Journey 2040

A Long-range Transportation Plan FOR GRAND ISLAND

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Chapter 1 INTRODUCTION

A metropolitan area's transportation system is vital for the movement of people and goods to, through, from, and within the metropolitan area. A transportation system takes on two principal roles: the movement of people and the movement of goods.

Congress passed the Federal Highway Act of 1962 requiring regional agencies to conduct a "continuing, comprehensive, and coordinated" transportation planning process. Congress took additional steps in drafting the 1973 Highway Act by establishing Metropolitan Planning Organizations (MPO) in urbanized areas over 50,000 persons in population. The *Intermodal Surface Transportation Efficiency Act* of 1991 (ISTEA) empowered MPOs and provided for flexibility in the use of funding, improved State regional cooperation, and enhanced public participation. The *Transportation Equity Act for the 21st Century* (TEA-21) legislation of 1998 expanded the role and responsibilities of metropolitan areas exceeding 200,000 persons in population with the designation of Transportation Management Areas (TMA). In 2005, Congress further enhanced the planning process by passing the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU). This plan has been completed consistent with MAP-21, the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141) and the *Fixing America's Surface Transportation Act*, or "*FAST Act.*" MAP-21 and FAST have created a streamlined and performance-based surface transportation program and builds on many of the highway, transit, bike, and pedestrian programs and policies established with earlier transportation acts.

On December 4, 2015, President Obama signed into law the *Fixing America's Surface Transportation Act*, or "*FAST Act.*" The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for the Department's highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology and statistics programs.

Federal Transportation Planning Process

Title 23 of the Code of Federal Regulations, Section 450, (23 CFR 450) states that MPOs are to carry out:

> "…a continuing, cooperative, and comprehensive multimodal transportation planning process, including the development of a metropolitan transportation plan, that encourages and promotes the safe and efficient development, management, and operation of surface transportation systems to serve the mobility needs of people and freight and foster economic growth and development, while minimizing transportation related fuel consumption and air pollution."

23 CFR Section 450.306 identified eight planning factors to identify the "scope of the metropolitan transportation planning process." Two additional factors were added in FAST. These 10 planning factors include:

1. Supporting the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increasing the safety of the transportation system for motorized and non-motorized users;
3. Increasing the security of the transportation system for motorized and non-motorized users;
4. Increasing accessibility and mobility of people and freight;
5. Protecting and enhancing the environment, promote energy conservation, and improve consistency between transportation improvements and state and local planned growth and economic patterns;
6. Enhancing the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promoting efficient system management and operation;
8. Emphasizing the preservation of the existing transportation system;
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate storm water impacts of surface transportation (FAST);
10. Enhance travel and tourism (FAST).

A key feature of this plan, Journey 2040, is that it follows the federal requirement to provide a reasonable expectation of revenue to fund transportation policies and projects. This is called fiscally-constrained, which means that the plan must show how the expense of accomplishing the projects identified in the plan does not exceed expected revenues available in the Grand Island planning area.

The development of Journey 2040 was conducted with a pro-active public involvement process. Information was provided to the public through newsletters, direct mailings, internet postings and public meetings. Input was received from the public via public workshops held throughout the planning process, from surveys, and from internet comment postings. MPO staff also worked cooperatively with its member jurisdictions, the FHWA, the Federal Transit Administration (FTA), NDOR, and the public.

1.1 Grand Island Area Metropolitan Planning Organization (GIAMPO)

The Grand Island Area Metropolitan Planning Organization (GIAMPO), established in 2013, and serves as the formal transportation planning body for the greater Grand Island, Nebraska metropolitan area, carrying out the intent of 23 CFR 450. The Governor of Nebraska designated the GIAMPO as the official MPO for the Grand Island Urbanized Area, as defined by the U.S. Bureau of the Census (U.S. Census Bureau).

Responsibilities

The GIAMPO provides a regional forum to assure local, state, and federal agencies and the public coordinate transportation planning issues, and prepare transportation plans and programs. The GIAMPO develops both long-range and short-range multimodal transportation plans, selects and approves projects for federal funding based on regional priorities, and develops ways to reduce traffic congestion.

The GIAMPO is responsible for these transportation planning activities within a geographic area identified as the Metropolitan Planning Area (MPA). The GIAMPO approved its current MPA in May 2014. Included in the MPA is the City of Grand Island, the Village of Alda, portions of Hall County, a portion of west Merrick County, and includes, at a minimum, the anticipated urbanized area for Journey 2040. The MPA is shown in Figure 1-1.

Organization

Two designated committees form the structure of the GIAMPO:

- Technical Advisory Committee (TAC)
- GIAMPO Policy Committee.

The GIAMPO member governments' and agencies' respective boards and councils appoint respective representatives to the TAC and to the GIAMPO.

GIAMPO Policy Board

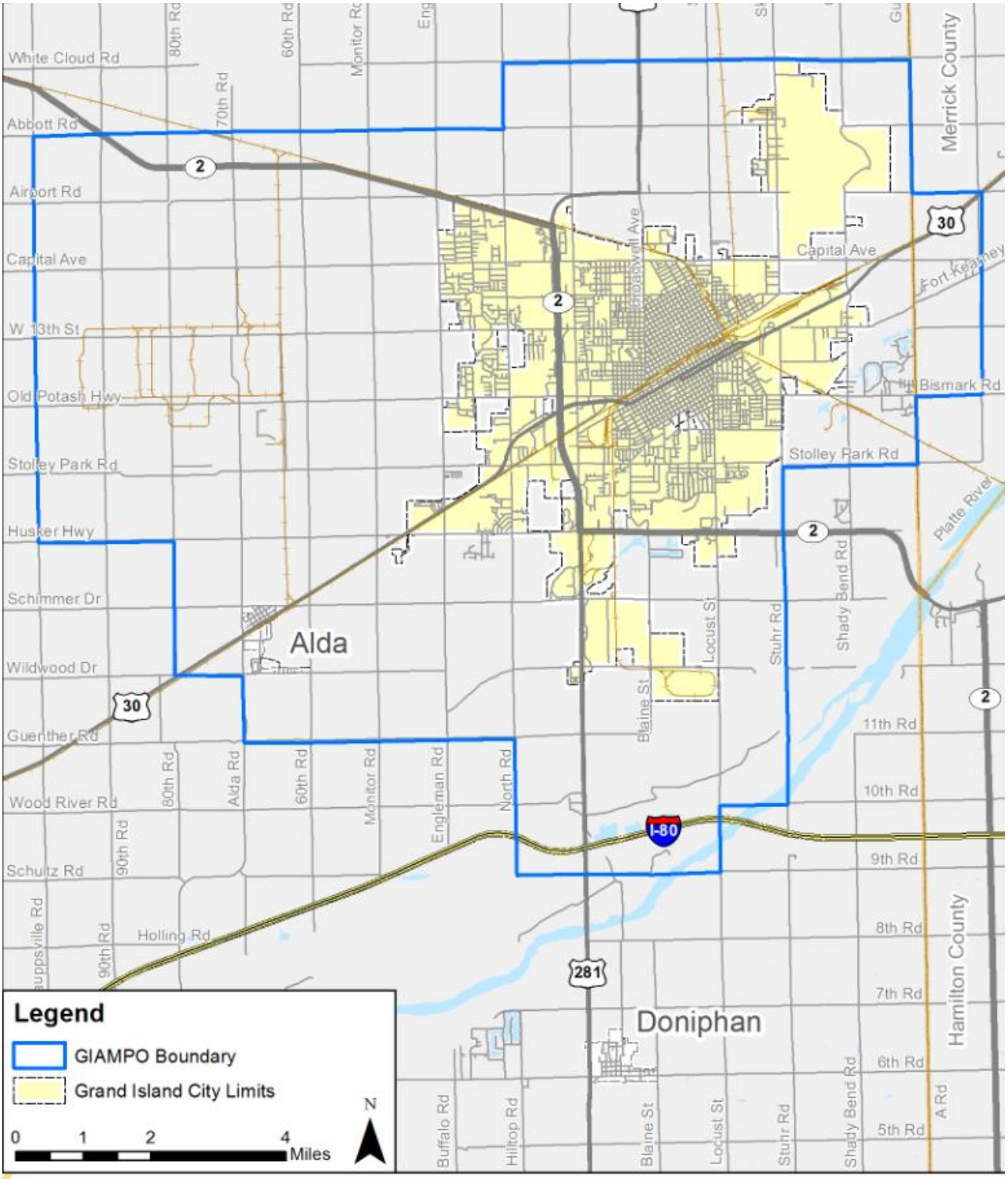
The Policy Board is the governing body of GIAMPO. It is comprised of nine voting members that establish the overall policy direction for the MPO's planning activities. There are also non-voting members who participate on the Policy Board. The Policy Board has the final responsibility of the activities of the MPO, and it approves the work program that determines the activities undertaken by the MPO, and has the responsibility for approving work products, including this LRTP.

Technical Advisory Committee

The Technical Advisory Committee advises the Policy Board on technical matters related to the work products, transportation policies, and other technical studies and plans considered by the MPO. The Technical Advisory Committee has the oversight for development and annual review of the long range transportation plan. The Committee is comprised of planning, engineering, transit, and other civic professionals. It includes representation from local, state and federal officials. There are nine designated voting members, as well as additional non-voting members.

Additionally, the GIAMPO establishes and supports, as needed, other subcommittees, roundtables, working groups, and advisory committees on various transportation-related issues relevant to the GIAMPO's responsibilities. The GIAMPO requests stakeholder organizations and citizens to serve on these committees, as appropriate. As part of an adopted public participation process, the GIAMPO strongly encourages input and communication from citizens.

Figure 1-1: Grand Island Metropolitan Planning Area (MPA)



1.2 Journey 2040

Journey 2040 is the Long Range Transportation Plan (LRTP) that serves as a guide for the transportation system decision making process for the greater Grand Island metropolitan area.

Plan Requirements

23 CFR 450 indicates the *Metropolitan Transportation Plan* (MTP) must cover no less than a 20-year planning horizon, shall include both short- and long-range strategies/actions, and must be updated, at a minimum, every five years.

Journey 2040 is the MTP for the GIAMPO planning area. Journey 2040 has been prepared to identify current and future transportation needs, to develop policies and projects to meet these needs, and to gauge the success of these efforts with established performance measures. The MTP is designed to guide the development of the street and highway system, transit services, examine freight movement and aviation services, and consider the movement of pedestrians and bicyclists on the transportation system.

Transportation has an interaction with other concerns and regional priorities, such as impact upon the environment, land use and economic development, and quality of life considerations, in addition to traditional transportation-related issues, such as mobility and safety. While the year 2040 may extend beyond what can be accurately predicted, a long-range plan's value lies in assessing the region's current transportation system, and then working together to determine a course of action to follow for the next 10 and 20 years. Journey 2040 creates a vision and implementation plan that assists in guiding future decisions toward the goal of a safe and efficient transportation system.

Plan Consistency

The Journey 2040 must be consistent with other GIAMPO plans, including the *Transportation Improvement Program* (TIP) and other modal plans. In addition, the GIAMPO requires consistency among the Journey 2040 and member governments' and participating agencies' short- and long-range planning documents. In particular, the GIAMPO requires consistency among proposed short- and long-range projects, strategies, plans, and programs contained in the GIAMPO member governments' and participating agencies' comprehensive plans.

1.3 Plan Adoption

The Metro 2040 plan is to be adopted by the GIAMPO Policy Board and is provided for information purposes to the Governor of Nebraska through NDOR. Once the Plan is approved, projects identified in the plan are eligible for federal and state funding. Projects included in the project lists will be scheduled for funding and construction within GIAMPO's Transportation Improvement Plan (TIP). The TIP is updated each year and describes projects to be constructed or provided within the next four years. The TIP is used to program federal transportation funds for federal aid-eligible and regionally significant projects. All projects programmed in the TIP must be included in Journey 2040 or be part of a future amendment to the plan.

Implementation Procedures

Implementation of the Journey 2040 occurs through a series of short- and long-range strategies, plans, and programs. The GIAMPO's *Unified Planning Work Program* (UPWP) identifies fiscal year work activities and anticipated work products. The UPWP is the guide to the GIAMPO's planning activities. The TIP identifies all transportation projects programmed with federal funds for the upcoming four federal fiscal years.

Amendments and Revisions

The GIAMPO considers the following criteria when amending and revising the Journey 2040, and believes these criteria to be consistent with Federal and Nebraska Department of Roads requirements.

- Changes in socioeconomic projections;
- Addition of a project to the plan in any year increment;
- Movement of a project between any year increment in the plan; or,
- Major changes in a project's scope, where the recalculated project costs increase federal funding by more than 20 percent or increase federal funding by more than $2,000,000 whichever is greater.

Updates

As a new MPO, Journey 2040 is the first long-range transportation plan for the Grand Island designated metropolitan area. In accordance with federal law, Journey 2040 will be updated every five years to accommodate the changing needs of the area and to reflect changes in the socio-economic composition of the area, as well as changes in local transportation policy. The plan must be maintained, current and valid before local jurisdictions receive federal funding for transportation improvements.

1.4 Plan Organization

The Journey 2040 has nine chapters. Each chapter builds upon the preceding chapter to develop the complete document.

1 – Introduction

The Introduction explains federal transportation planning guidelines and provides background information on the GIAMPO's responsibilities, representatives, and committees. In addition, the chapter provides an overview of the plan, including its purpose, requirements, and methodology to adopt, implement, amend, or revise Journey 2040.

2 – Growth and Forecasts

The Future Conditions chapter forecasts growth in travel on the existing transportation system through anticipated changes to land use. In addition, the chapter presents the forecasted socioeconomic composition of the GIAMPO MPA through Journey 2040.

3 – Goals, Objectives, and Performance Measures

The Goals, Objectives, and Performance chapter identifies goals, objectives, and Performance Measures for the Grand Island region transportation system.

4 – Existing Transportation System

The Existing Transportation System chapter inventories the existing elements of the multimodal transportation system, and presents the socioeconomic composition of the GIAMPO MPA. It also discusses and inventories the human and natural environments.

5 – Analyze Transportation System

The Analyze Transportation System chapter provides an analysis of the existing transportation system in comparison to the identified goals, objectives, and performance measures identified in the preceding chapters.

6 – Public Involvement

This chapter provides a summary of the public involvement plan and input gathered during the study process.

7 – Financial Plan

The Financial Plan chapter presents the GIAMPO's estimated future funding revenues and identifies future improvement cost estimates, to ensure the region has the fiscal capacity to implement the planned improvements.

8– Environmental Review

The Environmental Review chapter provides a preliminary environmental impact assessment of the planned infrastructure improvements. The assessment takes into consideration the natural and human environment, as well as an environmental justice review.

9– Recommended Plan

The conclusion chapter, Recommended Plan, presents the financially constrained plan, and includes projects identified in the plan that do not have identified funding. The chapter discusses steps for the GIAMPO to implement, monitor, and update the Journey 2040; and identifies potential challenges and potential opportunities for the GIAMPO in the future.

Chapter 2 GROWTH AND FORECASTS

Many factors will affect the transportation system over the next 25 years. More people, more jobs and the development of new areas will impact travel. The potential growth of population and employment in the GIAMPO area, as well as a summary of past trends, are described within this chapter.

2.1 History

Before the City of Grand Island was incorporated in 1872, the term Grand Island was originally referred to as the French La Grande Isle, an island located in the Platte River where a narrow channel separated from the river. Settlement of the area took place in 1857 when German settlers travelled from Davenport, Iowa and saw the potential for economic prosperity in a town near the Grand Island of the Platte River.

As more travelers headed west in search of gold in 1858, the eventual City of Grand Island thrived as a place where people could stop and replenish supplies and other daily needs. Beginning in 1866, surveyors from Union Pacific Railroad platted the town of 500 people, which was known as Grand Island Station at the time. With the help of the railroad and the Union Pacific Overland Route, population quickly grew to over 1,000 people by 1870. In 1872, the town was formally incorporated, thus, the name was shortened to Grand Island. In the late 1880s, Burlington Railroad completed a branch line that created access to the coast via the Northern Pacific and the Great Northern lines. While the railroads helped develop the city outward, the 1916 completion of the first transcontinental highway, Lincoln Highway, brought Grand Island into the 20th century.

Major military investments also encouraged further development of the city, including the Grand Island Army Air Base, originally housing thousands of troops during World War II (WWII), and the Cornhusker Army Ammunitions Plant, employing as many as 4,000 people during WWII and the Korean and Vietnam Wars. To this day, Grand Island has continued to grow and prosper as a major transportation hub and a place with a rich history.

2.2 Existing Demographic Data

Population Change

In the 24 years between 1990 and 2014, the U.S. Census estimated Hall County population grew by approximately 12,000 people to an estimated population of 61,592, a 25 percent increase. Three individual periods were identified with distinct population growth patterns. These patterns can be distinguished by their compound annual growth rates listed in Tables 2-1 and 2-2.

Table 2-1: Population Growth by Time Period

Time Period	Additional Population	Compound Annual Growth Rate
1990 to 1998	4,215	1.03%
1999 to 2005	982	0.30%
2006 to 2014	6,302	1.36%

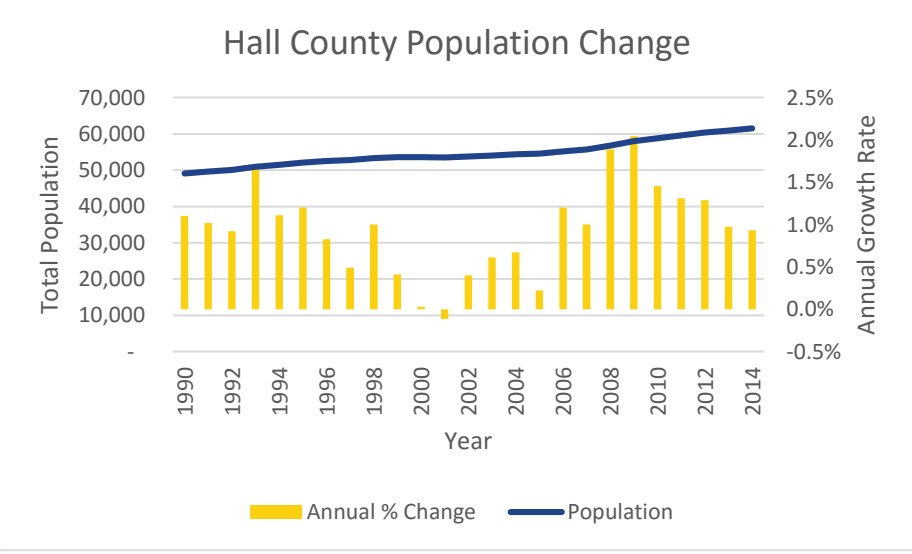
The year-to-year patterns in population growth are also shown in Table 2-2 and Figure 2-1. Table 2-2 displays population estimates every five years and the rate of growth experienced in each decade from 1970 to 2010. Figure 2-1 illustrates this growth pattern.

Table 2-2: Hall County Historical Population Summary

Year	Total Population	Additional Population	5-year % Change	10-year % Change
1990	49,118	-/-	-/-	-/-
1995	52,115	2,997	6.1%	-/-
2000	53,569	1,454	2.8%	-/-
2005	54,535	966	1.8%	-/-
2010	58,797	4,262	7.8%	-/-
1990 to 2000	-/-	**4,451**	-/-	**9.1%**
2000 to 2010	-/-	**5,228**	-/-	**9.8%**

Sources: (1990 - 2010) U.S. Census Bureau, Population Division, Annual Estimates of the Resident Population.

Figure 2-1: Hall County Population Change (1990 - 2014)



Sources: (1990 - 2014) U.S. Census Bureau, Population Division, Annual Estimates of the Resident Population.

Race/Ethnicity

Table 2-3 shows the ethnic composition of Grand Island and Hall County in year 2000 and 2010. The highest percentage by race is the White population with over 80 percent. This segment decreased for both the City of Grand Island and Hall County over the 10-year period. The population segment that increased the most in percentage from 2000 to 2010 was 'Some Other Race.' The Census also reports demographic data by Hispanic or Latino Origin. In 2000, 16 percent of the total population for Grand Island were of Hispanic or Latino origin. This percent increased to 27 percent in 2010. For Hall County in 2000, 14 percent of the total population were from Hispanic or Latino origin. This increased to 23 percent in 2010.

Table 2-3: Population by Ethnicity

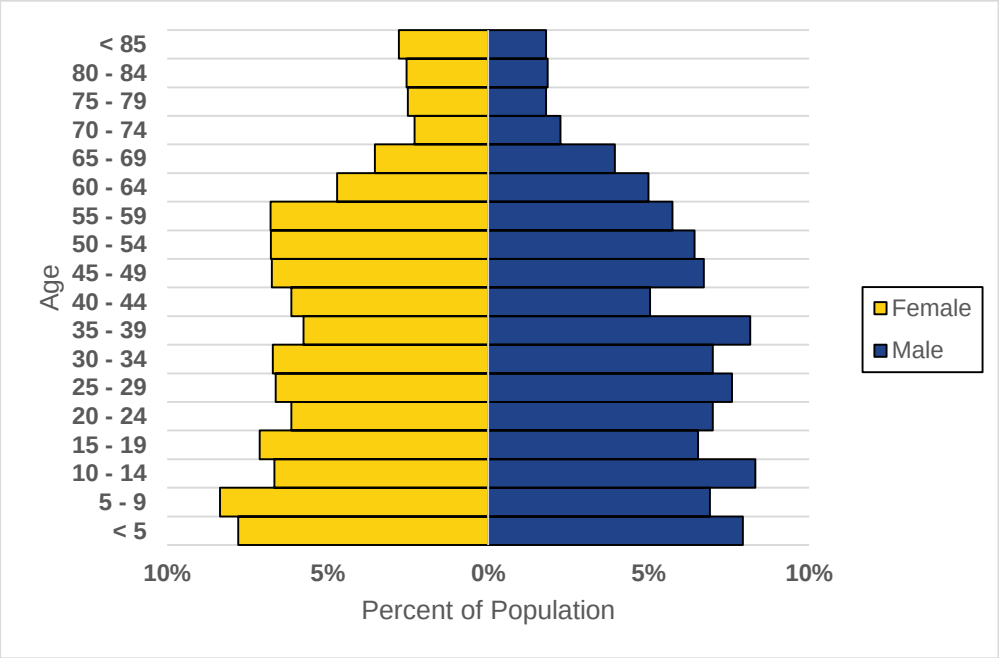
	Grand Island				Hall County			
	2000		2010		2000		2010	
Total Population	42,940	-/-	48,520	-/-	53,534	-/-	58,607	-/-
White	37,237	86.7%	38,839	80.0%	47,467	88.7%	48,413	82.6%
Black or African American	180	0.4%	1,002	2.1%	195	0.4%	1,023	1.7%
American Indian and Alaska Native	143	0.3%	503	1.0%	164	0.3%	529	0.9%
Asian	562	1.3%	584	1.2%	586	1.1%	607	1.0%
Native Hawaiian and Other Pacific Islander	71	0.2%	110	0.2%	73	0.1%	112	0.2%
Some Other Race	4,139	9.6%	6,338	13.1%	4,384	8.2%	6,701	11.4%
Two or More Races	608	1.4%	1,144	2.4%	665	1.2%	1,222	2.1%

Source: U.S. Census 2000 and 2010 Summary File 1.

Age

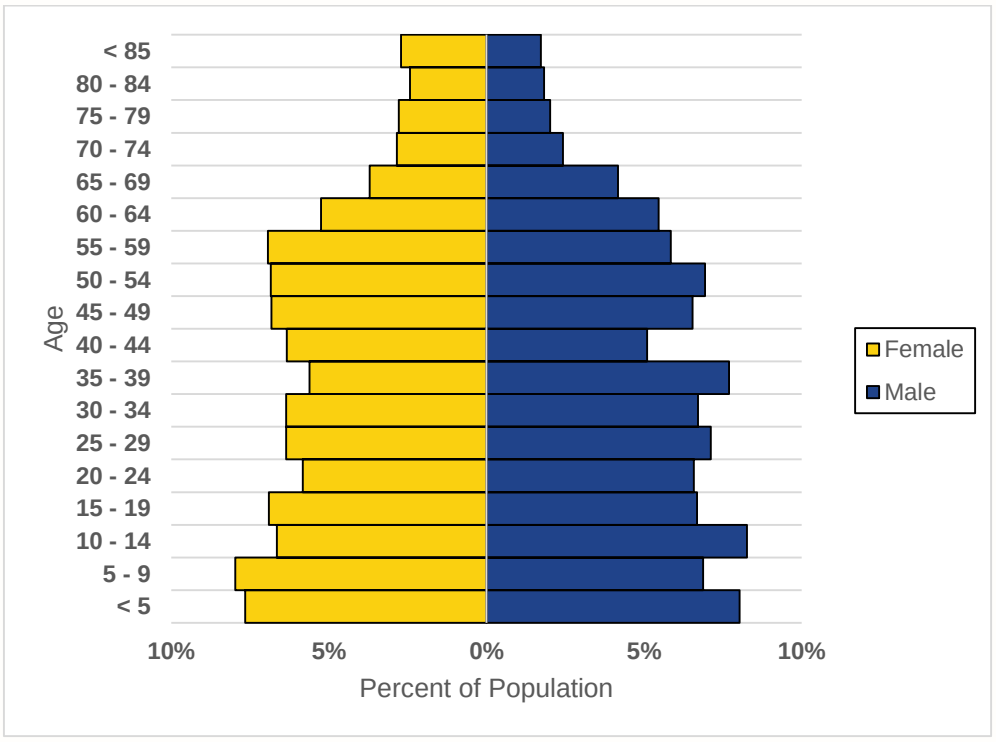
As the baby boomer generation continues to age, the base of the population pyramid has been redistributed towards the top of the pyramid which shows the elderly population growth. This influx of older adults is shown below in Figure 2-2 and 2-3. As a large portion of the population continues to get closer to retirement, greater demand will be placed on the social, medical, and transportation services that address the needs of older adults.

Figure 2-2: Grand Island Age Pyramid (2013)



Source: U.S. Census Bureau, American Community Survey (ACS), 2009 – 2013 5-year estimates.

Figure 2-3: Hall County Age Pyramid (2013)



Source: U.S. Census Bureau, American Community Survey (ACS), 2009 – 2013 5-year estimates.

Income

Table 2-4 shows the household median income for Grand Island and Hall County is between $46,000 and $48,000. While the percentages are relatively similar between the County and Grand Island, it should be noted that the urbanized area of the county experiences a lower median income than the county as a whole.

Table 2-4: Household Income Summary

	Grand Island	Hall County
Total Households	18,463	22,168
Less than $10,000	7.2%	6.6%
$10,000 to $14,999	5.1%	4.7%
$15,000 to $24,999	12.3%	11.4%
$25,000 to $34,999	12.4%	11.7%
$35,000 to $49,999	18.1%	17.3%
$50,000 to $74,999	22.1%	22.4%
$75,000 to $99,999	10.7%	12.4%
$100,000 to $149,999	8.2%	8.9%
$150,000 to $199,999	3.0%	2.6%
$200,000 or more	1.7%	1.9%
Median income (dollars)	$46,192	$48,712
Mean income (dollars)	$57,116	$60,255

Source: U.S. Census Bureau, American Community Survey (ACS), 2009 – 2013 5-year estimates.

2.3 Future Demographic Data

Population and Households

After determining the base year population and households for the region, future population growth was established. Beginning with the Hall County population projections from the University of Nebraska, Bureau of Business Research, population was anticipated to grow at an average annual rate of 0.58 percent from 2010 to 2030. After discussing growth rates with officials from the City of Grand Island and GIAMPO, and reviewing the recent historical growth rate of 1.3 percent, it was decided to use a compound annual growth rate of 1.1 percent. This rate was continued through the Long-Range Transportation Plan 2040 horizon year. The applied growth rate translated into an additional 6,186 households in Grand Island, a 33 percent increase from 2014, based on the most recent 2014 total of 18,801 households, reported in the Grand Island Community Housing Study. The population and households projections from 2015 through 2040 are listed in Table 2-5.

Table 2-5: Future Population and Households Summary

	2010	2015	2020	2025	2030	2035	2040
Hall County							
Population	58,607	61,902	65,382	69,058	72,941	77,042	81,374
Households	22,196	22,440	23,702	25,034	26,442	27,929	29,499
Grand Island							
Population	48,520	51,248	54,129	57,173	60,387	63,782	67,368
Households	18,326	19,008	20,076	21,205	22,397	23,657	24,987

Sources: 2010 U.S. Census. Remaining figures are calculated using a 1.1 percent growth rate.

Various tools were used to distribute the expected future households. The 2004 Grand Island Comprehensive Transportation Plan's expected household distribution was initially used as a basis for distributing future households, as displayed in Figure 2-4 and Figure 2-5. These general areas of expected growth were discussed further with city staff. Future household growth was then applied relative to the extent of water and sewer lines and local knowledge of where there is trending growth. Finally, an aerial analysis was performed by analyzing available land, permitted densities and land uses, and neighboring developments during the distribution of new households.

Figure 2-4: Residential Future Land Use

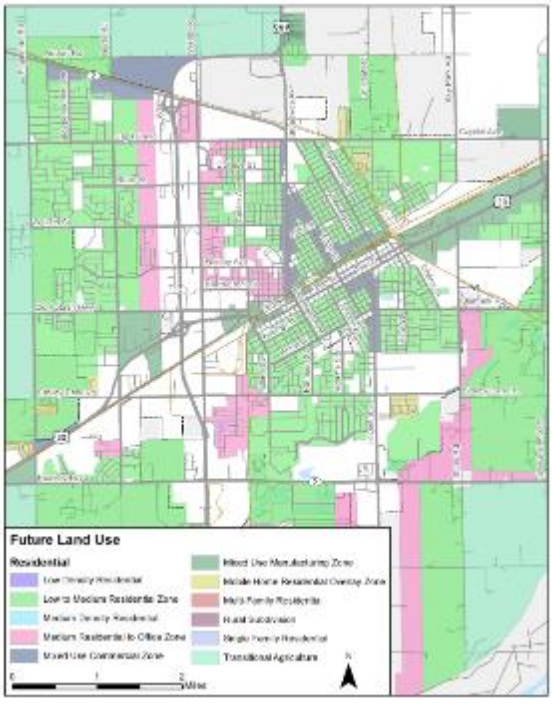
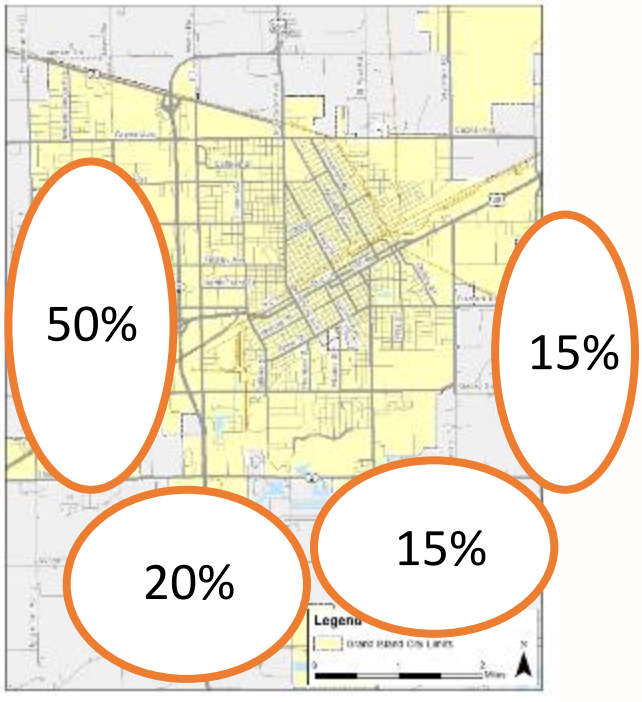
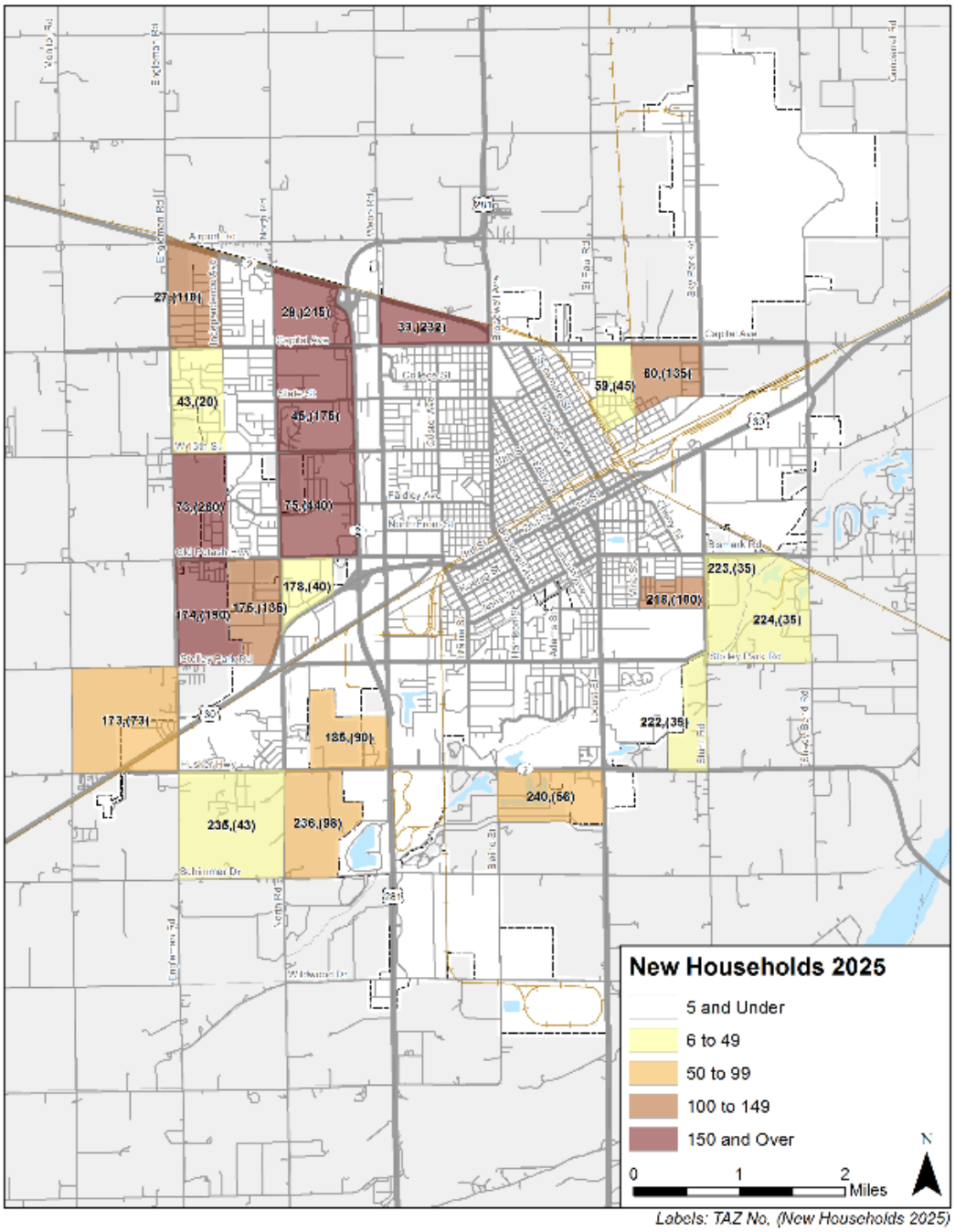


Figure 2-5: Future Household Distribution



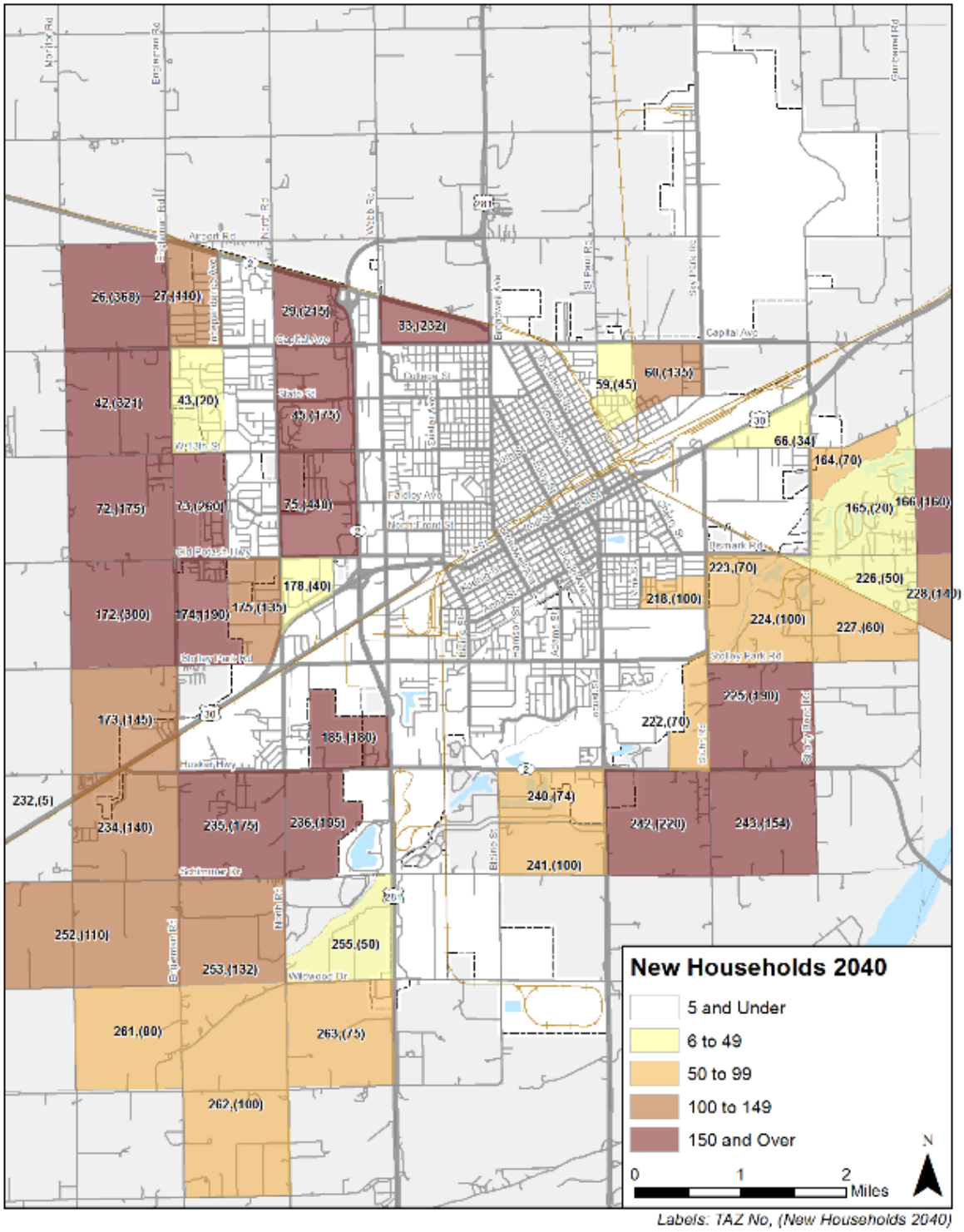
As a result of the aerial analysis and the interpretation of the future household distribution rates, the results for new household growth by 2025 and 2040 are shown respectively in Figure 2-6 and Figure 2-7.

Figure 2-6: New Households 2025



Labels: TAZ No. (New Households 2025)

Figure 2-7: New Households 2040



Future Employment

Future employment forecasts were based on region-specific employment projection growth rates, shown in Table 2-6, provided by the Nebraska Department of Economic Development for 2010 to 2020. Hall County is 1 of 22 counties located in the Central Economic Region of Nebraska, so the Central Region's growth rates were applied to Hall County's future employment forecasts.

Table 2-6: Projected Regional and Statewide Long-Term Job Growth by Industry

	Central Region (Including Hall County) (2010 to 2020)		Nebraska Statewide (2010 to 2020)	
Industry (NAICS Code)	**Annual % Growth Rate**	**Percent Change**	**Annual % Growth Rate**	**Percent Change**
Professional, scientific, and technical services	1.6%	16.1%	1.7%	16.9%
Construction	1.4%	14.5%	2.1%	22.5%
Manufacturing	1.1%	11.9%	1.0%	10.6%
Health care and social assistance	1.0%	10.5%	1.3%	13.7%
Other services, except public administration	1.0%	10.1%	0.6%	6.5%
Educational services	1.0%	10.5%	1.3%	13.7%
Transportation and warehousing	0.8%	7.8%	0.9%	9.1%
Wholesale trade	0.8%	7.8%	0.9%	9.1%
Utilities	0.8%	7.8%	0.9%	9.1%
Finance and insurance	0.7%	7.6%	0.7%	7.1%
Real estate and rental and leasing	0.7%	7.6%	0.7%	7.1%
Retail trade	0.6%	6.0%	0.7%	7.0%
Arts, entertainment, and recreation	0.5%	4.6%	0.7%	7.3%
Administrative and waste management services	0.4%	3.7%	0.6%	5.8%
Accommodation and food services	0.2%	2.3%	0.7%	7.5%
Management of companies and enterprises	0.1%	1.3%	0.4%	3.9%
Mining	0.0%	0.0%	-0.2%	-1.6%
Agriculture, forestry, fishing, and related activities	0.0%	-0.3%	-0.2%	-1.8%
Government and government enterprises	-0.1%	-1.0%	0.2%	1.7%
Information	-0.3%	-3.0%	0.3%	3.4%
Total Employment	0.8%	8.0%	1.0%	10.0%

Sources: Produced by The Nebraska Department of Labor, Office of Labor Market Information, 2013.
Notes: Total Employment includes all employment sectors.

After applying the annual projected regional growth rate of each industry to the Hall County existing employment base provided by the Grand Island Chamber of Commerce, a total of 8,087 new jobs were estimated by the year 2040, a 21 percent increase from 2013. The growth patterns for each industry category are shown in Table 2-7 on the following page.

Before distribution of the future employees could be made, employment sectors were first separated into four distinct categories, including retail, service, industrial, and healthcare. Allocation of these employment sectors were based on discussions with city and MPO staff, the 2004 Grand Island Comprehensive Transportation Plan, as well as further analysis of available land, permitted densities, future land uses, and neighboring developments. The sector of employment and where they locate has significant impact on the needs of the region's transportation network.

Figure 2-10 and Figure 2-11 demonstrate future employment growth for 2025 and 2040 and socio-economic projections. A summary table and chart demonstrating both the total forecasted population and employment growth for Hall County are shown below in Table 2-8 and Figure 2-11.

Table 2-7: Hall County Future Socio-Economic Forecast Summary

Year	2013	2025	+/- 2013	2040	+/- 2013	% Total Growth
Population	59,431	69,058	9,627	81,374	21,943	37%
Households	22,168	25,034	2,838	29,499	7,303	33%
Employment	38,450	41,854	3,404	46,537	8,087	21%

Figure 2-8: Hall County Future Socio-Economic Forecast

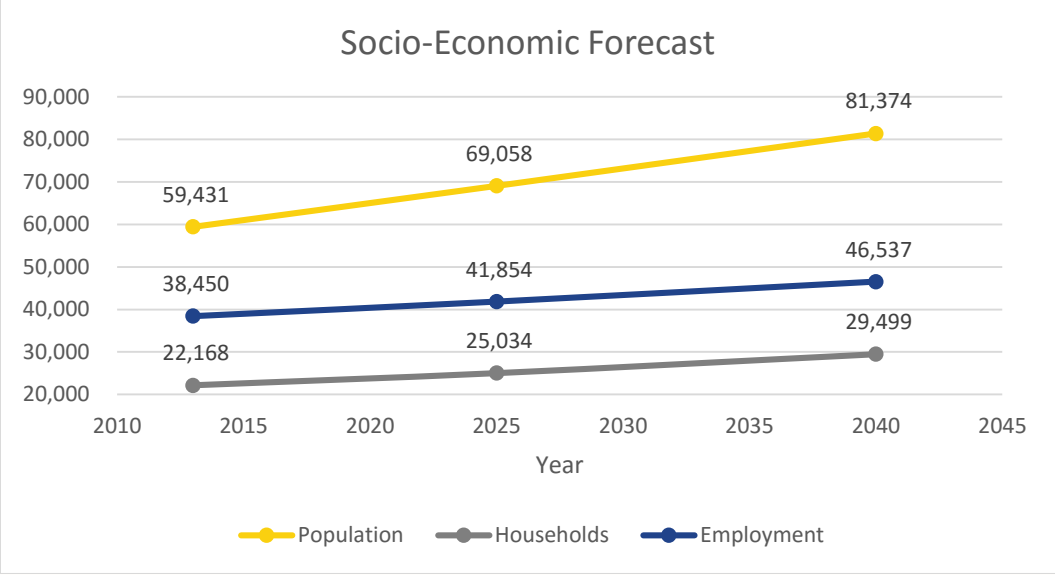


Table 2-8: Industry Employment Forecast for Grand Island (Hall County) 2013 to 2040

Industry (NAICS Code)	Current Year 2013	% of 2013 Employment	Forecasted Growth Rate	2040 Employment Forecast	% of 2040 Employment
Manufacturing	7,324	19.0%	1.1%	9,841	21.1%
Retail trade	5,116	13.3%	0.6%	6,013	12.9%
Health care and social assistance	4,227	11.0%	1.0%	5,530	11.9%
Accommodation and food services	2,856	7.4%	0.2%	3,014	6.5%
Construction	1,983	5.2%	1.4%	2,886	6.2%
Administrative and waste management services	1,902	4.9%	0.4%	2,101	4.5%
Other services, except public administration	1,923	5.0%	1.0%	2,516	5.4%
Finance and insurance	1,317	3.4%	0.7%	1,590	3.4%
Transportation and warehousing	1,652	4.3%	0.8%	2,049	4.4%
Wholesale trade	1,492	3.9%	0.8%	1,850	4.0%
Professional, scientific, and technical services	839	2.2%	1.6%	1,288	2.8%
Real estate and rental and leasing	310	0.8%	0.7%	374	0.8%
Arts, entertainment, and recreation	395	1.0%	0.5%	447	1.0%
Management of companies and enterprises	433	1.1%	0.1%	448	1.0%
Forestry, fishing, and related activities	800	2.1%	0.0%	794	1.7%
Information	288	0.7%	-0.3%	266	0.6%
Educational services	232	0.6%	1.0%	304	0.7%
Mining	17	0.0%	0.0%	17	0.0%
Utilities	31	0.1%	0.8%	38	0.1%
Government and government enterprises	5,313	13.8%	-0.1%	5,171	11.1%
Total	**38,450**	**n/a**	**n/a**	**46,537**	**n/a**
Overall 2014 to 2040 AGR	**0.71%**				

Source: Growth rates taken from 2010 to 2020 forecast for the Nebraska Department of Labor, Office of Labor Market Information, 2013. Existing employment figures taken from the Grand Island Chamber of Commerce.

Figure 2-9: Future Commercial Land Uses

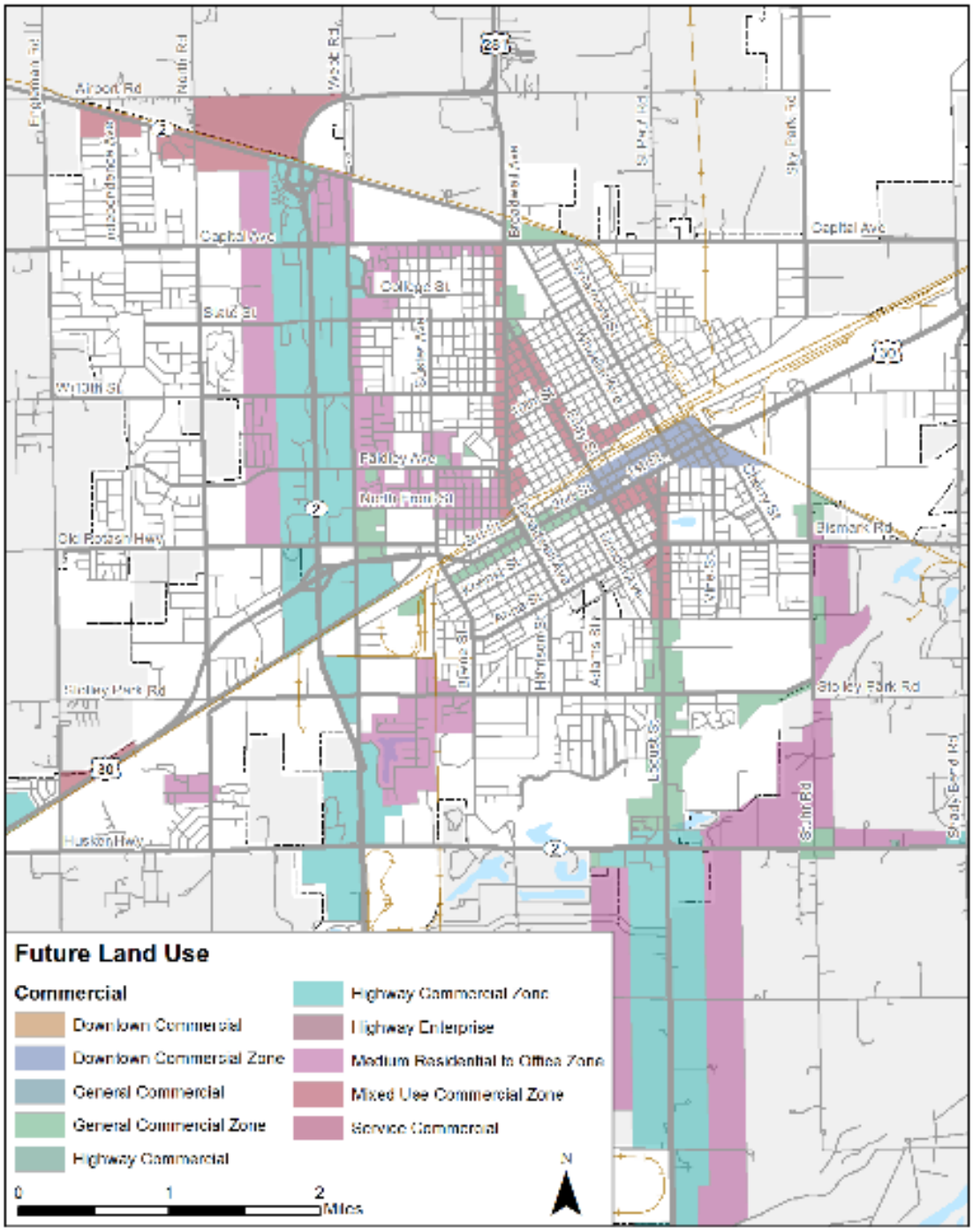
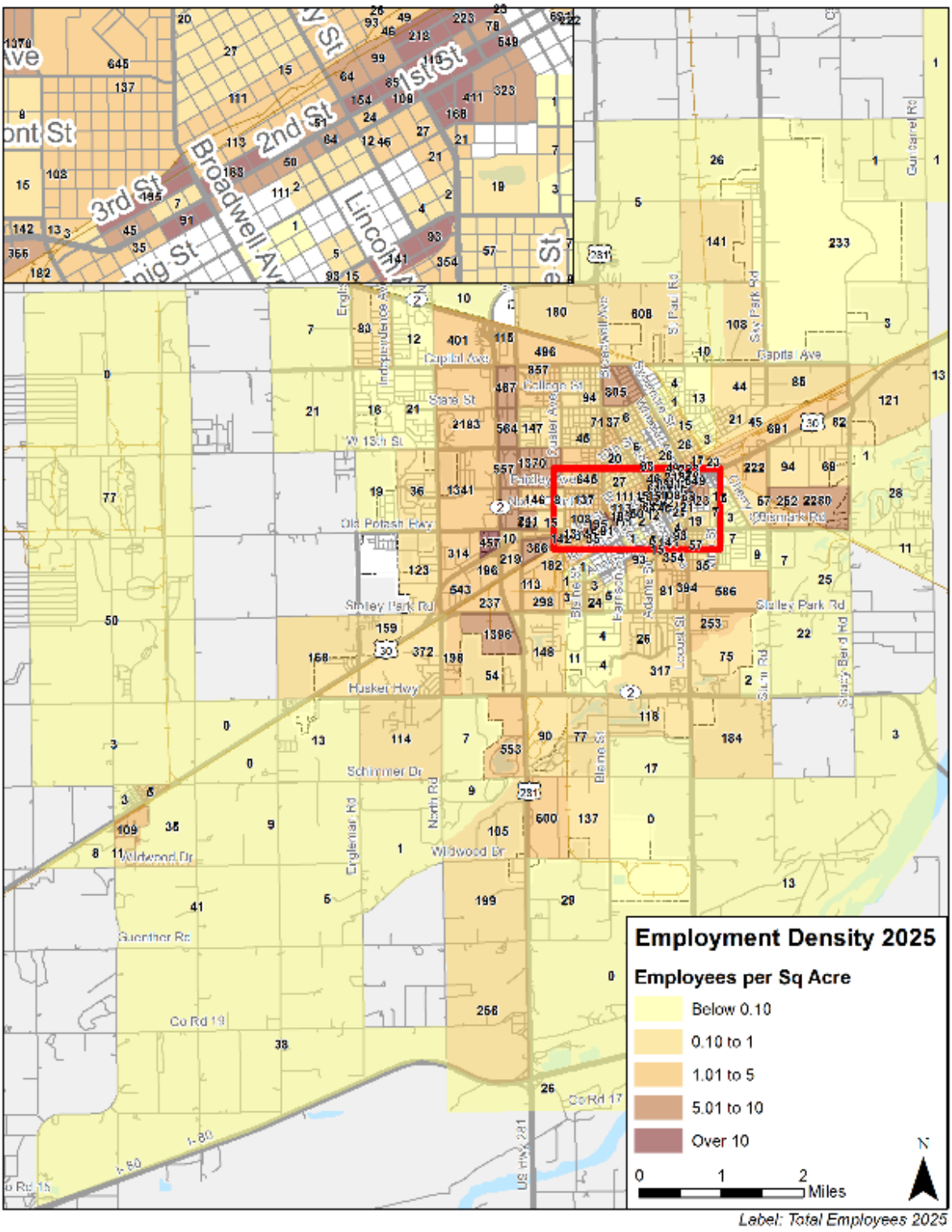
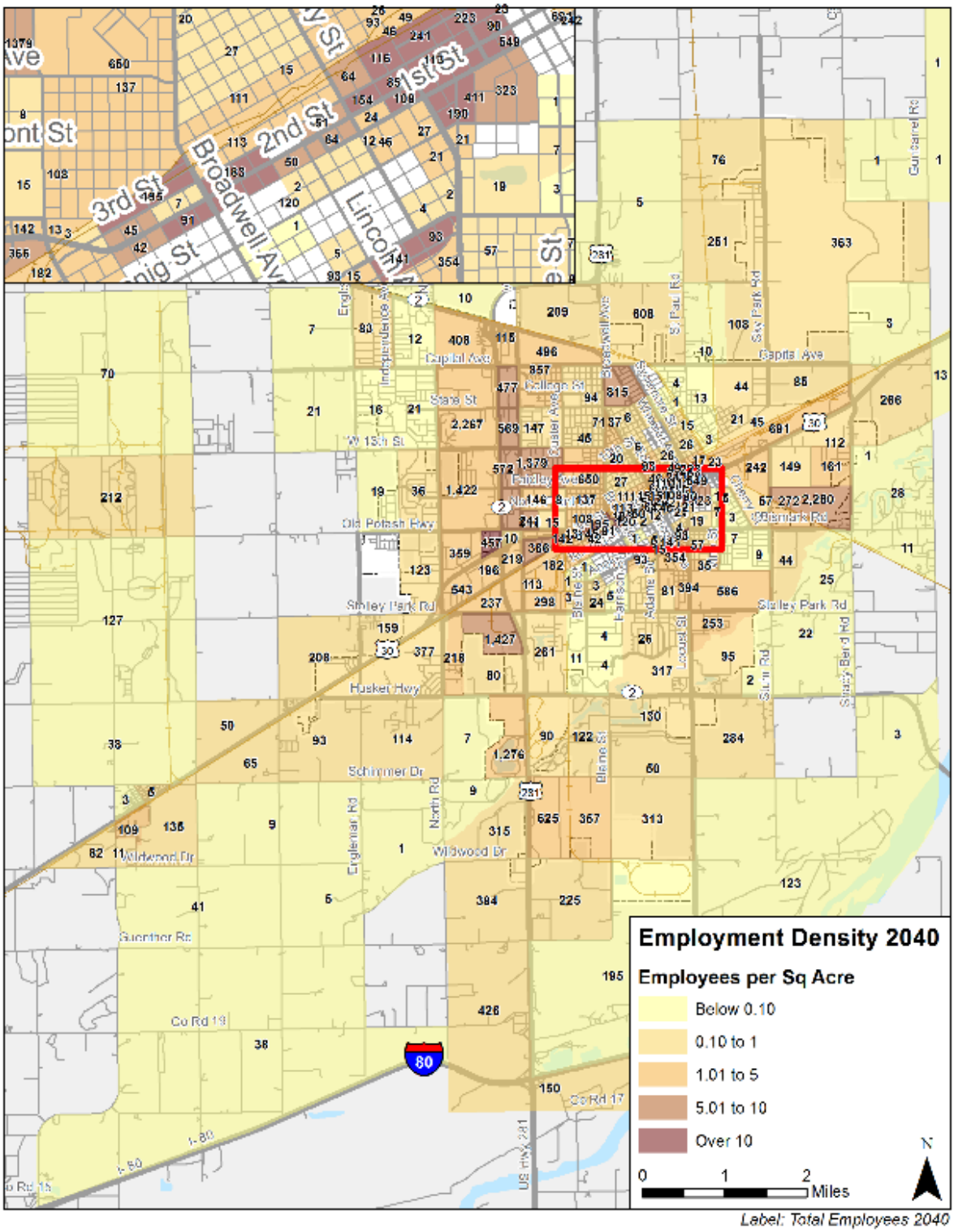


Figure 2-10: Employment Density 2025



Label: Total Employees 2025

Figure 2-11: Employment Density 2040



Chapter 3 GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

The federal transportation bill, Fixing America's Surface Transportation Act (FAST Act) requires performance measures to be incorporated into the MPO's Long-Range Transportation Plan (LRTP). The performance measures must support the national goals established by FAST. Part of the performance measures must clearly identify goals and objectives within the MPO's transportation plan, which play a critical role in driving a performance-based approach to decision making.

Performance-based planning begins by defining goals and objectives for the transportation system. Performance measures are developed to assess the progress toward accomplishing these goals and objectives.

- Goals are broad statements that describes a desired end state.
    - Objectives are specific, measurable statements that support achievement of a goal. Objectives lead to development of a performance measure in order to support decisions necessary to help achieve each goal.
        - Performance measures then serve as a basis for comparing alternative improvement strategies and for tracking performance over time.

The locally developed performance measures are based on the region's vision and support the national goals as set forth in the current transportation bill, FAST Act.

3.1 National Transportation Goals

The FAST Act continues with the seven national performance goals established in MAP-21. These seven national performance goals are as follows:

1. **Safety** – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

2. **Infrastructure Condition** – To maintain the highway infrastructure assets in a state of good repair.

3. **Congestion Reduction** – To achieve a significant reduction in congestion on the National Highway System.

4. **System Reliability** – To improve the efficiency of the surface transportation system.

5. **Freight Movement and Economic Vitality** – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

6. **Environmental Sustainability** – To enhance the performance of the transportation system while protecting and enhancing the natural environment.

7. **Reduced Project Delivery Delays** – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

3.2 FAST Act Planning Factors

There are ten planning factors to be considered in the development of long-range transportation plans that were part of the previous transportation law were continued as part of the FAST Act. The FAST planning factors are listed below:

1. **Economic Vitality** – Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

2. **Safety –** Increase the safety of the transportation system for motorized and non-motorized users.

3. **Security** – Increase the security of the transportation system for motorized and non-motorized users.

4. **Accessibility** – Increase the accessibility and mobility of people and for freight.

5. **Environment** – Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.

6. **Connectivity Across Modes** – Enhance the integration and connectivity of the transportation system, across and between modes, people, and freight.

7. **System Management and Operation** – Promote efficient system management and operation.

8. **System Preservation** – Emphasize the preservation of the existing transportation system.

9. **Resiliency and reliability** –reduce or mitigate storm water impacts of surface transportation.

10. **Travel and tourism** – Examine how transportation can support these activities.

3.3 Journey 2040 Goals and Objectives

The Journey 2040 goals, objectives, and performance measures reflect the national priorities, but also reflect local input from local stakeholders and the general public. A comparison of the Journey 2040 goals developed as part of this plan and the national goals is provided in Table 3-1. The Journey 2040 Goals, Objectives, and Performance Measures are also described in this section.

Table 3-1: Comparison of Journey 2040 Goals with MAP-21 Planning Factors

FAST Planning Factors	Provide accessibility	Improve vehicle mobility and connectivity	Increase safety and efficiency	Environmental	Health & Well-being
Economic Vitality	X	X	X		
Safety			X		X
Security			X		
Accessibility	X	X	X		X
Environment				X	
Connectivity Across Modes	X	X	X		X
System Management and Operation		X	X		X
System Preservation			X		
System Resiliency			X		
Enhance Travel and Tourism	X	X	X		

Goal 1: Increase Safety and Efficiency of Transportation System

The purpose of this goal is to promote efficient management and operation, and the maintenance and preservation of the existing transportation system. Table 3-2 presents the performance measures for Goal 1.

Objectives:

- Promotes efficient management and operation of the transportation system.
- System preservation of roadways and bridges.
- Addresses the safety of streets, intersections, and railroad crossings.

Table 3-2: Goal 1 Performance Measures

Performance Measures	Points (Total = 100)
Project improves traffic operation and reduces delay	5
Project addresses major maintenance (e.g. bridge repair, aging transit facilities, pavement, etc.)	5
Improves vehicle flow on existing roadways	5
Project addresses location with high level of crashes (corridor or intersection)	5
Subtotal	**20**

Goal 2: Improve Vehicle Mobility and Connectivity

The purpose of this goal is to support the economic vitality of Grand Island by improving the freight network, addressing modal conflicts, and improving corridor connections within the metropolitan area. Table 3-3 presents the performance measures for Goal 2.

Objectives:

- Reduces travel delays in congested corridors.
- Provides improved connection between areas of the community.
- Improves north-south connectivity.
- Reduces regional freight impediments.

Table 3-3: Goal 2 Performance Measurements

Performance Measures	Points (Total = 100)
Project reduces system-wide travel time	5
Project improves corridor volume/capacity ratio	5
Route addresses designated freight impediment	5
Project reduces modal conflict (e.g. grade separation, dedicated lanes)	5
Subtotal	**20**

Goal 3: Provide accessibility to destinations for all population groups

The purpose of this goal is to increase the accessibility and mobility of people. Table 3-4 presents the performance measures for Goal 3.

Objectives:

- Creates more opportunities to use a variety of travel modes to travel to respective destinations.
- Connects/completes gaps in the bicycle and pedestrian system.
- Develops major areas to be walkable and connected to one another by multimodal corridors.

Table 3-4: Goal 3 Performance Measures

Performance Measures	Points (Total = 100)
Route includes existing or planned bicycle facilities	5
Project addresses a critical gap in a pedestrian corridor and/or bikeway corridor	5
Project located within or along a designated node/corridor	5
Project Improves a connection across the metropolitan area	5
Subtotal	**20**

Goal 4: Environmental protection and the preservation of important natural assets

The purpose of this goal is to protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns. Table 3-5 presents the performance measures for Goal 4.

Objectives:

- Promotes energy conservation, especially for non-renewable energy sources.
- Minimizes impacts to the Platte River and other natural areas.
- Invests in alternative and renewable fuel infrastructure when practical.

Table 3-5: Goal 4 Performance Measures

Performance Measures	Points (Total = 100)
Project overlaps environmentally sensitive area	-5
Project contributes to improved water quality and/or habitat	5
Reduces fuel consumption	5
Reduce impacts to archeological site or floodplain (within 500 foot buffer)	5
Consistency with land use plan	5
Subtotal	**20**

Goal 5: Further the health and well-being of all residents in the region

The purpose of this goal is to make transportation investments that are consistent with supporting a healthy lifestyle and support quality of life. Table 3-6 presents the performance measures for Goal 5.

Objectives:

- Create more opportunities for everyone to walk or bike to their respective destinations.
- Decrease the number of fatalities and serious injuries across all modes of transportation.
- Maintain air quality levels.
- Connect/complete gaps in the bicycle and pedestrian system.

Table 3-6: Goal 5 Performance Measures

Performance Measures	Points (Total = 100)
Project provides alternative transportation to environmental justice area	5
Number of development areas with pedestrian/bicycle access	5
Conforms to regional complete streets principals	5
Connects to top origin/destinations with bike/pedestrian facility – commuting network	5
Subtotal	**20**

Chapter 4 EXISTING TRANSPORTATION SYSTEM

The transportation system supports the movement of people and goods, both internally and externally, in the Grand Island metropolitan area. Typical transportation systems include streets, highways, paratransit services, public transit, bicycle and pedestrian facilities, airports, and rail facilities. The existing transportation system provides the baseline from where we can build to provide additional or improved transportation options for residents and visitors, and to facilitate the movement of freight within, to, from, and through the Grand Island area. This chapter provides an overview of the existing transportation system.

4.1 Streets and Highways

The street and highway system is the backbone of the modern-day Grand Island transportation system. The street and highway system provides connections within the city, connections to other populated areas, and connections between various modes of travel within the metropolitan area. This section provides an overview of the various components of the street and highway system.

Functional Classification

A well laid-out and well designated roadway network is essential for safe and efficient surface transportation. A primary way transportation networks are organized and described is by functional classification. The basic concept of functional classification is that travel involves the use of many roads that should be channeled in an efficient manner.

Functional classification is a process by which roadways are grouped into classes according to the service they provide. This service ranges from a high degree of travel mobility *(interstates and freeways*) to land access functions *(local roads)*. Federal regulations require that each state classify roadways in accordance with the Federal Highway Administration's *(FHWA)* Functional Classification: Concepts, Criteria, and Procedures document. The primary criteria for defining functional classification generally includes average daily traffic volumes, posted and observed travel speeds, and access control.

There are three basic highway classifications: Arterial, Collector, and Local. All streets and highways are grouped into one of these classes, depending on the character of the traffic and the degree of land access allowed, as shown in Table 4-1.

Table 4-1: General Federal Functional Classifications

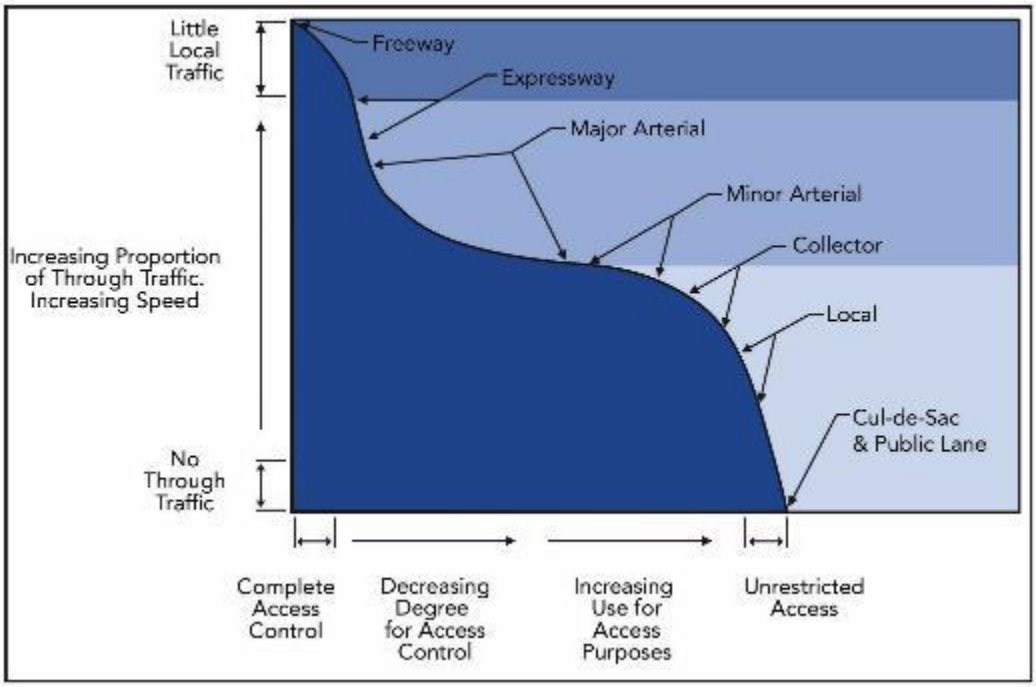
Functional Category	Sub-Category	Characteristics/Services
Arterial	Interstate	The highest classification of arterials were designed and constructed with mobility and long-distance travel in mind.
	Freeways/ Expressways	• Maximizes mobility function with limited accesses. • Abutting land uses not directly served. • Have directional travel lanes separated by physical barriers.
	Other Principle Arterial	• Serve major activity centers with a high degree of mobility. • Abutting land uses can be served directly, but with access control.
	Minor Arterial	• Serve trips of moderate length • Serve geographic areas smaller than their higher arterial counterparts. • Offer connectivity to the higher Arterial system.
Collector		• Gathers traffic from local roads and funnels them to the arterial network.
Local		• Consists of all the roads not identified as arterials or collectors. • Account for the largest percentage of all roadways in terms of mileage. • Provide direct access to abutting land. • Discourage through traffic.

Source: Highway Functional Classification Concepts, Criteria and Procedures (Section 3).

An efficient transportation system requires a balance between the two primary transportation functions of roadways – “access to property” and “travel mobility”. Access to property is important for people to get to destinations and travel mobility is important to allow for movement around the area without having high amounts of delay.

It is the roadway’s primary purpose that defines the classification category that a given roadway belongs. For example, freeways emphasize mobility and have complete access control that allow for higher speeds and capacities. Conversely, facilities such as local streets and minor arterials allow for greater access, but have reduced mobility due to lower speeds and capacities. A system becomes less efficient when the mobility function of arterials is reduced by increased access, resulting in lower travel speeds and greater safety considerations. The opposite problem can occur when high capacity roadways are located in areas where access is needed. The development and adherence to a system of functional classification seeks to provide this balance. The relationship is shown in Figure 4-1.

Figure 4-1: Relationship between Mobility and Access on Roadways



Source: FHWA

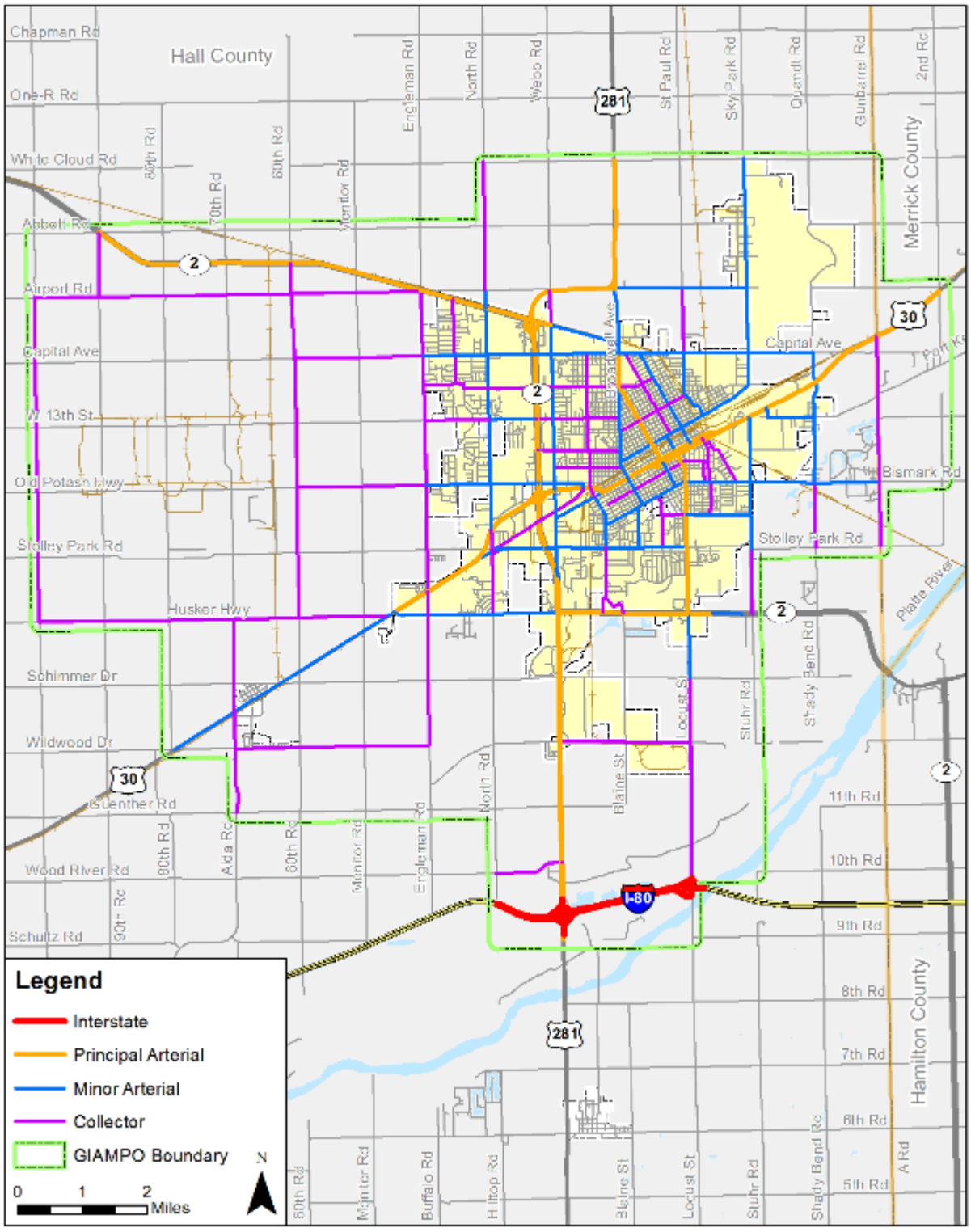
The total miles of federally-classified arterials and collectors are totaled by county for urban and rural portions. The urban area includes roadways that are completely within the Metropolitan Planning Area (MPA), while the rural area includes a small portion in the MPA and a larger portion in the remainder of Hall County. Table 4-2 lists the number of miles for modeled roadways in the Grand Island MPA (GIMPA) classified as arterials and collectors. Figure 4-2 displays the federal functional classification map for the roadway network within the Grand Island MPO boundary.

Table 4-2: Functional Classification Miles (Grand Island MPA)

Functional Classification	Miles
Arterials	117.8
Interstate	4.2
Principal Arterial	39.3
Minor Arterial	56.9
Collectors	82.3

Source: NDOR

Figure 4-2: Federal Functional Classification



Access Control

Access management is a process to preserve traffic flow while providing adequate access to development. It is a process used to maintain the designated roadway function as adjacent development occurs. The goal of access management is to balance the needs of motorists, pedestrians, and bicyclists who are using the roadway and to enable them to travel safely and efficiently, while meeting the needs of the abutting property owners.

Good access management is a cost-effective approach to managing the current system, reducing congestion and crashes, and possibly reducing the need for roadway widening or new construction. Poor access management can discourage potential customers from entering the area and, therefore, negatively affect the livability and economic vitality of communities around the roadways. Corridors with poor access management can lead to increased crashes between motorists, pedestrians, and bicyclists; spillover cut-through traffic on adjacent residential streets; and reduced property values on adjacent commercial development.

Standards have been developed by the Nebraska Department of Roads (NDOR) for federal and state routes that are classified as principal arterials. Table 4-3 shows the control policy used by NDOR for expressways and highways. For expressways, minimum spacing is no more than three access locations per mile with 1,000 feet as the minimum distance between access locations. Minimum spacing should only be used for access to developed properties, such as occupied farmsteads, residences, businesses, and landlocked parcels.

Table 4-3: Access Control Policy to the State Highway System in Nebraska

Expressway and Other Multi-lane Divided Highways, Including Non Multi-lane Highways with Future ADT Over 6,000				
	Desirable		Minimum	
Type	Number of access locations per mile	Spacing	Number of access locations per mile	Spacing
Rural and Undeveloped Urban	1	2,000 feet	3	1,000 feet*
Developed Urban	Consider consolidation of drives	2 blocks	Consider consolidation of drives	Consider street system and/or development

Table II

All Other Controlled Highways				
	Desirable		Minimum	
Type	Number of access locations per mile	Spacing	Number of access locations per mile	Spacing
Rural	3**	1,000 feet	Provide access to all properties**	Consider consolidation of drives
Undeveloped Urban	7**	600 feet	Provide access to all properties**	Consider consolidation of drives
Urban	Provide access to all properties**	Consider consolidation of drives	Provide access to all properties**	Consider consolidation of drives

Source: Access Control Policy to the State Highway System, NDOR, 2006.

***: Future access openings should be provided for each property, where warranted, to provide for possible future development.*

The City of Grand Island, Hall County, and Merrick County do not have access management policies or guidelines. A number of sources are available that describe guidelines for intersection and driveway spacing on arterial streets. There are a number of sources and examples of local access management policies. The Institute of Transportation Engineers is one source for access management guidelines.[1] Other examples from cities in Nebraska come from Omaha and Lincoln.

[1] *Access Management, ITE, 2004*

The City of Omaha provides an example of a policy, based on basic principles, related to the spacing of traffic signals and the location of driveways near intersections. The city uses the following as a guide:

- 1/4-mile (1,320 feet) spacing of signals on arterials
- 1/8-mile (660 feet) spacing of right-turn-in and right-turn-out on arterials
- 500-feet in intersection influence areas, where no driveways permitted approaching intersections
- One driveway per property

The City of Lincoln has a more complex set of access management guidelines. The City of Lincoln establishes categories of roadways that include freeways, arterials, collectors, and locals. There are policies and specific distance requirements related to location of intersections, location of signals, and location of median breaks for the combination of these classifications. The policy also specifies where left turn and right turn lanes need to be constructed.

Pavement Type and Condition

Roadway surfaces in the Grand Island MPA are mostly comprised of paved surface. Of the paved surface roadways, the surface types include bituminous, composite (asphaltic concrete over Portland Cement Concrete), Portland Cement Concrete (PCC), and so on.

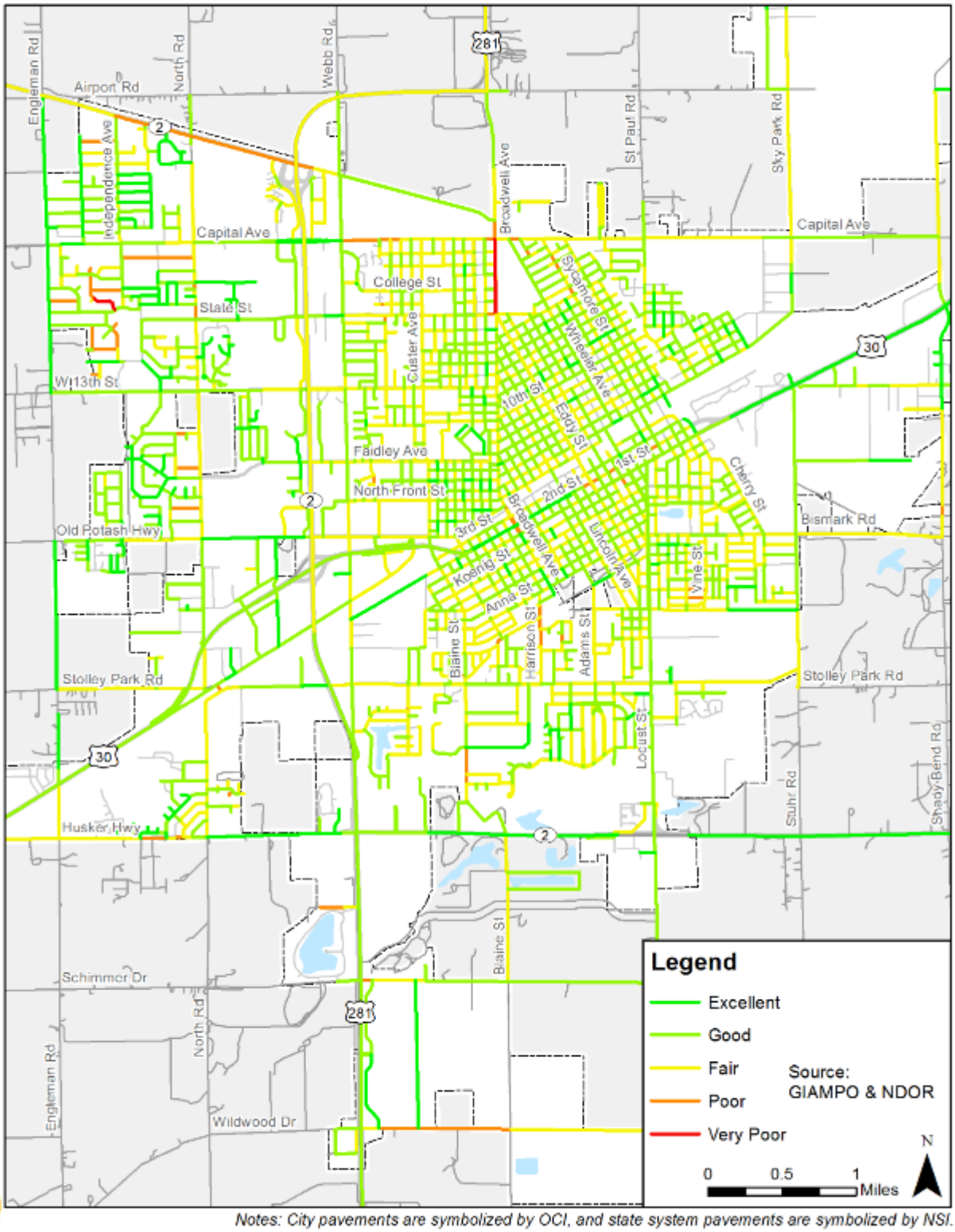
A spatial mapping system has been developed by NDOR, which illustrates current pavement conditions. Existing and future projects are delivered to the NDOR District offices on an annual basis to assist them in their decision making processes. The Nebraska Pavement Management System evaluates pavement conditions based on multiple indicators. The Nebraska Serviceability Index (NSI) is one of the indicators to evaluate the overall pavement condition. NSI is a value ranging from 0 to 100, with 0 being the worst and 100 the best condition. It represents the condition of the pavement at the time of measurement and is used for determining remaining life values.

The City of Grand Island uses Overall Condition Index (OCI) to assess the pavement condition of the city's roadway system. The values of NSI and OCI are normalized into one of the overall rating scores: *Very Good, Good, Fair, Poor,* and *Very Poor*, as shown in Table 4-4. This enables the general assessment of pavement condition in the Grand Island MPA, as shown in Figure 4-3.

Table 4-4: Pavement Condition Rating Scores

Rating Score	NSI / OCI
Very Good	91 thru 100
Good	71 to 90
Fair	51 to 70
Poor	31 to 50
Very Poor	0 to 30

Figure 4-3: Existing Pavement Condition in Grand Island MPO Area (2014)

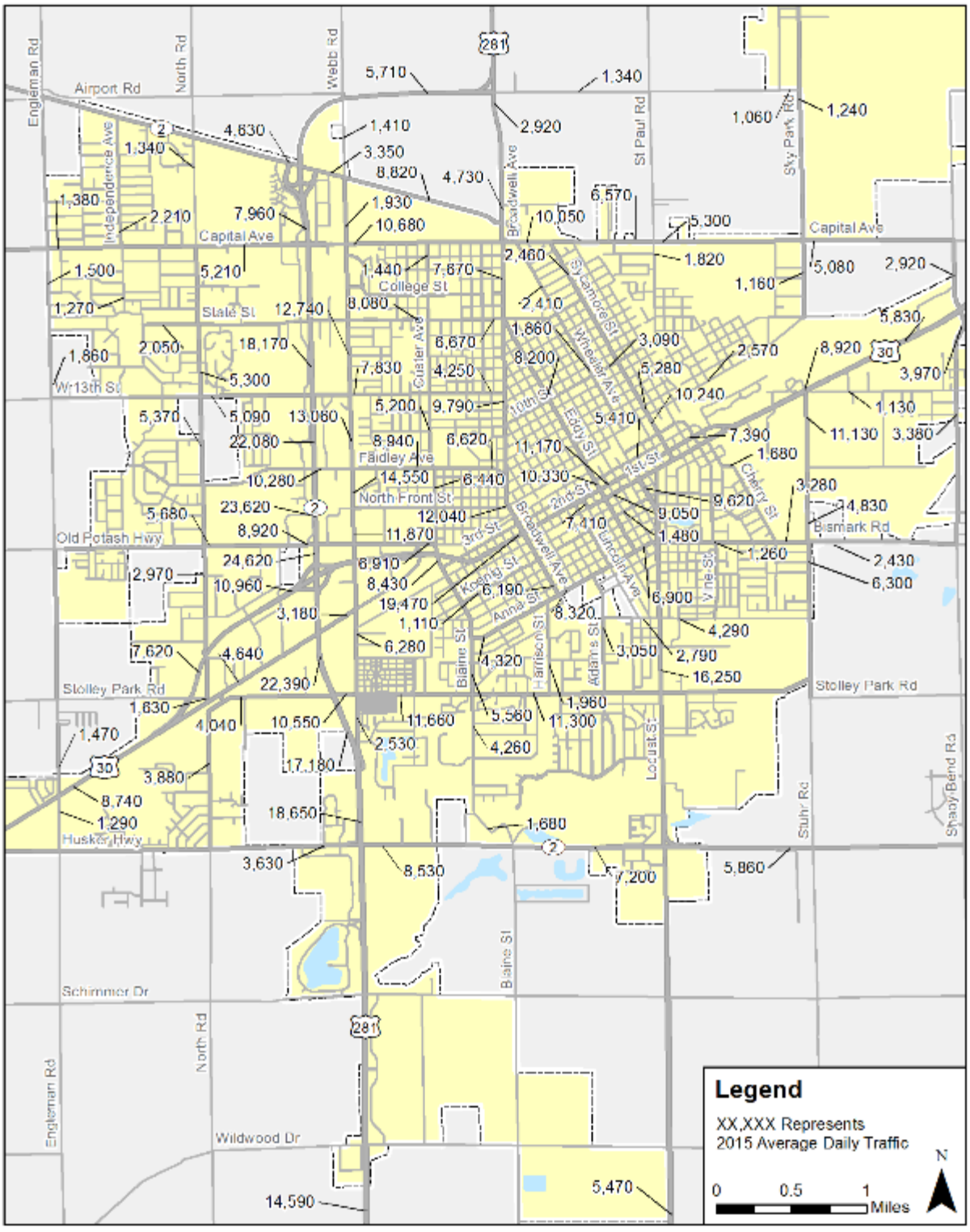


Notes: City pavements are symbolized by OCI, and state system pavements are symbolized by NSI.

Traffic Volume

Figure 4-4 displays the Annual Average Daily Traffic (AADT) counts taken for the Grand Island MPA. The traffic counts are from the most recent NDOR traffic data and City of Grand Island counts conducted in 2012 and 2013. The Traffic Data Projection Program, developed by NDOR, was used to factor year 2012 and 2013 counts to year 2015 count values. The program is wxTDPP.exe which uses historical count data from 1980 – 2013 to develop annual growth factors for each NDOR count location. The highest daily traffic volumes are on U.S.-281 between State Street and Highway 2. For this section, volumes range between 18,000 and 24,600 AADT. The highest traffic count in Grand Island of 24,600 is located on U.S.-281 between Old Potash Highway and U.S.-30. Other higher count locations are on U.S.-30 in the central area of Grand Island, where volumes for both directions of travel are approximately 20,000 AADT. Walnut Street, north of Stolley Park Road, is 16,000. Volumes on Webb Road range between 12,000 and 14,500 AADT.

Figure 4-4: Daily Traffic Count in Grand Island MPA



Congestion/LOS

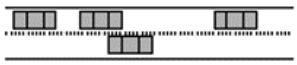
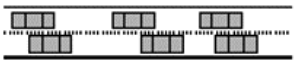
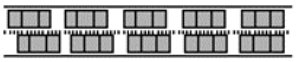
One of the main assessments of the street and highway system is an analysis of congested roadways. Congestion occurs when traffic demand approaches or exceeds the available capacity of the system. Traffic demands vary significantly depending on the season of the year, the day of the week, and even the time of day. Congestion can be classified as either recurring or non-recurring. Recurring congestion most often occurs when the volume of traffic on a facility becomes more than that facility can handle. Nonrecurring congestion is usually short in duration and is caused by such things as incidents, weather, construction, or special events. One way to gauge the level of congestion is grading a facility on its level of service.

Level of Service (LOS) is a letter designation that describes a range of rating conditions on a particular type of facility. The Highway Capacity Manual (HCM) defines levels of service as "qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers." LOS can be measured in a number of ways that vary in complexity. LOS is measured differently for the link level and the intersection level.

Link-level LOS

At the planning level, LOS is a qualitative analysis that compares the vehicle flow of traffic on a particular roadway with the vehicle flow capacity of that roadway. The resulting ratio, or the volume-to-capacity (V-C) ratio, is then used to classify the LOS from "A", the best traffic operation, to "F," the worst. General level of service definitions based on V-C ratios are illustrated in Figure 4-5.

Figure 4-5: Description of Different Levels of service

Level of Service		Description
A		Free Flow: Low volumes and no delays.
B		Stable Flow: Spees restricted by travel condition, minor delays.
C		Stable Flow: Speeds and maneuverability closely controlled due to higher volumes.
D		Stable Flow: Speeds considerably affected by change in operating conditions. High density traffic restricts maneuverability, volume near capacity.
E		Unstable Flow: Low speeds, considerable delay, volume at or slightly over capacity.
F		Forced Flow: Very low speeds, vollumes exceed capacity, long delays with stop-and-go traffic.

Source: Highway Capacity Manual, Transportation Research Board.

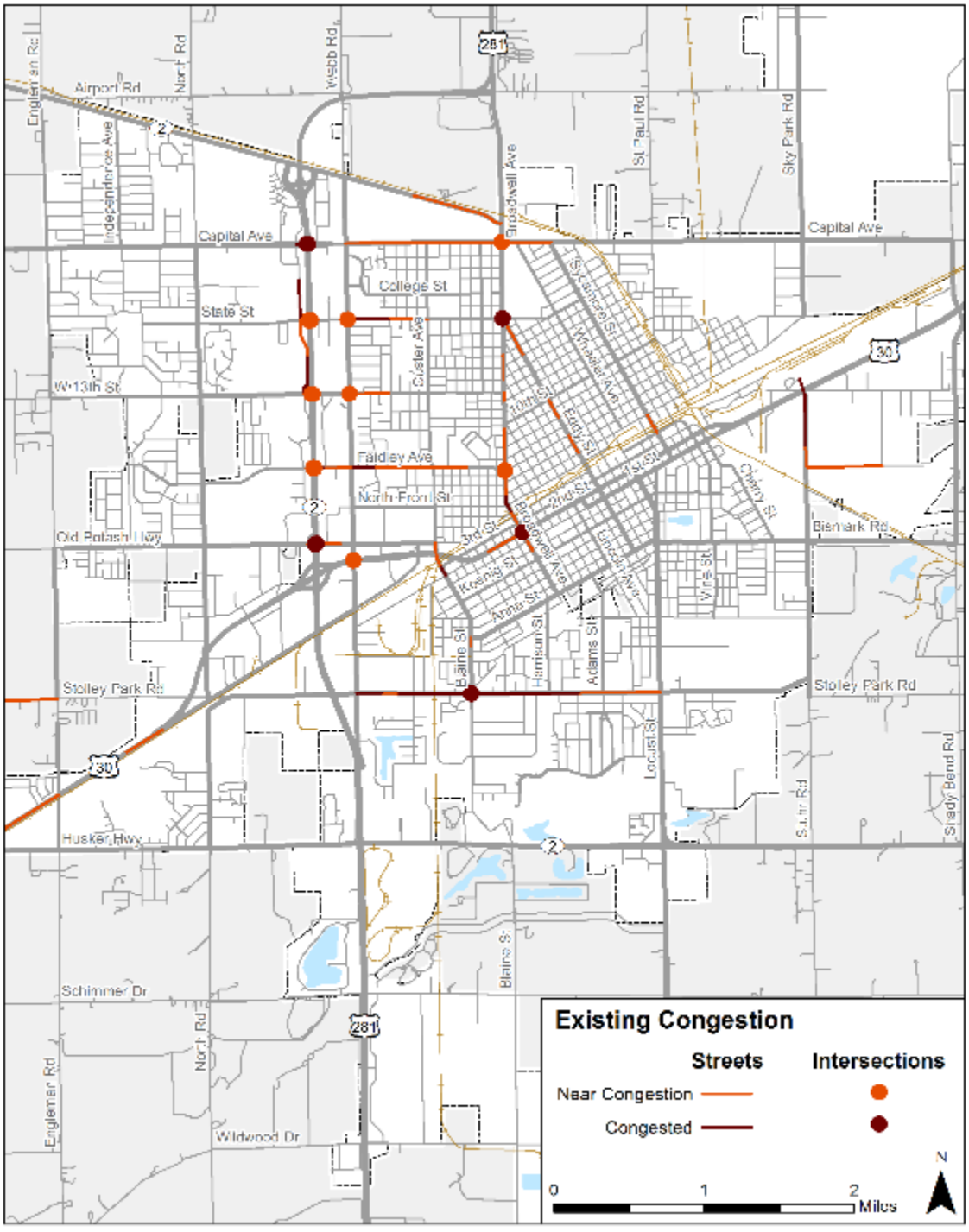
An assessment of the level of traffic congestion on street segments was completed by comparing daily traffic counts with estimates of daily capacity factored to represent peak hour travel conditions. Table 4-5 shows the volume-to-capacity ratios used to define different levels of service. This provides an overview used to identify traffic congestion levels on corridors. The resulting figure is shown in Figure 4-6.

Table 4-5: Volume-Capacity Ratio Ranges for Roadway LOS

LOS	Uncongested			Becoming Congested	Congested	
	A	B	C	D	E	F
Upper Limit V/C	0.25	0.45	0.70	0.85	1.00	n/a
Freeway/Interstate *(Daily Capacity Per Lane - 20100*						
4 Lane	20,100	36,180	56,280	68,340	80,400	n/a
6 Lane	28,550	51,390	79,940	97,070	114,200	n/a
Principal Arterial *(Daily Capacity Per Lane - 7900)*						
2 Lane	3,950	7,110	11,060	13,430	15,800	n/a
4 Lane	7,250	13,050	20,300	24,650	29,000	n/a
6 Lane	9,850	17,730	27,580	33,490	39,400	n/a
Minor Arterial *(Daily Capacity Per Lane - 6300)*						
2 Lane	3,150	5,670	8,820	10,710	12,600	n/a
4 Lane	6,050	10,890	16,940	20,570	24,200	n/a
Collector *(Daily Capacity Per Lane - 6200)*						
2 Lane	2,700	4,860	7,560	9,180	10,800	n/a
4 Lane	5,150	9,270	14,420	17,510	20,600	n/a

Overall, the LOS in the Grand Island area is good. There are very few areas where the LOS nears congested levels. As identified in Figure 4-6, the majority of the street and highway network is uncongested. There are a few segments on Stuhr Road, Stolley Park Road, Diers Avenue, and within the city area that are congested (LOS E/F), indicated in brown.

Figure 4-6: Existing Level of Congestion on the Street System



Intersection LOS

Understanding how intersections operate is also important when assessing the street and highway network. Intersection LOS provides enough detail to assess intersection operation in order to identify potential intersection needs. The operating characteristics of intersections were analyzed using the HCM method. This method defines signalized intersection LOS in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a parameter for quantifying several intangible factors such as driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour in this study).

The HCM method calculates vehicle delay based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 4-6 lists the LOS criteria and description.

The intersection congestion level is also shown in Figure 4-6. There are five congested intersections during the PM peak hour. They are: Capital Avenue and U.S.-281 intersection, Old Potash Highway and U.S.-281 intersection, 2nd Street and Broadwell Avenue intersection, Blaine Street and Stolley Park Road intersection, and the five-leg intersection at Broadwell Avenue and State Street.

Table 4-6: LOS Criteria for Signalized Intersection

LOS	Average Control Delay (sec)	General Description	Level of Congestion
A	<=10	Free Flow	Uncongested
B	>10 - 20	Stable Flow (slight delays)	
C	>20 - 35	Stable Flow (acceptable delays)	
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)	Near Congestion
E	>55 - 80	Unstable flow (intolerable delay)	Congested
F	>80	Forced flow (jammed)	

Safety Analysis

A review of historical accident data provided by the Nebraska Department of Roads has been conducted to reveal locations with potential safety issues. Over 7,300 crash records in Grand Island from 2009 through 2013 were reviewed to determine the following accident characteristics in the Grand Island area:

- Location (on roadway and at rail crossings)
- Type: angled, backing, head-on, left-turn leaving, rear-end, sideswipe (opposite/same direction).
- Severity (fatality, injury, or property damage only)
- Time of Day (Peak vs. Non-Peak)
- Road condition (dry, wet, ice, snow or slush, mud, or sand)

High Crash Locations

Information on the number and location of vehicle crashes was obtained from NDOR for the five year period from 2009 through 2013. After reviewing the data, the locations that had a higher number of crashes were mapped. The number of railroad related crashes at railway-highway crossings was also mapped.

Figure 4-7 shows the location of intersections and the highway-railway crossings with crashes. It also shows the location of fatal accidents during this period. The intersection with the highest number of crashes (141) is at U.S.-281 and Old Potash Highway. The intersection of U.S.-281 and W 13th St had two fatal accidents during this five year period. The highway-railway at-grade crossing of Broadwell Avenue and Union Pacific Railroad (UPRR) had the highest number of rail/vehicle crashes (17). The only fatal accident at rail crossings occurred at Husker Highway and UPRR.

Crash Type

Crash type detail is illustrated in Figure 4-8. The largest percentage of crashes was rear-end (37 percent) followed by angled (34 percent) and sideswipe (16 percent) crashes. Crashes due to left-turn and backing maneuver occupy 6 percent and 7 percent, respectively. Rear-end accidents are the most common crash type. As compared to the national data in Traffic Safety Facts 2013, Grand Island tended to have a higher percent of rear-end crashes, and slightly lower sideswipe and head-on percentage than the national average. The higher percent of rear-end crashes could be related to vehicles approaching intersections and traffic signals.

Figure 4-7: Crashes by Type

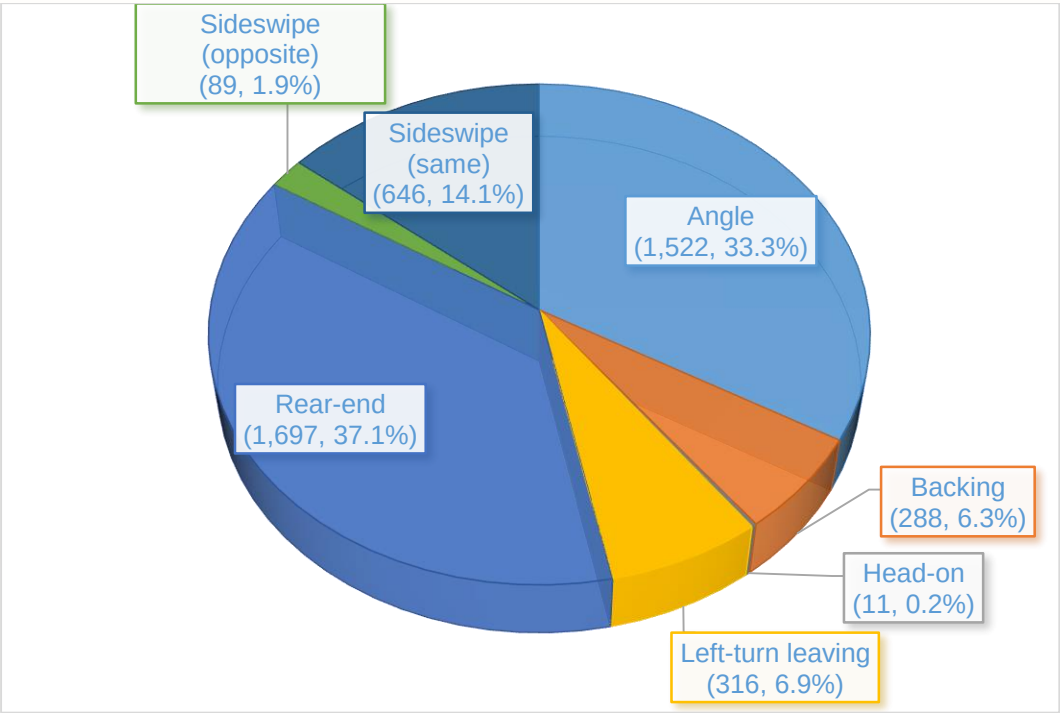
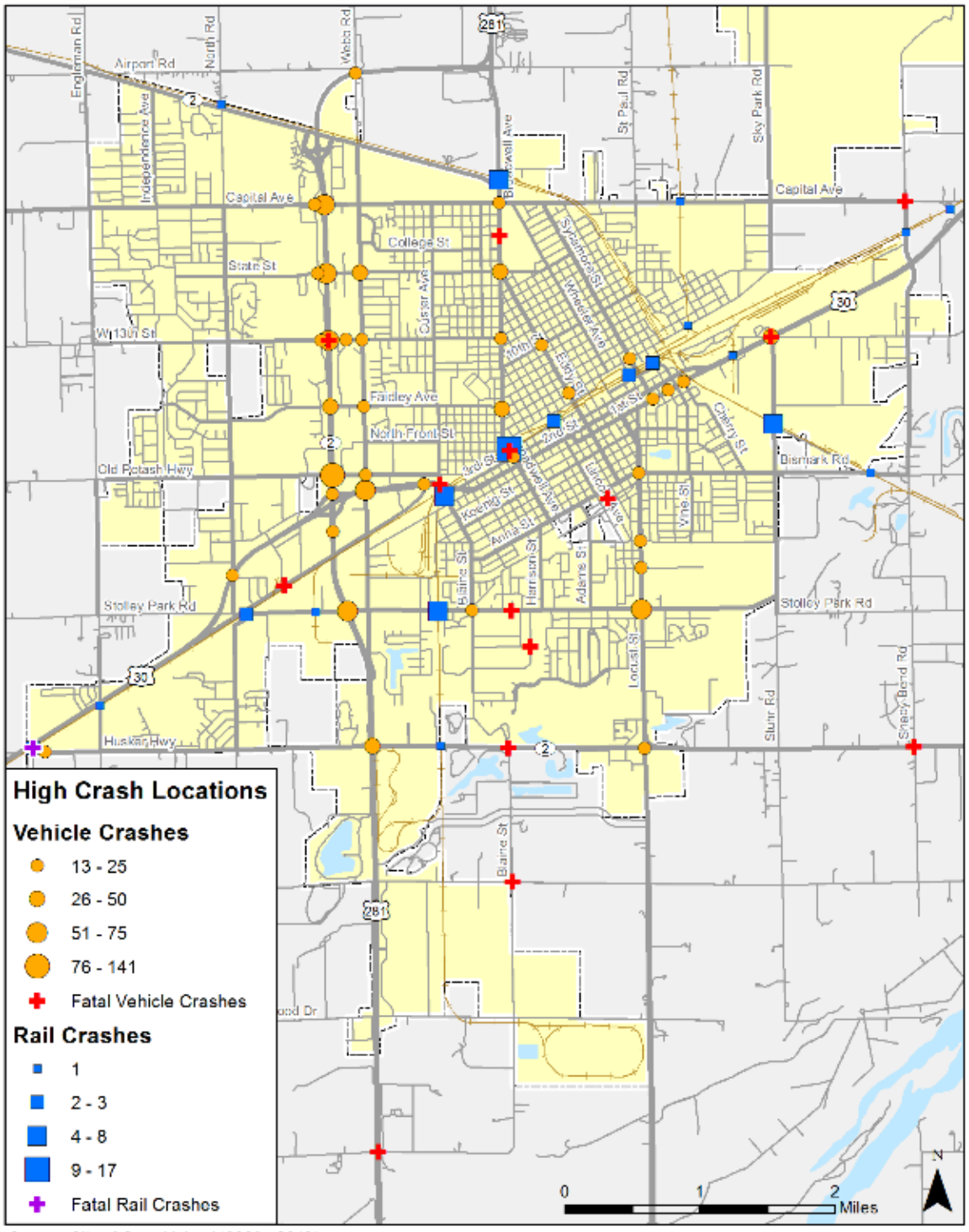


Figure 4-8: Crash Locations in Grand Island MPA

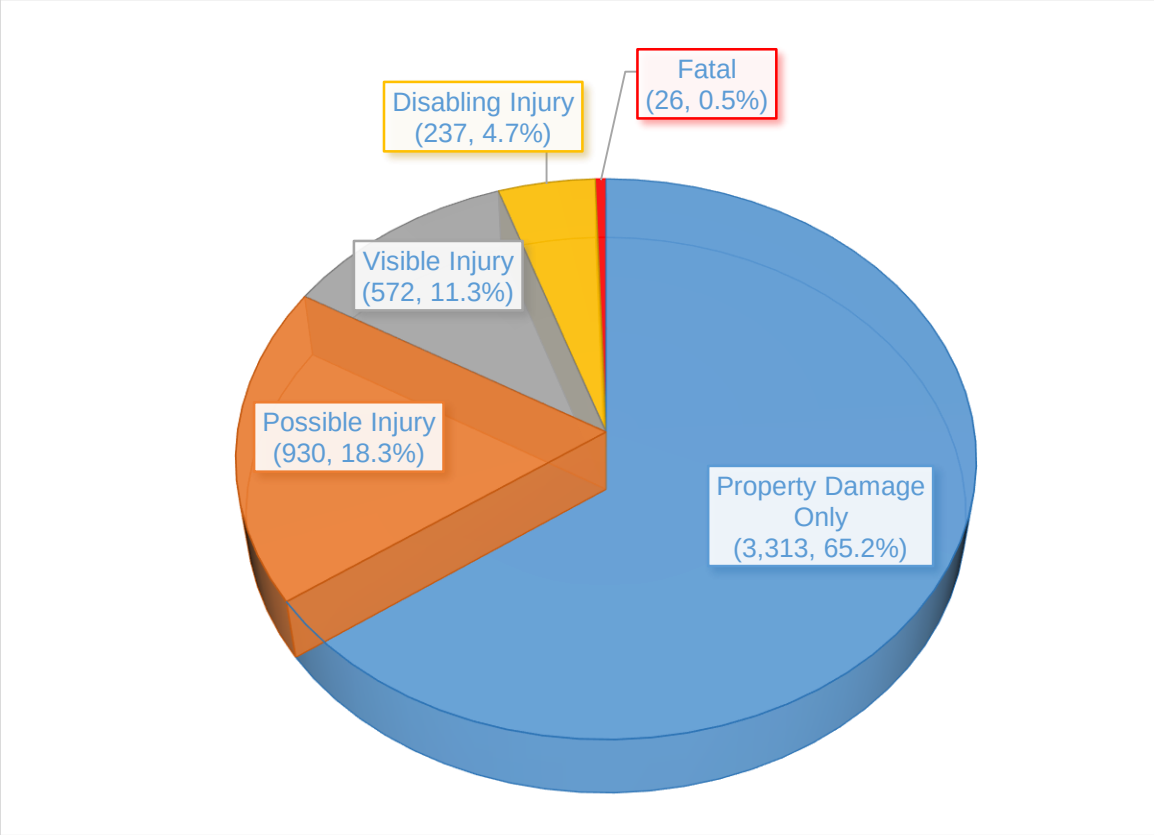


Source: City of Grand Island (2009 - 2013).

Crash Severity

The crash dataset was further analyzed to determine the number of crashes that were property damage only (PDO), possible injury, visible injury, disabling injury, and fatality. The distribution of the crash data by severity is illustrated in Figure 4-9. Approximately 65 percent of crashes were PDO, while approximately 34 percent resulted in various levels of injuries. As compared to statewide crash data, the percentage of fatalities was similar and the percentage of injury crashes were lower.

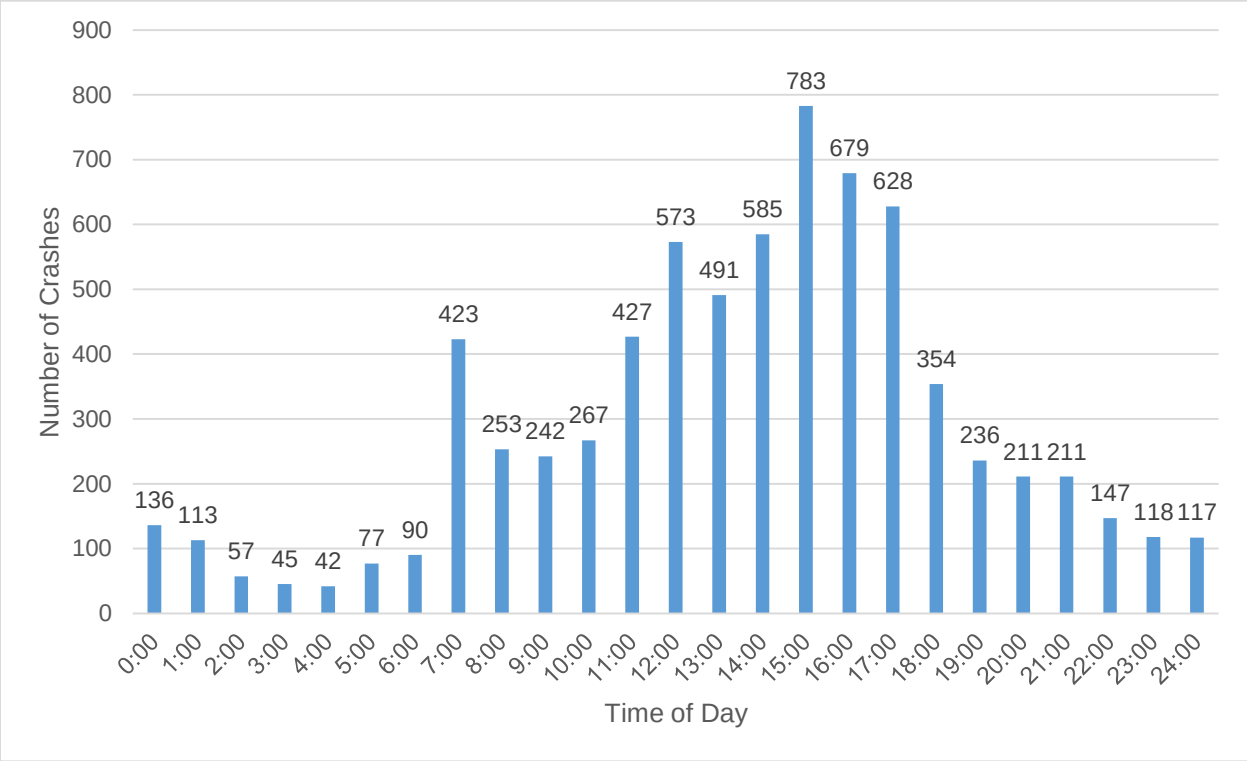
Figure 4-9: Crash by Severity



Crash by Time of Day

The crash data was also analyzed to determine the concentration of crashes at different time periods throughout the day. The higher number of crashes is shown to occur in the late afternoon. The results of this analysis are illustrated in Figure 4-10. This pattern is similar to the statewide time of day pattern.

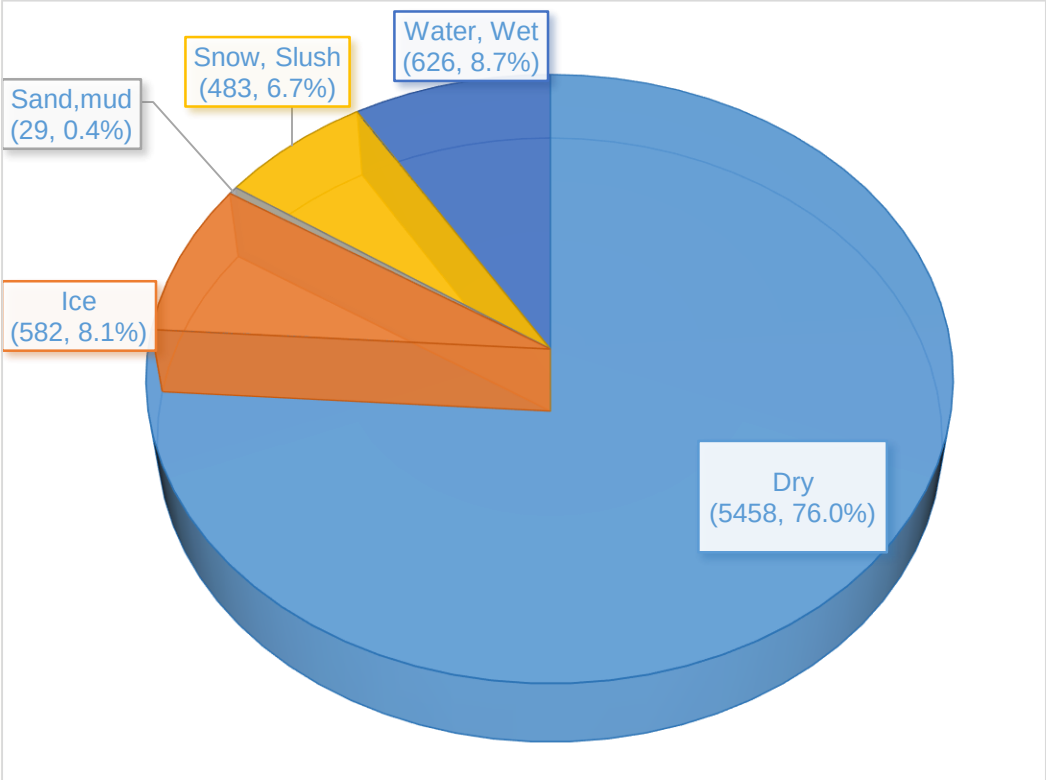
Figure 4-10: Crashes by Time of Day



Crash by Road Condition

The crash data was analyzed to determine the number of crashes that occurred on roads that were dry, wet, icy, had snow or slush, and had mud or sand. The distribution of the crashes by road conditions during the three year period is illustrated in Figure 4-11. Approximately 76 percent of the accidents occurred on a dry roadway and approximately 8.7 percent occurred on a wet roadway. The crash experience for Grand Island showed a higher percentage of crashes related to snow and ice as compared to that for the state of Nebraska. Crashes on wet pavement were lower than the statewide percentage.

Figure 4-11: Crashes by Road Condition



Intersection Crash Rates

Crash rates were calculated for the 10 highest crash locations to see how traffic volumes affected the crash locations. The calculated intersection crash rate is based on the number of observed crashes at each intersection from 2009 to 2013 in conjunction with the total entering vehicles at each respective location. The 2013 vehicular volumes were estimated from available information, including NDOR and city daily volumes, where available. These counts were used to determine the number of entering vehicles at each location; multiplied by 5 to represent the crashes over a five year period. The crash rate equation for an intersection is as follows:

$$Intersection\ Crash\ Rate = \frac{Observed\ Crashes}{\left(\frac{Total\ Entering\ Vehicles}{10{,}000{,}000}\right) \times 5 \times 365}$$

The calculated crash rate from this formula is expressed in terms of crash per ten million entering vehicles (TMEV). Table 4-7 shows the calculated crash rates, ordered according to the highest crash rate.

Table 4-7: Calculated Crash Rates for the Top 10 Intersections

Rank	Location	Observed Crash	2013 Total Entering Vehicles *(TEV/day)*	Entering Vehicles 5-year Period *(10 million)*	Crash Rate *(per TMEV)*
1	U.S.-281 & Old Potash Highway	141	32,209	5.9	23.99
2	U.S.-281 & Capital Avenue	56	17,192	3.1	17.85
3	U.S.-281 & W Stolley Park Road	73	26,620	4.9	15.03
4	U.S.-281 & State Street	72	31,178	5.7	12.65
5	U.S.-281 & W 13th Street	60	26,049	4.8	12.62
6	U.S.-30 & Webb Road	53	23,575	4.3	12.32
7	Locust Street & W Stolley Park Road	53	23,683	4.3	12.26
8	Broadwell Avenue & State Street	30	19,037	3.5	8.63
9	U.S.-281 & Faidley Avenue	41	27,443	5.0	8.19
10	Husker Highway (U.S.-34) & U.S.-281	31	24,246	4.4	7.01

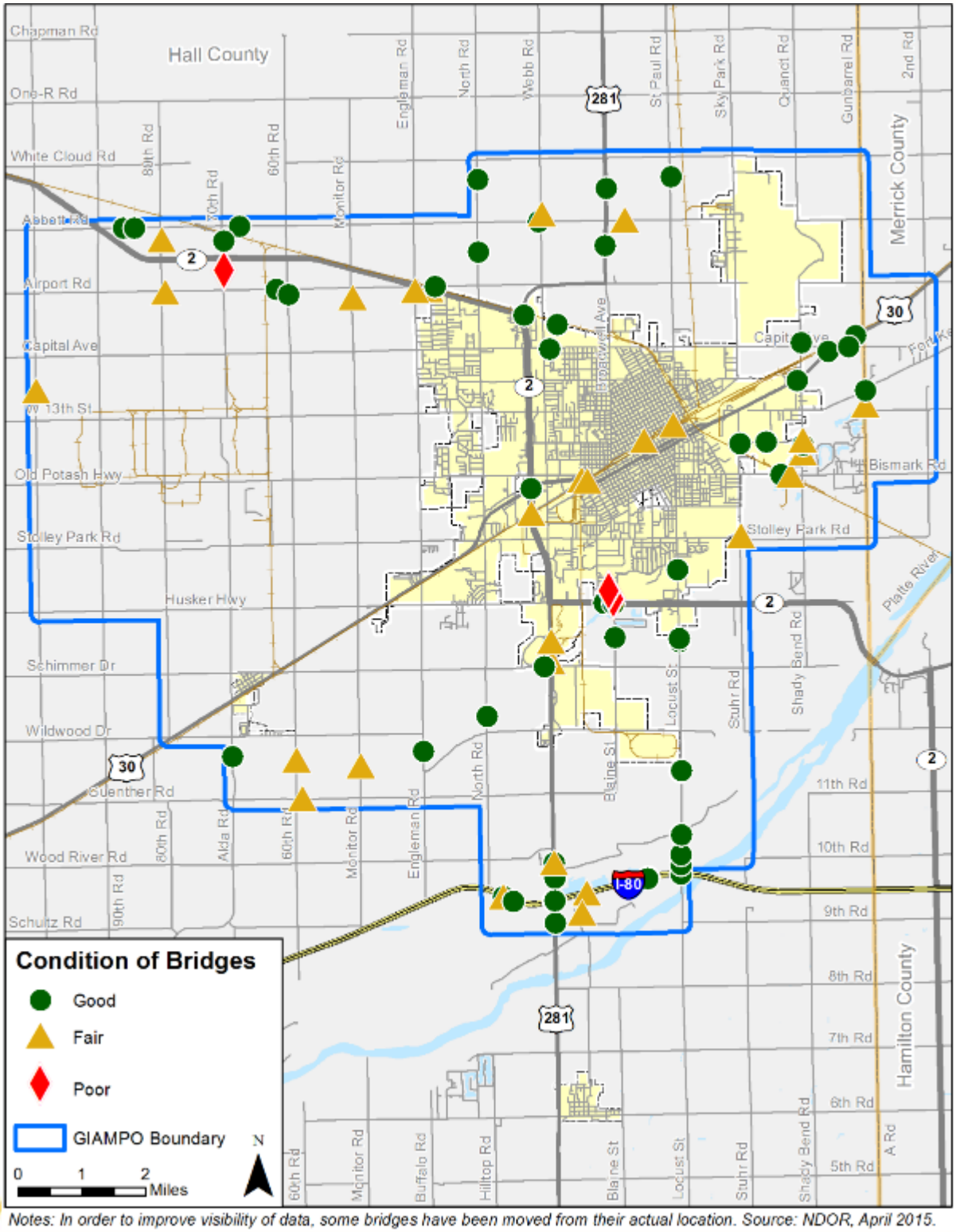
Bridges

Bridges and underpasses have been added over the years at some locations to make travel safer and more convenient. Separating cars and trains reduces the potential for crashes, as well as reducing the time spent by motorists waiting for passing trains. Spanning the region's numerous rivers and streams with permanent structures has allowed people and vehicles to move more easily.

There are 99 bridges within Grand Island, including 37 state structures, 37 county structures, and 25 urban/municipal structures. These bridges include structures ranging in size from a river bridge to a culvert under a roadway. Among the 99 structures, there are 8 bridges that are not included in the assessment below due to data availability.

Area bridges are inspected on a regular basis by the NDOR and local governments. The bridge condition rating is determined by an inspection conducted in accordance with the national bridge inventory (NBI), which inspects items such as deck, superstructure, substructure and culvert. Given these condition ratings, the most recent notice of proposed rulemaking (NPRM) for MAP-21 proposes national performance management measures for bridge condition assessment. Based on the NPRM measures, there are three classifications for the purpose of assessing bridge condition: Good, Fair, and Poor. There are 56 bridges in Good condition, 33 bridges in Fair condition, and 3 bridge in Poor condition. Figure 4-12 displays the condition and locations of the bridges in Grand Island MPA.

Figure 4-12: Existing Bridge Condition in Grand Island MPA



Notes: In order to improve visibility of data, some bridges have been moved from their actual location. Source: NDOR, April 2015.

4.2 Rail

The Grand Island MPA is served by three rail lines, the Burlington Northern Santa Fe (BNSF) railway, the Union Pacific Railroad (UPRR), and the Nebraska Central Railroad Company (NCRC). According to the classification system by the Association of American Railroads (AAR), the BNSF and UPRR are Class I railroads and the NCRC is classified as a Class III (Short-Line) railroad. The NCRC rail is a previous UPRR branch track and has direct interchange with UPRR.

The UPRR operates through the heart of the city along the original transcontinental mainline route. UPRR has a classification yard within Grand Island and all rail freight with an origin or destination in Grand Island is transported via the UPRR and NCRC systems. The BNSF has little local access to Grand Island and mainly serves through traffic, 25 percent of which is composed of intermodal double stacks, unit grain, and manifest trains. The BNSF and UPRR intersect at the eastern edge of the city through a grade-separated structure. Both railroads have the capabilities of transporting products across the continental USA and access to major ports, which provides an avenue to export product to international markets.

The number of trains per day for each railroad, as well as grade-separated and at-grade crossings for each is identified in Table 4-8. The UPRR has an estimated 75 through trains per day in the Grand Island MPA on the double mainline tracks. These trains travel at a maximum speed of 70 miles per hour (mph) at the west city limits, slowing to 50 mph within the downtown commercial area. The BNSF operates approximately 60 through trains per day in the Grand Island MPA on a single mainline track. These trains travel at maximum speeds of 60 mph on the fringe areas of the city and 45 mph on the elevated portion of the corridor in the central part of the city.

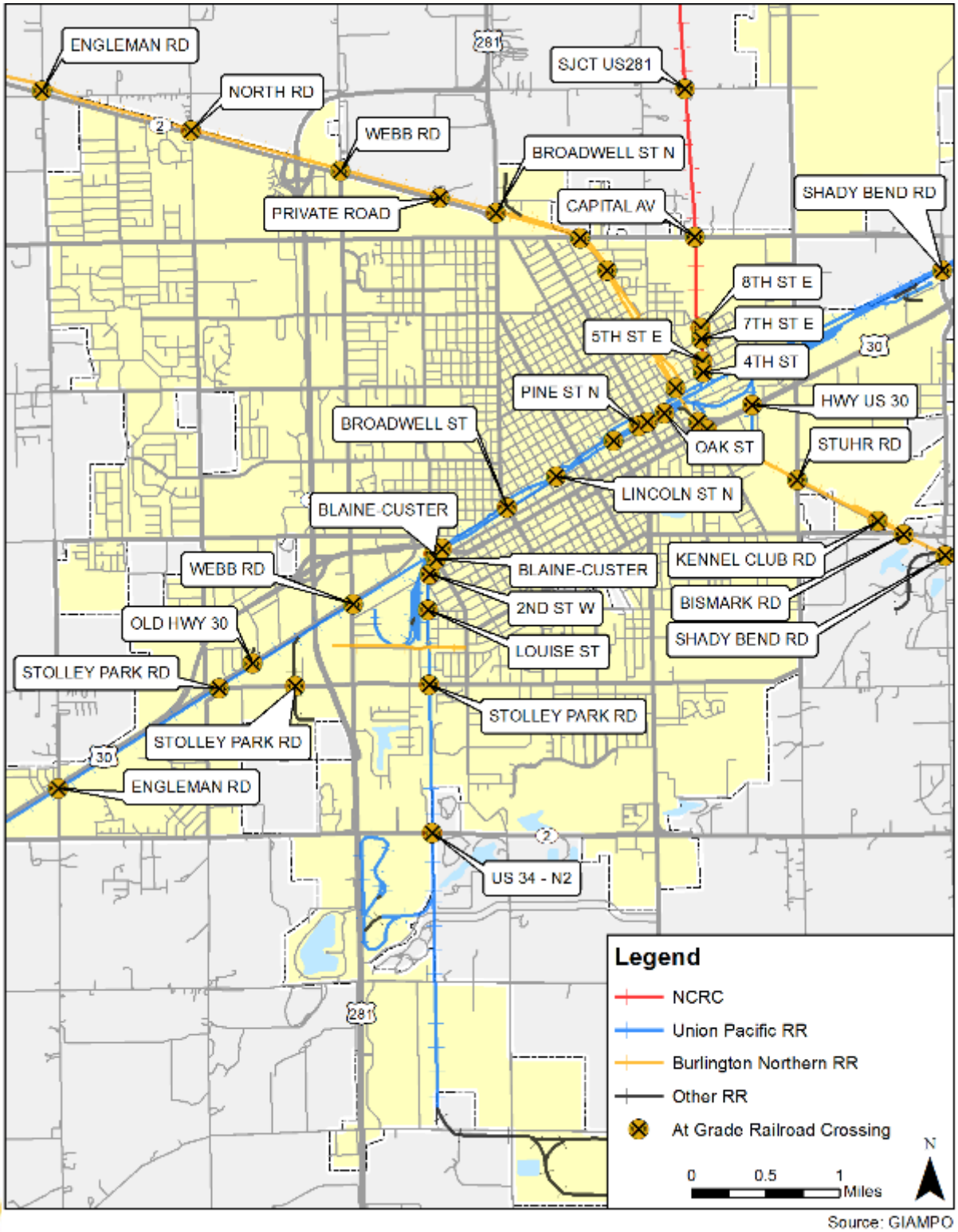
Table 4-8: Rail Lines in Grand Island

Railroad	Trains Per Day[2]	Length of Track (mile)	At-Grade Crossings	Grade Separations
BNSF	59 through trains	11.4	14	6
UPRR	75 through trains	18.4	24	4
NCRC	3 local trains; 2 switch trains	4.4	7	0

The interaction between rail traffic and other transportation modes, i.e. motorized vehicles and pedestrians, causes an impact on the transportation system. At-grade crossings are where such interactions occur. At-grade crossings can cause temporary congestion on city streets as motor vehicles, pedestrians, and other forms of transportation must wait for a train to clear. Grade-separated facilities do not have this problem as there is no conflict between rail traffic and other traffic. Figure 4-13 shows the rail lines that serve the Grand Island metropolitan area, along with the at-grade railroad crossings.

[2] Federal Railroad Administration (FRA) Highway-Rail Crossing Inventory.

Figure 4-13: Rail Network in Grand Island



Source: GIAMPO

Grade separation can reduce the conflicts between trains and vehicles/pedestrians. NDOR generally identifies potential locations for new grade separation structures based on exposure factor (daily trains × vehicles), crash costs, elimination of vehicular delay, and other appropriate factors. NDOR uses a minimum exposure factor of 50,000 for a single crossing to warrant consideration of grade separation funding. Other MPOs have used higher factors in the range of 300,000 to 500,000 as a grade crossing warrant. Table 4-9 lists the exposure factor for 18 railway-highway crossings with available ADT information.

Table 4-9: Grade Crossing Exposure Factor Calculation

Roadway	Note	Rail	ADT (2015)	Trains/ Day	Exposure Factor
Broadwell Avenue	North of US-30	UPRR	12,036	75	902,700
Blaine-Custer Avenue		UPRR	8,430	75	632,250
Webb Road		UPRR	6,283	75	471,225
US-34/Husker Highway	West at US-30	UPRR	5,460	75	409,500
Capital Avenue	East at US-30	UPRR	4800	75	360,000
Walnut Street		UPRR	4,375	75	328,125
Stuhr Street		BNSF	4,830	59	284,970
Broadwell Avenue	North of W Capital Avenue	BNSF	4,733	59	279,247
North Road/ W Stolley Park Road	West of US-281	UPRR	3,700	75	277,500
Shady Bend Road		UPRR	2,922	75	219,150
Pine Street		UPRR	1,750	75	131,250
Bismark Road		BNSF	2,138	59	126,142
Engleman Road	South of US-30	UPRR	1,473	75	110,475
Lincoln Avenue		UPRR	1,302	75	97,650
Webb Road		BNSF	1,413	59	83,367
North Road		BNSF	1,341	59	79,119
Engleman Road	North of Highway 2	BNSF	839	59	49,501
Capital Avenue	East of St. Paul Road	NCRC	5,300	5	26,500
4th Street		NCRC	2,565	5	12,825
W Stolley Park Road	West of Grand Island Cemetery	UPRR Spur	11,659	1	11,659
US-34 Highway	East of US-281	UPRR Spur	8,532	1	8,532
2nd Street		UPRR Spur	2,203	1	2,203

Rail source: Federal Railroad Administration Office of Safety Analysis

The safety and noise issues associated with HRGCs are the two main concerns within the Grand Island MPA, according to the *Grand Island Railroad Corridor Safety Study* in 2006. This study conducted a Quiet Zone Study for the City of Grand Island, indicating a need to address the increasing complaints from area residents from the constant sounding of railroad related horns and warnings along the railroad corridors. The study identified several measures to reduce the noise level around at-grade rail crossings until grade separations can be constructed. These measures included:

1) permanent or temporary closure *(nighttime closure)*,
2) four-quadrant gate systems,
3) gates with medians or channelization devices *(traffic separators)*,
4) conversion of a two-way street to a one-way street,
5) wayside horns.

The study also prioritized locations for rail grade separation. The need and priority for new railroad grade separation will be further analyzed in this plan.

4.3 Freight

Freight demand is driven by trade in support of population concentrations or concentrations of industry; and in most cases by both. The freight in Nebraska is mainly transported and distributed through truck and rail.

Freight Analysis Framework (FAF) Data

The Freight Analysis Framework (FAF) Data Tabulation Tool is a web tool designed by FHWA to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. With data from the 2007 Commodity Flow Survey and additional sources, FAF version 3 (FAF3) provides estimates for tonnage, value, and domestic ton-miles by region of origin and destination, commodity type, and mode for 2007, and forecasts through 2040.

In 2007, over $242 billion in domestic freight was moved within, from, and to Nebraska; over $7 billion in foreign freight was exported from and imported to Nebraska. The total value was forecasted to be over $298 billion in 2015 and $553 billion in 2040. The total domestic tonnage within, from and to Nebraska in 2007 was over 702 million tons. The FAF3 projected this will increase to over 770 million tons for 2015 and will increase to over 1 billion tons in 2040.

Table 4-10 summarizes the percentages by truck and rail for domestic freight shipments within, from, and to Nebraska using FAF data. Truck is the dominating mode for domestic transportation of goods. Table 4-11 lists the percentages by truck, rail, and multiple modes & mail for exported and imported goods. FAF3 and the Commodity Flow Survey use Multiple Modes and Mail to represent commodities that move by more than one mode. Shipments reported as Multiple Modes can include anything from containerized cargo to coal moving from mine to railhead by truck and rail to harbor. The “Mail” component recognizes that shippers who use parcel delivery services typically do not know what modes were involved after the shipment was picked up.

Table 4-10: Domestic Freight Shipment Distribution by Mode in Nebraska

Direction	Year	Truck (%)	Rail (%)	Total (K tons)
Within	2007	99%	0.4%	195,856
	2015	99%	1%	212,577
	2040	99%	1%	343,222
From	2007	89%	9%	248,637
	2015	90%	8%	266,598
	2040	93%	5%	413,087
To	2007	89%	9%	251,906
	2015	89%	9%	281,111
	2040	91%	7%	449,147

Table 4-11: Domestic Mode Distribution for Imported/Exported Goods with Destination/Origin in Nebraska

Foreign Freight	Domestic Mode	2007	2015	2040
Imports	Truck (%)	57%	80%	76%
	Rail (%)	36%	16%	18%
	Multiple modes & mail (%)	8%	12%	12%
	Total (1000 tons)	3,810	4,425	9,961
Exports	Truck (%)	33%	36%	42%
	Rail (%)	52%	48%	44%
	Multiple modes & mail (%)	7%	4%	5%
	Total (1000 tons)	2,093	5,956	12,708

One of the products available through the FAF-3 data resources is the ability to assign estimates of annual freight movement volumes to specific links and routes across major U.S. transportation networks. Figure 4-14 shows the FAF assignment of regional freight tonnage upon Grand Island's regional highway network in 2007. Not surprisingly, I-80 carries the highest volume of freight, followed by the section of U.S.-281/U.S.-34 linking Grand Island to I-80. U.S.-30 east of Grand Island was also estimated to have carried in excess of 15 million tons of freight in 2007. The subsequent map in Figure 4-15 displays the estimated freight volume on Grand Island's regional roadway network in 2040. By 2040, U.S.-281/U.S.-34 is estimated to carry in excess of 50 million tons, as is a section of U.S.-30 in downtown Grand Island.

Figure 4-14: FAF Truck Tonnage Assignment Grand Island Regional Road Network – 2007

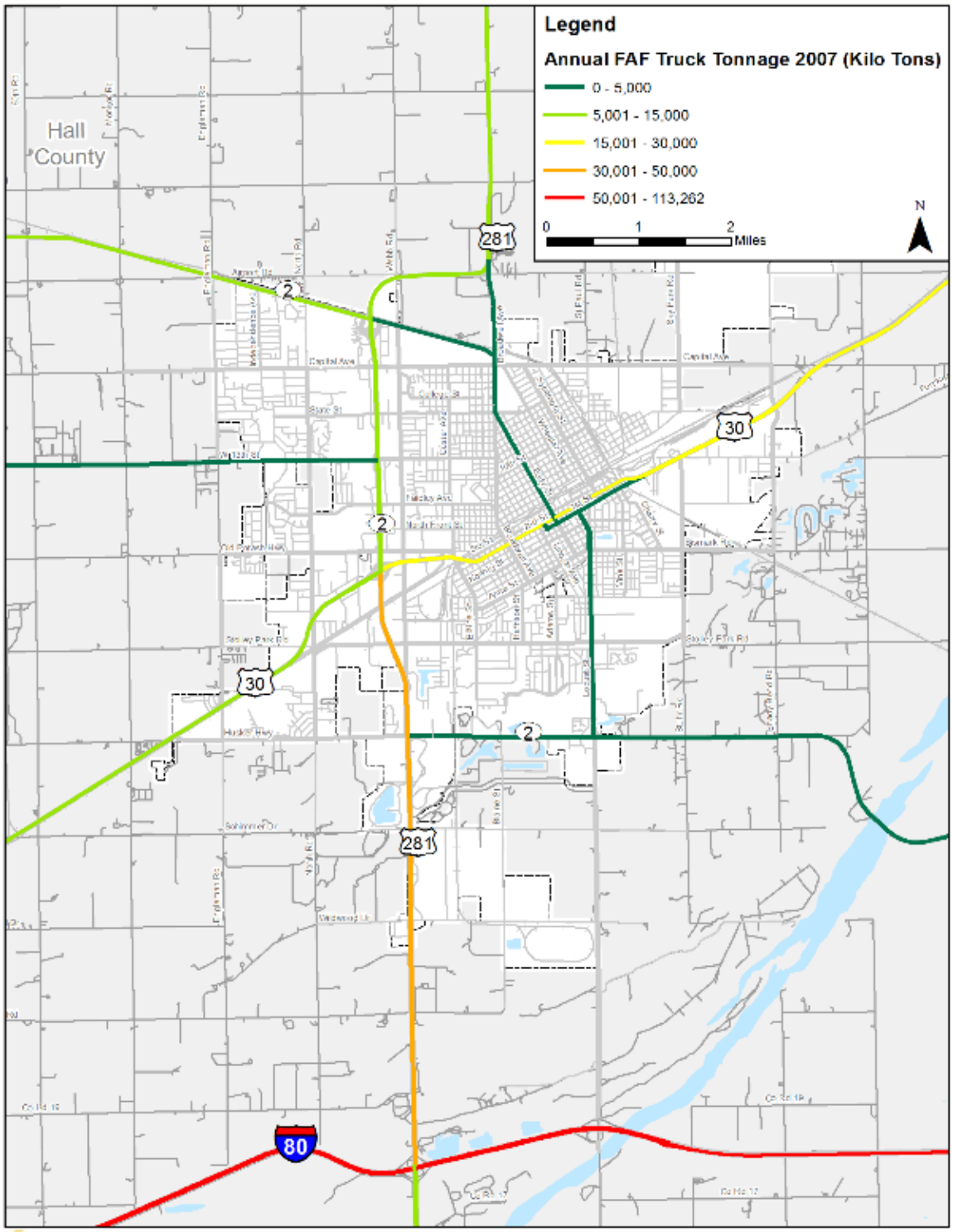
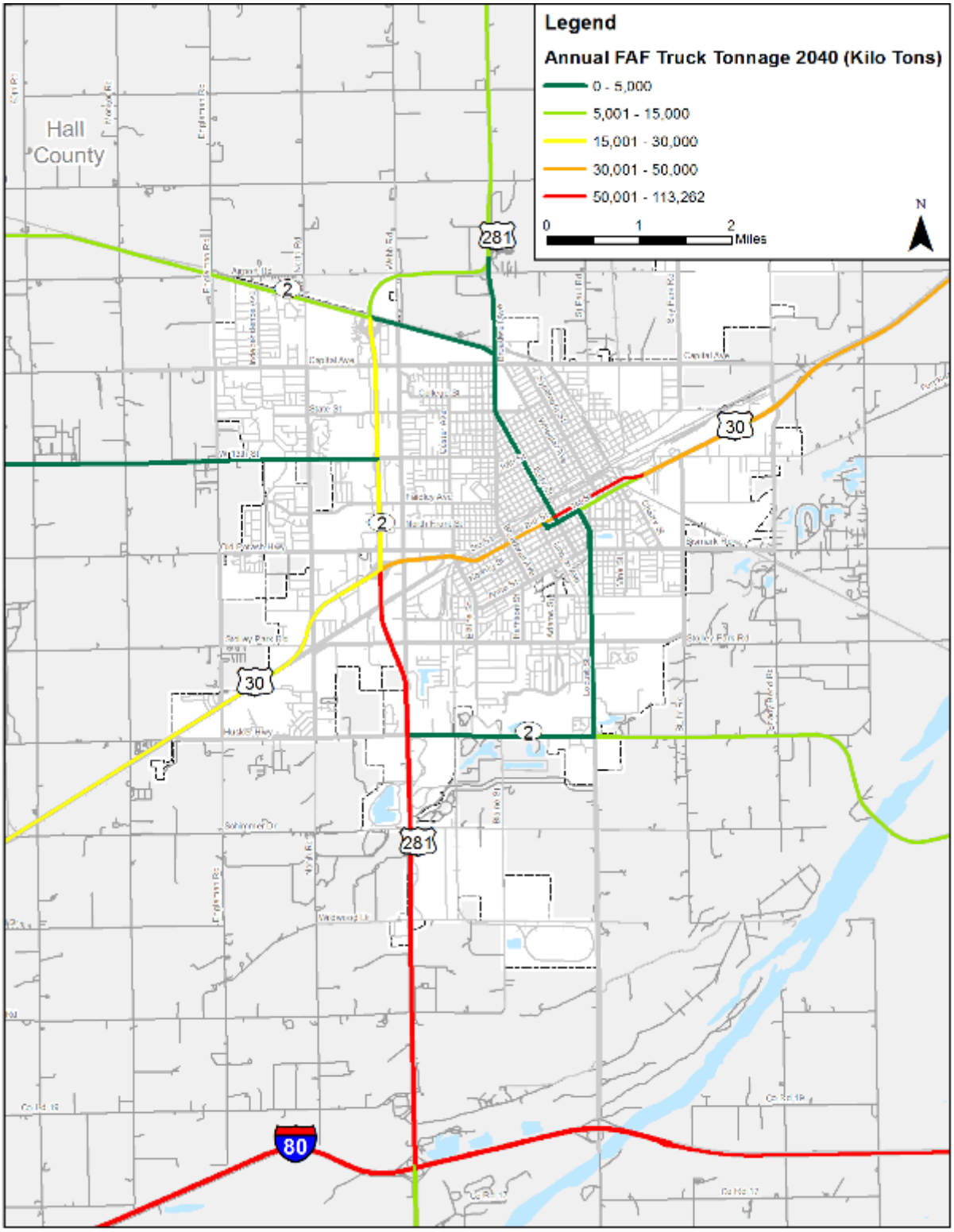


Figure 4-15: FAF Truck Tonnage Assignment Grand Island Regional Road Network - 2040

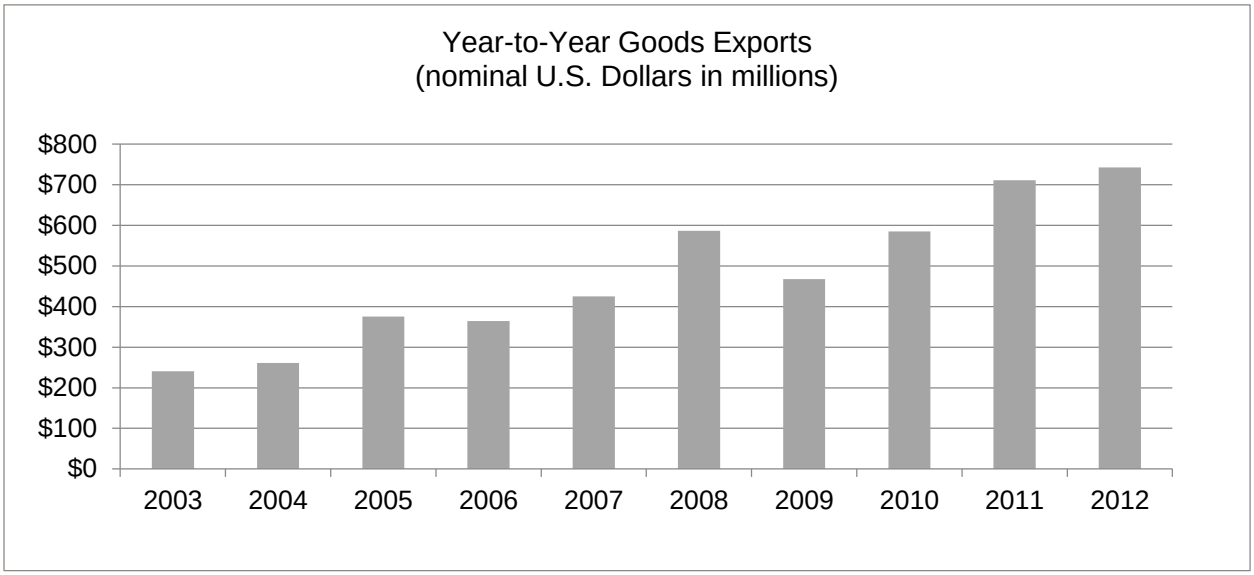


Export in Grand Island

The key industries driving the Grand Island/Hall County regional economy: manufacturing; transportation and warehousing; retail trade; agriculture; and, construction are all freight intensive industries (Transportation Satellite Accounts).

A data series produced by the Brookings Institution examines the impact of foreign trade on state and local economies. Figure 4-16 shows the growth in foreign exports from Grand Island between 2003 and 2012. During this 10 year period, the value of Grand Island's foreign exports has grown by 210 percent. According to the Brookings Institute, in 2014 the total value of exports from Grand Island reached $960 million.

Figure 4-16: Annual Growth in Goods Exports (Grand Island)



Source: Brookings Institution, Metropolitan Policy Program: Global Cities Initiative (Excludes service exports).

Grand Island's leading export industries by total value in 2014 are shown in Table 4-12. In 2014, exports contributed an estimated 19.4 percent of the Grand Island regional economy and supported 6,599 jobs.

Table 4-12: Top Grand Island Export Industries in 2014

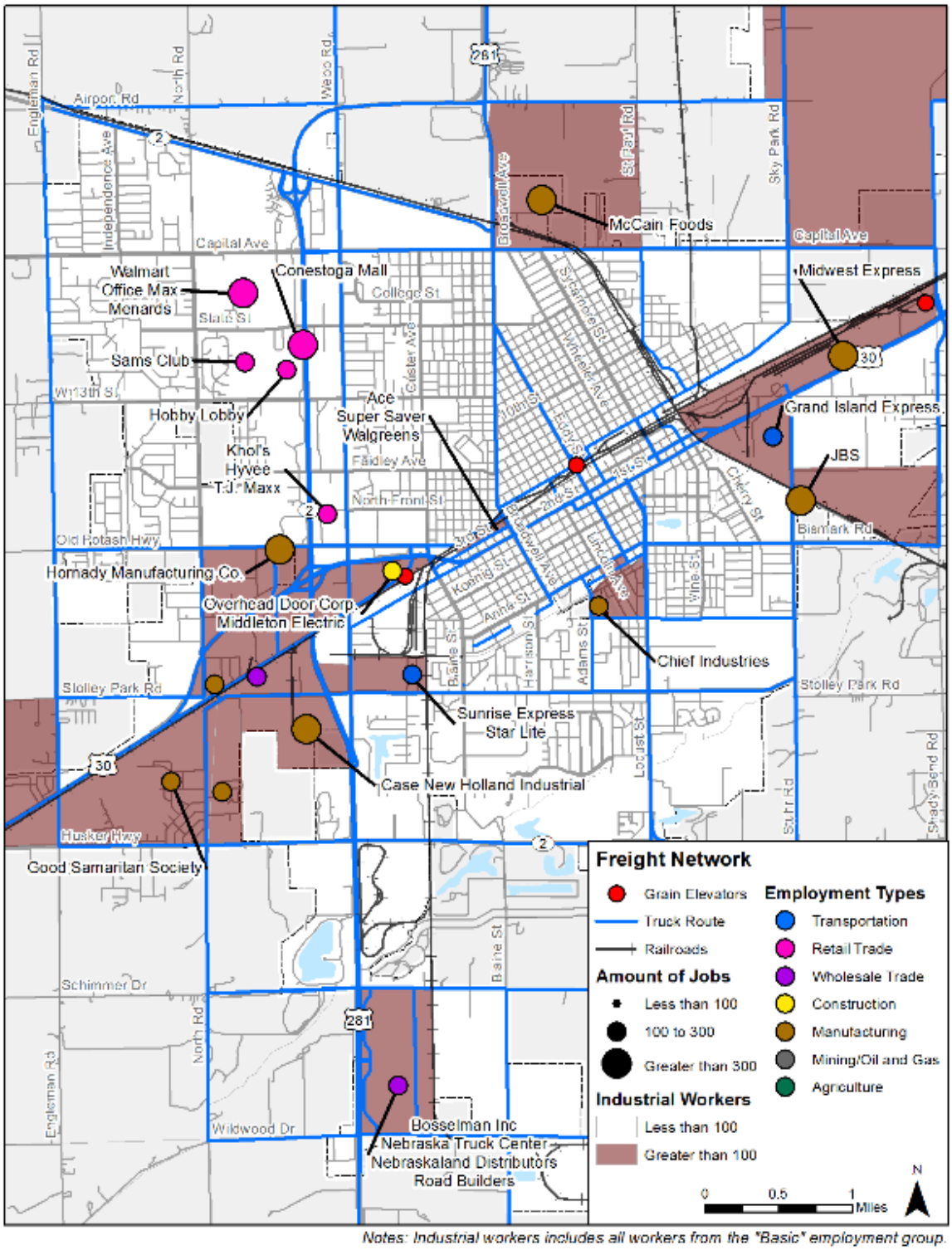
Industry	2014 Export value *(millions of $)*	Annualized Growth Rate *(2003-2014)*
Agriculture, Construction, Mining Machinery	$209.0	+10.6%
Agriculture	$144.0	+3.0%
Meat & Poultry Products	$116.1	16.3%
Basic Chemicals	$76.6	9.7%
Misc. Fabricated Metal Products	$61.9	13.9%

Source: Brookings Institution, Metropolitan Policy Program: Global Cities Initiative.

Freight Network in Grand Island

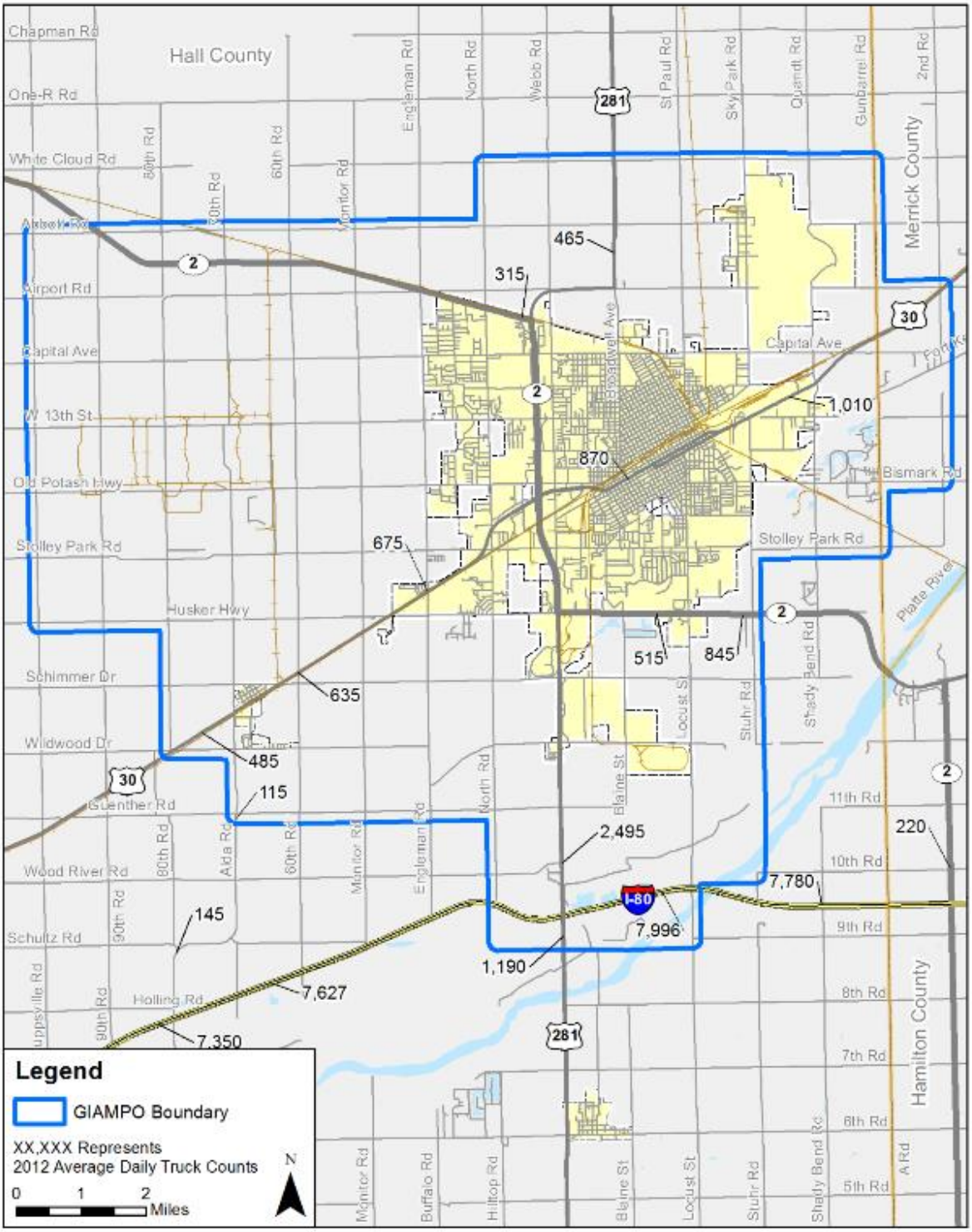
There are several freight generators in the Grand Island area. Truck and rail are the major modes for freight transportation. Freight generators are sites that generate or receive regular loads of freight, such as factories, grain elevators, and large retailers. Figure 4-17 combines freight-related information in Grand Island in terms of truck route, rail lines, and land use related to freight generators. Three grain generators are shown as red circles. Areas in brown are the traffic analysis zones with industrial workers higher than 100. Freight-oriented employment types such as transportation, trade, construction, and agriculture are symbolized based on the amount of jobs. The truck route and rail networks have a good coverage to serve these freight generators. Figure 4-18 displays the number of trucks on major truck routes within the Grand Island area in 2012. The information is obtained from the statewide average daily traffic (ADT) map downloaded from the NDOR website.

Figure 4-17: Grand Island Freight Network Map



Notes: Industrial workers includes all workers from the "Basic" employment group.

Figure 4-18 Average Daily Truck Counts from Statewide ADT Map



4.4 Transit

Within the City of Grand Island, Hall County, and Merrick County, alternative transportation services are provided by general public demand-response bus service, senior transportation provided by Senior Citizens Industries, Inc., taxi service, and various intercity bus routes.

Public Transportation Service

Hall County Public Transportation is the main public transit provider within the MPO region, offering demand-response service to all persons living in Hall County, including the communities of Alda, Cairo, Doniphan, Grand Island, and Wood River. Hall County's service is general public transportation, with no eligibility restrictions related to age or disability status. The Senior Citizens Industries, Inc. organization is the current provider and recipient of federal and state transportation funds. The agency oversees Hall County Public Transportation.

Trips within Hall County are available Monday through Friday, from 7:00 a.m. to 6:00 p.m. Reservations are required 24 hours in advance and fares are $1.50 per one-way trip. Hall County's vehicle fleet includes 11 lift-equipped buses with a capacity of 12 passengers, two wheelchairs, and a driver. There is also a program offering discounted taxi cab tickets with the City Cab Company. This service is available to county residents who are disabled or 60 years and older, and operates 24 hours a day, seven days a week.

Existing fleet information for Senior Citizens Industries, Inc. is shown in Table 4-13.

Table 4-13 Fleet Information (Senior Citizens Industries, Inc.)

Vehicle Type	Vin	Year	Condition of Vehicle
12-pass Van	78818	2012	Very Good
Small Bus, 12+2	44732	2013	Very Good
Small Bus, 12+2	62983	2010	Good
Small Bus 12+2, Star Trans	46538	2010	Good
Small Bus 12+2, Star Trans	46539	2010	Good
Cutaway Van	45963	2006	Fair
Starcraft Allstar	25184	2006	Fair
Lowered floor minivan	20355	2014	Excellent
Lowered floor minivan	20356	2014	Excellent
Goshen Coach	84974	2008	Good
Goshen Coach	09020	2009	Poor
Cutaway Van	04495	2004	Fair
Supreme	78770	2014	Excellent

Note: NDOR, April 2015.

In FY2015, Hall County Public Transportation provided approximately 36,400 annual trips, with approximately 14,377 annual revenue hours. The agency transportation operating costs were recorded at $258,570. The agency reports approximately 10 percent of total trips are to the rural areas.

The agency received $264,053 FTA 5311 funding in FY2015. The local and state match for the funds were $55,669 each. In FY2016, the agency received $353,108 in 5311 operating funds, with a local match of $96,619 and a state match of $98,618. In addition, the agency received $88,000 from the 5311 funds for capital purchases, with a local match of $22,000. As of July 1, 2016, 5311 funding will be only available to the agency for rural trips, and the agency will need to apply for FTA 5307 urban-area funds to receive federal funding for public transportation services. Table 4-14 provides a summary of the agency services.

Table 4-14 Hall County Public Transportation – Agency Data

Year	2013	2014	2015
Ridership	32,521	32,492	36,394
Revenue Vehicle Hours	n/a	13,626	14,377
Miles Traveled	172,419	170,940	170,497
Fares Collected	$125,347	$125,148	$137,707
Operating Costs	$464,540	$337,550	$258,570
Non-Operating Costs	Combined	$144,756	$254,528
Total Costs	$339,193	$357,158	$513,098

NOTE: NDOR, March 2016.

Located in Merrick County, **Central City Mini Bus** offers general public transportation demand-response service to residents within Merrick County, pending a 24-hour advance notice. Service is available weekdays from 8:00 a.m. to 4:00 p.m. For medical trips, Merrick County residents are eligible for service to most medical destinations in Nebraska at a rate of $0.575 per mile. Central City Mini Bus currently has two lift-equipped vans. While one van operates primarily within Central City, the second bus is designated for medical-related trips. In addition to the service within Merrick County, there is also a monthly trip scheduled from Central City to Grand Island, located in Hall County, on the first Monday of each month. Riders can make the trip to Grand Island for a $10 round-trip fare. These trips are typically shopping or medical-related. The bus leaves Central City for Grand Island at 9:00 a.m. and returns to Central City around 3:00 p.m.

The agency provided 6,420 annual trips in FY2013-14, with an increase to 7,224 annual trips in FY2014-15. Annual operating costs for Central City Mini Bus were $57,531 in FY2013-14 and $43,374 in FY2014-2015.[3] The agency provided in FY2014-2015 approximately 1,200 annual vehicle revenue hours with approximately 10,591 miles. Funding for the agency comes from federal, state, local and fare revenues, as shown below in Table 4-15 for FY2013-2015.

[3] NDOR, March 2016.

Table 4-15 Central City Mini Bus – Financial Data

Fiscal Year	Federal	State	Local	Operating Revenue	Total Costs
FY2013-2014	$31,411	$13,530	$69,441	$6,316	$58,471
FY2014-2015	$37,347	$11,658	$11,658	$6,098	$66,760

NOTE: NDOR, March 2016.

Intercity Transportation

Intercity transportation services provide connections to other destinations outside Grand Island. Operating characteristics of each provider is further described in this section.

Dashabout Shuttle

The Dashabout Shuttle is a scheduled van service operating intercity routes across Nebraska travelling as far west as Colorado and as far east as Omaha. Two routes stop in Grand Island. One route travels between McCook and Grand Island, where riders can eventually transfer to another route enroute to Colorado. The second route stopping in Grand Island travels from North Platte to Omaha. This route allows riders to either travel west towards North Platte or east to Lincoln or Omaha. Both services operate Monday through Friday, offering a single same-day round trip.

Table 4-16 presents agency statistics for FY2010-2014.

Table 4-16 Dashabout Agency Data (FY2010-2014)

Fiscal Year	Vehicles in Service	Vehicle Miles Traveled	Boardings	Federal Funds Paid	State Funds Paid	Operating Deficit	Total Operating Costs
FY2010	2	166,112	859	$55,813	$37,210	$93,023	$93,023
FY2011	2	166,112	784	$55,813	$35,589	$93,023	$93,023
FY2012	2	166,148	790	$56,125	$32,226	$93,542	$93,542
FY2013	2	167,046	551	$55,813	$29,462	$93,542	$93,542
FY2014	2	161,472	479	$45,211	$33,536	$90,424	$90,424

NOTE: NDOR, March 2016.

Navigator Airport Express

The Navigator Airport Express is a van service between Kearney and Omaha's Eppley Airfield. Grand Island passengers can take the van service for a one-way trip for $62.

Burlington Trailways

Burlington Trailways operates a route between Ogallala and Omaha, with a stop in Grand Island. They offer a westbound and eastbound trip Monday through Saturday, except for holidays. The eastbound bus departs from Grand Island at 3:05 a.m. and a westbound bus departs at 12:50 a.m. Other stops along the route include the cities of Ogallala, North Platte, Lexington, Kearney, Lincoln, and Omaha. Fares from Grand Island range from $18 to $52 each way. In FY2015, the agency received federal funds for the first

time, which was $33,372. Annual passenger boardings are 26,540, with 271,246 annual miles. The agency is not eligible to receive state funding.

Ponca Express

Ponca Express is a public transportation agency operated by the Ponca Tribe of Nebraska, which includes 15 federally-designated counties, including Hall County, located in Nebraska, South Dakota, and Iowa, as part of the Ponca Restoration Act of 1990. The Ponca Express, an FTA 5311 grantee, serves rural communities within a three-hour radius of Ponca Transit facilities in either Niobrara or Norfolk for appointments, meetings, or gatherings with the tribe. On-demand service is available on a first-come/first-serve basis from 8:00 a.m. to 4:30 p.m. Monday through Friday. Round-trip fares for passengers originating from Grand Island are $5 for adults and $3 for children and seniors. Additional fares are required if other stops are needed en route to the intended destination.

In 2014, Ponca Express completed a new 15,000 square-foot transit facility in Norfolk for $3.5M, which is the headquarters for the tribal transit program. The facility was funded partially from the Federal Transit Administration. The building houses Ponca Express, garage storage for 16 vehicles, a training area, and a conference room.

The Ponca Tribe received $97,500 for FY2014 and FY2015 for transit expansion and capital projects from the FTA Tribal Transit Program for discretionary projects with earmarks.[4] The Tribe received funding to puchase accessible vans to enhance their ability to provide elderly, disabled and tribal and community members in Northeastern Nebraska with access to jobs, health care and social service appointments. In FY2014, the agency received $68,344 FTA Section 5311 (c) formula-based funds. In FY13, the agency received approximately $3,700 for to purchase GPS equipment to monitor vehicle locations, and $51,594 from the FTA 5311 (c) formula-based funds.

Amtrak

While there is currently no Amtrak service stopping in Grand Island, the California Zephyr route stops in Hastings, 25 miles south of Grand Island, on its way towards Chicago, Illinois, on its eastbound route and San Francisco, California, on its westbound route. Other stops in Nebraska include McCook, Holdrege, Lincoln, and Omaha. During FY2014, Amtrak reported boarding and alighting data for the Hastings stop at 5,601, which is down from 5,865 for FY2013.[5] Other FY2014 activity includes:

- Holdrege – 2,247 Boardings and Alightings
- Lincoln – 13,313 Boardings and Alightings
- McCook – 3,414 Boardings and Alightings
- Omaha – 24,336 Boardings and Alightings

The total FY2014 boardings and alightings for the state were 48,911, which is down one percent from FY2013 at 49,408.

[4] http://www.fta.dot.gov/documents/Larger_Font-Earmark_IDs_Project_Selection_List-TTP_FY14-15.pdf
[5] https://www.amtrak.com/pdf/factsheets/NEBRASKA14.pdf
https://www.amtrak.com/pdf/factsheets/NEBRASKA13.pdf

Fares from Hastings to Lincoln are as low as $21 for a one-way fare and $28 to Omaha. If riders are without access to a car for their connection to Hastings from Grand Island, taxi cab service or the Dashabout Shuttle, described earlier in this section, could be used to deliver passengers between Grand Island and Hastings.

Transit Dependent Demographics

The demographics in this section describe the portions of Grand Island and Hall County residents with socio-economic characteristics that would make them more likely to have a need for public transportation services. These populations include people who may be disabled or elderly, have low-incomes, and households with limited access to cars. This information is summarized in Table 4-17 through Table 4-20. The location of people more likely to have a need for public transportation services are displayed in Figure 4-19.

There is a concentration of persons which could be served by expanded transit services. As the tables and figure show, nearly 5,500 people in Grand Island have some form of disability. In addition, 6,200 Grand Island residents are over the age of 65, and 3,200 are over age 75. Persons in this age group are sometimes categorized as “frail elderly”, and are more likely to suffer from activity or cognitive impairments that may make driving difficult. This could also be true for persons with disabilities. In the broader Grand Island population, 7,200 residents are below poverty level, and 7,500 households have either none or only one vehicle available for use. Residents below poverty level or residents without a vehicle or with only one vehicle in their household are more likely to have a need for alternative transportation options due to the cost of owning and maintaining a car or multiple cars within a household.

Transit riders may also be people who have access to private vehicles but choose to use transit in order to save money, for the convenience of not having to drive, for environmental reason or other reasons. These riders and the need to serve major employment areas, shopping area, medical and government centers should be considered in the Transit Feasibility Study to be completed in the near future.

Table 4-17: Disabled Population (2013)

	Grand Island	Hall County
Total population	48,617	58,648
Total with a disability	5,458	6,735
Percent with a disability	11%	12%
Total population with a disability under 5 years	51	51
% of population with a disability under 5 years	1%	1%
Total population with a disability 5 to 17 years	529	703
% of population with a disability 5 to 17 years	6%	6%
Total population with a disability 18 to 64 years	2,855	3,430
% of population with a disability 18 to 64 years	10%	10%
Total population with a disability 65 years and over	2,023	2,551
% of Population with a disability 65 years and over	35%	35%

Source: U.S. Census Bureau, American Community Survey (ACS), 2009 – 2013 5-year estimates.

Table 4-18: Population over 65 Years (2013)

	Grand Island		Hall County	
Age	Total	% Total	Total	% Total
65 years and over	6,249	12.7%	7,919	13.3%
65 and 66 years	852	1.7%	1,030	1.7%
67 to 69 years	993	2.0%	1,309	2.2%
70 to 74 years	1,122	2.3%	1,565	2.6%
75 to 79 years	1,065	2.2%	1,429	2.4%
80 to 84 years	1,085	2.2%	1,266	2.1%
85 years and over	1,132	2.3%	1,320	2.2%

Source: U.S. Census Bureau, American Community Survey (ACS), 2009 – 2013 5-year estimates.

Table 4-19: Population below the Poverty Level (2013)

	Grand Island	Hall County
Total Population	48,364	58,265
Population below poverty level	7,232	8,007
% below poverty level	15.0%	13.7%

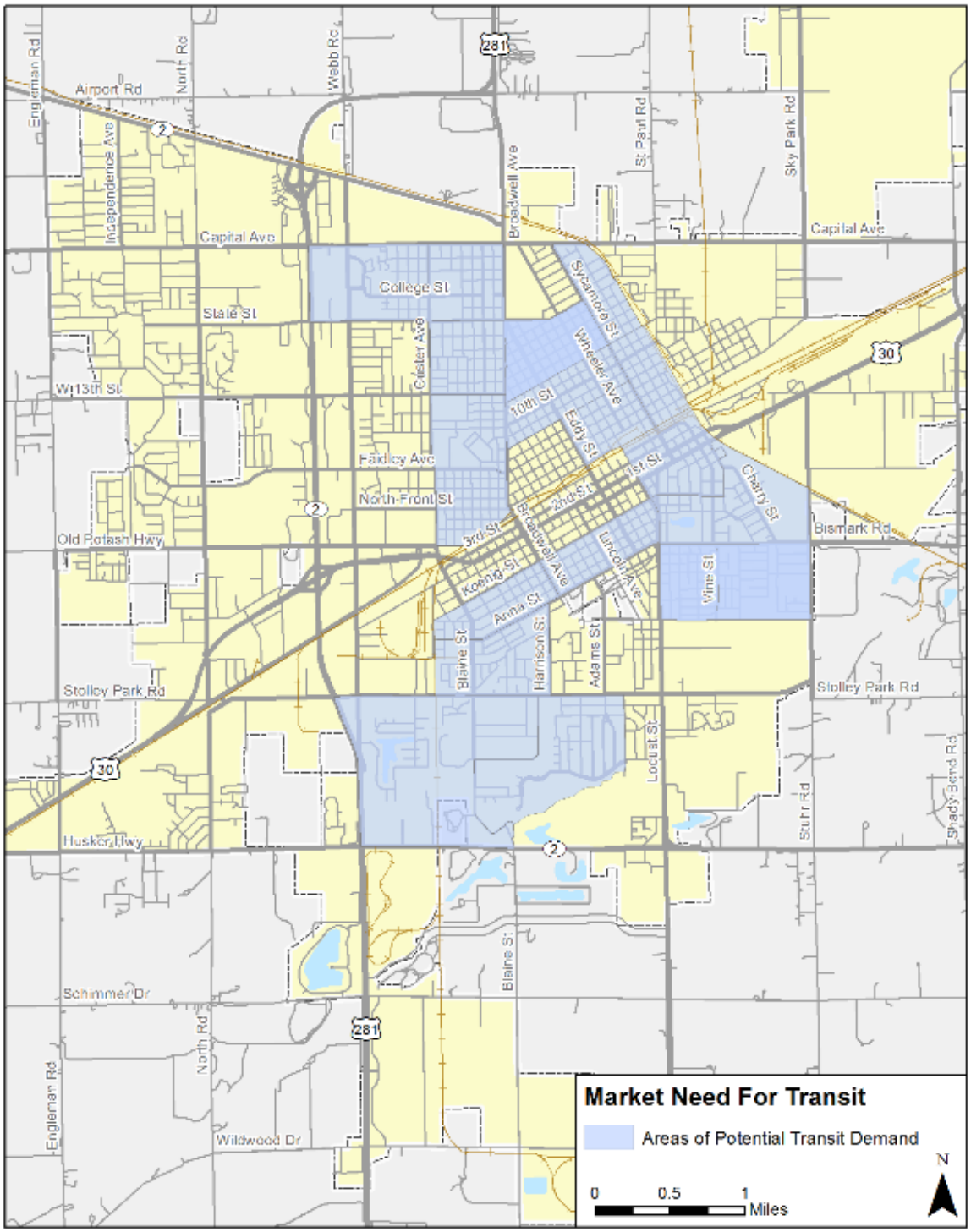
Source: U.S. Census Bureau, American Community Survey (ACS), 2009 – 2013 5-year estimates.

Table 4-20: Vehicle Ownership by Household (2013)

	Grand Island		Hall County	
	Total	% of Total	Total	% of Total
Total Households	18,463	-/-	22,168	-/-
No vehicles available	1,274	6.9%	1,371	6.2%
1 or 0 vehicles available	7,581	41.1%	8,235	37.1%
2 or less vehicles available	14,379	77.9%	16,463	74.3%
3 or more vehicles available	4,084	22.1%	5,705	25.7%

Source: U.S. Census Bureau, American Community Survey (ACS), 2009 – 2013 5-year estimates.

Figure 4-19: Indicators of Market Need for Transit



Notes: Only areas with more than one person per acre are symbolized. Areas with potential transit demand were determined by block groups with above average amounts of 1 or less car households or had higher than 20% of households with incomes under $20,000. Source: U.S. Census Bureau, ACS 09'-13'.

4.5 Bicycle & Pedestrian Network

The Grand Island and Hall County area has numerous bicycle and pedestrian facilities, including sidewalks, on-street bicycle routes, off-street multi-use paths, and scenic byways. Each facility type has certain characteristics that dictate how the facility is used and the level of safety perceived by users. Pedestrians and bicyclists rely on these characteristics, as well as the connectivity between their origin/destination(s), to decide whether to bike/walk instead of using their car, if available. This section of the report describes the street network of Grand Island that provides the underlying structure for an active transportation network, a review of how the Grand Island street network addresses bicycle and pedestrian movement, a description of typical bicycle and pedestrian facilities, existing supply of trails in Grand Island, bicycle user types, and the support for future trail investments.

The street systems, and thus the underlying structure of any pedestrian network, are representative of street systems designed across a variety of time periods. The traditional grid system is evident in much of the city, including downtown and the surrounding areas. The traditional grid system "contains the most amount of street frontage, the greatest number of intersections, the greatest number of blocks, the greater number of access points, and the total absence of loops and cul-de-sacs[6]" as compared to other street patterns. These characteristics of short block lengths and a high number of access points have typically encouraged walking and biking as it allows travelers to access their destinations through a wide variety of paths based on personal preference, perception of safety, directness of route, and variety of experience. Other street patterns began to take shape as Grand Island's street network expanded outward from downtown, although a grid pattern remains prevalent. These other patterns include a fragmented parallel network (circa 1950's), which lays streets generally in a grid, but limits cross-traffic opportunities, and a warped parallel network (circa 1960s), that introduces a patterned and curvilinear aspect to the street network. In the more recent additions to the Grand Island street network, cul-de-sacs within a loop network, and cul-de-sacs within a very wide or loose grid appear. As the street network progresses further away from a grid structure, generally the number of blocks and intersections decrease and reduce the attractiveness of walking to nearby destinations.

[6] Frank, L., Engleke, P. (undated). How Land Use and Transportation Systems Impact Public Health: A Literature Review of the Relationship Between Physical Activity and Built Form. City and Regional Planning Program College of Architecture. Georgia Institute of Technology.

Grid
(Cedar Street and 12th Street)

Fragmented Parallel
(Rosemont Ave and Apache Road)

Warped Parallel
(Oklahoma Avenue and Arthur Street)

Cul-de-sacs within loops
(Morrison Drive and Allen Avenue)

Cul-de-sacs
(Warbler Circle and Summerfield Avenue)

A system-wide analysis identified areas of the Grand Island MPO that demonstrate a high propensity for walking and bicycling. These areas had above average rates of either persons under the age of 18, elderly population, or low-income population. These areas were compared against areas with higher intersection densities, which could serve as a proxy for walkability. The LEED 2009 for Neighborhood Development Rating System has a prerequisite under its Neighborhood Pattern and Design (NPD) section that requires at least 90 intersections per square mile to be considered as a “Connected and Open” community. Areas with both a higher density street network and a population more likely to walk or bike, could be areas where addressing sidewalk or bike network gaps could return a large investment in terms of attracting more pedestrians and investments.

In addition to a system-wide analysis, three areas of Grand Island were further reviewed for challenges and opportunities within Grand Island's existing sidewalk system. These four areas are downtown, the retail area along Highway 281, the area south of downtown, and along Locust Street.

Downtown Grand Island benefits from the grid system discussed above, and generally has wide sidewalks on both sides of the street, frequent and defined street crossings, and a generous distribution of deciduous street trees that filter sunlight by providing shade in the summer and sunlight in the winter. The combination of short blocks, frequent intersections, and in most cases a solid streetwall made up of human-scale buildings built to the parcel line present a diverse and engaging walking and biking environment.

The area around Conestoga Mall is indicative of an auto-orientated retail environment built after World War II. Sidewalks are somewhat intermittent, and may require pedestrians to cross busy major arterials to continue their journey on a sidewalk. Development in the area typically utilizes large setbacks with parking lots separating buildings from the street, and may not have a direct pedestrian connection between the sidewalk and buildings. East-West blocks in the area are shorter than their north-south counterparts, but typically have a greater level of access for vehicles than for pedestrians.

The pedestrian environment along South Locust Street is similar to that environment around Conestoga Mall in terms of long blocks and limited pedestrian crossing opportunities. However, the sidewalk network along Locust Street is generally more complete, with fewer gaps. The walking environment is still characterized as walking relatively close to heavy traffic, and past buildings with large setbacks.

Figure 4-20 shows that areas between Stolley Park Road and Capital Avenue, and east U.S.-281 generally have a higher intersection density and are more conducive to taking trips by walking or biking. This is also an area with higher than average rates of either youth, elderly, or low-income.

There is support from the community to develop new facilities in the future. In Grand Island's Grander Vision document, action items related to bicyclists and pedestrians include developing a pedestrian and bicycle plan and completing a regional or county-wide parks and recreation system. By implementing these actions in Grand Island, future roadway construction would look to accommodate bicycling and walking, as well as establish priority corridors for bicyclists and pedestrians.

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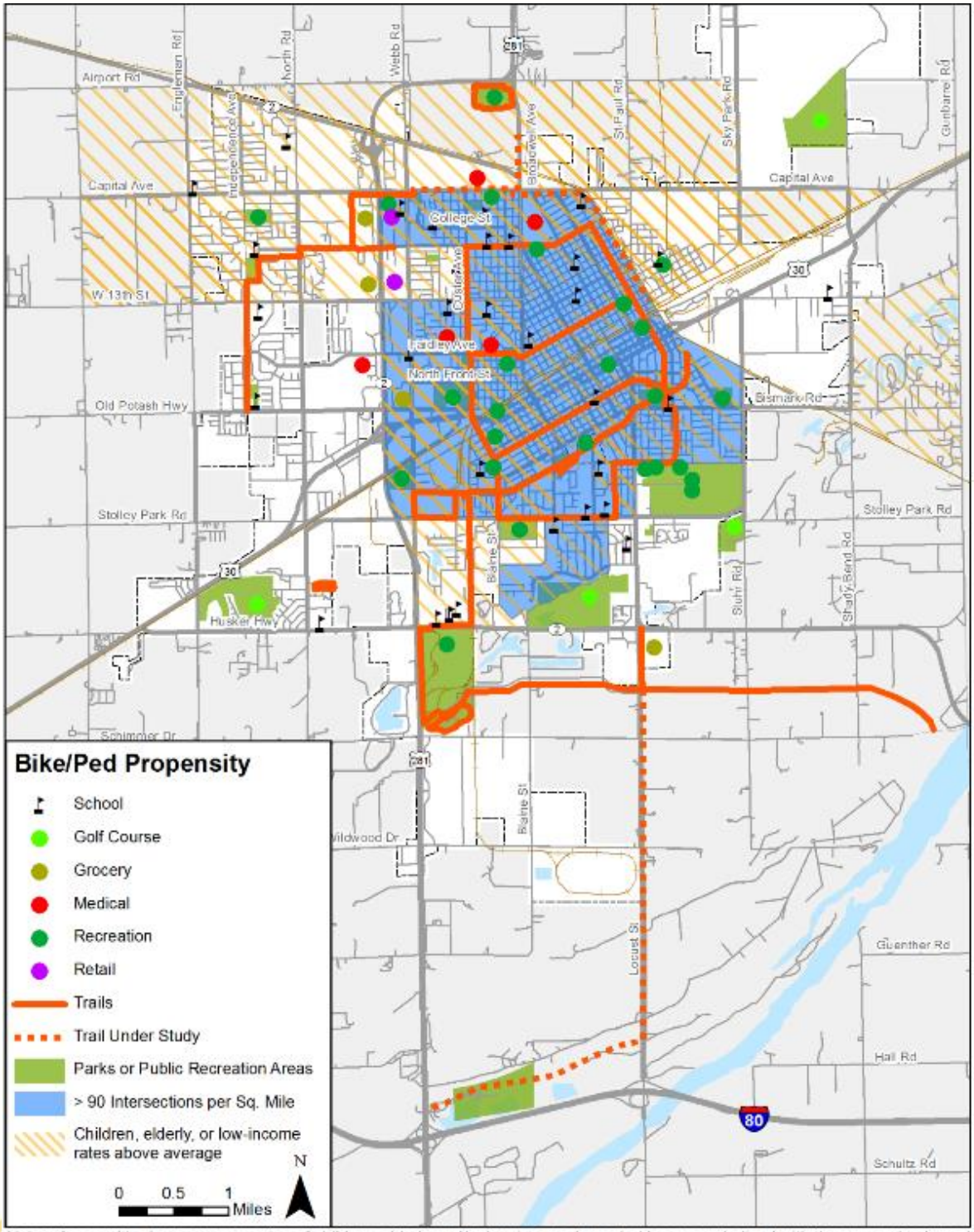
Figure 4-20: Bicycle and Pedestrian Propensity



Notes: Areas with above average rates of children, elderly and/or low-income households are symbolized with the orange hash mark. The blue shaded areas have an intersection density greater than 90 intersections per square mile, deeming them walkable.

Definitions of Types of Facilities

There are a range of bicycle and pedestrian facilities that could be implemented in Grand Island. These facilities commonly break down into two categories: on-street and off-street.

On-street facilities share the roadway with vehicular traffic, but vary in the level of buffering depending on the facility. In any case, facilities located on-street include primarily bicyclists.

Shared Streets – Shared streets allow for bicyclists and motorists to operate in the same right-of-way. The typical accommodation for bicyclists is either sharrows or a bike route sign placed on the side of the roadway. Grand Island's existing on-street facilities use the bike route signs rather than pavement markings.

Paved Shoulders – Paved shoulders provide sufficient space, 4-5 feet, for bicycling on mostly rural roads. Shoulders are outside the vehicular travel-way, but do accommodate vehicles in moments of need.

Bike Lanes – Bike lanes accommodate bicyclists by using a painted lane, which takes up a portion of the roadway from 4-5 feet wide. While bicyclists use bike lanes, they are subject to similar regulations practiced by vehicles. Buffers can also be added with additional pavement markers to increase the safety of all users of the roadway.

Cycle Tracks – Cycle tracks are similar to bike lanes in that they are located within the roadway, but the buffer between traffic is physically separated by structures rather than pavement markings.

Off-street facilities primarily include multiple types of users and are buffered by an open space or barrier.

Sidewalks – Sidewalks are paved walkways typically three to five feet wide and designed to accommodate non-motorized traffic. While younger bicyclists may use sidewalks, this type of facility is best suited for pedestrian traffic. A sidewalk is shown in Figure 4-21.

Multi-use paths – Multi-use paths, or shared-use paths, can accommodate only non-motorized users. These facilities most often connect neighborhoods through exclusive rights-of-way apart from the streets, and often run along waterways, greenways, parks, and reclaimed railways. In general, multi-use paths are typically 10 feet wide. Many of the off-street trails in Grand Island fall under the multi-use category.

Examples of Grand Island multi-use paths are shown in Figures 4-22 and 4-23.

Figure 4-21 South Locust and Fonner Park Road

Figure 4-22 3765 South Locust Street

Figure 4-23 John Brownell Trail

Sidepaths – Sidepaths are multi-use paths that run parallel to a street, often in the same right-of-way, and in place of a sidewalk. Sidepaths are typically 10 feet wide, and can serve both bicyclists and pedestrians. Sidepaths are typically separated from the street by a wide vegetation buffer or in areas with constrained right-of-way, by a barrier. The images on the following pages represent examples of the previously defined bicycle and pedestrian facilities.

Figures 4-24 – 31 are some examples of the facility types defined in this section.

Figure 4-24 Example of Shared Streets

Source: www.pedbikeimages.org / Lyubov

Figure 4-25 Example of Paved Shoulders

Source: www.pedbikeimages.org / Bob Bovce

Figure 4-26 Example of Bike Lane

Source: www.pedbikeimages.org/Jennifer Campos

Figure 4-27 Buffered Bike Lane

Source: www.pedbikeimages.org/Steven Faust

Figure 4-28 Example of Multi-Use Trail

Source: www.pedbikeimages.org/Laura Sandt

Figure 4-29 Example of Multi-Use Trail

Source: www.pedbikeimages.org/Dan Burden

Figure 4-30 Example of Cycle Track

Source: www.pedbikeimages.org/Bill Daly

Figure 4-31 Example of Sidewalk

Source: www.pedbikeimages.org/Dan Burden

Facilities

The Grand Island area's existing 30-mile network of trails can be found on-street or off-street in either parks, alongside neighborhoods, or local streets. Tables 4-21 and 4-22 show the existing and proposed trails in each of these categories and the length of each segment. The trail system is shown in Figure 4-32.

Table 4-21: Existing Trails

Existing Trails	Miles
On Street Trails	***8.25***
Parkside Trails	
Cedar Hills Park Trail	0.45
Cemetery Trail	1.25
Eagle Scout Park Trail	1.05
Hall County Park Trail	1.00
Pier Lake Trail	0.46
Sucks Lake Trail	0.50
Total Parkside Trail Miles	***4.71***
Neighborhood Trails	
Crosslinks Trail	4.60
John Brownell Beltline Trail	2.72
Riverway Trail	4.30
Shoemaker Trail	1.94
South Locust Trail	0.60
St. Joe Trail	2.91
State Street Trail	0.80
Total Neighborhood Trail Miles	***17.87***
Total Existing Trails	***30.83***

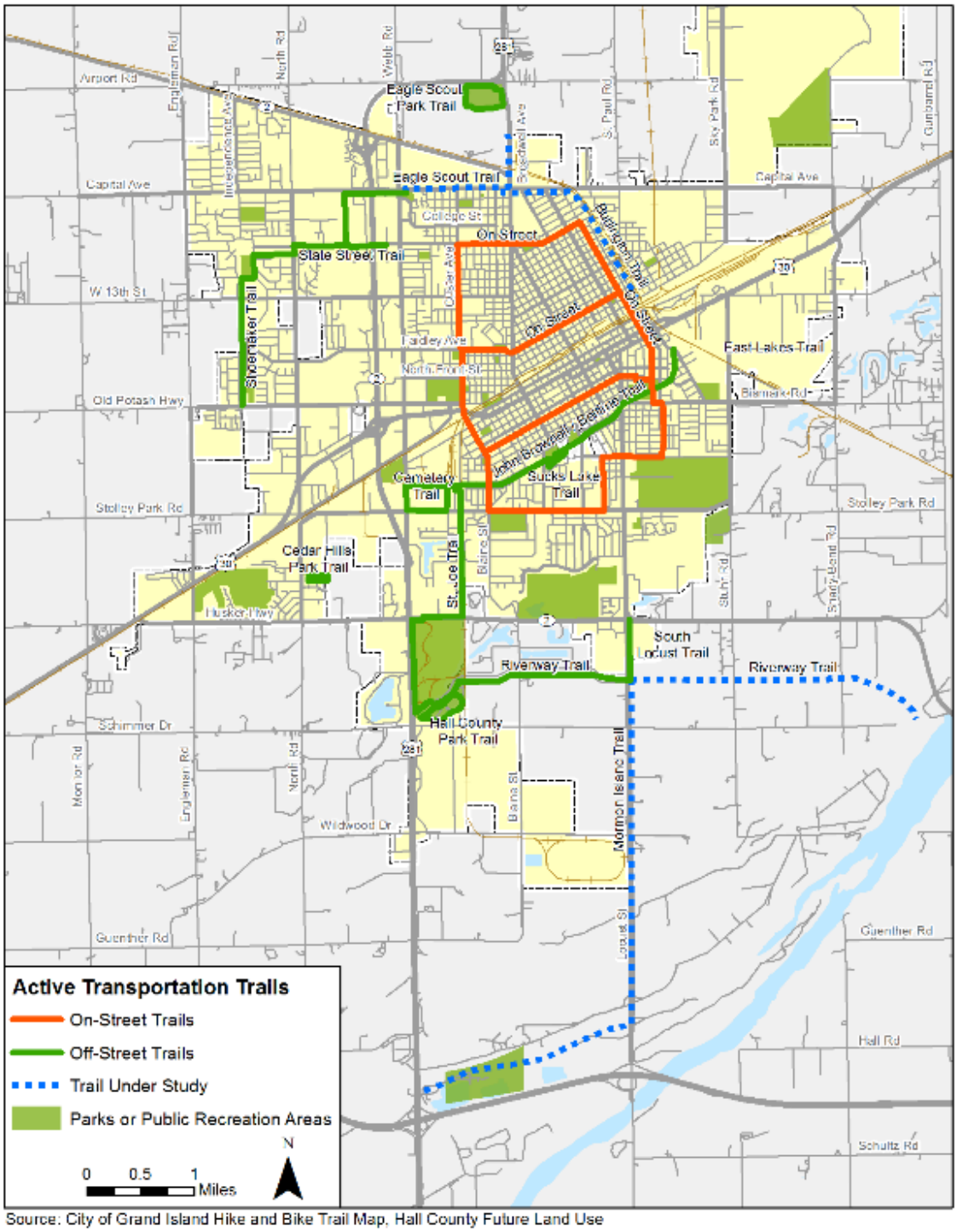
Source: <http://www.grand-island.com/your-government/parks-and-recreation/hike-and-bike-trail-map>

Table 4-22: Trails under Study

Trail Name	Miles
Burlington Trail	1.80
Eagle Scout Trail	1.70
East Lakes Trail	3.00
Mormon Island Trail	5.40
Total Planned Trails	***11.80***

Source: <http://www.grand-island.com/your-government/parks-and-recreation/hike-and-bike-trail-map>

Figure 4-32: Recreational Trails in Grand Island 2012



Source: City of Grand Island Hike and Bike Trail Map, Hall County Future Land Use

Scenic Bicycle Byways

There are also three scenic byways accessible from Grand Island, including the Lincoln Highway Historic Byway, Loup Rivers Scenic Byway, and Sandhills Journey Scenic Byway. These corridors contribute to not only the region's tourism, but also gives local residents opportunities for recreation. The table below describes the three byways further.

Table 4-23: Byways near Grand Island

Byway Label	Alignment
Lincoln Highway Historic Byway	From Omaha to Kimball, along U.S.-30
Loup Rivers Scenic Byway	From Dunning to Wood River along State Highways 11 and 91
Sandhills Journey Scenic Byway	From Grand Island to Alliance along Highway 2

Types of Bicyclists

Not only do bicycle facilities vary in design, but they also differ in who uses them. Bicyclist types range from advanced to basic, depending on their experience and willingness to travel along with vehicular traffic. Advanced bicyclists are more prone to bicycling in areas without non-motorized accommodations, as well as using on-street facilities. The advanced group, in general, is more frequent bicycle users than the basic group. As for the basic bicyclists/children group, they prefer facilities with a larger buffer between them and vehicle traffic and may choose not to ride where accommodations are lacking. Before investing in future accommodations for bicyclists, all groups of users and the connectivity to nearby facilities should be considered.

4.6 Aviation

Central Nebraska Regional Airport

Both general aviation and commercial aviation services are provided by the Central Nebraska Regional Airport (CNRA). The CNRA is owned and operated by the Hall County Airport Authority (HCAA). It is located three miles northeast of the City of Grand Island and is situated on approximately 2,200 acres. It is classified as a Non-Hub Commercial Service Airport by the Federal Aviation Administration (FAA) and currently serves three commercial carriers:

- Allegiant
- American
- Charters

Figure 4-33 shows the aviation service provided by each carrier as of March, 2016.

Figure 4-33: Air Lines in Grand Island

Note: http://www.flygrandisland.com/, March 2016.

Existing Facilities

Airfield

CNRA currently has two runways; the primary runway and a crosswind runway. The primary runway is 7,000 feet long and it is primarily designed to accommodate aircraft within the FAA Aircraft Approach Category C and Airplane Design Group III. Connecting the airport system are six taxiways. The crosswind runway is 6,600 feet long and serves C-II aircraft. The general characteristics of the runways are listed in Table 4-24.

Table 4-24: CNRA Runway Information

Airport	Runway	Runway Dimension (feet)	Runway Surface/ Condition	Maximum Runway Load (aircraft type: pounds)	Control Tower	Runway Edge Lights	Total Operations
Central Nebraska Regional Airport	17/35	7,002 × 150	Concrete / Good	Single wheel: 75,000 Dual wheel: 110,000 Dual Tandem: 185,000	Yes	High Intensity	27,196
	13/31	6,608 × 100	Concrete / Good	Single wheel: 45,000 Dual wheel: 60,000	Yes	Medium Intensity	

Source: CNRA website

Buildings

The commercial airline passenger terminal building is 8,800 square feet in size. It includes an airline ticket office, Budget and Thrifty rental car services, passenger boarding and waiting areas, restrooms, and a restaurant. Located to the north of the terminal is the air traffic control tower. South of the terminal is the Airport Authority offices. The Airport also operates five storage buildings, a car wash near the terminal, a maintenance building, and has an Air Rescue and Fire Fighting (ARFF) facility.

There are a combination of T-hangars and freestanding hangar units. There are six old Air Force Hangars and three Fixed Based Operator (FBO) hangars. There is also one large private hangar.

Access and Parking

The main terminal parking area is accessed by a divided two-lane airport entrance road with direct access from Sky Park Road. The majority of the available parking is located adjacent to the terminal building. The airport terminal auto area has 300 paved and lighted public use parking spaces. The airline terminal building also has 184 parking spaces. Other parking is provided for the Airport Authority, fixed based operators, and for private hangars.

Additional auto parking is available on the north side of the airport for public and private use, adjacent to the terminal area freight line with direct access to Sky Park Road. Most tenants maintain controlled gate access to the secured terminal area facilities. Gate-secured access is also provided to the north side of the apron area, which provides an entry/exit point to the airport's fuel facilities. South side auto parking areas are entered through the south-side general aviation area.

Tenants

The CNRA has several tenants. One major Fixed Base Operator (FBO) is Trego Duncan. Trego Duncan specializes in aviation services, including jet management, private jet charter, aircraft acquisition, jet and turboprop maintenance, avionics, and other FBO services, including the following:

- Aircraft Deicing Type 1 & 4
- Lavatory Service
- Catering
- Hangar up to G-IV
- Hotel Reservations
- Transportation Services

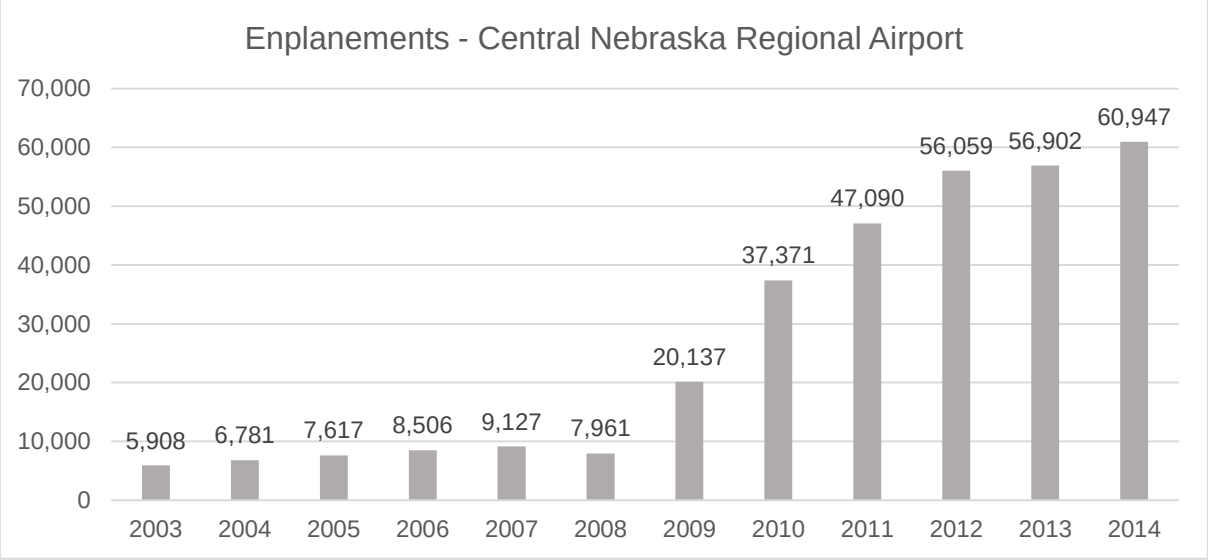
Other tenants of the airport include the Transportation Security Administration (TSA), which is responsible for security services for the commercial flights that depart from CNRA; as well as the ticketing areas for US Airways Express. In addition, the Nebraska Army National Guard operates a Chinook Helicopter Base at the Airport.

Source: CNRA website

Passenger Enplanements

A passenger enplanement occurs when an air traveler boards a plane for departure. Historic records below show a large increase in total enplanements since the early 2000s. In 2003, the airport had 5,908 enplanements and by 2014 the enplanements increased to 60,947, as shown in Figure 4-34. This is an average increase of 85 percent and an overall increase of 930 percent**.**

Figure 4-34: Airplane Enplanement Increase from 2003 to 2014



Source: CNRA website

Completed Projects

Listed below are the recently completed airport projects:

- 531 new parking stalls west of Sky Park Road, 119 new parking stalls to the east of Sky Park Road, and a 25,700 SF addition to the apron - completed in June 2014.
- New 5-Unit Aircraft Hangar – completed in June 2014.

Chapter 5 ANANLYZE TRANSPORTATION PROJECTS

Developing and implementing a performance management approach to transportation planning and programming includes:

- Transportation performance measures,
- Target setting,
- Performance reporting, and
- Transportation investments that support the achievement of performance targets.

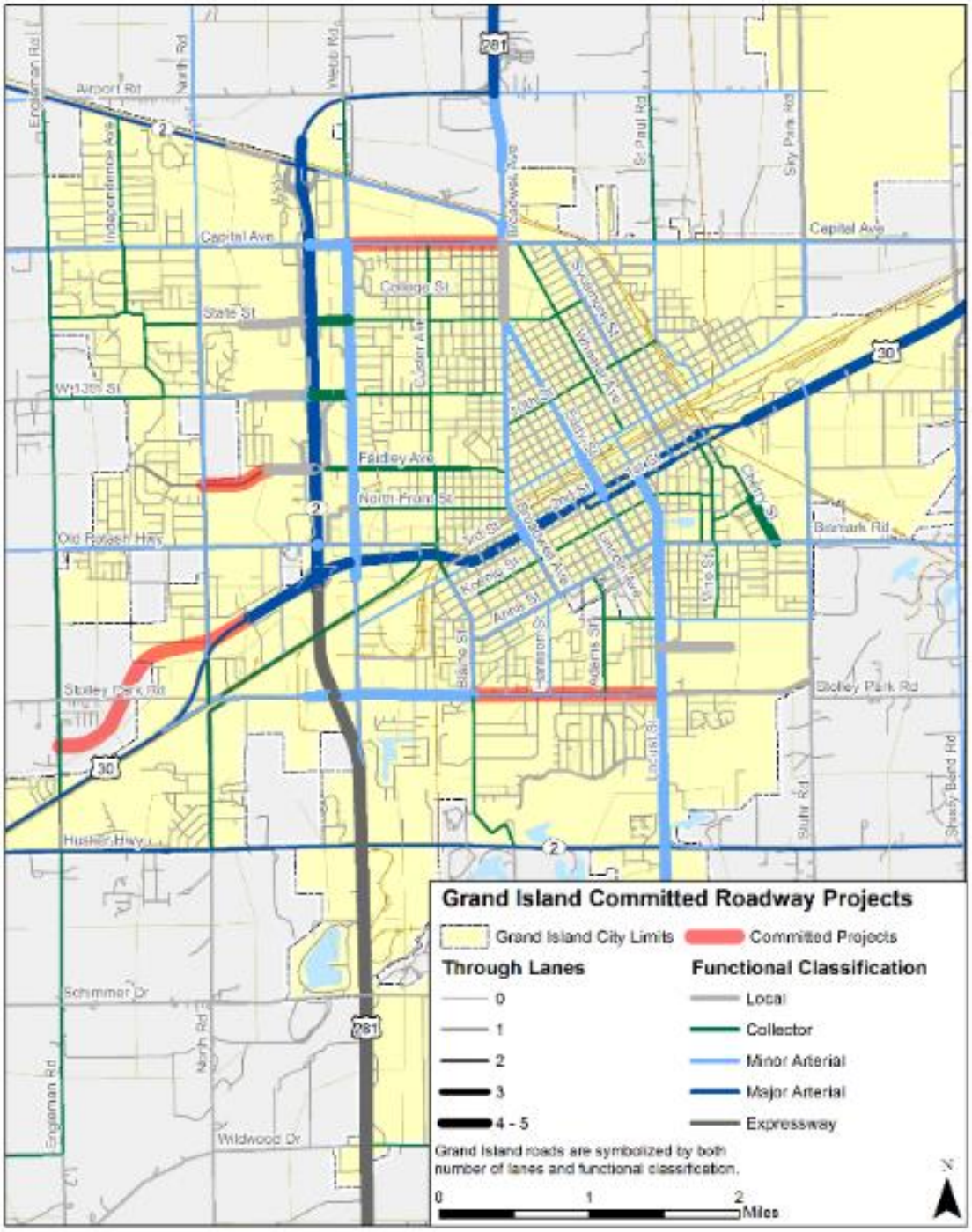
5.1 Committed Projects

The list of committed projects includes those projects in the City of Grand Island Capital Improvement Program, the County Capital Improvement Program, the GIAMPO Transportation Improvement Program, or in the State Transportation Improvement Program. That list of projects is shown in Table 5-1 and in Figure 5-1.

Table 5-1: Committed Projects

ID-2	Project Name	From	To	Description	Cost	Primary Jurisdiction	Year
1	Capital Avenue	Webb Road	Broadwell Avenue	Widen to 5 lanes	$10,157,126	Grand Island	2016
2	US-30 Realignment	US-281	Engleman Road	New 4 lane road	$25,978,000	NDOR	2020
3	Stolley Park	Locust Street	Webb Road	Restripe as 3 lanes	$1,349,000	Grand Island	2017
4	Several I-80 Interchanges	District 4		Deploy automated gate systems and CCTV cameras	$1,094,000	NDOR	2016-2017

Figure 5-1: Committed Projects



5.2 Travel Forecasts

The travel demand model was used to estimate the traffic levels and identify locations of traffic congestion that could be expected in the year 2025 and 2040, if only the committed projects were constructed. The locations of expected traffic congestion are shown in Figure 5-2 for year 2025 and Figure 5-3 for year 2040. The model was then used to test projects and scenarios to address project goals.

Travel Demand Model

A travel demand model uses estimates of household and employment data and the existing roadway network as input assumptions. Household and employment data is estimated in areas, called Traffic Analysis Zones (TAZ), which are subsets of census tracts. A separate travel demand model document that further describes the model can be found in on the GIAMPO website.

The model utilizes these basic steps:

- **Trip Generation:** Based on existing (2015) and forecasted 2025 and 2040 socioeconomic data, including the number of dwelling units and jobs, the model estimates trips by trip type, such as work trips, shopping trips, or service trips. The number of trips taken are calculated for the existing year, the interim year 2025 and the forecast year 2040. The growth in the number of trips is shown by comparing the trip generation totals.

- **External Travel:** The number of trips traveling through the region were identified using a cell phone tracking process provided by a firm called Air Sage.

- **Trip Distribution:** The trip distribution process examines the relationship between where trips begin and end. As an example, a Home Based Work trip begins at the residence and ends at the place of work. This process of distributing trips is conducted for each trip type and for each trip generated throughout the modeling area.

- **Trip Assignment:** Trip distribution patterns are assigned to various routes between trip origins and destinations. The modeling software recognizes the travel speeds of the roadway network to identify the shortest distance and time paths. The model also recognizes that as the roadways fill up, congestion might occur making alternate routes more attractive.

The GIAMPO travel model forecasts daily traffic, but can also produce volume estimates for peak hours. The model's accuracy is refined through a model calibration process, where estimated existing trips are compared to actual traffic counts. The calibration process is documented in a separate document entitled Travel Demand Model Technical Report which can be found on the GIAMPO website. The travel model is useful throughout the transportation planning process. It is used as a tool to identify where future traffic volumes would exceed available road capacity. It also can be used to compare the effectiveness of projects to reduce travel delay and provide more direct travel routing. All candidate projects were modeled to determine congestion relief, reduced delay, vehicle miles of travel and other modeling parameters. The modeling data were used to determine which projects faired the best and provides information into the performance-based planning process.

Figure 5-2: Traffic Congestion on Year 2025 Existing Plus Committed Network

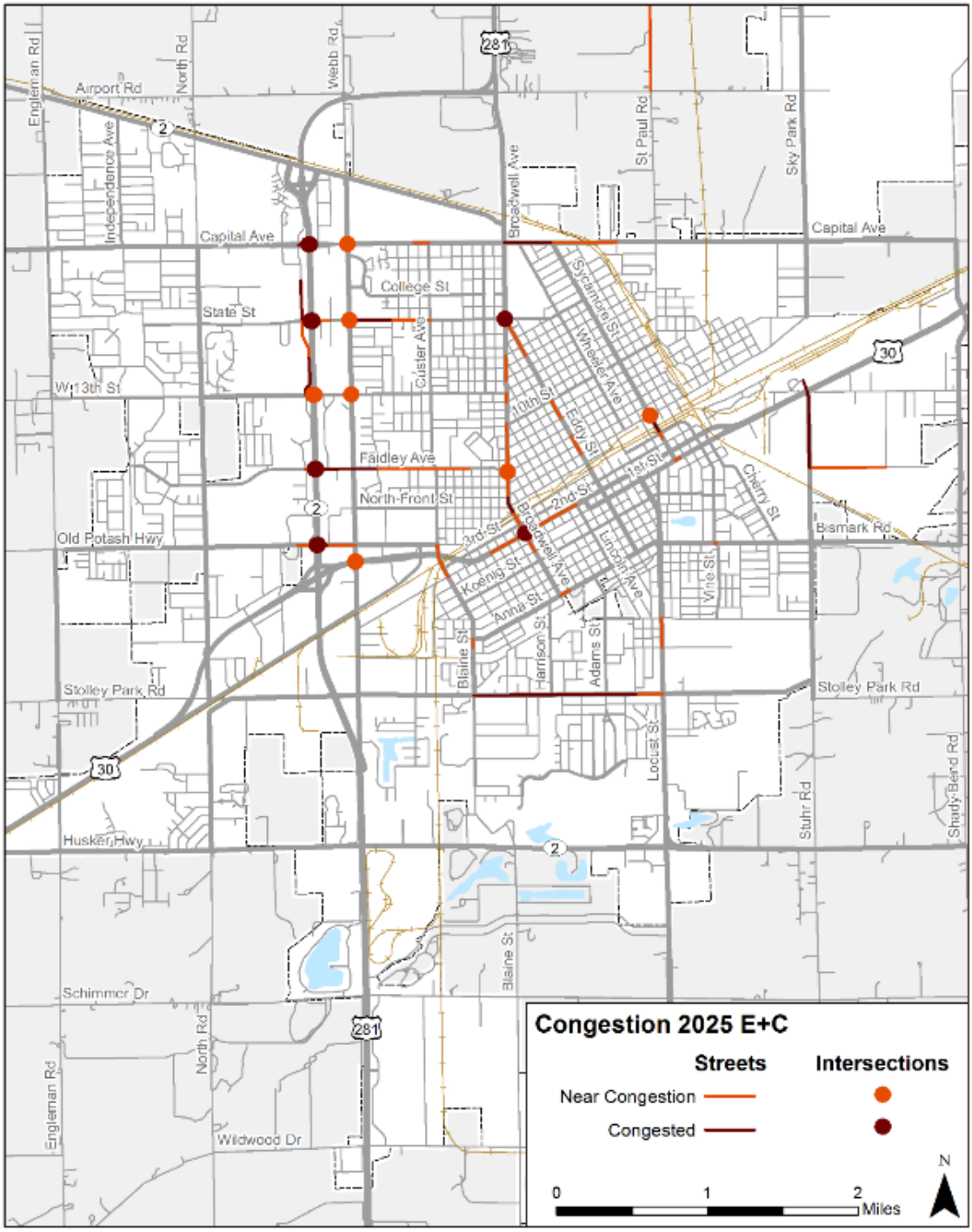
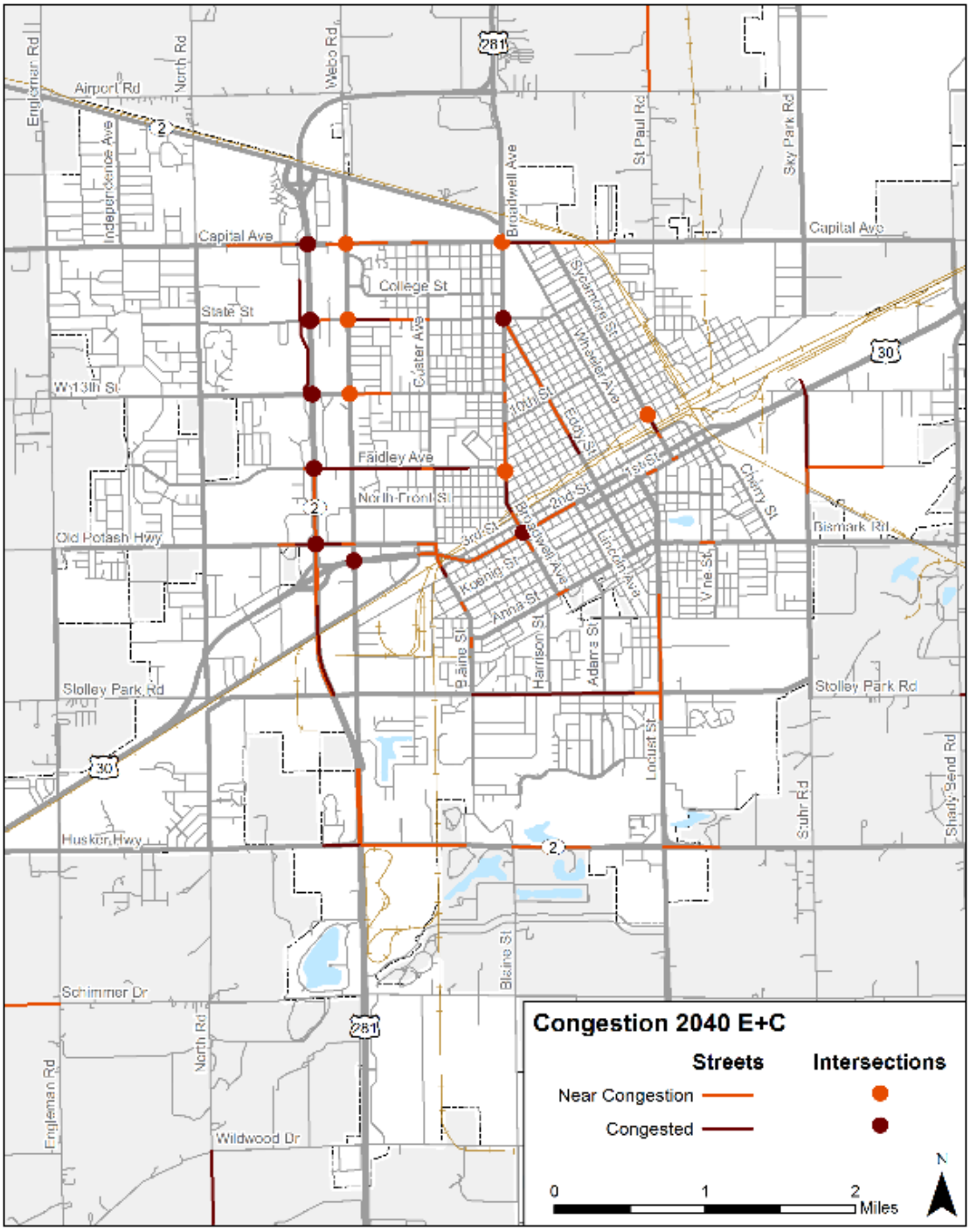


Figure 5-3: Traffic Congestion on Year 2040 Existing Plus Committed Network



5.3 Future Roadway Scenarios

Based upon needs identified in the Existing plus Committed (E+C) network, roadway projects were identified. The projects were grouped into scenarios, based upon how they addressed project goals. The two roadway scenarios were:

- Safety and Efficiency; and
- Connectivity.

Future Year Safety and Efficiency Network

The purpose of these scenario projects is to promote efficient management and operation, and the maintenance and preservation of the existing transportation system.

Objectives:

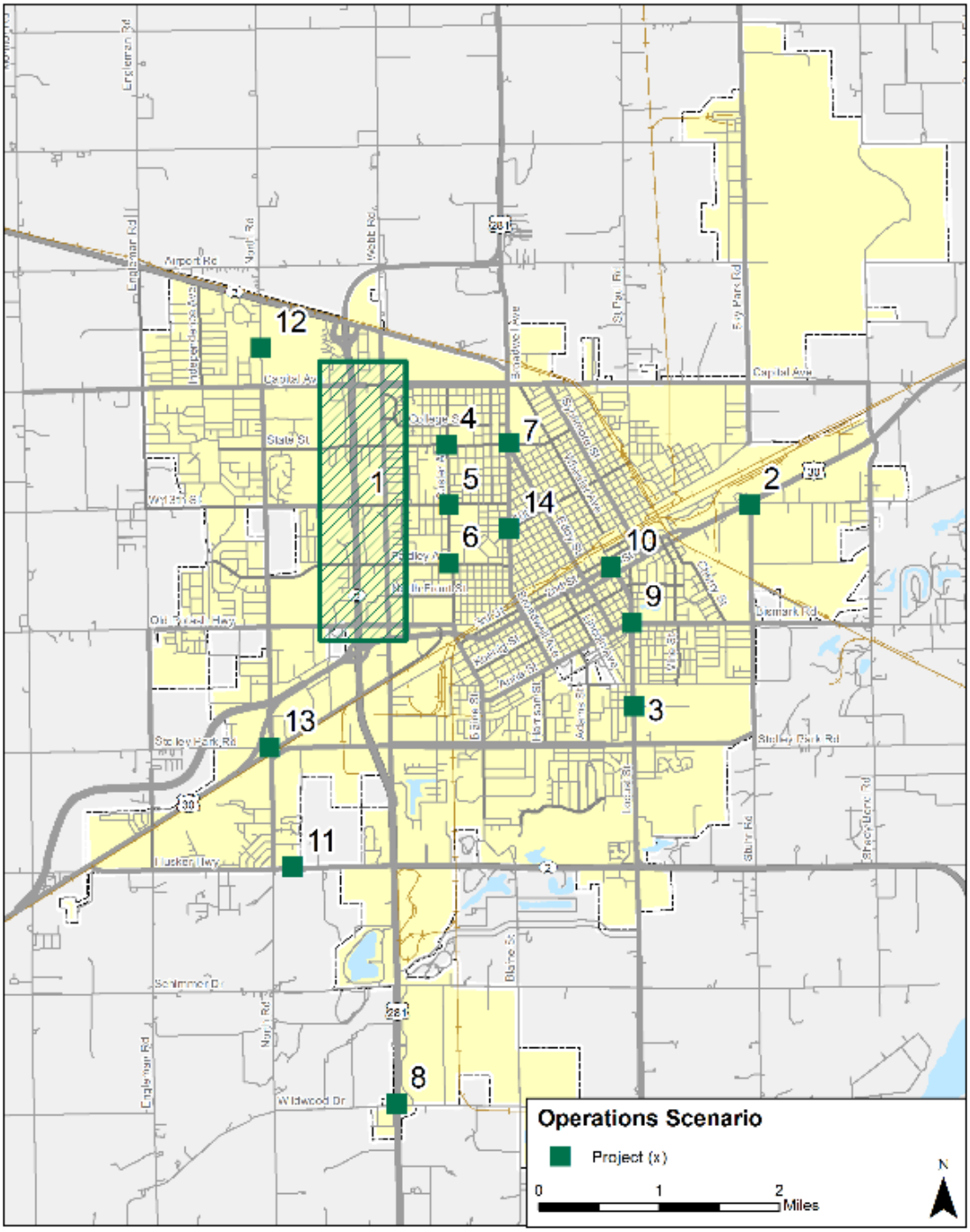
- Promote efficient management and operation of the transportation system
- System preservation of roadways and bridges
- Address the safety of streets, intersections and railroad crossings

Projects were developed that addressed operational/safety projects and smaller capacity projects that address spot congested locations. The projects were tested in the travel demand model. The projects were evaluated using the performance measures described in Chapter 3. The project evaluation is provided in Appendix A. Project have been prioritized based upon those performance ratings for intersection capacity or safety needs are listed in Table 5-2 and shown in Figure 5-4.

Table 5-2: Intersection Projects Addressing Efficiency

ID-2	Operation Project Name	Description
1	US-281 Corridor Intersection/Operational Improvement	Intersection improvements
2	Stuhr Road & US-30 Intersection	Dual left-turn lanes
3	Locust Street & State Fair Boulevard	Traffic signal
4	Custer Avenue & State	Intersection improvements (near High School)
5	Custer Avenue & 13th Intersection	Intersection improvements
6	Custer Avenue & Faidley Avenue Intersection	Geometrics and Lighting; safety/roundabout
7	Broadwell Avenue & State Street & Eddy Street	Five point intersection improvement
8	US-281 & Wildwood Road Intersection	Signal control
9	Locust Street & Anna Street	Safety enhancement; Geometrics
10	NB Walnut Street & WB US-30 St Intersection	Dual left-turn lanes
11	Husker Highway at Heartland Lutheran High School	Add a left turn lane
12	North Road at Northwest High School	Add a left turn lane
13	Stolley Park Road & North Road Intersection	Intersection improvements
14	10th and Broadwell	Signal and left turn lane

Figure 5-4: Safety and Efficiency Projects (Intersections)

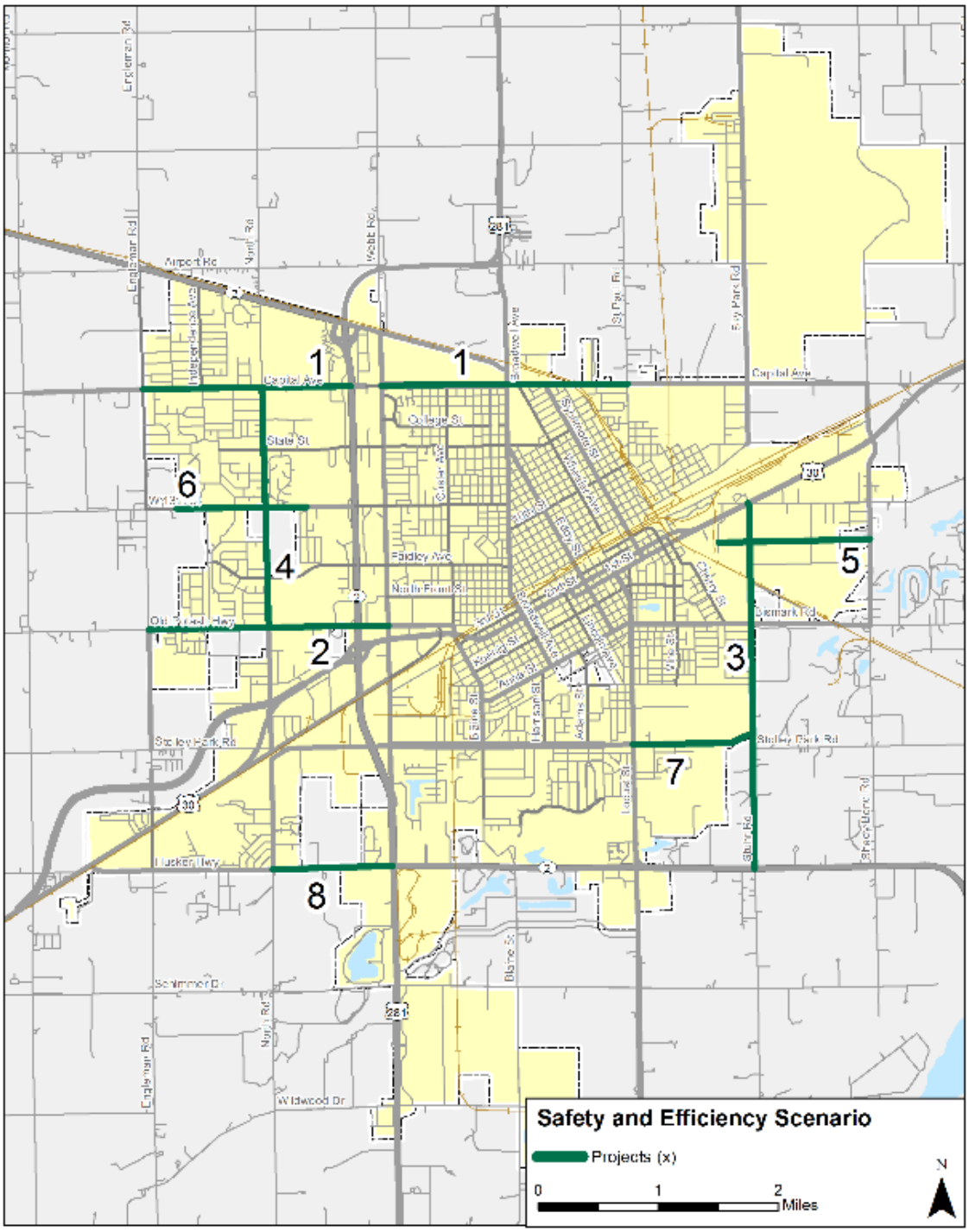


Projects capacity in spot locations or to upgrade rural roads to urban standards as the GIAMPO area grows are listed in Table 5-2 and shown in Figure 5-4. These projects were also tested in the travel demand model and were evaluated using the performance measures described in Chapter 3. The project evaluation is provided in Appendix A.

Table 5-3: Roadway Projects Addressing Efficiency

ID-2	Project Name	from	to	Description
1	Capital Avenue	Broadwell Avenue	BNSF RR/Oak Street	Widen to 5 lanes
		BNSF RR/Oak Street	St Paul Road	Widen to 3 lanes
		DQ	Engleman Road	Widen to 3 lanes
2	Old Potash Highway	Claude Road	Webb Road	Widen to 5 lanes
		Engleman Road	Claude Road	Widen to 3 lanes/turn bays
3	Stuhr Road	South of US-30	Near BNSF RR	Widen to 3 lanes/turn bays
		BNSF RR	US-34	Reconstruct Bismark south/turn bays
4	North Road	N-2	Old Potash Highway	Widen to 3 lanes/turn bays
5	Swift Road	Talc Road	Shady Bend Road	New 2-lane road
6	13th Street	West of US-281	Independence Avenue	Widen to 3 lanes/turn bays
7	Stolley Park Road	Locust	Stuhr	Widen to 3 lanes
8	Husker Highway	US-281	North Road	Widen to 3 lanes/turn bays

Figure 5-5: Safety and Efficiency Projects – Street Segments



Future Year Connectivity

A second roadway scenario was developed to further support the economic vitality of Grand Island by improving the freight network, addressing modal conflicts, and improving corridor connections within the metropolitan area.

Objectives:

- Reduce travel delays in congested corridors
- Provides improved connection between areas of the community
- Improve north-south connectivity
- Reduce regional freight impediments

Projects included in this scenario included:

- Railroad grade separation projects
- Constructing new road segments
- Corridor widening or improvement

Railroad Crossings

A major factor affecting connectivity in the GIAMPO area is the number of railroad crossings of two of the busiest rail routes in the United States. On a typical day, seventy-five Union Pacific trains per day roll through Grand Island on the double mainline tracks. These trains can travel as fast as 50 mph within the downtown commercial area. The Burlington Northern Santa Fe (BNSF) operates approximately 60 through trains per day in the Grand Island on a single mainline track. These trains travel at maximum speeds 45 mph on the elevated portion of the corridor in the central part of the city. Between the two major railroads and the short line railroad, there are 45 at-grade crossings and 10 grade separations providing traffic movement across the railroads. With the length of trains increasing up to 120 cars in length, the delay per train is approximately three minutes if trains maintain the 50 mph speed. At lower speeds, delay time could be up to six minutes.

A grade separated crossing of the UP Railroad is provided at US-281. Two other underpasses are provided in the downtown Grand Island area at Eddy Street and Sycamore Street. Other street crossings are at grade or have been closed. The need to improve connectivity was investigated by looking at specific areas within the GIAMPO region as listed in Table 5-4. The areas include the downtown area, immediately west of downtown, on the east side of town, or west of US-281. The at-grade crossing locations that were further studied are highlighted.

Table 5-4: Major At-Grade Crossings of the UP and BNSF

Route	Location	RR
Broadwell Avenue	West of Downtown	UPRR
Blaine-Custer Avenue	West of Downtown	UPRR
Webb Road	West of Downtown	UPRR
US-34/Husker Highway	West Area	UPRR
Capital Avenue	East Area	UPRR
Walnut Street	Downtown	UPRR
Stuhr Street	East Area	BNSF
Broadwell Avenue	North Area	BNSF
North Road/ W Stolley Park Road	West Area	UPRR
Shady Bend Road	East Area	UPRR
Pine Street	Downtown	UPRR
Bismark Road	East Area	BNSF
Engleman Road	South of US-30	UPRR
Lincoln Avenue	Downtown	UPRR
Alda Road	West	UPRR
Webb Road	West of Downtown	BNSF
North Road	West Area	BNSF
Engleman Road	West Area	BNSF
Shady Bend Road	East Area	BNSF
Capital Avenue	North Area	NCRC
4th Street	North Area	NCRC
W Stolley Park Road	South Central	UPRR Spur
US-34 Highway	South Central	UPRR Spur
2nd Street	South Central	UPRR Spur

Downtown

These at-grade crossings are directly in the central business district of Grand Island. Grade separation crossings are provided at Eddy Street and Sycamore Street. At grade crossings with the highest existing traffic use downtown include Walnut Street and Pine Street. Since there are two grade separations in downtown, and both locations would impact existing buildings, neither Walnut Street nor Pine Street were evaluated further for grade separation.

West of Downtown

This area is located between the grade crossings of Eddy and US-281. Within this distance, there are a number of higher utilized at-grade crossings of the UPRR. This includes Broadwell Avenue, Blaine-Custer Avenue, and Webb Road. Of these three locations, Broadwell Avenue carries the most traffic and has the highest railroad – traffic exposure. Because of the close proximity of the U.S.-30 viaduct, Blaine-Custer Road is a difficult location for a grade crossing. Webb Road is located close to U.S.-281, so that an investment in that location would provide two grade crossings within a half mile of each other. For these reasons, Broadwell Avenue was considered to be the location in the west of the downtown area that would receive additional study.

West Area

There are three locations west of U.S.-281 that have at-grade crossings of over 1,000 vehicles per day. These locations include Husker Highway, North Road/Stolley Park Road, and Engelman Road. Because these crossing are located close together, any one location would provide support to the other two locations. Engelman Road and North Road were selected for additional consideration due to the desire to create north-south corridors. In addition, the crossing of Alda Road of the UP Railroad is included in the evaluation.

East Area

This area includes two high volume at-grade crossings of the UPRR. The locations include Shady Bend Road and Capital Avenue. Another potential location is at Stuhr Road, where no crossing is currently available. One difficulty with this location is that the distance for a crossing would need to be longer to cross over additional tracks used for rail car switching. Also, in this area are at-grade crossing of the BNSF. In this area, the BNSF has at-grade crossings with Stuhr Road, Shady Bend Road, and Bismark Road.

North Area

There are a number of at-grade crossings with the BNSF that parallel N-2. The location with the highest exposure is at Broadwell Street.

South Central Area

Train frequency is approximately one train per day, so these locations were not considered further.

Road Segments

A second factor impacting connectivity is the difficulty in traveling north-south through downtown Grand Island particularly where the initial street pattern meets the street pattern laid out in the section line grid system. By reviewing the system, three projects were identified that would provide for more continuous travel into and from downtown Grand Island.

Sycamore Connection – this would involve improving existing streets and potentially constructing a new street segment to provide an improved connection from Walnut Street to Sycamore Street, creating a continuous route for north-south travel.

Eddy Connection - this would involve improving existing streets and potentially constructing a new street segment to provide an improved connection from Walnut Street to Eddy Street, creating a continuous route for north-south travel, and includes minor widening of the existing underpass with the UPRR.

Broadwell Extension to Adams/Fonner Park – this would involve constructing a new street segment that would connect Adams Street at the Fonner Park intersection with Broadwell Street at Anna Street. This would provide for Broadwell Street to be used to connect from the north end of Grand Island through downtown and south to Stolley Park via Adams. It would provide improved access to the new grade school located on Adams.

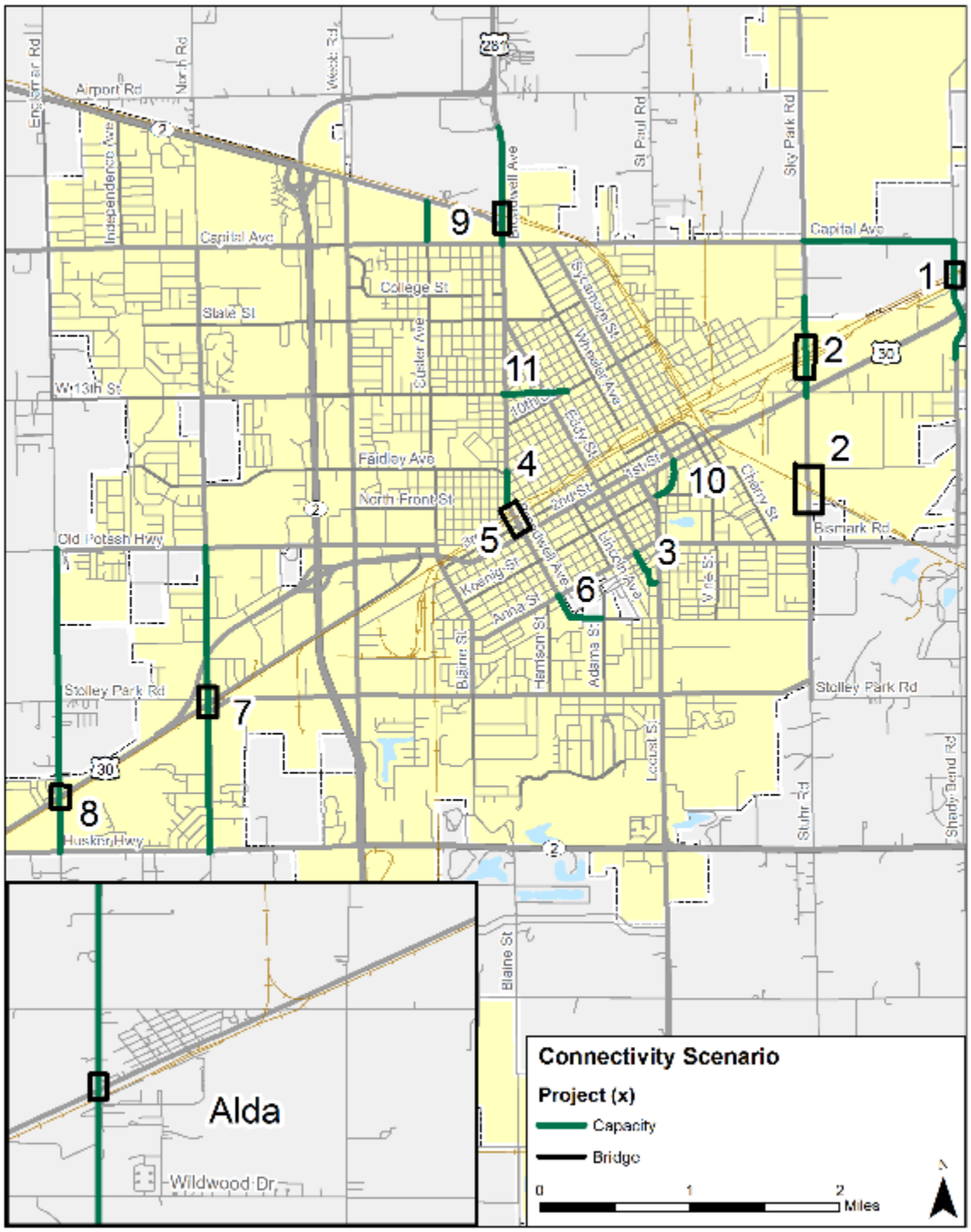
Addition roadways were identified to address potential future year traffic congestion and provide for connectivity between major destination points:

- North Road –widen additional segments beyond those previously identified to urban three-lane roadway
- Stolley Park – widen to four lanes between Walnut Street and US-281
- Cornhusker Highway - widen to four lanes between Walnut Street and U.S.-281
- Engleman Road- widen to urban three-lane roadway
- Extension of the U.S.-30 re-alignment to continue past the City of Alda.The above projects addressing connectivity were presented to the public and stakeholders. Following input, the projects shown in Figure 5-6 and listed in Table 5-5 were defined to be part of the Connectivity Scenario.

Table 5-5: Connectivity Scenario Projects

ID-2	Connectivity Project Name	From	To	Description
1	Shady Bend Road Bridges over UPRR and BNSF			Two new 4-lane projects
2	Stuhr Road bridges over BNSF and UPRR			Two new 4-lane projects
3	Eddy Street Extension	Phoenix Avenue	Locust Street	New 2-lane Road
4	Broadwell Avenue Widening	Faidley Avenue	Third Street	Widen to 5 lanes/turn bays
5	Broadwell UPRR bridge			New 4-lane bridge
6	Broadwell Extension	Anna Street	Stolly Park via Adams Street	Widen to 3 lanes/turn bays
7	North Road and UPRR Bridge	Old Potash Road	Husker Highway	Widen to 3 lanes/turn bays; new 2-lane bridge
8	Engleman Road and UPRR Bridge	Old Potash Road	Husker Highway	Widen to 3 lanes/turn bays; new 2-lane bridge
9	Broadwell over BNSF	BNSF RR	South of Airport Road	Widen to 5 lanes/turn bays;
				Realign Old Highway 2 to connect Custer Avenue;
				New 4-lane bridge
10	Locust - Sycamore Connection	Locust Street	Sycamore Street	Reconstruct
11	13th St. - 10th St. Connector	W 13th Street	10th Street	Reconstruct
12	Alda Road and UPRR Bridge	Apollo	Hwy 30	New 2-lane bridge
13	Husker Highway	Stuhr	US-281	5-lane
14	Stuhr Road	US-30	US-34	5-lane
15	East By-Pass	I-80	US-281	5-lane

Figure 5-6: Connectivity Scenario Projects



5.4 Analysis of Scenario Projects

The projects included in the Safety and Efficiency and with the Connectivity Scenario were evaluated using the travel demand model and other performance factors. The performance measures were developed for the goals of:

- Safety and efficiency
- Mobility and Connectivity
- Accessibility
- Environmental protection
- Health and well-being

A more detailed description of the performance measures, project scoring, and weighting is provided in the appendix.

Safety and Efficiency Scenario Evaluation

Intersections

Because these projects are small scale and do not impact many of the performance measure criteria, the individual operational and safety projects were evaluated based upon safety and traffic capacity considerations in order to develop a list of priorities. The scenario projects were also coded into the travel demand model to generate some of the performance measures. This evaluation is included in the appendix. The prioritized list of projects is shown in Table 5-6.

Table 5-6: Safety and Efficiency Intersection Projects

Priority	Operation Project Name	Description	Estimated Cost ($1,000)	Total Score
1	US-281 Corridor Intersection/Operational Improvement	Intersection improvements	$3,500	16
2	Broadwell Avenue & State Street & Eddy Street	Five point intersection improvement	$1,500	11
3	Stuhr Road & US-30 Intersection	Dual left-turn lanes	$500	8.5
4	US-281 & Wildwood Road Intersection	Signal control	$250	7
5	Locust Street & Anna Street	Safety enhancement; Geometrics	$250	7
6	10th and Broadwell	Signal and left turn lane	$150	6.5
7	NB Walnut Street & WB US-30 St Intersection	Dual left-turn lanes	$150	6
8	Locust Street & State Fair Boulevard	Traffic signal	$250	5.5
9	Husker Highway at Heartland Lutheran High School	Add a left turn lane	$162	5.5
10	North Road at Northwest High School	Add a left turn lane	$156	5.5
11	Custer Avenue & State	Intersection improvements, near High School	$200	5
12	Stolley Park Road & North Road Intersection	Intersection improvements	$146	5
13	Custer Avenue & 13th Intersection	Intersection improvements	$200	4
14	Custer Avenue & Faidley Avenue Intersection	Geometrics and Lighting; safety/roundabout	$500	4

Road Segments

Road segments were evaluated using the performance-based evaluation process described in Chapter 3. The rankings from the evaluation are summarized in Table 5-7. A full listing of the performance-based evaluation is included in the Appendix.

Table 5-7: Efficiency Road Segment Priority Listing

Priority	Project Name	Description	From	To	Estimated Cost ($1,000)	Total Score	Weighted Total*10
1	Stuhr Road	Widen to 3 lanes	South of US-30	Near BNSF RR	$2,964	48	108
2	Old Potash Highway	Widen to 5 lanes	Claude Road	Webb Road	$4,307	44	104
3	Husker Highway	Widen to 3 lanes	US-281	North Road	$4,947	43	102
4	North Road	Widen to 3 lanes	Capital Road	Old Potash Highway	$11,081	45	100
5	Stolley Park Road	Widen to 3 lanes	Fair Entrance	Stuhr Road	$4,365	45	99
6	Capital Avenue	Widen to 5 lanes	Broadwell Avenue	BNSF RR/Oak Street	$3,438	37	91
7	13th Street	Widen to 3 lanes	West of US-281	Independence Avenue	$4,193	39	87
8	Stuhr Road	Widen to 3 lanes	BNSF RR	US-34	$9,656	35	79
9	Capital Avenue	Widen to 3 lanes	DQ store	Engleman Road	$5,700	34	79
10	Capital Avenue	Widen to 3 lanes	BNSF RR/Oak Street	St Paul Road	$1,781	33	78
11	Old Potash Highway	Widen to 3 lanes	Engleman Road	Claude Road	$5,269	32	71
12	Swift Road	New 2-lane road	Talc Road	Shady Bend Road	$3,150	22	48

Future Year Connectivity Evaluation

Connectivity projects were also evaluated using the performance-based evaluation process described in Chapter 3. The rankings from the evaluation are summarized in Table 5-8. A full listing of the performance-based evaluation is included in the Appendix A.

Table 5-8: Connectivity Project Priority Listing

Priority	Project Name	Description	From	To	Estimated Cost ($1,000)	Total	Weighted Total*10
1	Broadwell over UPRR and Broadwell Extension	Broadwell Avenue Widening (5-lane)	Faidley Avenue	3rd Street	$21,800	72	152
		Broadwell UPRR bridge					
		Broadwell Extension (3-lane)	Anna Street	Stolley Park Road			
2	Stuhr Road bridges over BNSF and UPRR	Two new 4-lane projects			$35,000	54	108
3	North Road and UPRR Bridge	Widen to 3 lanes/turn bays; new 2-lane bridge	Old Potash Highway	Husker Highway	$16,200	53	101
4	Engleman Road and UPRR Bridge	Widen to 3 lanes/turn bays; new 2-lane bridge	Old Potash Highway	Husker Highway	$16,200	39	78
5	Shady Bend Road Bridges over UPRR and BNSF	Two new 4-lane projects			$22,200	30	77
6	Broadwell over BNSF	Widen to 5 lanes/turn bays;	BNSF Railroad crossing	South of Airport Road	$14,300	34	77
		Realign Old Highway 2 to connect Custer Avenue;					
		New 4-lane bridge					
7	Eddy Street Extension	New 2-lane Road	Phoenix Avenue	Locust Street	$3,300	34	73
8	Locust - Sycamore Connection	Reconstruct	Locust Street	Sycamore Street	$3,300	19	60
9	Alda Road and UPRR Bridge	New 2-lane bridge	Apollo Road	US-30	$11,300	26	56
10	13th St. - 10th St. Connector	Reconstruct	W 13th Street	10th Street	$1,800	22	45

A number of the performance metrics are graphically presented in Figures 5-7 through 5-9. These measures include comparisons of Vehicle Hours of Travel (VHT) saved, Vehicle Miles of Travel (VMT) saved, and Cost-effectiveness. Cost-effectiveness is a ratio of the dollar value of hours and miles saved over a 30-year period, divided by the project cost.

Figure 5-7: Travel Time Saved per Day (hours)

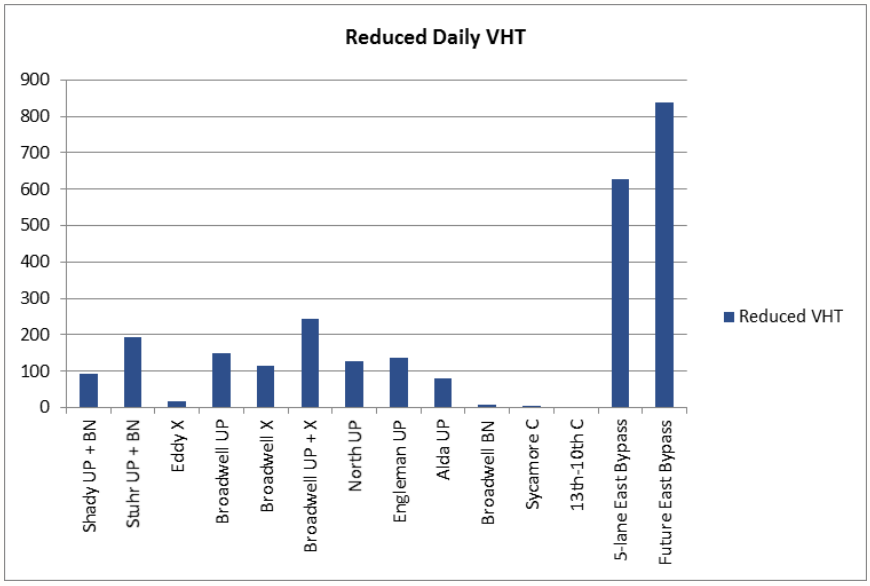


Figure 5-8: Miles of Travel Saved per Day

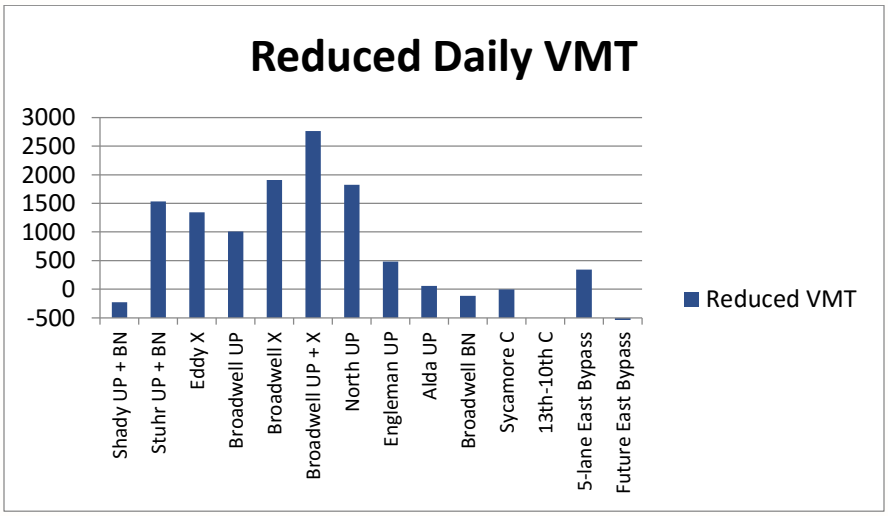
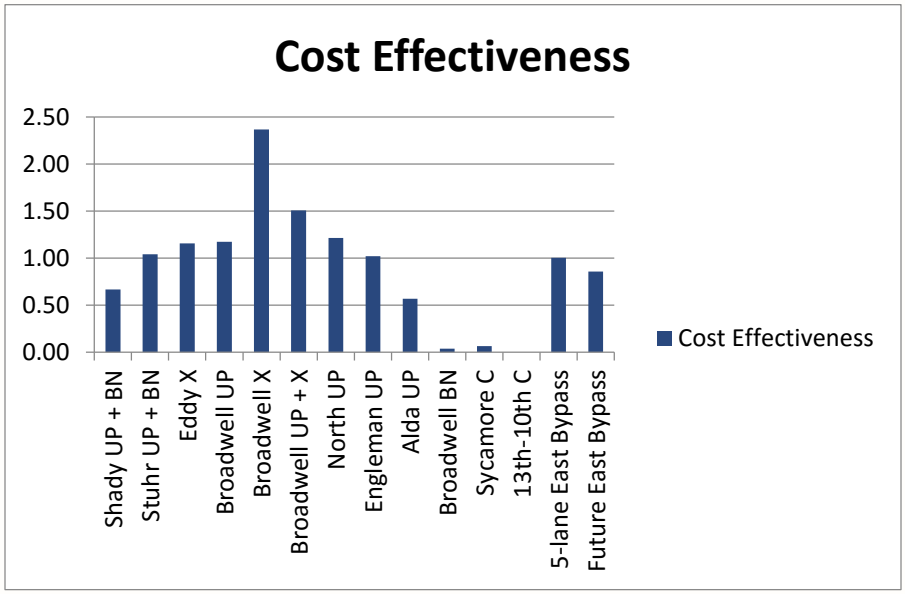


Figure 5-9: Benefits of Travel Compared to Cost



Based on the evaluation of performance measures, the following Connectivity projects were identified as the projects to be included in the Long-Range Transportation Plan:

- Stuhr Road was shown to provide greater travel benefits than Shady Bend Road, so Stuhr Road was chosen to be part of the final Connectivity Scenario recommendations.
- The Broadwell Avenue grade crossing was shown to be effective, but much more so when combined with the Broadwell Extension project that would provide improved connectivity to-and-from the south part of Grand Island.
- North Road was shown to have higher travel benefits than Engleman Road.
- Alda Road was shown to provide travel benefits to that area, as well as respond to other performance measures.

5.5 Accessibility Scenario

Public Transit

A Transit Feasibility Study for the GIAMPO area is programmed for 2016 or 2017 in order to plan transportation services in the future, including the challenges of moving from a designated rural to urban community. The study will identify public transportation needs, goals and objectives of the community, future alternatives, governance of the public transit agency, and identify specific transit recommendations. The Feasibility Study should be completed prior to the next update to the GIAMPO long-range transportation plan. The Study will include a description of existing transit services,

coordination of services, future alternatives for Grand Island, capital and operations projections, and funding sources available.

In addition, the purpose of the Feasibility Study is to provide more specific recommendations on how to address mobility and access challenges for persons that may have limited ability to own or drive a personal vehicle either for financial, health, age, or personal-preference related reasons. This plan should also identify specific ways that a transit system can cost-effectively meet the needs of the transit dependent population, in addition to meeting transportation needs for all residents in the region.

As previously described, Grand Island has nearly 5,500 people with some form of disability, along with 6,200 residents over the age of 65. Approximately 7,200 residents are below the poverty level, and 7,500 households have none or only one vehicle available. Further descriptions of transit dependent populations are included in Chapter 8 of this report. Much of this population lives in the core of Grand Island, west of Custer Avenue, with pockets extending to US 281. As Grand Island's population grows, the current demand-response and subsidized taxi service may be increasingly challenged to meet the needs of those needing access to public transportation.

The Transit Feasibility Study will identify specific needs of the community, as well as identify different modes of transit to meet the public transportation needs. These different modes could include demand response, such as the services operated today; point deviated service where vehicles can use multiple routes to go between scheduled stops; or fixed route where vehicles following a fixed alignment following a standard schedule. The Study will address the benefits of making transit equally available to everyone in the city or MPO area, or concentrating service to those areas of the city with higher levels of transit dependent population.

The Feasibility Study will look at the growing community of Grand Island and present different alternatives for future public transportation services. The basis for the Study is to develop an effective and appropriate public transportation service strategy that meets the needs. The term "public transportation" encompasses a wide range of alternatives. Traditionally, people think of transit service as vehicles operating on a strict schedule over a predetermined route. A number of other transit service types exist, including traditional fixed-route, demand-response, and route-deviation, as mentioned above. The Feasibility Study will explore the applicability of each service type for the region.

The logical starting point for future alternatives is to remain as status quo, in which no new services would be implemented in the future. For any community with limited resources, a 'status quo' option may represent a careful and prudent approach. However, there are some indications that with the regional growth in the area, the current transit service will likely not meet all the needs of the community in the future. Generally, the community of Grand Island expressed support for public transportation services for low-income persons, seniors, children, and persons with disabilities, many also expressed concerns over funding issues.

Other options that will likely be analyzed in the Feasibility Study include fixed route transit service, real-time demand response service, route-deviation services, rideshare services, and Uber-type services. The key to the study will be to develop the long-range vision for public transportation in Grand Island. Once the vision is known, a budget and implementation plan will guide local entities in the first steps. In addition, the Study will review governing structures for future public transportation services.

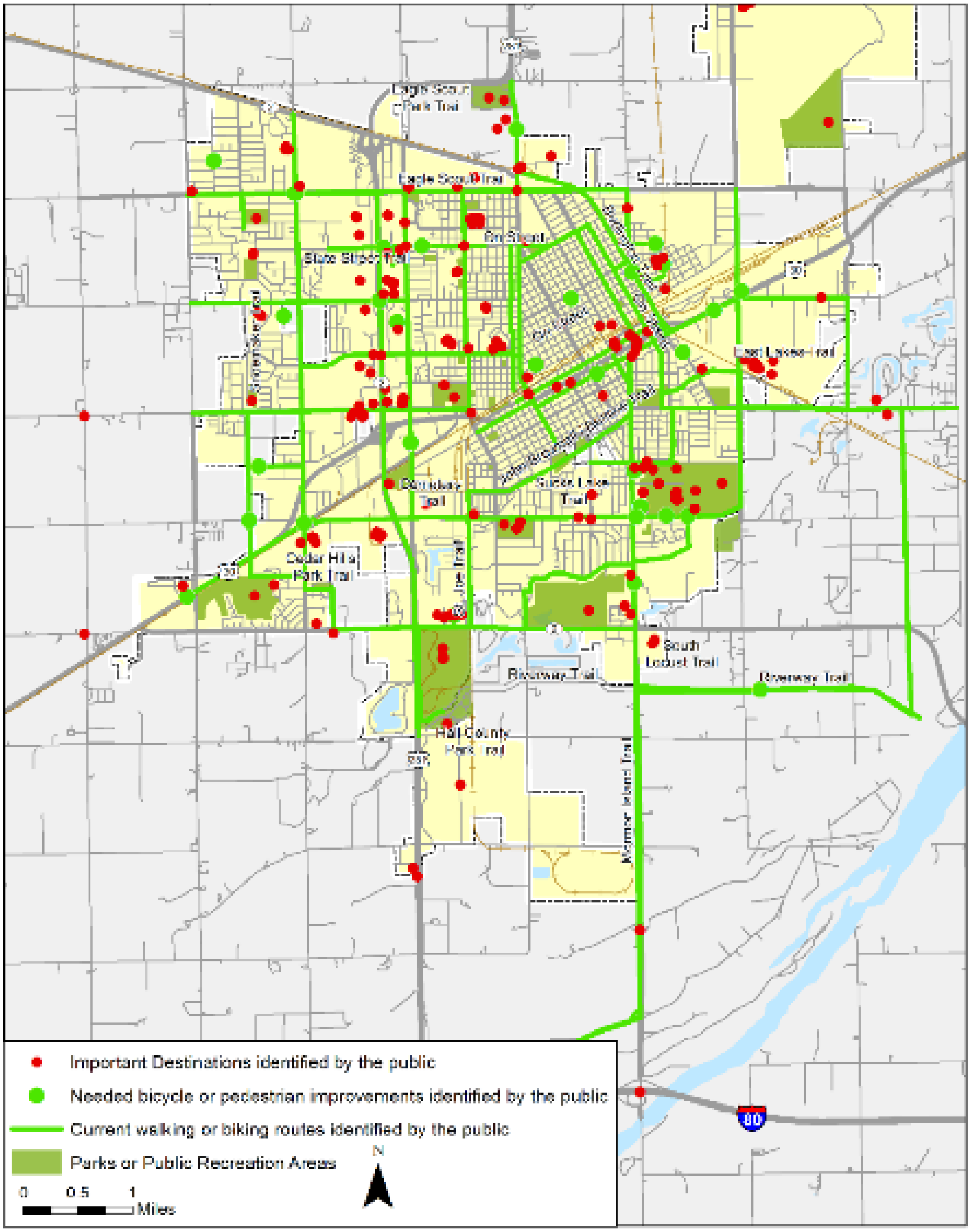
Bicycle and Pedestrian

A bicycle and pedestrian plan for the GIAMPO area is needed to be completed in order to identify additional information on existing conditions, issues, goal, objectives, and then to develop specific bicycle and pedestrian project recommendations. This plan should be developed in advance of the next update to the GIAMPO long-range transportation plan.

The purpose of completing a bicycle and pedestrian plan would be to provide more specific recommendations to mitigate local bicycle and pedestrian gaps and barriers that could then be included in the long-range plan. The plan should also identify specific bicycle and pedestrian network gaps within the system.

The need for additional bicycling and pedestrian infrastructure was a consistent theme expressed by participants throughout Journey 2040's public input process. Figure 5-10 illustrates the road network where Journey 2040 participants indicated they use as a pedestrian or bicycle path to reach destinations, along with locations that participants saw as needing improvement. This public input illustration expresses the desire of some Grand Island residents to have safe, convenient access across Grand Island using walking or biking, as provided by private motorized vehicles.

Figure 5-10: Bicycle or Pedestrian Trip Origins from Public Input



Source: Journey2040 Workshop 1

Major Barriers

Based on public input, a number of regionally-significant gaps were identified that would prevent a bicyclist or pedestrian from reaching a major trip generator or group of trip generators. The review of the public input and of existing conditions led to identifying these major barriers, which should be reviewed while developing a bicycle and pedestrian plan:

1. Union Pacific Railroad – crossing is possible at the at-grade crossing locations, but more limited at underpasses or overpasses.

2. U.S.-281- this five-lane high speed route is a barrier. Pedestrian crossing buttons and phases should be studied as part of future traffic operations analysis. Sidewalks should be provided on major cross streets, and along Diers Road and Webb Road for movement along U.S.-281.

3. Lack of facilities in new residential area located west of U.S.-281. As roadways are upgraded to urban standards, sidewalks should be provided. Additional width for bicycle lanes on 13th Street, Faidley Avenue, and possibly other streets should be considered

4. Along Husker Highway near schools – pedestrian facilities should be provided along routes where schools are located, including Husker Highway.

5. Limited crossings of the BNSF Railroad and the industrial area near Stuhr Road. As Stuhr Road is improved, consideration of providing sidewalks should be made.

6. Lack of city sidewalk information. The city and MPO lack information on the current sidewalk network's extent and condition, which increases the challenge of analyzing the existing walking environment or prioritizing future improvements. Consideration of developing a sidewalk database should be made.

7. The Grand Island "Hike and Bike Trail Map" is inconsistent with actual biking or hiking infrastructure. Updating the map should be considered as part of a biking and pedestrian plan.

Local Network Gaps

Local bicycle and pedestrian network gaps are gaps within the system that would make good connections to existing and future planned facilities. The Journey2040 effort has identified large gaps in the system where future connections have been identified, but none constructed. These connections should be completed. Other gaps at a finer level within the network will need to be identified in a future bicycle and pedestrian study as well. Areas where existing or programmed facilities are not connected or encounters a barrier should be designated as a network gap.

Recommended Projects

The following projects have been identified for inclusion in the long-range transportation plan. Pedestrian elements (bike lane or wide sidewalk or trail) part of capacity projects:

- Broadwell bridge and adjacent roadway
- Stuhr Road bridge and adjacent roadway
- 13th Street from west of U.S.-281 to Independence Avenue
- North Avenue from N-2 to Old Potash Highway

Chapter 6 PUBILC INVOLVEMENT

Public involvement was essential to the success of ***JOURNEY 2040***. Public meetings, workshops, online surveys, and other methods were provided to obtain input on the transportation issues, improvement strategies, and other items discussed during the planning process. Four themed workshops and two online surveys were conducted to provide a means for participants to share their ideas about how to better accommodate the different types of traffic (from motorists, cyclists, walkers, and others) in the Grand Island area. To keep them engaged and spread the word about ***JOURNEY 2040***, the study team used a targeted combination of press releases, e-blasts, letters, phone calls, social media, and English/Spanish materials. ***JOURNEY 2040*** partners, such as advocacy groups, business organizations, and the ***Grand Island Independent*** also helped with meeting notice. Ultimately, ***JOURNEY 2040*** was shared with thousands of Grand Island area stakeholders.

Figure 6-1: Project and Public Involvement Schedule

Stakeholders Engaged

A wide variety of stakeholder groups were interested in the multimodal, transportation issues, improvement strategies, and other items that were discussed during the ***JOURNEY 2040*** planning process. Special care was taken to provide input opportunities for low income, minority and those who may not be able to attend public meetings throughout the plan's development. Two online public involvement surveys were provided via journey2040.digicate.com in both English and Spanish. Advertising e-blasts for workshops 1 and 4 were provided in both English and Spanish. Spanish language translators were present at the public. Workshops were held after typical employment hours in order to provide the opportunity for working persons to attend the sessions. Finally, advocacy groups that service protected classes of persons were engaged in order to more specifically target low income and underserved populations. A list of specific stakeholder groups that were engaged during this process is as follows:

- GIAMPO's Technical Advisory Committee (TAC) with representation from the following partnering agencies:
  - City of Grand Island
  - Village of Alda
  - Grand Island Area Chamber of Commerce and Economic Development Corporation
  - Hall and Merrick Counties
  - Central Nebraska Airport
  - Nebraska Department of Roads

  - Union Pacific Railroad
  - Burlington Northern Santa Fe Railroad
  - Federal Highway Administration
  - Federal Transit Administration
- Transportation stakeholders, e.g. elected and/or appointed officials, trucking/freight, rail, transit providers, those who use transit, pedestrian walkways, and/or bicycle facilities, business/economic development organizations, faith-based institutions, schools, plus advocacy and/or umbrella groups, including:
  - Project Reconstitution
  - Goodwill
  - Central Northeast Community Services
  - Heartland United Way
  - Nebraska Department of Health and Human Services
  - Central District Health Department
  - GROW GRAND ISLAND
- General public
  - Residents
  - Property owners
- News outlets
  - Grand Island Independent
  - NTV News
  - NBC Nebraska
  - KRGI News
- Social media followers and fans who are connected to:
  - Facebook.com/GI.PublicWorks
  - Twitter.com/GIPublicWorks
- Others

Outcomes

The first ***JOURNEY 2040*** workshop took place on June 29, 2015, at the Bossleman Conference Center and was themed “outcomes”. The 43 residents, public officials, transportation stakeholders, and others who participated were organized into five small groups to discuss ideal outcomes (vision, goals, and objectives) for ***JOURNEY 2040***. The meeting included discussion on:

- Key issues, problems and/or concerns with traveling (as a motorist, pedestrian, cyclist and/or transit rider) around and through the Grand Island area
- Strategies that might help improve identified problems
- Top priorities and other comments

Participants used markers, sticky dots, and aerial maps of the Grand Island area to identify important destinations, routes, or paths that could be taken to reach identified destinations, needed improvements along the routes, priority problems to improve, and the biggest issues facing travel. In addition, 673 people provided similar feedback through a web-based survey journey2040.digicate.com that was conducted from June 8 through July 31, 2015.

When asked about the mode of transportation that needed to be addressed or improved most, “public transit” was selected most often. Community members commented that “congestion at busy intersections or streets” was the top issue affecting transportation and listed public transit as the most important

transportation improvement strategy. They also commented that access to multiple transportation options, coordinating transportation improvements with development, improving biking/walking areas, and increasing transportation funding was “very important” or “somewhat important”. A summary of key issues is included in the Appendix.

Important needs involved making intersections safer, reducing traffic congestion, and increasing transportation options (walking, biking, and transit). Highway 281, Diers Avenue, Webb Road, Old Potash Highway, and Stolley Park Road were listed as the most congested routes in the community.

Conditions and Measures

The second public involvement phase was “conditions and measures”. A workshop open to stakeholders[7] was held on August 10, 2015 at the Grand Island Public Library. During the meeting, 34 persons shared their opinions about how the Grand Island area’s network of roads, trails, and rail should perform for its users over the coming 25 years based on existing conditions and initial goals. To help them express their views of the existing transportation system and aspirations for its future performance, workshop participants were organized into small groups and encouraged to use four, goal-related transportation continuums: Accessibility and Mobility, Safety and Security, Environmental Considerations, and Health and Well-being.

[7] Stakeholders included members of local, state and federal organizations, plus any member of the public who expressed interest in attending.

At the conclusion of the meeting, the stakeholders' consensus was:

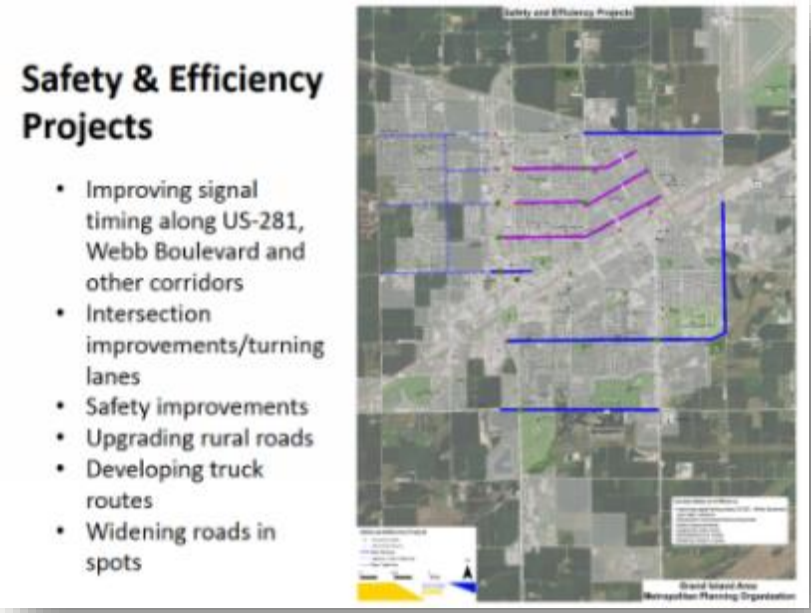
Consensus on Transportation Performance in the Grand Island Area		
Goal/Topic	**Where We Are TODAY**	**Where We Want to be in the FUTURE**
Accessibility and Mobility	Low (transit and bicycle/pedestrian) to high (vehicles) performance	Average to high performance
Safety and Security	Average performance	High performance
Environmental Considerations	Average performance	Average performance with slight improvement over existing conditions
Health and Well-being	Low to average performance	High performance

Workshop participants also discussed the importance of developing goals and performance measures by mode of transportation, local initiatives for creating healthy communities, and the impact funding may have on the area's transportation aspirations.

Scenarios

The third Journey 2040 workshop was "scenarios." It was held on November 17, 2015, at the Grand Island Public Library. As part of the workshop, 32 transportation stakeholders reviewed a set of potential improvement scenarios and corresponding projects related to Safety and Efficiency, Mobility and Connectivity, and Accessibility. The scenarios were inter-related and designed to reflect the feedback received and performance measures discussed during the second workshop.

The following three scenarios were presented to the group to begin discussions of projects and policies that would respond to project goals.



Mobility & Connectivity Projects

- Locations for new railroad bridges or underpasses
- New road segments for direct north-south travel
- Improve corridors on the east side and the west side of Grand Island
- Improvements for east-west travel along other sections of Capital Avenue, Stolley Park or US-34 (Husker Highway)

Accessibility Projects

- Improved intersection crossings for pedestrians
- Complete gaps in sidewalks or trails
- Additional trail connectivity for bicycles
- Examine options for bike routes or bike lanes
- Complete trail connections
- Transit needs (complete separate transit study)

Participants discussed the strengths and weaknesses of the potential improvement scenarios and said that the preferred improvement scenario should:

- Create a well-integrated trail system and better pedestrian crossings
- Provide a transit solution that helps those without a car reach jobs and schools
- Provide grade separations that also include bicycle/pedestrian accommodations
- Prioritized and designated bypass routes
- Avoid bringing large amounts of traffic into residential and school areas
- Designate external versus internal truck routes
- Include improvements for congested intersections and signalization for major routes, such as Highway 30 and Highway 281

Because the scenarios also reflected the revised list of Journey 2040 goals, workshop participants were asked to allocate 100 points worth of priorities among the revised goals. The combined totals resulted in the following point allocations per goal:

100 Points with of Priorities		
Goal	**Total Points**	**Percent of Total**
Increase safety and efficiency of the transportation system	610	28%
Improve vehicle mobility and connectivity	475	22%
Provide accessibility to destinations for all population groups	587	27%
Environmental protection and the preservation of important natural assets	188	9%
Further the health and well-begin of all residents in the region	239	15%

Priorities

The fourth public involvement phase for Journey 2040 is a public meeting to present plan recommendations and to identify "priorities" from the public. The meeting was held on February 18, 2016, at the Grand Island Public Library. Residents, transportation stakeholders, public officials, and others are invited to attend the workshop to review the preferred transportation improvement scenario for the Grand Island area. The scenario included a range of projects and responded to the goals, objectives, performance measures, and improvement scenarios discussed via previous workshops.

Approximately 30 participants shared thoughts on the overall draft Journey 2040 plan and, specifically, its list of fiscally constrained and non-fiscally constrained projects. As part of the commenting process, large-scale maps of the scenarios were made available for comments. All comments will be collected via journey2040.digicate.com from February 2015 through March 2016.

SURVEY

A project survey that consisted mostly of multiple choice questions was open to the public from the week of June 8 through July 31, 2015, and yielded 673 respondents. Survey topics were similar to those discussed during the TAC and community workshops, but also included questions about the importance of providing walking and biking opportunities, funding the future transportation system, and other items. The survey results are included in the Appendix.

Most survey respondents classified themselves as residents, employees, and/or motorists. When asked about the mode of transportation that needs to be addressed or improved most, “public transit” was selected most often. Respondents selected “congestion at busy intersections or streets” as the top issue affecting transportation and “public transit” as the most important transportation improvement strategy.

Most respondents commented that access to multiple transportation options, coordinating transportation improvements with development, improving biking/walking areas, and increasing transportation funding was “very important” or “somewhat important.” Respondents indicated that important needs involved making intersections safer, reducing traffic congestion, and increasing transportation options (walking, biking, and transit).

When asked via open-ended questions about why they selected particular issues and or improvement strategies, which route was most congested, or what additional transportation needs were important, survey respondents provided 1,413 responses.

Residents commented that future performance measures should not only respond to needs for improved accessibility, multimodal transportation options (mobility), safety, security, and environmental concerns, but also health and well-being considerations. Doing so would enable the Grand Island area to be a safer driving, walking and/or biking community that has lower crash rates, bridges, and roads that are in good or excellent condition, and an efficient signal system. The future transportation system’s impact on natural areas would also be minimized and new energy infrastructure could be leveraged as appropriate.

- **The biggest issue** affecting travel in the Grand Island area **(526 responses):** :
    - Congestion at busy intersections or streets and need for signal improvement
    - More transit for persons who do not have a vehicle available
    - Train movements cut area in half and result in delays
    - Need safer environment for walking and bicycling
    - Address the U.S.-281 corridor
    - Need to accommodate growth with improvements in the street system
- **Most Congested Routes (664 responses):** In your opinion, what’s the most congested route in the Grand Island area?
    - By far, it is the U.S.-281 corridor, but within that includes Diers Road and Old Potash Road
    - Five Points intersections is next on the list
    - Other locations include rail crossings, near schools, Stolley Park Road, Broadwell at 2nd Street, North and 13th Street, Webb Road near railroad crossing, Stuhr from U.S.-30 to the railroad, and Eddy at 3rd Street.
- **Other Needs (223 responses):** Is there a transportation need that was not mentioned in the previous question that should be prioritized? Many of the responses included these needs:

- Airport considerations
- Need for public transportation
- Affordable transportation options
- Need for more through routes in town
- Support a better bicycling environment
- Rail traffic is a concern

With these ideas in mind, community members commented that Journey 2040 transportation improvement scenarios and projects should relate to:

- Safety along Highway 281
- Congestion on Old Potash Road
- Better ways to get through town
- Concerns about trucks traveling through the center of the city and rail crossings
- Safe, walkable routes that are well lit and integrated into the road and trail network
- Areas where people do not have cars and need to travel
- Provision of public transit that fits the needs of the Grand Island area
- Not bringing high amounts of traffic through residential neighborhoods and school areas

Chapter 7 FINANCIAL CAPACITY

The analysis of financial resources is an important element of a long-range transportation plan. The purpose of this section is to provide an overview of transportation funds available for the Grand Island metropolitan area over the time horizon of the plan. It also explains the key elements of the financial plan, the data collected, and the assumptions made about future revenue and expenditures. The forecasts of future transportation revenues and costs are presented and summarized, including the discussion of both costs for new construction and operations and maintenance. Once these estimates are in place, GIAMPO and its planning partners can determine which improvements submitted for inclusion in the plan are financially feasible.

The funding of transportation projects and services has grown more difficult over the last 10 and even 20 years. The population has increased along with the use of private vehicles. Inflation of construction materials has also increased costs. At the same time, revenues have not grown. The federal gas tax has remained constant since 1993. Some additional funding has been made possible at the state level with the passing of LB-610 which provides a gradual increase in the tax on motor fuels.

The federal government addressed funding transportation in December 2015 when the President signed into law the Fixing America's Surface Transportation Act, or "FAST Act." It is the first law enacted in over 10 years that provides long-term funding certainty for surface transportation. Overall, the FAST Act largely maintains current program structures and funding shares between highways and transit. The bill increases funding by 11 percent over 5 years, but does not change the federal gas tax rate.

This plan includes estimates for the amount of revenues for funding elements of this transportation plan. The revenues are categorized at three different levels: federal, state, and local. Many federal-aid projects, those projects that receive federal transportation funds, require some form of local match. As a newly formed MPO, historical information on past revenue trends was not as available, as with longer standing MPOs. For the purposes of this plan, past revenue data was obtained from the City of Grand Island, NDOR, and the counties. Based on these assumptions, $548.5 million is anticipated to be available for transportation in the GIAMPO area for all purposes over the 25-year planning period.

7.1 Local Revenues

Local funding comes from various sources of taxing and bonding abilities afforded to local jurisdictions. These can include property and sales tax, special tax levies, special assessments for transportation, general fund, bonds, or other sources unique to local jurisdictions. These funds finance local transportation improvements, as well as provide a local match for federal and state transportation funds.

Local revenue forecasts, including locally-collected revenue and state aid, were created based on historical trends to gain an average percent projection. Since these forecasts are based solely on historic revenue, they could change as funding mechanisms are shifted and as populations shift and affect the tax base. Sales Tax Motor Vehicle and Motor Vehicle Tax revenues are not mandated by the state to be used for transportation related expenditures; however, these revenue sources are listed separately from general fund revenues because it may make administrative sense to obligate these revenue sources to local match funding for state and federal funding.

Local funding has historically been used as local match for federal and state transportation funds. Specifically, Nebraska Revised Statute, 39-2519 provides, "*city of the first or second class or village or successor municipal county shall be entitled to one-half of its annual allocation with no requirement of matching, but shall be required to match the second one-half on the basis of one dollar for each two dollars it receives, with any available funds*."

Property Tax

Property tax is levied only by local governments in Nebraska. Revised State Statute 77-3442 states, "*incorporated cities and villages which are not within the boundaries of a municipal county may levy a maximum levy of forty-five cents per one hundred dollars of taxable valuation of property subject to the levy plus an additional five cents per one hundred dollars of taxable valuation to provide financing for the municipality's share of revenue required under an agreement or agreements executed pursuant to the Interlocal Cooperation Act or the Joint Public Agency Act*."

Also, Revised State Statute 18-2107 states, the governing body may "*levied for the succeeding fiscal year for community redevelopment purposes, not to exceed two and six-tenths cents on each one hundred dollars upon the taxable value of the taxable property in such city*."

Grand Island's FY2014-15 total property tax rate is $0.36 per $100 of assessed valuation. The City of Grand Island's budgeted property tax mill levy is comprised of six separate levy rates:

- General Fund
- Debt Service
- Interlocal Agreements with Hall County, Central Nebraska Health District, and the Human Society
- Community Redevelopment Authority
- Lincoln Pool Fund
- Parking Ramp Fund

Sales and Use Tax

The state of Nebraska grants cities an option to levy up to 1.5% sales tax on retail sales and services. Also, in 2012 the Nebraska Legislature passed LB-357, which allows cities to increase local option sales tax levy up to 2.0% under certain requirements. Grand Island's sales tax history is:

Effective Date	Sales Tax Rate
Oct 1, 2004	1.5%
Apr 1, 1990	1.0%

The Nebraska Department of Revenue refunds sales tax revenues to cities in the form of sales and use tax, consumers use tax, and motor vehicle sales tax. For the purposes of this Financial Forecast and Funding portion of the LRTP, sales and use tax and consumers use tax are combined (sales tax) and motor vehicle sales tax is separate.

Motor Vehicle Tax

The motor vehicle tax replaced the property tax levied on motor vehicles beginning January 1, 1998. Under the pre-1998 system, motor vehicles were assigned a value by the Tax Commissioner based on

average sales price for vehicles of that make, age, and model. The local property taxing units of government assessed the rate against that value. Property taxes were paid by the owner at registration based on the rate assessed for the previous property tax year. Under LB-271, passed in 1997 (Neb. R. S. S., Section 60-3001 et. seq.), the motor vehicle tax is still paid at the time of registration.

7.2 State Funding

The State of Nebraska utilizes various federal and state revenue sources to fund transportation projects and maintenance in the state. The state receives state revenue from taxes, sales taxes on new and used motor vehicles, and motor vehicle registration fees. Two recent measures increase the amount of revenue available for transportation.

- The Build Nebraska Act became effective July 1, 2013. The Bill designates one quarter of one percent of general fund sales tax revenue (0.25 cents of the state's existing 5.5-cent sales tax) for Nebraska roadways. Eighty-five percent is for the state highway system and 15 percent is for local roads and streets.
- LB 610 increases the fixed motor fuels tax rate by 1.5 cents every year for four years. Of the two components of the fixed rate, the portion allocated to the NDOR increases ½-cent every year, from 7.5 cents to 9.5 cents. The portion allocated to cities and counties increases one cent every year from 2.8 cents to 6.8 cents. Beginning January 2019, the total fixed rate motor fuels tax would be 16.3 cents per gallon.

Highway Allocation Funds

The Highway Allocation Fund consists of revenues generated from the collection of Motor Fuel Taxes, Motor Vehicle Registration Fees, Motor Vehicle Sales Tax, and Investment Earnings. The municipalities' of the state share the Highway Allocation Fund, including the City and County Road Fund. The Fund is currently 50 percent and is distributed based on the following factors:

- Total Population (50%)
- Total Motor Vehicle Registrations (30%)
- Miles of Traffic Lanes of Streets (20%)

These funds are designed for projects throughout the city to rehabilitate, construct and improve streets, intersections/interchange, sidewalks, bikeways and trails, safety projects, intelligent transportation infrastructure, and landscaping in connection with street improvement projects. The Highway Allocation Fund requires local match funding.

Motor Vehicle Fee

The Motor Vehicle Fee Fund is distributed as follows:

- 50 percent to the county treasurer of each county, amounts in the same proportion as the most recent allocation received by each county from the highway allocation fund
- 50% to the treasurer of each municipality amounts in the same proportion as the most recent allocation received by each municipality from the highway allocation fund

Funds from the Motor Vehicle Fee Fund are considered local revenue available for matching state sources. All receipts by counties and municipalities from the Motor Vehicle Fee Fund shall be used for road, bridge, and street purposes.

Build Nebraska Act

The Build Nebraska Act became effective July 1, 2013, which designates one quarter of one percent of general fund sales tax revenue (0.25 cents of the state's existing 5.5-cent sales tax) for Nebraska roadways. Eighty-five percent is for the state highway system and 15 percent is for local roads and streets. The local share is distributed through the Highway Allocation Fund based on the established factors. Local governments are required to use their allotment of the revenue for road and street purposes. The Build Nebraska Act sunsets in 2033.

LB-610

LB 610 increases the fixed motor fuels tax rate by 1.5 cents every year for four years. Of the two components of the fixed rate, the portion allocated to the NDOR increases ½-cent every year, from 7.5 cents to 9.5 cents. The portion that is allocated to cities and counties would increase one cent every year from 2.8 cents to 6.8 cents. Beginning January 2019, the total fixed rate motor fuels tax would be 16.3 cents per gallon. The local share is distributed through the Highway Allocation Fund based on the established factors.

The fixed fuel tax revenue distributed to cities and counties will increase as shown in the following table. The fiscal impact is based on one cent of the fuel tax, generating $12,700,000 per year, and a two-month lag in receipts when the tax rate changes on January 1st of each year.

Federal Funds Purchase Program

LB 98 (2011) authorized the Nebraska Department of Roads to implement a federal buyback program. Federal funding included in the buyback program includes the Surface Transportation Program (STP) for counties and first class cities and the Bridge Replacement and Rehabilitation Program (BRRP). STP originates as federal funding designated by a formula for urbanized areas with under 200,000 population and over 5,000 population. The federal funds purchase program involves the state purchasing the local government's share of federal highway funds at a discounted rate (i.e. 90 cents on the dollar). This funding is distributed based on population. Such an exchange allows the local government to use its dollars on street and road projects in a more efficient and timely manner as it is free of additional federal requirements.

The BRRP funding originates as federal funding designed by a formula for the state of Nebraska. This funding is distributed to counties, first class cities, the City of Omaha, and the City of Lincoln with deficient bridges and is prioritized based on annual bridge inspection data.

7.3 Federal Funding

Federal funding for transportation in the State of Nebraska consists primarily of fuel tax and other user fees collected by the federal government and placed in the Federal Highway Trust Fund (HTF). The federal government imposes an 18.4 cent tax per gallon of gasoline and a 24.4 cent per gallon tax on diesel to support the HTF. These funds are allocated to the states per provisions of MAP-21/FAST Act.

National Highway Performance Program (NHPP) Funds

MAP-21 expanded the National Highway System (NHS) to include principal arterial roadways that were not originally part of the NHS. The Enhanced National Highway System is now comprised of the interstate system, all principal arterials, and bridges on the NHS. The NHPP provides funding for:

- construction, reconstruction, or operational improvement of portions of the highway
- inspection costs for NHS infrastructure including bridges
- bicycle and pedestrian infrastructure
- safety improvements on the NHS
- environmental restoration within NHS corridors
- intelligent transportation system (ITS) improvements
- the construction of bus terminals servicing the NHS

Surface Transportation Block Grant Program (STP) Funds

The FAST act converts the Surface Transportation Program (STP) to a block grant program. STP provides a primary source of financial support to local agencies. Projects eligible for funding include, but are not limited to:

- construction, reconstruction, or operational improvement for highways and local access roads
- bridge projects on public roads and construction of bridges on federal-aid highways
- highway and transit safety infrastructure improvements
- bicycle and pedestrian infrastructure including recreational trails
- environmental restoration

As mentioned in the state funding portion, the STP funds for communities under 200,000 population and over 5,000 population are purchased by the state of Nebraska for 90 cents on the dollar. This transaction occurs as the state of Nebraska utilizes the STP funds and then passes on 90 percent of the funds for allocation to first class cities. This funding is distributed based on population.

Congestion Mitigation and Air Quality (CMAQ) Funds

The Congestion Mitigation and Air Quality program continues to provide funding to state and local governments for areas that are not in compliance with the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter or for areas that were previously nonattainment areas, but are now in compliance. The Grand Island MPO is eligible for this funding if a project is submitted to NDOR as this is administered to MPO's in Nebraska at a "grant" program.

Highway Safety Improvement Program (HSIP) Funds

The Highway Safety Improvement Program (HSIP) allocates funds to decrease the number of traffic fatalities and injuries on public roads. Projects eligible for this funding include public road strategies, activities or projects that align with the State Strategic Highway Safety Plan (SHSP) to mitigate hazardous roads or resolve highway safety problems.

Transportation Alternatives Program (TAP)

FAST Act deletes the existing federal authorization for TAP and moves it into the STBGP as a set-aside. MAP-21 had created the Transportation Alternatives Program to encompass preceding programs, including Transportation Enhancements, Safe Routes to School, and Recreational Trails. Projects eligible for this funding include, but are not limited to, the planning, design, and construction of on- and off-road trails for non-motorized transportation; converting abandoned railroad corridors for non-motorized trails; and environmental mitigation activities.

The FAST Act creates two new programs designed to help states and local governments plan for and fund freight mobility projects:

• **National Highway Freight Program:** This is a formula program that will provide a new annual funding stream to states for addressing freight projects on portions of the highway system. States will be required to develop a detailed freight plan that meets several requirements in order to receive funding under this new program.

• **Nationally Significant Freight and Highway Projects Program:** This is a new competitive grant program designed to fund large projects. Eligible applicants include states, large Metropolitan Planning Organizations (MPOs), local governments, ports, tribal governments, or combinations of these organizations.

7.4 Federal Transit Funding

Federal-aid transit projects are funded through the Federal Transit Administration (FTA) of the USDOT. Similar to estimates of Federal Highway Administration funding, GIAMPO utilized historical trends of FTA funding to estimate future anticipated revenues based upon a 2.5 percent growth rate.

Federal Transit Assistance (Title 49)

A portion of federal fuel tax revenue is placed in the Mass Transit Account of the Federal Highway Trust Fund. These funds, and General Fund appropriations, are reserved for transit purposes and are administered by the Federal Transit Administration (FTA.) Similar to the FHWA programs, the transit funding authorized by the FAST Act is managed in several ways. The largest amount is distributed to the states or to large metropolitan areas by formula. Other program funds are discretionary and some are earmarked for specific projects.[8]

Metropolitan Planning Program (Section 5303) and Statewide Transportation Planning Program (Section 5304) /FAST Section 3003 Metropolitan & Statewide Transportation Planning.

FTA provides funding for this program to the state based on urbanized area population. The funds are dedicated to support transportation planning projects in urbanized areas with more than 50,000

[8] http://www.fta.dot.gov/FAST_16653.html

population. The statewide funds come to the states based on population and are used to support transportation planning projects in non-urbanized areas. The FAST Act has a new emphasis on intercity transportation, as well as tourism and the reduction of risk from natural disasters. In addition, statewide transportation plans must include descriptions of performance targets and measures, and a system report evaluating the condition and performance of the transportation system.

Urbanized Area Formula Program (Section 5307 and 5340)/ FAST Sections 3004 and 3016

FTA provides transit operating, planning, and capital assistance funds directly to local recipients in urbanized areas with populations between 50,000 and 200,000, based on population and density figures, plus transit performance factors for larger areas. Local recipients, for whom projects are programmed by the MPO, must apply directly to FTA. A Special Rule in the FAST Act relating to operating costs for "100 bus providers" has been expanded to include demand response public transportation service operated by state or local governmental authorities, excluding ADA complementary paratransit service. A provision has been added that directs recipients to maintain equipment and facilities in accordance with their transit asset management plan. Grantees may use up to 0.5 percent of their 5307 allocation on Workforce Development activities. Eligible projects may receive funding for transportation services in urban, suburban, and rural areas to assist welfare recipients and low-income individuals access to employment opportunities and support services.

Because Grand Island is an urbanized area, transit funding will not be available within the FTA 5311 program, except for those trips in the rural areas. The NDOR reported available funding within the 5307 urban program in FY2016 at $715,000. This amount is available with the appropriate local match for operating and capital projects.

Capital Investment Program (Section 5309)/FAST Section 3005.

The transit discretionary program provides federal assistance for major capital needs in four categories:

- **New Starts** projects are new fixed guideway projects or extensions to existing fixed guideway systems with a total estimated capital cost of $300 million or more, or that are seeking $100 million or more in Section 5309 program funds.
- **Small Starts** projects are new fixed guideway projects, extensions to existing fixed guideway systems, or corridor-based bus rapid transit projects with a total estimated capital cost of less than $300 million and that are seeking less than $100 million in Section 5309 program funds.
- **Core Capacity** projects are substantial corridor-based capital investments in existing fixed guideway systems that increase capacity by not less than 10 percent in corridors that are at capacity today or will be in five years. Core capacity projects may not include elements designed to maintain a state of good repair.
- **Programs of Interrelated Projects** are comprised of any combination of two or more New Starts, Small Starts, or Core Capacity projects. The projects in the program must have logical connectivity to one another and all must begin construction within a reasonable timeframe.

Each type of project has a unique set of requirements in the FAST Act, although many similarities exist among them. All projects must be evaluated and rated by the FTA in accordance with statutorily-defined criteria at various points in the development process.

Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310)/FAST Act Section 3006.

Funding is provided through this program to increase the mobility for the elderly and persons with disabilities by removing barriers to transportation services and expanding mobility options. Funds are used to purchase transportation services or vehicles to meet the special transportation needs of seniors and individuals with disabilities in all areas, urban or rural. Eligible projects include both traditional capital investment and nontraditional investment beyond the Americans with Disabilities Act (ADA) complementary paratransit services.

The previous New Freedoms Program (Section 5317) is not a stand-alone program within the FAST Act. Under the new guidelines and upon the discretion of the grantee, New Freedoms Programming is an eligible activity under Section 5310. This eligible activity supports services and facility improvements to address the transportation needs of persons with disabilities that are new since the signing of SAFETEA-LU and that go beyond what is required by the Americans with Disabilities Act. Approximately $100,000 annually is available for Grand Island based on historic allocations.

Non-Urbanized Area Formula Program (Section 5311)/FAST Act Section 3007.

This program provides capital, planning, and operating assistance for rural and small urban transit systems, with populations less than 50,000. Up to 15 percent of these funds are allocated to intercity bus projects. The Rural Transit Assistance Program (RTAP – Section 5311(b)(3)) is also available for state and national training and technical assistance for agencies, along with transit training scholarships for rural transit managers and drivers and to support the State Transit Association. The previous Job Access Reverse Commute Program (Section 5316) is not a stand-alone program within the FAST Act. There is funding within the Section 5311 program that supports eligible activities for transportation services in urban, suburban, and rural areas to assist welfare recipients and low-income individuals access to employment opportunities and support services. After July 1, 2016, Grand Island will be eligible for 5311 funds ONLY for transit services outside the urban boundary.

Bus and Bus Facilities (Section 5339)/FAST Act Section 3017.

This program focuses on the rehabilitation and purchase of buses and related equipment and to construct bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities. Funding is provided through formula allocations and competitive grants. A sub-program provides competitive grants for bus and bus facility projects that support low and zero-emission vehicles.

A new pilot program allows designated recipients in in urbanized areas between 200,000 and 999,999 in population to participate in voluntary state pools to allow transfers of formula funds between designated recipients from FY 2016 through FY 2020. States are allowed to submit statewide applications for bus needs. Grand Island anticipates approximately $90,000 annually from the 5339 program.

State Transit Assistance (STA).

All Public Transit Systems are eligible for funding. These funds can be used by the public transit system for operating expenses related to the provision of open-to-the-public passenger transportation. A separate allocation of state funding is available to match the federal Intercity Bus funds. The NDOR

contributes approximately $100,000 in state funds for public transportation services. In the future, this allocation will change due to the change to an urbanized area. It is anticipated the state funding will decrease due to the funding category regulations for local match.

7.5 Available Funding

Transportation revenues pay for the new construction and ongoing operations, maintenance, and reconstruction costs. The revenue element is an estimate of how much money will be available to spend on new transportation projects in the GIAMPO area between 2016 and 2040. Between 2016 and 2040, GIAMPO forecasts that approximately $432.5 million in transportation revenue will be available to fund operations and maintenance, reconstruction, new projects, and expanded capacity.

The list of available funds from traditional roadway sources is shown in Table 7-1. The revenue estimates are based upon trends for local funds, state funds and federal funds that are expected to be obligated in the MPO area. The funding trends are based upon examining funding sources between the years 2005 through 2015. The assumption for federal funds has been limited, with federal funds shown as only the committed projects in FY2016-2025 and as TBD in the FY2026. A detailed breakdown by year and individual funding source is provided in Appendix C.

Generally, federal funding from the Surface Transportation Block Grant Program(STBGP), Bridge Replacement and Rehabilitation Program (BRRP) and National Highway Performance Program (NHPP) are deemed not to be available to local partners in the Grand Island Area MPO jurisdiction. These funding sources are assumed to be available only by the Nebraska Department of Roads throughout the duration of this planning document. Funding through the Highway Safety Improvement Program (HSIP) and the Congestion Mitigation and Air Quality (CMAQ) programs may be available to local partners on a limited basis for specific projects that address safety concerns, congestion issues, or projects that improve the air quality in the Grand Island Area MPO planning area.

Table 7-1: Total Available Roadway Funds (2016-2040)

Total Available Roadway Funds ($1,000)				
Time Period	Federal	State	Local	Total Revenues
2016-2025	$21,250	$109,366	$42,430	$173,046
2026-2040	TBD	$169,495	$89,952	$259,447
Total	TBD[9]	$278,861	$132,382	$432,493

Table 7-2 on the following page shows the amount of funding available for constructing new projects after the costs for personnel, operations, maintenance, reconstruction, and equipment, plus projects that have already been programed, are subtracted. This funding balance is assumed to be available to construct new projects in the GIAMPO Area based upon a conservative forecast of future operations and maintenance costs and revenue generation. Assumptions relating to the forecasts and detailed tables are shown in Appendix C.

[9] *To Be determined (TBD): Federal revenue estimates for NDOR projects in the GIAMPO planning area will be determined as the MPO's needs are assessed and funding targets are established. At this time, NDOR is still assessing the need for specific projects of regional significance in the Grand Island Area MPO planning area for the period of 2020-2040. NDOR has established revenue projections within the timeframe of the NDOR Surface Transportation Program Book, a six-year document that outlines NDOR's projects and future expenditures. NDOR recognizes an ongoing and long-term need to monitor, evaluate and upgrade the state highway and interstate highway system in the Grand Island Area MPO planning area as well as the State of Nebraska at large.*
NDOR will continue to monitor the existing conditions and proposed future changes to the state highway system with the continuing cooperation, coordination and assistance of GIAMPO and local partners. As future needs are identified with regard to infrastructure condition, safety, roadway capacity or transit service, NDOR will work to address these needs and include them through update or amendment in the GIAMPO Long Range Plan, TIP and the NDOR Surface Transportation Program Book and STIP as required by State and Federal regulation.

Table 7-2: Funds Available for New Roadway Projects

New Roadway Project Revenue ($1,000)			
Time Period	Federal (NDOR Only)	Local / State	Total Revenues
2016-2025	TBD	$55,839	$55,839
2026-2040	TBD	$98,236	$140,373
Total	TBD[10]	$154,075	$196,211

Funding for transit service was also examined through the 2040 horizon year. Transit service in the GIAMPO area is expected to continue but will be subject to the availability of local matching funds. A detailed breakdown of transit funding sources, assumptions and year-to-year forecasts for available revenue is shown in Appendix C. It is assumed that Grand Island will provide service only up to the budget that is available through a combination of Federal Transit funding and local matching dollars. A summary of the available transit revenue is shown below in Table 7-3.

Table 7-3: Transit Revenue and Expenditures (2016-2040)

Transit Revenue/Expenditure ($1,000)			
Time Period	Federal	Local / State	Total Revenue
2016-2025	$5,621	$2,698	$8,318
2026-2040	$9,948	$4,519	$14,467
Total	$15,569	$7,217	$22,786

[10] *To Be determined (TBD): Federal revenue estimates for NDOR projects in the GIAMPO planning area will be determined as the MPO's needs are assessed and funding targets are established. At this time, NDOR is still assessing the need for specific projects of regional significance in the Grand Island Area MPO planning area for the period of 2020-2040. NDOR has established revenue projections within the timeframe of the NDOR Surface Transportation Program Book, a six-year document that outlines NDOR's projects and future expenditures. NDOR recognizes an ongoing and long-term need to monitor, evaluate and upgrade the state highway and interstate highway system in the Grand Island Area MPO planning area as well as the State of Nebraska at large.*
NDOR will continue to monitor the existing conditions and proposed future changes to the state highway system with the continuing cooperation, coordination and assistance of GIAMPO and local partners. As future needs are identified with regard to infrastructure condition, safety, roadway capacity or transit service, NDOR will work to address these needs and include them through update or amendment in the GIAMPO Long Range Plan, TIP and the NDOR Surface Transportation Program Book and STIP as required by State and Federal regulation.

7.6 Additional Sources of Funding During the Planning Period

One of the mandates of 23 CFR 450.322(f) is to identify potential funding sources or funding strategies that may be used to fund transportation projects. Such funds may be used to advance projects from the illustrative list to the eligible for funding list. In some cases, the City of Grand Island, Hall County, or Merrick County must determine the level of funding for transportation assets they are willing to support. In addition, there are federal and state funds administered at the state level that GIAMPO may be eligible to receive. A number of funding and financing strategies are listed below, which show potential options that have been used or could be used to further fund transportation projects.

Build Nebraska Act

Through the Nebraska Build Act, NDOR will invest $600 million statewide over the next 10 (2016-26) years. NDOR is looking for input into the project prioritization process and for projects identified by local governments. Capital projects may include adding new lanes, building new expressways, or constructing new viaducts.

Bonds

The City of Grand Island has authority to borrow money in the exercise of its powers and duties to fund or refund any bonds or interest or other indebtedness it may have outstanding. The principal and interest of bond or other indebtedness shall be payable only out of the revenue, income, and money of the authority.

Sales and Use Tax

The City of Grand Island has levied 1.5 percent sales tax on retail sales and services since 2004.The 1.5 percent has, on average, resulted in the collection of $15,320,500 on a calendar year since 2012. As a source of additional sales tax revenue, the City of Grand Island may increase the local option sales tax levy to 2.0 percent, under certain requirements, which would potentially provide an additional $5,100,000 for a specific project that has been approved by a vote of the people.

TIGER Funds

In 2016 Omnibus Appropriations Act appropriated $500 million for an eighth round of the Transportation Investment Generating Economic Recovery (TIGER) competitive grant program. Similar to previous rounds of TIGER, the Department of Transportation (DOT) is authorized to award up to $500 million to road, rail, transit, and port projects that will have a significant impact on the nation, a metropolitan area, or a region.

Railroad Transportation Safety District

A BILL for an act to amend sections 74-1306 and 77-1601.02. The amendment will increase the levy authority of railroad transportation safety districts by providing for an increase in property tax.

Chapter 8 ENVIRONMENTAL REVIEW

The transportation enhancements proposed in Journey 2040 are required to comply with the National Environmental Policy Act of 1969 (NEPA) if federal funds are used to complete the project. This chapter explains the background of potential environmental consequences to consider when developing new transportation projects, and where environmentally sensitive areas are located in relation to the projects identified in the horizon years or 2025 and 2040.

The environmental review also evaluates the connection between the GIAMPO LRTP goals and environmental stewardship, the inventory of environmental resources, the applicable legislation, and the currently employed mitigation process. This section reflects the desire to take environmental factors into consideration when developing projects.

8.1 Connection to LRTP Goals

The consideration of environmental factors relates to the following Journey 2040 goal:

Goal 4: Environmental protection and the preservation of important natural assets

The purpose of this goal is to protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.

Strategies to address this goal include:

- Avoid, minimize, and mitigate the negative environmental impacts of the transportation system.
- Retain attainment air-quality status, as designated by the EPA.
- Promote energy conservation through the transportation system.
- Invest in alternative and renewable fuel infrastructure
- Increase the mode share of alternative modes of transportation (transit, bicycle, pedestrian) to ten percent of all trips by 2040.
- Consider aesthetics and urban form in the design process.
- Coordinate transportation investments with land use policies to minimize environmental costs.
- Preserve cultural, scenic and historic resources.

8.2 Impacts

Potential impacts of projects can range from affecting the cultural heritage of a community to threatening the habitats of endangered or threatened species. The impacts below are followed by an additional explanation of their specific significance.

Noise

A noise analysis is required for federally funded Type I Projects. These project typically include capacity adding such as lane additions, a new roadway on new alignment and substantial changes in vertical or horizontal alignment (see Nebraska Noise and Analysis Abatement Policy or 23 CFR 772 for complete definition of a Type I project). If noise impacts are identified, noise abatement is considered. Noise abatement must meet feasibility and reasonableness goals as outlined in the Nebraska Noise Policy in order to be constructed. Best Management Practices shall be used to control and mitigate construction noise (maybe list some BMPs). It is important for local planning agencies to coordinate with developers in order to recommend setbacks for new or changed developments to prevent future noise impacts.

Historical and Cultural Resources

Cultural resources would be considered under this category of environmental impact.[11] If, in consultation with the Nebraska State Historic Preservation (NESHPO), it is determined that a historic resource would be adversely affected by a federal undertaking, efforts to avoid and or minimize the adverse effect would be necessary. If avoidance and minimization are not effective, then mitigation of the adverse effect would be completed.

Environmental Justice

Environment Justice Areas can be described as areas where a significant portion of minority and/or low-income people live. Executive Order on Environmental Justice 12898 requires all federal agencies, including both the FHWA and FTA, to address the impact of their programs with respect to Environmental Justice. To the extent practicable and permitted by law, the Executive Order states that neither minority nor low-income populations may receive disproportionately high or adverse impacts as a result of a proposed project.

In order to classify a census block group as an Environmental Justice Area, the population must have a high percentage of minority populations and/or a high percentage of low-income households when compared to the larger surrounding area. Environmental Justice Areas are considered to be areas where the minority and/or low-income population percentage is meaningfully greater than the minority and/or low-income population percentages in the larger surrounding area.

The DOT-based guidelines, established from the U.S. Department of Health and Human Services poverty guidelines[12], were used to determine which households are low-income in the region. An Environmental Justice analysis is to compare areas within the community at-large. For this overview,

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[11] National Historic Preservation Act of 1966, as amended. Section 106 Identification, Evaluation and Project Effect Recommendations

low-income households are shown to provide a general overview of areas where the rate of low-income households comprise than 20 percent of a census block group.

A total of 19 out of 55 block groups are considered to have a high rate of low-income households, while 10 block groups have both high levels of minority populations and low-income households. Figure 8-1 displays the environmental justice areas in Grand Island and the proposed transportation projects by 2040. These areas show locations were a separate environmental justice analysis may need to be completed as project are developed.

A system level review of environmental justice impacts was conducted for projects with defined locations. To conduct this review, the following methodology was applied. Future project investments that were located entirely inside an environmental justice area was determined to have 100 percent impact in that location. Projects that abutted or crossed into environmental justice areas were assigned 50 percent to those areas. Projects that are not located adjacent to or inside areas identified as environmental justice sensitive areas were assigned zero percent impact on environmental justice areas.

For the intersection improvement groupings shown in the FY2016-2025 and FY2026-2040 periods an average percentage impact was calculated based upon the location impact methodology above and then projected based upon the number of intersection improvement projects listed in the fiscally constrained program (for reference this percentage is 64 percent and 17 percent for the respective periods). Total investment impact from the intersection improvement projects was then determined by multiplying the grouped project budget by the environmental justice percentage.

The individual project assignment of investment and impact percentage for individual projects is shown in Appendix F. A summary table of investment in environmental justice areas as compared total regional investment is shown on the following page in Table 8-1. As previously stated, several 2016-2020 projects are listed with various locations that cannot be accurately mapped and assigned to reasonable locations for assessment of impact. Project locations are also shown in Figure 8-1 with the project identification numbers corresponding to the project listing shown in Appendix F.

Projects located in environmental justice areas account for 52.9 percent of the total funding to be spent for the duration of this plan. Due to the large number of projects that occur in environmental justice areas, project owners are encouraged to take steps to avoid, minimize or mitigate any potential negative impacts of specific projects. Due to the small scope of many of these projects and the enhanced connectivity and access that will result at their completion it is assumed that overall the benefits of the program outweigh the burdens that may occur during project development. Special care should be taken to accommodate low income and minority persons during the development of the individual projects to ensure that project sponsors are acting in the best interest of the public.

[12] In 2013, the average household size in Grand Island, 2.6 persons, was used to determine the most a household could earn and still be considered low-income. The income levels for 2-person, $15,510, and 3-person households, $19,530, were found and multiplied by 0.6 in order to find the low-income threshold for Grand Island's average household size, $17,922. Because the American Community Survey only provides household income data in $5,000 increments, low-income households are considered to be households earning less than $20,000.

Table 8-1: Investment in Environmental Justice Areas (2016-2040)

Environmental Justice Investment					
Time Period	Total Projects	Total Project Cost in YOE ($1,000)	Projects Impacting Environmental Justice Areas	Environmental Justice Investment in YOE ($1,000)	Percentage of Total Investment in Environmental Justice Areas
2016-2020	3	$ 46,521	2	$ 32,178	69.2%
2016-2025	14	$ 44,064	11	$ 18,609	42.2%
2026-2040	7	$ 26,024	4	$ 10,943	42.1%
Total	24	$ 116,609	17	$ 61,730	52.9%

Air Quality

According to the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2013, nearly one-third of all U.S. carbon dioxide emissions come from transportation, or the second largest single source. Transportation infrastructure inherently generates pollution from burning fossil fuels from automobiles, air travel, marine transportation, and rail. Of those sectors, farming, trucking, personal vehicles, and rail traffic are most prevalent in Grand Island. Efforts to reducing global greenhouse emissions include reducing vehicle miles traveled (VMT), reducing traffic congestion, and by driving more fuel efficient vehicles or drive vehicles that emit lower levels of pollution.

The Clean Air Act, as amended in 1990, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants deemed harmful to humans and the environment. The EPA lists the following seven pollutants as harmful.

- **PM10:** Fine Particulates less than 10 microns in diameter.
- **PM2.5:** Fine Particulates less than 2.5 microns in diameter.
- **O3:** Ground level Ozone gas.
- **CO:** Carbon Monoxide gas.
- **SO2:** Sulfur Dioxide gas.
- **TRS:** Total Reduced Sulfur.
- **NO2:** Nitrogen Dioxide gas.

With federal regulations, the state of Nebraska is required to monitor the ambient air quality inside its borders. Air quality sensors in both Nebraska monitor the levels of harmful gasses, particulates, and elements contained in the ambient air of the GIAMPO area. Currently, the GIAMPO area is in attainment for the above air quality standards. Should the Grand Island area be designated as non-attainment in the future, GIAMPO would need to work with the local governments and with the Nebraska Department of Environmental Quality (NDEQ) to address potential issues. In other areas, local stakeholder groups have been formed to identify ways local businesses and households to voluntarily reduce emissions.

Endangered and Threatened Species

While it is possible for endangered or threatened species to appear in nearly any given location, the U.S. Fish and Wildlife Service gathers a list of species, flora, and fauna, believed to or known to occur in each state, including Nebraska. If plants or animals are officially listed, they are regarded as either endangered, threatened, or a candidate for an official listing. The species below are officially listed and located within the City of Grand Island as of February, 2015.[13]

Species: *Status*

Hall County:
Interior least tern: Endangered
Northern long-eared bat: Threatened
Piping plover: Threatened
Western prairie fringed orchid: Threatened
Whooping crane: Endangered
River otter: Threatened
Small white lady's slipper: Threatened

Merrick County:
Finescale dace: Threatened
Northern long-eared bat: Threatened
Interior least tern: Endangered
Piping plover: Threatened River otter: Threatened
Small white lady's slipper: Threatened
Whooping crane: Endangered

Parklands, Recreational Areas and Wildlife Refuges

Federally-funded transportation projects that impact parklands, recreational areas, and wildlife refuges are subject to additional federal scrutiny. This would apply to resources that designated as Section 4(f) resources (49 US Code 303 Section 4(f)). Figure 8-2 displays the location of these sensitive areas in Grand Island and are overlaid by the proposed transportation projects by 2040. Projects falling near these identified areas may result in the need to consider these environmental factors.

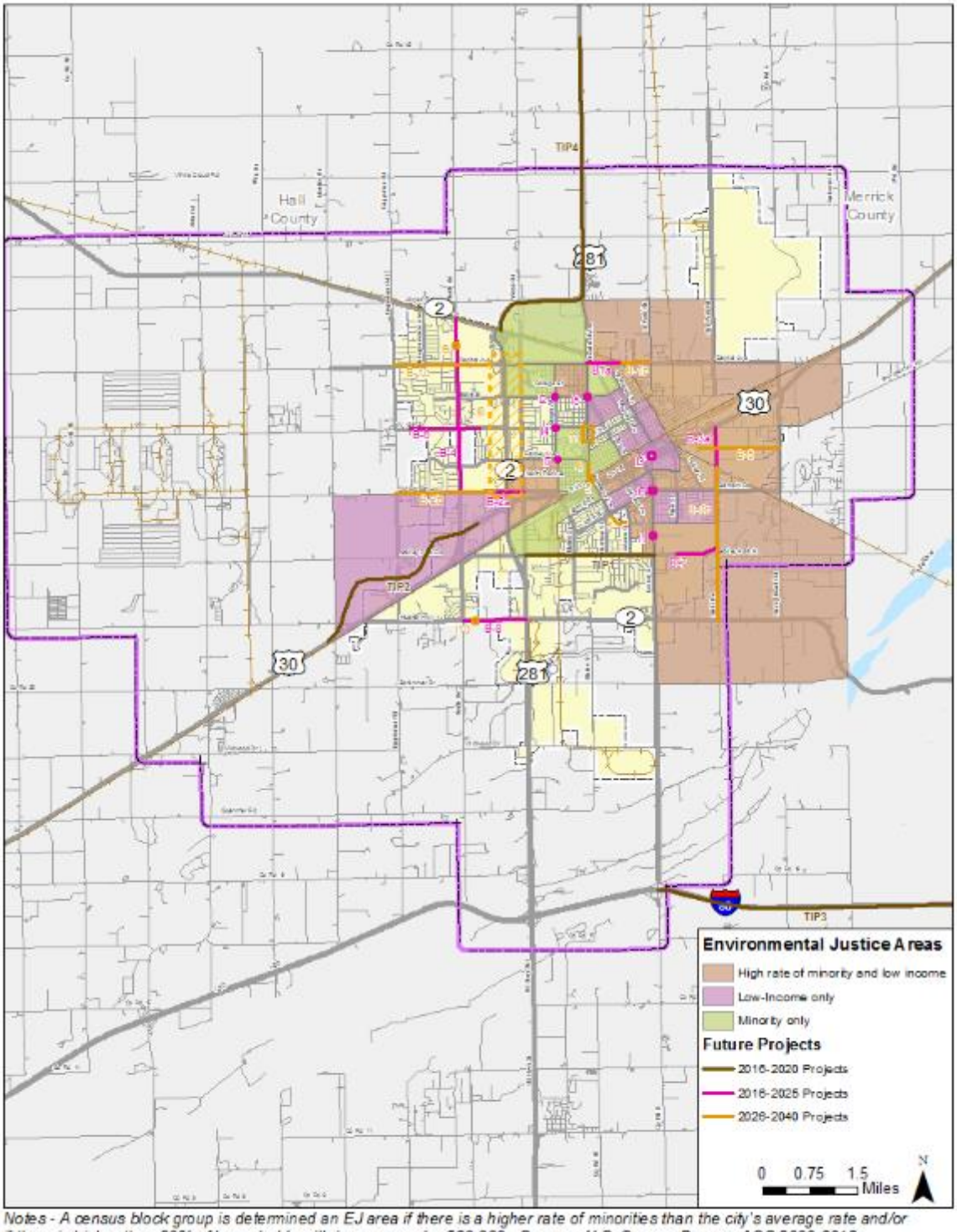
Water Resources

The most significant water feature in the GIAMPO area is the Platte River. The GIAMPO area is also home to a multitude of lakes, ponds, creeks and streams. Included in this watershed are wetlands. Wetlands are defined by the EPA as areas in which water covers the soil, or is present at or near the surface of the soil during varying times of the year (including the growing season). These areas of hydrologic soil are found most commonly around lakes, rivers, and streams (riparian wetlands); isolated wetlands can also be evident in depressions surrounded by dry land. In many cases, wetlands can be dry for much of the year. These vernal wetlands are important because they offer specialized breeding habitat for many plants and animals.

[13] http://ecos.fws.gov/tess_public/reports/species-listed-by-state-report?state=NE&status=listed

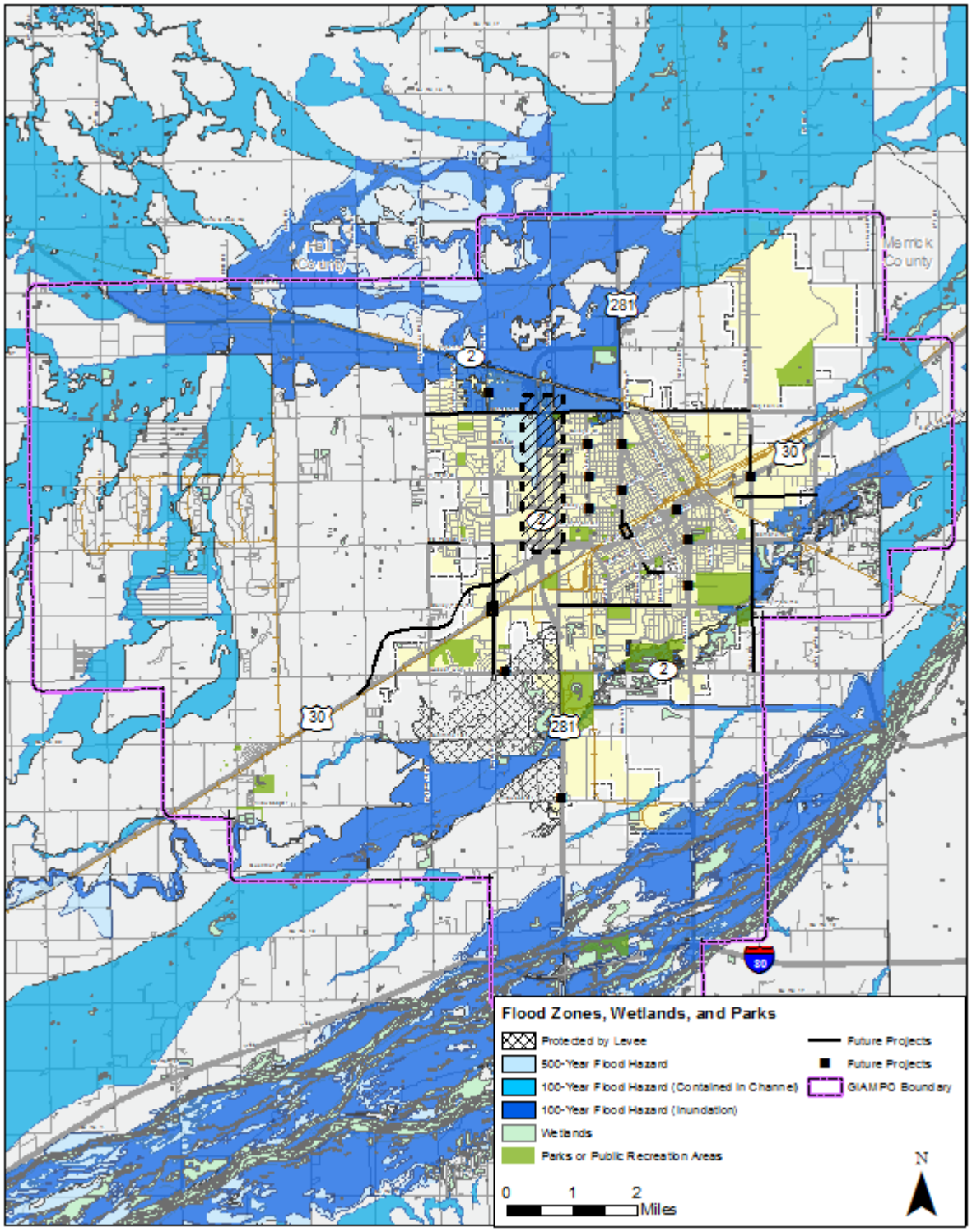
Inside of the above classifications, the US Army Corps of Engineers (USACE) identifies jurisdictional and non-jurisdictional wetlands. The determination of a jurisdictional wetland or waterway is conducted by the Corps of Engineers. Generally, jurisdictional wetlands are under the protection and control of the EPA and USACE. Where applicable, projects in the GIAMPO region will comply with all necessary FHWA, USACE, and EPA regulations in dealing with the region's water resources. Water resources in the GIAMPO area are also shown in Figure 8-3. It should be noted that all wetlands are not delineated in the Figure. Wetlands delineation shall take place as part of the NEPA process for individual applicable projects.

Figure 8-1: Proposed Projects & Environmental Justice Areas



Notes - A census block group is determined an EJ area if there is a higher rate of minorities than the city's average rate and/or if there is higher than 20% of households with incomes under $20,000. Source - U.S. Census Bureau, ACS 2009-2013.

Figure 8-2: Proposed Projects with Flood Zones, Wetlands, and Public Use Areas



Source: Nebraska Shared GIS Services - FEMA DFIRM Floodplains, U.S. Fish & Wildlife Service - National Wetlands Inventory.

Chapter 9 RECOMMENDED TRANSPORTATION PLAN

Journey 2040 is a plan to guide the future development of the transportation system. This is the initial Metropolitan Transportation Plan completed for the Grand Island region following federal guidance. This chapter outlines policy recommendations and capital projects to move the region towards achieving the goals and performance targets outlined in this plan. MPO member governments have a prime opportunity to mold the transportation network into a transportation system that addresses the needs and goals of the region. The following section identifies transportation projects and policies that GIAMPO member organizations can adopt to improve the transportation system.

Looking forward to year 2040, the Grand Island area will experience growth and demographic changes. The area is projected to experience a growth of 20,000 persons by the year 2040. The number of elderly will increase, as well as the number of persons in the 25-40 age range. The urban area will expand to accommodate the increase in people and jobs. With these anticipated demographic shifts, creating a region where vehicle trips can be made efficiently, as well as accommodating walking, biking, and using public transportation will be imperative. This plan addresses safety of vehicle, pedestrian, and bicycle travel. It addresses security so the transportation system provides an environment where travel is not susceptible to real or perceived robberies or other crimes.

As noted in Chapter 4 (Existing Conditions) and in Chapter 5 (Future Conditions), a number of congested roadway intersections and segments were identified. Traffic forecasts indicate a number of new transportation investments are needed to maintain travel mobility and improve traffic safety. The region should:

- Invest in rehabilitating existing infrastructure in order to maintain regional traffic operations and to make the most of significant investments made over the past decades.
- Implement the roadway projects identified in this plan that will best serve the future mobility needs of the Grand Island area. An analysis of financial resources has also been completed. The recommended investments are described in the following sections of this chapter.
- In addition to these recommended transportation investments, the GIAMPO region should:
- Conduct an engineering study to optimize signal timing, particularly in the U.S.-281 corridor to fully realize benefits to traffic capacity, safety, and air quality since safety and efficiency was identified as a key project goal for this plan. Projects have been identified to address this need.
- Ensure available transportation funding is used to maintain the current transportation infrastructure, but also to make the needed transportation investments and implement the recommendations of this plan. New sources of funding should also be explored.
- Complete a Grand Island area Transit Feasibility Study to analyze public transportation options and costs in order to provide additional transit options for people who are without access to private vehicles or prefer not to drive. The long-range transportation plan would be amended with any goals, objectives, performance measures and projects that would be identified in that study.
- Conduct a pedestrian and bicycle study for the Grand Island area that identifies a walking and biking network that meets Americans with Disabilities Act (ADA) standard. This study will further community health, exercise, well-being, and social interaction opportunities for all residents in the community. The long-range transportation plan would also be amended with any goals, objectives, performance measures and projects that would be identified in that study.9.1 Process to Identify Fiscally Constrained Projects

This chapter presents the projects anticipated to be constructed based on funding projections and those projects in which additional funding is needed. The chapter includes consideration of funding for

Operations and Maintenance, the Rehabilitation of existing streets and highways, and includes consideration of Committed Project lists presented in this report. Projects from the Safety and Efficiency Scenario, the Connectivity Scenario, and Accessibility Scenario have been evaluated based upon the funding limits described in Chapter 7. From these inputs and considerations, the Fiscally Constrained GIAMPO 2040 Long-Range Transportation Plan was developed.

This Fiscally Constrained Plan is limited to projects that can be funded with available revenues based upon year of expenditure (YOE) costs. A project cost inflation factor of four percent per year was used for year of expenditure cost as recommended by USDOT. The plan has flexibility in that projects are prioritized and grouped by mid- and long-term horizon years, and GIAMPO has the opportunity to reprioritize the project list within these time periods. Short-term projects have been identified and are shown as committed projects, which are included in the region's Transportation Improvement Plan (TIP). This Chapter begins with a summary of the Fiscally Constrained Plan process, the prioritization of roadway projects, the allocation of available funds, and then a summary of projects included in a Fiscally Constrained Plan. The overall process is shown in Figure 9-1.

Figure 9-1: Financial Analysis Process

Available Funds

The amounts of available funding for all projects are shown in Table 9-1 on the following page. This table represents the estimate of revenues for transportation for the years 2016 – 2040.

Table 9-1: Total Available Roadway Revenue (2016-2040)

Total Available Roadway Funds ($1,000)				
Time Period	Federal	State	Local	Total Revenues
2016-2025	$21,250	$109,366	$42,430	$173,044
2026-2040	TBD	$169,495	$89,952	$259,447
Total	TBD[14]	$278,861	$132,382	$432,491

Committed Costs

Committed projects are defined to include those projects currently programmed or now under construction. The first step in identifying the amount of funds available for new construction was to subtract the cost of these projects from the estimated total revenues from 2016 through 2040. A number of major projects have been programmed for the Grand Island area. Many of the committed projects are being completed by NDOR utilizing federal funding from a number of sources. The specific construction year and funding by source can be found in the GIAMPO Transportation Improvement Program (TIP) 2016-20.

Between 2016 and 2020, NDOR will complete a major reconstruction on I-80 in the GIAMPO study area, the reconstruction of U.S.-281 between U.S.-30 and Broadwell, and replacement of three bridges on U.S.-30. NDOR has also committed to construct a U.S.-30 west bypass from west of US-281 to near County Road 20 and then also install automated gates at I-80 interchanges. The total cost of these projects, shown in Table 9-2, is estimated at $53 million.

[14] *To Be determined (TBD): Federal revenue estimates for NDOR projects in the GIAMPO planning area will be determined as the MPO's needs are assessed and funding targets are established. At this time, NDOR is still assessing the need for specific projects of regional significance in the Grand Island Area MPO planning area for the period of 2020-2040. NDOR has established revenue projections within the timeframe of the NDOR Surface Transportation Program Book, a six-year document that outlines NDOR's projects and future expenditures. NDOR recognizes an ongoing and long-term need to monitor, evaluate and upgrade the state highway and interstate highway system in the Grand Island Area MPO planning area as well as the State of Nebraska at large.*
NDOR will continue to monitor the existing conditions and proposed future changes to the state highway system with the continuing cooperation, coordination and assistance of GIAMPO and local partners. As future needs are identified with regard to infrastructure condition, safety, roadway capacity or transit service, NDOR will work to address these needs and include them through update or amendment in the GIAMPO Long Range Plan, TIP and the NDOR Surface Transportation Program Book and STIP as required by State and Federal regulation.

Table 9-2: Committed Project Cost

Committed Project Cost ($1,000)				
Time Period	Federal	State	Local	Total Costs
2016-2025	$21,350	$28,153	$3,620	$53,123

Note: Project Costs have been inflated to Year of Expenditure by sponsoring jurisdictions. Includes $100,000 in Sec 5307 and $25,000 local match for Transit Needs Analysis.

Operation & Maintenance & Reconstruction Costs

The City of Grand Island and Hall County in the GIAMPO study area have an annual Operation and Maintenance budget to maintain the existing transportation infrastructure. It includes personnel, equipment, and materials cost of maintenance. It also includes funds for more extensive maintenance projects such as resurfacing, replacing curbs, signs, signal maintenance, and other similar activities.

NDOR contracts with the local governments to complete routine maintenance. Table 9-3 presents the combined local and state maintenance costs. Operation and Maintenance costs, also presented in Table 9-3, were projected for the next 25 years. These costs are shown on an annual basis in Appendix C. In addition, a general estimate of reconstruction costs for projects not yet determined was included in these cost estimates. The funds for operations, maintenance, and reconstruction are shown in Table 9-3. The inflation rate for the future year of expenditure is based upon past trends for each specific line item. These assumptions and rates are documented in Appendix C.

Table 9-3: Operation and Maintenance Budget

Operation & Maintenance Expenditures ($1,000)	
Time Period	Local Operation & Maintenance
2016-2025	$62,209
2026-2040	$146,211
Total	$208,420

Table 9-4 on the following page shows the remaining funds available after committed project costs, operations and maintenance costs are subtracted from the total revenues. In summary, the table shows anticipated revenues for available for programming new construction projects in the GIAMPO area for the remaining portion of the plan.

Table 9-4: Available Roadway Revenue

Available Revenue ($1,000)			
Time Period	Federal	Local / State	Total Revenue
2016-2025	TBD	$57,839	$57,839
2026-2040	TBD	$113,236	$113,236
Total	TBD[15]	$171,075	$171,075

9.2 Project Priority Process

The projects were evaluated and prioritized based upon the funds and in what time period the project would be proposed. This process took three steps: project evaluation, public input, and MPO Technical Committee review.

Project Evaluation

Each of the proposed projects presented in the Long-Range Transportation Plan was evaluated based on the GIAMPO 2040 project goals and evaluation criteria presented in Chapter 3. Each criterion was transparent. Base factors and criteria were developed for each project goal. A composite score was calculated for each project based on the goal score multiplied by the goal weight, which was developed as part of the public involvement process. The priorities are discussed in Chapter 5, with detailed project scoring shown in the Appendices.

Public Input

Public input was sought on project priorities. As part of the second public meeting, participants scored a high, medium, or low prioritization to each project type. They also provided input on specific projects

[15] To Be determined (TBD): Federal revenue estimates for NDOR projects in the GIAMPO planning area will be determined as the MPO's needs are assessed and funding targets are established. At this time, NDOR is still assessing the need for specific projects of regional significance in the Grand Island Area MPO planning area for the period of 2020-2040. NDOR has established revenue projections within the timeframe of the NDOR Surface Transportation Program Book, a six-year document that outlines NDOR's projects and future expenditures. NDOR recognizes an ongoing and long-term need to monitor, evaluate and upgrade the state highway and interstate highway system in the Grand Island Area MPO planning area as well as the State of Nebraska at large.
NDOR will continue to monitor the existing conditions and proposed future changes to the state highway system with the continuing cooperation, coordination and assistance of GIAMPO and local partners. As future needs are identified with regard to infrastructure condition, safety, roadway capacity or transit service, NDOR will work to address these needs and include them through update or amendment in the GIAMPO Long Range Plan, TIP and the NDOR Surface Transportation Program Book and STIP as required by State and Federal regulation.

within each type. In general, there was strong support for the overall process for the prioritization of projects.

9.3 Fiscally Constrained Project Plan

The Fiscally Constrained Plan is presented in Figure 9-2 and in Table 9-5. This Fiscally Constrained Plan is comprehensive and includes both projects to be partially funded through federal and state revenue forecasts, as well as projects to be funded through local resources.

Assumptions

The following assumptions were used in the development of the Fiscally Constrained Plan.

- The Fiscally Constrained Plan assumes all operating and maintenance needs are covered first.
- Secondly, the Fiscally Constrained Plan takes into consideration major rehabilitation and preservation projects throughout the GIAMPO area. These funds are considered prior to new construction or capacity projects.
- Traffic operations and efficiency projects are considered the next priority after the above assumptions.
- Locally funded improvements shown in the Fiscally Constrained Plan in this Long-Range Transportation Plan are constrained by reasonably anticipated local revenues. Potential new local revenue sources are supported in this plan, but are not included as part of the Fiscally Constrained Plan.
- State funds are based upon historical trends, plus a minimal increase related to the recently approved Build Nebraska Act that provides additional revenues for transportation.
- NDOR federal fund expenditures were tracked over the 2011-2015 period and categorized into a three main categories based on the past type of work and current FAST Act eligibilities: NHPP, STP and ITS program funds. These expenditures were projected forward based upon a 5 year rolling average to develop a conservative future funding scenario. Available federal revenue during the first horizon year period (FY2016-FY2025) reflects the current Grand Island Area MPO TIP. It is assumed that NDOR will not be spending any additional Federal-Aid in the MPO area during this period. The 5 year rolling average moves forward from FY2026-FY2040 to account for any future NDOR Federal-Aid projects that are not currently under development.

Public Transportation

The Federal Transit Administration funding programs were previously discussed in detail, including the different program types and eligibility in Chapter 7. The following table illustrates the public transportation funding program for the future. The federal funding category includes Section 5307, 5310, 5311, and 5339 monies. Appendix C includes the detailed funding anticipated to be available by year.

Table 9-5 Transit Revenues

Public Transportation Funding Estimates ($1,000) – Maintain Exiting Services			
Time Period	Federal	Local / State	Total Revenues
2016-2025	$5,621	$2,698	$8,319
2026-2040	$9,948	$4,519	$14,467
Total	$15,569	$7,217	$22,786

Note: Line item revenue and cost for transit services are shown in Appendix C and have been inflated to reflect anticipated revenue growth and year of expenditure dollars.

9.4 Projects Not Fiscally Constrained

Financial resources are not large enough to fund all of the projects identified in this transportation plan. Those projects outside the anticipated revenues are described as “Illustrative Projects”. The Illustrative Projects are shown in Figure 9-3 and in Table 9-6.

9.5 Implementation

The analysis of existing revenue sources shows the financial capacity to complete the fiscally constrained projects. However, the revenue streams are gradual and the project costs typically occur in large amounts at one time. Often local communities face difficulty in developing resource reserves over time to be able to undertake larger projects. To address this potential difficulty, the following financial steps can be considered:

1) Provide a dedicated amount of funding for transportation by local governments, rather than using annual allocations of general fund revenues.
2) Consider additional resources to obtain needed revenues for the major investments identified in this plan.
3) Consider the use of bonding for one or more transportation projects identified in this plan. The existing revenue stream for transportation or use of new resources could be used as debt service for the bonds.

Figure 9-2: Fiscally Constrained Plan

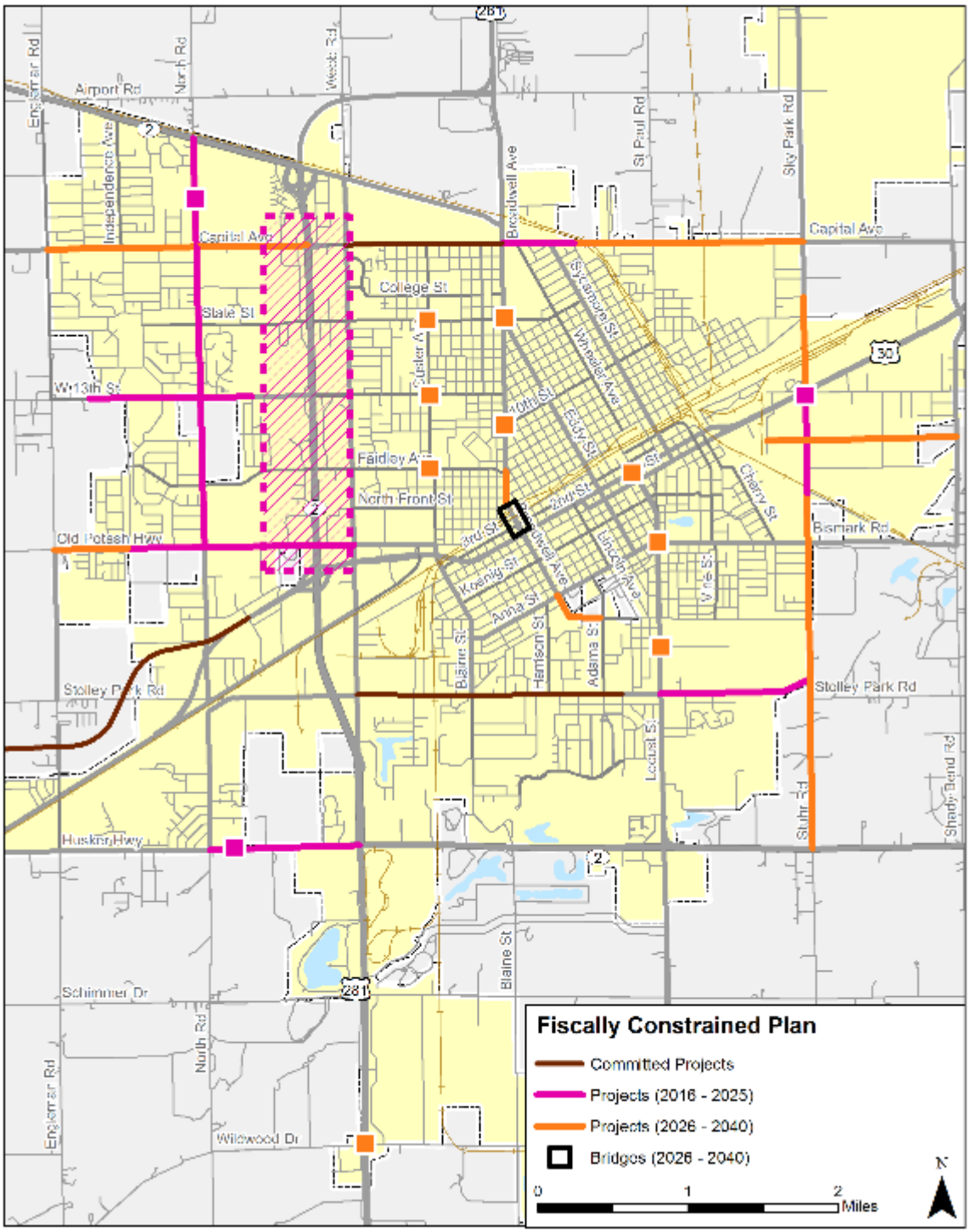


Figure 9-3: Illustrative Projects (Not Included in the Fiscally Constrained Plan)

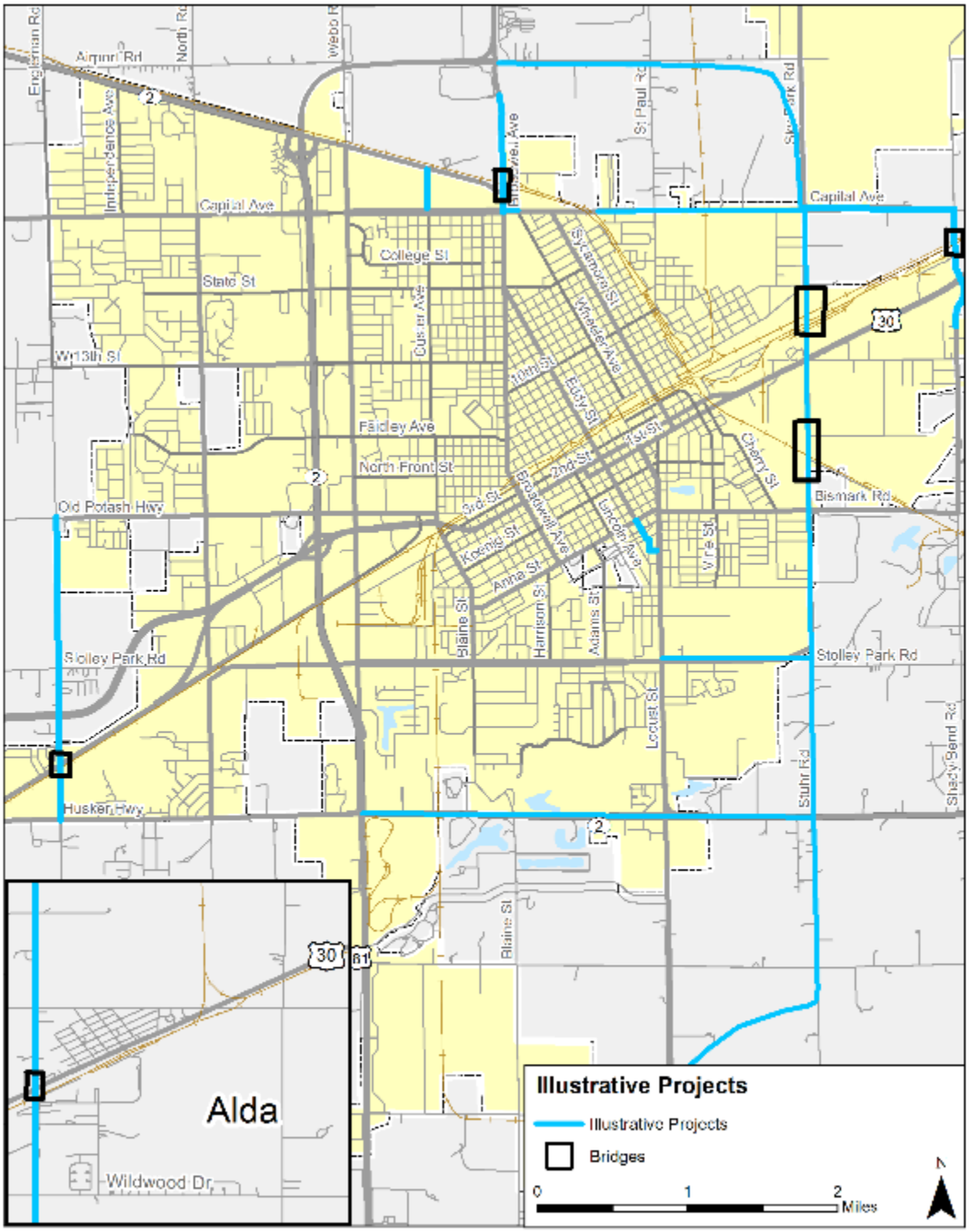


Table 9-5: Fiscally Constrained Project Plan

Grand Island Area MPO Transportation Improvement Program FY 2016-2020										
State ID	Project Name	Project Description	A/Q Status	Length (SLM)	Total Project Est.	Phase	YOE	Fund Type	Fund Description	*TIP* Estimate by Phase Amount ($1,000)
41704	US-281 West, Grand Island	Construct 4-Lane Divided Highway US-30, from US 281 in Grand Island West to City Limits - Beg RP 309.15	Exempt	3.5 mi	$25,978	PE	2016	City	Grand Island	$115
						PE	2016	State	Build Nebraska	$1,735
						ROW	2018	City	Grand Island	$10
						ROW	2018	State	Build Nebraska	$2,129
						Const/CE	2020	City	Grand Island	$1,262
						Const/CE	2020	State	Build Nebraska	$20,727
42674	Platte River - Phillips	Mill, Concrete repair, resurface 4-lane dual Roadway and Shoulders, Bridge repair I-80 from Platte River west of Grand to Phillips, Beginning RP 310.88	Exempt	7.7 mi	$8,144	PE	2017	State	NDOR	$31
						ROW	2018	State	NDOR	$1
						Const/CE	2019	NHPP	National Highway Performance Program	$7,300
						Const/CE	2019	State	NDOR	$812

State ID	Project Name	Project Description	A/Q Status	Length (SLM)	Total Project Est.	Phase	YOE	Fund Type	Fund Description	*TIP* Estimate by Phase Amount ($1,000)
						PE	2015	State	NDOR	$779
						Const/CE	2017	City	Grand Island	$2,074
		Resurf existing roadway & US-281/N-2 ramps, concrete repair, brdge repair, add subdrains				Const/CE	2017	NHPP	National Highway Performance Program	$7,854
		US-281 from Old US-30 Viaduct over UPRR, North to 1.8 mi South of Howard County Line				Const/CE	2017	SFTY	Nation Safety Improve. Program	$595
42690	In Grand Island & North	Beginning RP - 69.90	Exempt	9.6 mi	$12,399	Const/CE	2017	State	NDOR	$1,097
						PE	2016	State	NDOR	$39
		Deploy automated gate systems and COTV Cameras				Const/CE	2017	ITS	Intelligent Transportation Systems	$949
42773	Grand Island - WACO	Several I-80 interchages in District 4	Exempt	0	$1,094	Const/CE	2017	State	NDOR	$106
		Bridge repair/overlay,sealing, approach slabs				Const/CE	2018	NHPP	National Highway Performance Program	$2,339
42776	In Grand Island Bridges	Three Bridges in Grand Island Beginning NP 312.93	Exempt	0	$2,924	Const/CE	2018	State	NDOR	$585

State ID	Project Name	Project Description	A/Q Status	Length (SLM)	Total Project Est.	Phase	YOE	Fund Type	Fund Description	*TIP* Estimate by Phase Amount ($1,000)
						PE	2016	SFTY	Nation Safety Improve. Program	$100
						PE	2016	Local	Grand Island	$10
		Reconfigure Stolley Park Road to 3,4 and 5 lane sections - FHWA Road Diet Initiative				Const./CE	2017	SFTY	Nation Safety Improve. Program	$1,115
42812	Grand Island-Stolley Park Reconfiguration	From Webb Road to S. Locust St	Exempt	2.04 mi	$1,349	Const./CE	2017	Local	Grand Island	$124
						PE	2016	State	NDOR	$1
						Const/CE	2016	State	NDOR	$111
42828	District 4 - Districtwide striping	Install durable pavement markings	Exempt	0	$1,110	Const/CE	2016	SFTY	Nation Safety Improve. Program	$998
	Transit Needs Analysis	Feasibility Study to identify Transit Needs	Exempt		$125		2016	FTA	Sec. 5307	$100
								Local	Grand Island	$25
									Total	**$53,123**

Table 9-5: Fiscally Constrained Project Plan (Continued)

GIAMPO Project Listing 2021-2025								
Project ID	Project Name	Project Description	From	To	Jurisdiction	Total Cost ($1,000) Current Year	Total Cost ($1,000) Future Year	Available Fiscal Constrained ($1,000)
2016 - 2025								**$57,839**
	Intersection Improvements	Improvements at various intersections	Various	Various	Grand Island	$3,500	$4,606	$53,233
B-3a	Stuhr Road	Widen to 3 lanes	US-30	BNSF RR	Grand Island	$9,656	$12,707	$40,526
B-2a	Old Potash Highway	Widen to 5 lanes	Claude Road	Webb Road	Grand Island	$4,307	$5,668	$34,858
B-8	Husker Highway	Widen to 3 lanes	US-281	North Road	Grand Island	$4,947	$6,510	$28,348
B-4	North Road	Widen to 3 lanes	Highway 2	Old Potash Highway	Grand Island	$11,081	$14,582	$13,766
B-7	Stolley Park Road	Widen to 3 lanes	Fair Ground Entrance	Stuhr Road	Grand Island	$2,183	$2,872	$10,894
B-1a	Capital Avenue	Widen to 5 lanes	Broadwell Avenue	BNSF RR/Oak Street	Grand Island	$3,438	$4,524	$6,371
B-6	13th Street	Widen to 3 lanes	West of US-281	Independence Avenue	Grand Island	$4,193	$5,517	$853
					Total 2021-2025	**$43,304**	**$56,985**	**$853**

Table 9-5 Fiscally Constrained Project Plan continued

GIAMPO Project Listing 2026-2040								
Project ID	**Project Name**	**Project Description**	**From**	**To**	**Jurisdiction**	**Total Cost ($1,000) Current Year**	**Total Cost ($1,000) Future Year**	**Available Fiscal Constrained ($1,000)**
2026-2040								**$114,089***
	Intersection Improvements	Improvements at various intersections	Various	Various	Grand Island	$3,764	$7,332	$106,758
2	Stuhr Bridges over BNSF and UPRR	Engineering			Grand Island	$2,048	$3,989	$102,768
B-3b	Stuhr Road	Widen to 3 lanes	BNSF RR	US-34	Grand Island	$9,656	$18,809	$83,959
B-1b	Capital Avenue	Widen to 3 lanes	BNSF RR/Oak Street	St Paul Road	Grand Island	$1,781	$3,470	$80,490
B-1c	Capital Avenue	Widen to 3 lanes	Dairy Queen	Engleman Road	Grand Island	$5,700	$11,103	$69,387
B-2b	Old Potash Highway	Widen to 3 lanes	Engleman Road	Claude Road	Grand Island	$5,269	$10,264	$59,123
B-5	Swift Road	New 2-lane road	Talc Road	Shady Bend Road	Grand Island	$3,150	$6,136	$52,987
4	Broadwell over UPRR and Broadwell Extension	Broadwell Avenue Widening (5-lane)	Faidley Avenue	Third Street	Grand Island	$3,900	$7,597	$45,390
5		Broadwell UPRR bridge				$13,000	$25,323	$20,068
6		Broadwell Extension (3-lane)	Anna Street	Adams Street		$4,900	$9,545	$10,523
11	13th St. - 10th St. Connector	Reconstruct	W 13th Street	10th Street	Grand Island	$600	$1,169	$9,354
					Total 2026-2040	**$53,768**	**$104,735**	**$9,352**

***Note: includes $853 of FY2016-2025 carryover plus forecast $113,236.*

Table 9-6: Illustrative Project Plan

GIAMPO Illustrative Projects								
Project ID	**Project Name**	**Project Description**	**From**	**To**	**Jurisdiction**	**Total Cost ($1,000) Current Year**	**Total Cost ($1,000) Future Year**	**Available Fiscal Constrained ($1,000)**
Illustrative Project 2040+								**$9,352**
7	North Road and UPRR Bridge	Widen to 3 lanes; new 2-lane bridge	Old Potash Hwy	Husker Hwy	Grand Island	$16,200	$26,776	
9	Broadwell over BNSF	Widen to 5 lanes Realign Old Highway 2 to connect Custer Avenue; New 4-lane bridge	Capital Avenue	Airport Road	Grand Island	$14,300	$23,636	
3	Eddy Street Extension	New 2-lane Road	Phoenix Avenue	Locust Street	Grand Island	$3,300	$5,454	
12	Alda Road and UPRR Bridge	New 2-lane bridge	Apollo Street	Hwy 30	Grand Island	$11,300	$18,677	
15	East Bypass (5-lanes)	5-lane Stolley Park Road *	Locust Street	Stuhr Road	Grand Island	$2,500	$4,132	
		5-Lane Stuhr Road / Sky Park Road *	US-34	Capital Avenue		$11,875	$19,628	
		5-lane Husker Hwy	US-281	Stuhr Road		$18,750	$30,991	
		5=lane Captial Avenue	BNSF RR/Oak Street	Sky Park Road		$20,375	$33,677	
16	East Bypass US-281 to I-80	4-lane Expressway	I-80	US 281	Grand Island	$78,750	$130,162	
2	Stuhr Road bridge over UPRR	New 4-lane bridges	Highway 30	4th Street	Grand Island	$15,952	$26,366	
	Stuhr Road bridge over BNSF	New 4-lane bridge			Grand Island	$11,000	$18,181	

*expand 3-lane to 5-lane