500			\$750,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3	Zone 2 East	16-inch Watermain on 10th Avenue East, North of 21st Street (10,500 LF)	\$3,675,000	\$551,250	\$3,300,000		\$750,000	No	Correct Existing Conditions	Will not be able to deliver the needed water supply to this portion of the system	Local
4	Various Areas	Replacement of Degraded Watermains and Additional Watermain Looping in Existing System	\$6,000,000	\$900,000	\$6,000,000			No	Correct Existing Conditions	Will not be able to provide desired system pressures and fire flows	Local
Total Phase 2 Cost			\$26,490,000		\$9,400,000		\$20,995,000	Notes:			
Pre-Construction Costs				\$4,073,500	\$1,410,000		\$3,149,250	1. Pre-construction costs assumed to be 15% of total cost (Engineering, Construction Observation, Administration and Legal). 2. Increased current dollar cost estimate by 25% due to increased construction costs in western North Dakota. 3. Increased current dollar cost estimate by 4% annually for inflation (add 8% to current dollar cost estimate). 4. Sources of Local Costs include city and/or developer funding.			

SOURCE: KLI



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Phase 2: 2015-2016, Wastewater Improvements						
Area	Description of Improvements	Construction Costs	Pre-Construction Costs	Explanation of Need	Consequence of Not Funding	Funding Sources
South	Gravity Sewer (Node S3 to Node LS5)	\$1,780,000	\$220,000	New Development	Restrict Development	City, State, Federal, Developer
South	Gravity Sewer (Node LS6 to Node S3), Decommission Lift Station 6	\$850,000	\$110,000	Efficiencies Related to New Development Improvements	Inefficient Use of O&M Resources	City, State, Federal, Developer
East	Extension of sewer service to East Industrial Area North of I-94	\$140,000	\$20,000	New Development	Inefficient Use of O&M Resources	City, State, Federal, Developer
Northeast	Collection System Odor and Corrosion Control Implementation (City Wide)	\$610,000	\$80,000	Existing Issues Compounded by Expanding System	Corrosion in Existing System, Public Nuisance	City, State, Federal, Developer
	Total Phase 2 Costs	\$3,380,000		Notes: 1. All pre-construction costs are estimated to be 12.5% of total project costs. 2. Inflation factor related to Dickinson, ND included in cost estimates. 3. Cost estimates increased by 14% to account for 3.5 years of inflation. 4. Funding sources are preliminary in Phase 2. Sources should be re-evaluated before 2015.		
	Pre-Construction Costs		\$430,000			

SOURCE: KLJ



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Phase 2: 2015-2016, Transportation Improvements

Priority	Street	Limits		Project	Proposed Street Classification	Length (miles)	Preliminary Cost Assignment					Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
		Begin	End				Total Cost	Pre-Construction Costs	Local Cost	State/Federal Programs	Oil Impact Revenue			
12	40th Street	State Ave	ND Hwy 22	Widen to Five Lanes	Principal Arterial	1.0	\$9,280,000	\$1,392,000		\$1,392,000	X	New Development	Added Congestion	State Energy Impact
13	I-94 Business Loop West	ND Hwy 22	I-94	Widen to Five Lanes	Principal Arterial	2.4	\$22,464,000	\$3,369,600		\$22,464,000	X	New Development	Added Congestion	State Energy Impact
14	21st St W/ State Ave	Intersection		Install Signal	Intersection	n/a	\$351,000	\$52,650	\$112,320	\$238,600		Growing Traffic	Increased Delay	City, Federal, Urban Roads
15	21st St E/10th Ave E	Intersection		Install Signal	Intersection	n/a	\$351,000	\$52,650	\$112,320	\$238,600		Growing Traffic	Increased Delay	City, Federal, Urban Roads
16	State Ave	8th St SW	20th St SW	New Construction Five Lanes	Minor Arterial	1	\$9,360,000	\$1,404,000		\$9,360,000	X	New Development	Added Congestion	State Energy Impact
17	20th St SW	State Ave	ND Hwy 22	Widen to Five Lanes	Principal Arterial	0.55	\$5,148,000	\$772,200		\$5,148,000	X	New Development	Added Congestion	State Energy Impact
18	Reliever Route	30th Ave NW	State Ave	Widen to Five Lanes	Principal Arterial	1	\$5,148,000	\$772,200		\$5,148,000	X	New Development	Added Congestion	State Energy Impact
19	21st St E	10th Ave E	circa 108 Ave SW	Widen to Three Lanes	Collector	1.5	\$6,690,000	\$1,003,500		\$6,690,000	X	New Development	Added Congestion and Discontinuity	State Energy Impact
T2	State Ave	Broadway	2nd St W	New Trail		0.4	\$160,000	\$24,000	\$160,000			Expand Non-motorized Modes of Travel	Discontinuity	City, Federal Trails Program
T3	9th St W	113 Ave W	ND Hwy 22	New Trail		0.75	\$310,000	\$46,500	\$310,000			Expand Non-motorized Modes of Travel	Discontinuity	City, Federal Trails Program
T4	Museum Drive	13th St W	Sims St	New Trail		0.6	\$240,000	\$46,500	\$310,000			Expand Non-motorized Modes of Travel	Discontinuity	City, Federal Trails Program
Total Phase 2 Costs							\$59,502,000		\$1,004,640	\$50,679,200		Notes: 1. Pre-construction costs assumed to be 15% of total cost. 2. Cost estimates increased by 25% due to increased construction costs in western North Dakota.		
Pre-Construction Costs								\$8,935,800				3. Cost estimate increased by 16% to account for four years inflation. 4. City currently has \$300,000 per year programmed for trails improvements. 5. State and federal grants may provide additional trails funding.		

SOURCE: KLJ



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Phase 2: 2015-2016, Miscellaneous Improvements

Department	Description of Improvements	Total Cost	Local Cost	State/ Federal Programs	Oil Impact Revenue	Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
Solid Waste	Develop New Landfill Cell	\$450,000	\$450,000			Develop Land Acquired During Previous Phase	Landfill May Exceed Capacity	Local
	Total Phase 2 Miscellaneous Costs	\$450,000	\$450,000			Notes: 1. Miscellaneous improvements recommended in other chapters of the document. Not a comprehensive list. 2. Improvements currently programmed in City's capital improvements budget. 3. Numerous federal grants are available.		

SOURCE: KLJ

Total Phase 2 Costs			\$89,822,000
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Phase 3: 2017 -2035, Water System Improvements

Priority	Area	Description of Improvements	Total Cost	Pre- Construction Costs	Local Cost	State/Federal Programs	Oil Impact Revenue	Need to Establish New Pressure Zone	Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
1	ETA	Continue with Water Planning effort for all areas within the City's ETA and develop and validate Water System Master Plan Map		\$400,000	\$400,000			Yes/No	Energy Impact - Caused Facility Upgrade and Correct Existing Conditions	City will not have the information needed to make decisions on future improvements	State/Local
2A	Zone 2 Northeast	1.0 MG Storage Tank, North of 1-94	\$4,470,000	\$670,500			\$4,470,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
2B	Zone 2 Northeast	16-inch Dedicated Watermain (16,600 LF)	\$5,810,000	\$871,500			\$7,385,000	No	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
2C	Zone 2 Northeast	Booster Pumping Station to Fill Zone 2 Elevated Storage	\$1,120,000	\$168,000			\$1,120,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3A	Zone 2 South	0.5 MG Storage Tank along Highway 22	\$2,670,000	\$400,500			\$2,670,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3B	Zone 2 South	16-inch Dedicated Watermain (15,500 LF)	\$7,750,000	\$1,162,500			\$4,970,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
3C	Zone 2 South	Booster Pumping Station to Fill Zone 2 South Elevated Storage	\$1,120,000	\$168,000			\$1,120,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
4A	Zone 3 Northeast	0.5 MG Storage Tank and Connection Piping	\$3,500,000	\$525,000			\$2,670,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local



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4B	Zone 3 Northeast	Booster Pumping Station to Fill Zone 3 Northeast Elevated Storage	\$1,120,000	\$168,000		\$1,120,000	Yes	Energy Impact - Caused Facility Upgrade	Will not be able to deliver the needed water supply to this portion of the system	State/Local
5	Various Areas	Replacement of Degraded Watermains and Additional Watermain Looping in Existing System	\$15,000,000	\$2,250,000	\$15,000,000		Yes	Correct Existing Conditions Over a Ten-Year Period	Will not be able to deliver the needed water supply to this portion of the system	Local
Total Phase 3 Costs			\$42,560,000		\$15,400,000	\$25,525,000	Notes:			
Pre-Construction Costs				\$6,784,000	\$2,310,000	\$3,828,750	1. Pre-construction costs assumed to be 15% of total cost (Engineering, Construction Observation, Administration and Legal). 2. Increase current dollar cost estimate by 25% due to increased construction costs in western North Dakota. 3. Increase current dollar cost estimate by 4% annually for inflation (add 8% to current dollar cost estimate). 4. Sources of Local Costs include city and/or developer funding.			

Phase 3: 2017-2035, Wastewater Improvements						
Area	Description of Improvements	Total Cost	Pre-Construction Costs	Explanation of Need	Consequence of Not Funding	Funding Sources
Northeast	Decommission Lift Station 13 (Flow Directed into New Development)	\$50,000	\$10,000	Efficiencies Related to New Development Improvements	Inefficient Use of O&M Resources	City, Developer
Total Phase 3 Costs		\$50,000		Notes:		
Pre-Construction Costs			\$10,000	1. All pre-construction costs are estimated to be 12.5% of total project costs. 2. Inflation factor related to Dickinson, ND included in cost estimates. 3. Costs Estimates increased by 22% to account for 5.5 years of inflation. 4. Funding sources are preliminary in Phase 3. Sources should be re-evaluated before 2017.		

SOURCE: KLJ



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Phase 3: 2017-2035, Transportation Improvements

Priority	Street	Limits		Project	Proposed Street Classification	Length (miles)	Preliminary Cost Assignment					Explanation of Need	Consequence of Not Funding	Potential Eligible Funding Sources
		Begin	End				Total Cost	Pre-Construction Costs	Local Cost	State/Federal Programs	Oil Impact Revenue			
20	East Villard	10th Ave E	Energy Drive	Reconstruction	Minor Arterial	1.9	\$1,900,000	\$285,000		\$1,900,000	X	Growing Truck Traffic	Increased Delay	To Be Determined/State Energy Impact
21	I-94 Business Loop East	ND Hwy 22	I-94	Widen to Five Lanes	Principal Arterial	2.8	\$22,400,000	\$3,360,000	\$2,240,000	\$20,160,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
22	10th Ave E/Villard	Intersection		Intersection Improvement	Intersection	n/a	\$1,000,000	\$150,000	\$100,000	\$900,000		Geometric Deficiencies	Increased Delay	City, State, Federal, Urban Regional System
23	40th Street	4th Ave E	109 Ave SW	Widen to Three Lanes	Collector	1.5	\$6,000,000	\$900,000		\$6,000,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
24	ND Hwy 22	Railroad Underpass		Railroad Underpass	Principal Arterial	n/a	\$40,000,000	\$6,000,000	\$4,000,000	\$36,000,000	X	Nearing End of Design Life, Inadequate Capacity	Continued Delay, Congestion and Deterioration	To Be Determined/State Energy Impact
25	10th Ave E	21st St	40th St	Widen to Three Lanes	Collector	1	\$4,000,000	\$600,000		\$4,000,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
26	Energy Drive/I-94 Business Loop	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
27	8th St SW/ND Hwy 22	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
28	40th St NW/State Ave	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
29	21st St W/Reliever Route	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
30	40th St NW/Reliever Route	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
31	Fairway/I-94 Business Loop	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
32	I-94 North Ramps/Reliever	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
33	I-94 South Ramps/Reliever	Intersection		Install Signal	Intersection	n/a	\$300,000	\$45,000		\$300,000	X	Growing Traffic	Increased Delay	To Be Determined/State Energy Impact
34	Northeast Loop	I-94	40th St	Widen to Five Lanes	Principal Arterial	2.8	\$22,400,000	\$3,360,000		\$22,400,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
35	3rd Ave/ND Hwy 22	I-94	5th St	Widen to Five Lanes	Principal Arterial	1.8	\$14,400,000	\$2,160,000		\$14,400,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
36	40th Street	4th Ave E	109 Ave SW	Widen to Five Lanes	Principal Arterial	1.5	\$6,000,000	\$900,000		\$6,000,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
37	Frontage/109 Ave SW	Northeast Loop	21st St	New Construction Three Lanes	Collector	1.6	\$6,400,000	\$960,000		\$6,400,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact
38	Dickinson Bypass	I-94	ND Hwy 22	Widen to Five Lanes	Principal Arterial	7.8	\$31,200,000	\$4,680,000		\$4,680,000	X	Growing Truck Traffic	None	To Be Determined/State Energy Impact
39	ND Hwy 22	10th Street SE	Airport	Widen to Five Lanes	Principal Arterial	3.9	\$31,200,000	\$4,680,000		\$31,200,000	X	New Development	Added Congestion	To Be Determined/State Energy Impact



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40	21st St E/109th Ave	Intersection	Install Signal	Intersection	n/a	\$300,000	\$45,000	\$96,000	\$204,000	X	Growing Traffic	Increased Delay	City, Federal, Urban Roads
41	20th St SW/ND Hwy 22	Intersection	Install Signal	Intersection	n/a	\$300,000	\$45,000	\$96,000	\$204,000	X	Growing Traffic	Increased Delay	City, Federal, Urban Roads
	Implement Remaining Trails Expansion				17.2	\$6,100,000	\$915,000	To Be Determined	To Be Determined		Provide for Ped/Bike Travel Options	Fewer Options for Ped/Bike Travel	To Be Determined
Total Phase 3 Costs						\$196,000,000		\$6,532,000	\$156,848,000		Notes: 1. Cost estimates increased by 12.5% due to increased construction costs in western North Dakota. 2. Pre-construction costs assumed to be 15% of total project costs.		
Pre-Construction Costs							\$29,400,000						

Total Phase 3 Costs		\$238,610,000
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<i>Total Costs 2013-2035</i>	
Water	\$111,315,000
Wastewater	\$47,830,000
Transportation	\$362,618,500
Miscellaneous	\$2,825,000
Total	\$524,588,500

SOURCE: KLJ

