2045 Long Range Transportation Plan

February 2021

GIAMPO
GRAND ISLAND AREA METROPOLITAN PLANNING ORGANIZATION

TABLE OF **CONTENTS**

AADT	Average Annual Daily Traffic
ACS	American Community Survey
ADT	Average Daily Traffic
CFR	Code of Federal Regulations
E+C	Existing plus Committed
EA	Environmental Assessments
EIS	Environmental Impact Statement
EJ	Environmental Justice
ESA	Endangered Species Act
FAST Act	Fixing America's Surface Transportation
FEMA	Federal Emergency Management Agency
FFPP	Federal Funds Purchase Program
FHWA	Federal Highway Administration
FIS	Flood Insurance Study
FTA	Federal Transit Administration
GIAMPO	Grand Island Area Metropolitan Planning Organization
GIS	Geographic Information System
HCS	Highway Capacity Software
HSIP	Highway Safety Improvement Program
LEHD	Longitudinal Employer-Household Dynamics
LRTP	Long Range Transportation Plan
LOS	Level of Service
LOTTR	Level of Travel Time Reliability
LWCF	Land and Water Conservation Fund
MAP-21	Moving Ahead for Progress in the 21st Century Act
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MTP	Metropolitan Transportation Plan
NDOT	Nebraska Department of Transportation
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHPP	National Highway Performance Program
NHS	National Highway System
NPDRMS	National Performance Management Research Data Set
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
PCI	Pavement Condition Index

PHED	Peak Hour Excessive Delay
PM	Performance Measure
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SOV	Single Occupant Vehicle
STBG	Surface Transportation Block Grant Program
STBG-TA	Surface Transportation Block Grant Program for Transportation Alternatives
TA	Transportation Alternatives
TAZ	Transportation Analysis Zone
TAC	Technical Advisory Committee
TDM	Travel Demand Model
TIP	Transportation Improvement Program
TMC	Turning Movement Count
TWSC	Two Way Stop Control
TrAMS	Transit Award Management System
TSMO	Transportation Systems Management and Operations
U.S.	United States
USDOT	United States Department of Transportation
USFWS	U.S. Fish and Wildlife Service
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled

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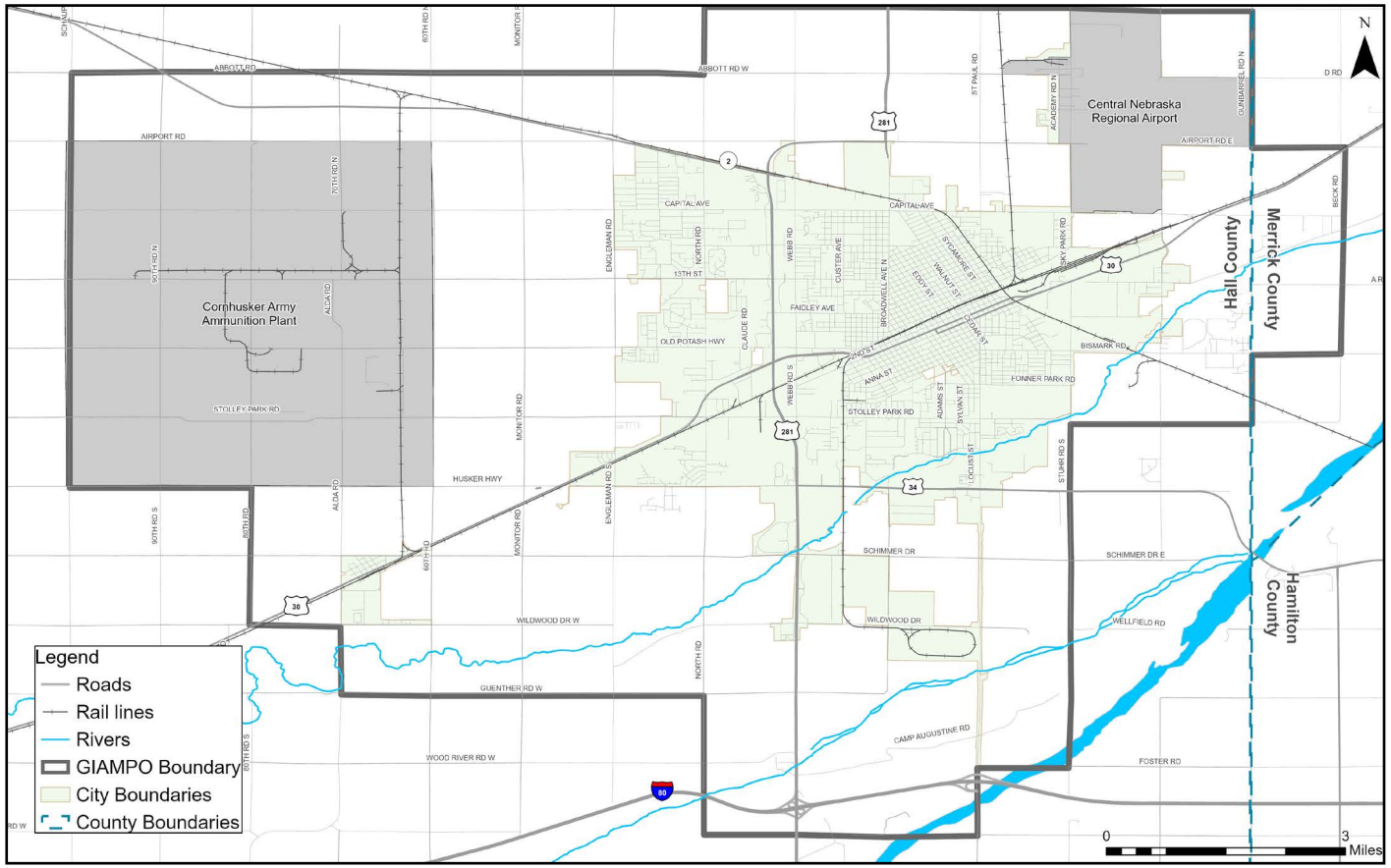
Chapter 1 Who We Are

Federal law requires any Urbanized Area population exceeding 50,000 persons to create a Metropolitan Planning Organization (MPO). The MPO is designated to carry out the multimodal transportation planning for the metropolitan area. The Grand Island Urbanized Area officially exceeded this population threshold in the 2010 Census, and in 2013 the Governor of Nebraska designated the Grand Island Area MPO (GIAMPO) as the official MPO for the Grand Island Urbanized Area. GIAMPO serves as the formal transportation planning body for the greater Grand Island, Nebraska metropolitan area. GIAMPO includes the areas shown in **Figure 1-1**.

Figure 1-1: GIAMPO Study Area



The state and local jurisdictions that lie within the GIAMPO planning boundary are considered voting members of the MPO. GIAMPO maintains two groups whose voting members consist of local policymakers, including city council members, as well as city and county staff members. Non-voting members include other transportation professionals from Federal, state, and local agencies. The two groups are:

GIAMPO Policy Board: The Policy Board is responsible for the preparation and adoption of planning studies, review transportation projects to align with regional transportation goals, adopt a four-year Transportation Improvement Program (TIP) and review Federal and state funding available for local transportation projects, oversee updates to the Long-Range Transportation Plan (LRTP), adopt an annual Unified Planning Work Program (UPWP), and implement a Public Participation Process (PPP). The board consists of eight voting members.

GIAMPO Technical Advisory Committee (TAC): The TAC is responsible for overseeing and advising the Policy Board on the technical matters related to their duties discussed above. The TAC provides oversight in the development and review of the LRTP in addition to other work products developed by the MPO. The TAC is comprised of 11 voting members.

GIAMPO creates additional subcommittees, working groups, and roundtables to address transportation-related issues in the region. The MPO regularly seeks participation from stakeholder groups and residents to serve on these committees and groups outlined in the MPO's Public Participation Plan (PPP). The voting members of the GIAMPO include:

- City of Grand Island: TAC and Policy Board voting
- Village of Alda: TAC voting
- Hall County: TAC and Policy Board voting
- Merrick County: TAC voting
- Nebraska Department of Transportation (NDOT): TAC and Policy Board voting
- Central Nebraska Airport: TAC voting

Long-Range Transportation Planning Process

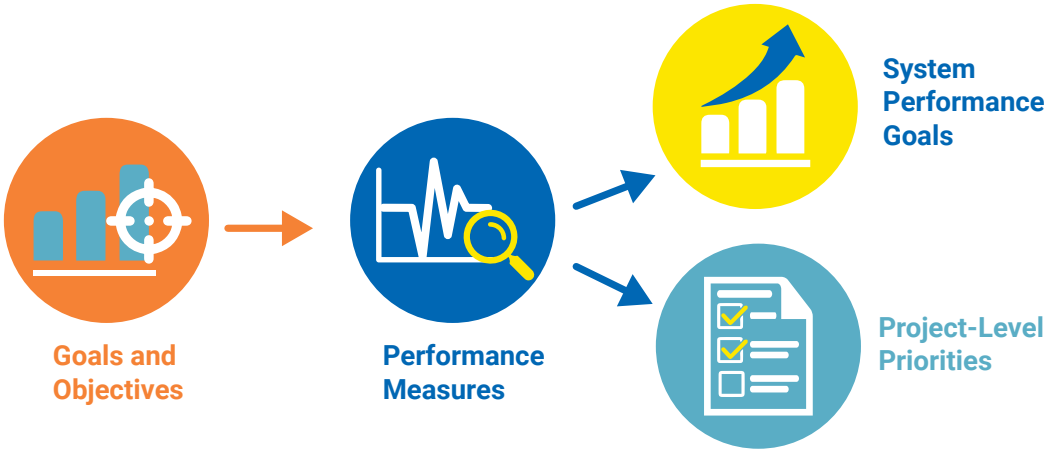
One of the key duties of GIAMPO is to maintain an LRTP and update the plan every 5 years. The LRTP formalizes the vision for the regional transportation system for the next 25 years through establishing a series of transportation goals and objectives. A second critical aspect of the LRTP is the identification of transportation projects to be implemented over this 25-year timeframe as well as the demonstration that enough Federal, state, and local funding will be available to implement them.

The LRTP is developed through a multimodal lens and draws on public input to create goals, objectives, and strategies that provide improvements for the roadway, bicycle and pedestrian, and transit systems.

Performance-Based Planning

The LRTP uses a performance-based planning approach that applies the Federal Highway Administration's (FHWA) performance management techniques that tie together national, state, and local transportation goals. The key to performance-based planning is ongoing monitoring of the regional transportation system, which allows for GIAMPO to continually assess progress made towards the vision articulated in the plan. Performance-based planning effectively links GIAMPO's existing system performance to Federal and state transportation planning requirements.

Figure 1-2: Performance-Based Planning Approach



LRTP Elements

MPO's are required to incorporate three elements into their LRTP process. In addition to using the performance-based planning approach outlined in this section and demonstration of fiscal constraint, MPOs are required to incorporate the following in their LRTP[1]:

1. Include current and projected transportation demand of persons and goods in the MPO area over the 25-year planning horizon.
2. Identify existing and proposed transportation facilities.
3. Describe performance measures and performance targets used to assess performance of the transportation system.
4. Include a system performance report that evaluates the condition and performance of the transportation system with regard to the current performance targets.
5. Assess capital investments and other financial strategies that preserve the existing and projected transportation infrastructure.
6. Describe transportation and transit enhancements.
7. Describe all proposed transportation projects in detail so cost elements may be developed.
8. Discuss environmental mitigation activities and potential areas to carry these activities out.
9. Include a financial plan that demonstrates how the LRTP can be implemented.
10. Include planning for pedestrian walkway and bicycle transportation facilities.
11. Consultation with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation.
12. Integrate priorities, goals, countermeasures, strategies, or projects contained in related State and local plans.
13. Provide the public and Plan stakeholders with a reasonable opportunity to comment on the LRTP.
14. Publish the LRTP for public review in electronically-available formats.

1 23 CRF § 450.324,https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=9e40e7025806cfe86f291f431b5368l4&mc=true&n=sp23.1.450.c&r=SUBPART&ty=HTMLs#se23.1.450_1324

Related Planning Efforts

Vision 2032: Vision 2032 is Nebraska's long-range transportation plan. This LRTP describes the existing conditions of the state's multimodal transportation system while reporting statewide performance measures and targets. Included in the plan is a discussion of the state's transportation needs.

Nebraska Strategic Highway Safety Plan (SHSP): Published in 2017, the Nebraska SHSP discusses current safety trends on Nebraska highways and presents a series of goals and objectives for future highway safety. The SHSP concludes with a discussion of strategies the state will take to achieve these goals.

Nebraska Freight Plan: The Nebraska Freight Plan outlines the existing freight infrastructure across the state while emphasizing the economic impacts related to freight in Nebraska. In addition to the description of the existing system, including routes defined as "Critical Freight Corridors," the plan presents needs and opportunities of the system as well as financial investment strategies.

Grand Island Area MPO Bicycle and Pedestrian Master Plan: The 2017 GIAMPO Bicycle and Pedestrian Master Plan assesses the condition of the existing bicycle and pedestrian network and identified opportunities for future improvements. The Plan also provided recommendations for the sequencing of future bicycle and pedestrian projects.

Regional Transit Needs Assessment and Feasibility Study: GIAMPO published the Regional Transit Needs Assessment and Feasibility Study in 2017. This Study provides an overview of existing transit services in the GIAMPO region, analyzes transit demand, develops short-term public transit opportunities, and presents a 3- to 5-year budget and implementation plan for regional transit improvements.

Chapter 2 Community Engagement

Community engagement is a central element of GIAMPO's transportation planning process. The 2045 LRTP has been developed to reflect this element, and to seek input from a broad range of residents and stakeholders. The engagement activities included two open houses, a workshop, an online workshop, as well as focus group meetings with LRTP stakeholders. All public engagement activities were in accordance with GIAMPO's PPP[1].

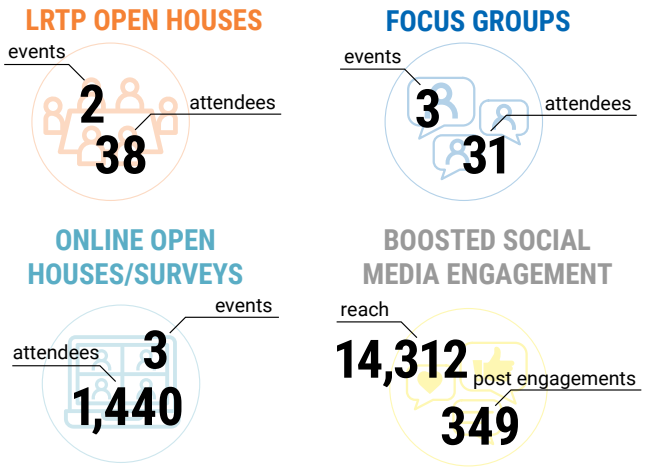
Public Engagement Events

Four public engagement events were held throughout the 2045 LRTP effort. To see meeting materials and the results of the public input received during the open house events, see **Appendix A**.

Public Visioning Open House

The Public Visioning Open House was held on February 4, 2020 at the Grand Island Public Library. The purpose of the open house was to solicit input and feedback from the public to help the project team identify LRTP goals and objectives, as well as transportation issues and potential strategies for the team to consider in the Grand Island area. Four stations were set up: roadway, bike and pedestrian, transit, and overall transportation system priorities—and GIAMPO staff and project team members spoke with attendees about their ideas and vision for the future of the transportation system as they visited each station.

Figure 2-1. Community Engagement By-The-Numbers



Supplementing the open house was a transportation issues survey that was available to the public on the project website. The survey was open from February 3, 2020 through February 24, 2020 and received 547 responses.

Public Prioritization Workshop

A second open house was held from June 1, 2020 through June 17, 2020 to solicit public feedback on priorities regarding potential projects for inclusion in the 2045 LRTP. Due to the COVID-19 Pandemic, the open house was held virtually. This Public Prioritization Open House was available in both English and Spanish and had 256 unique users who submitted just over 500 unique comments.

Public participants at the Public Visioning Open House

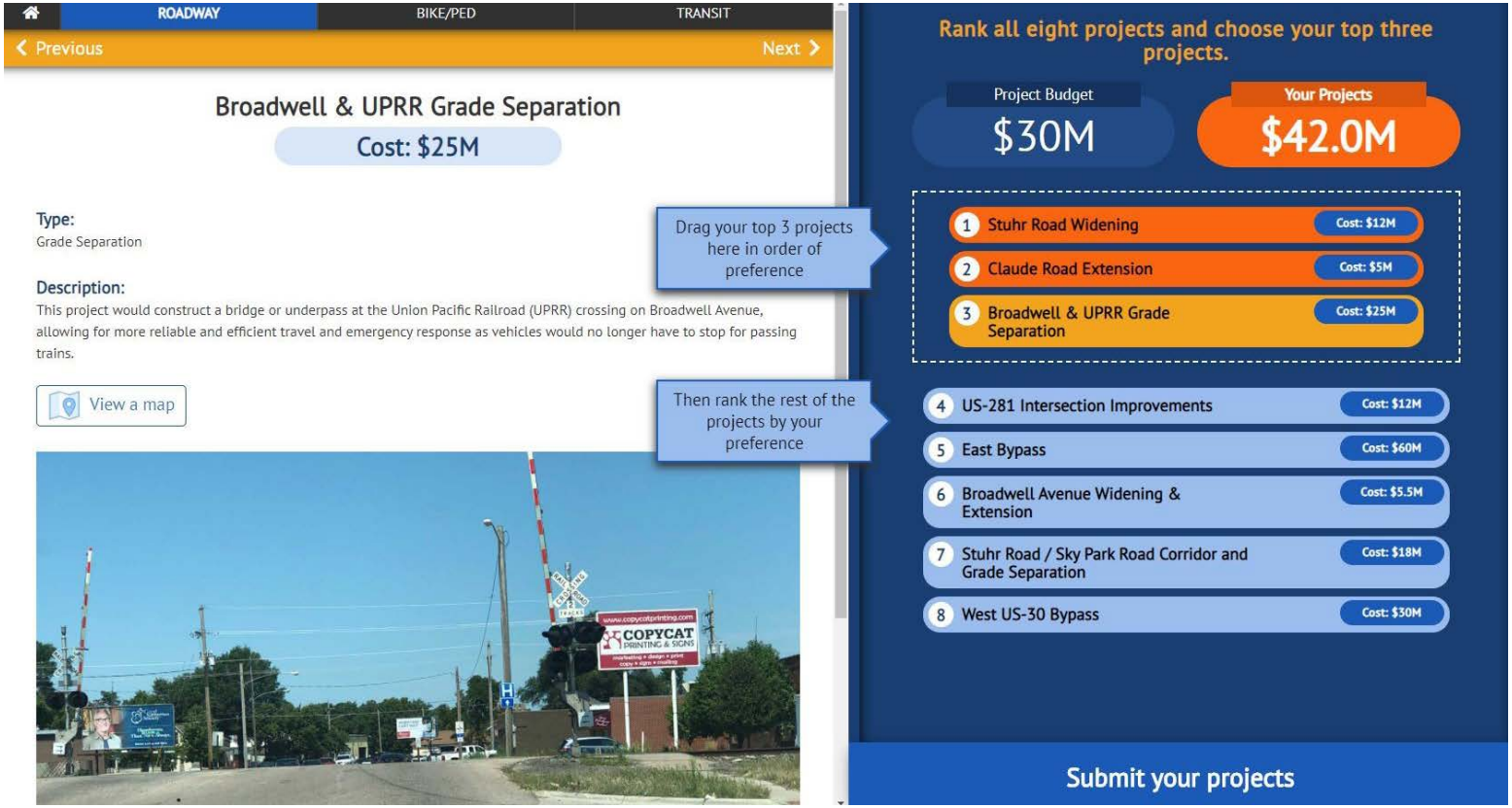
1 The GIAMPO PPP is available at: www.grand-island.com/departments/public-works/metropolitan-planning-organization/public-participation-plan

Project Prioritization Online Exercise

An additional public engagement event was held virtually from September 14 through September 28. The purpose of this exercise was to gather input on the fiscally constrained roadway, bicycle and pedestrian, and transit projects included in the LRTP. This exercise received 669 responses during the two-week period it was open.

Draft LRTP Open House

The final open house event, held on November 12, 2020 at the Grand Island City Hall, asked attendees to provide input on the draft LRTP project list. Attendees were also given a brief overview of the LRTP process, goals and objectives, and the technical analyses that were conducted during the Plan's development. For those unable to attend the open house event, there was Facebook Live broadcast and an online comment form available on the project website.



The public was asked to prioritize proposed projects through the activity, exemplified above, with fiscal constraints in mind.

Focus Group Meetings

Focus group meetings were held for stakeholders with the intent to provide similar information and meeting materials as the February 2020 Public Visioning Workshop. These focus groups were hosted in one-hour sessions during the day to be more convenient for participants and to facilitate deeper conversations between project team members and major employers, transportation providers, educational institutions, elected officials, bike and pedestrian users, nonprofits, and emergency responders. Below is the list of stakeholders invited to participate in the focus group meetings.

Grand Island Convention & Visitors Bureau	Grow Grand Island - Livable Community	Heartland Lutheran Schools	Grand Island Area Chamber of Commerce
Multicultural Coalition	Merrick County	Grand Island Economic Development Corporation	CNHD Walk/Bike Initiative
Hall County	Doniphan Economic Development Corporation	Grand Island Public Schools	City of Grand Island
Nebraska State Fair	Grand Island Northwest Public Schools	Village of Cairo	Hornaday Manufacturing
Doniphan-Trumball Public Schools	City of Wood River	Grand Island Express - Trucking and Shipping	Centura Public Schools
Village of Doniphan	Sunrise Express	Wood River Public Schools	Village of Alda
Devall Trucking, Inc.	Central Community College of Nebraska	City of Grand Island - Police Department	JBS S.A.
UNL Extension	AARP (Tri-City Rural Mobility Study)	Central Nebraska Transload	Doane College
5307/5310/5311 Committee	Wood River Economic Development Corporation	Grand Island Central Catholic School	Nebraska Transit

Community Youth Council

Two meetings were held with the Grand Island Community Youth Council (CYC). The CYC members are sophomores, juniors, and seniors from area high schools.

- The first CYC meeting was held on Monday, February 10, 2020 at the Grand Island City Hall Community Meeting Room so that perspectives from younger members of the GIAMPO community regarding the transportation system could be shared. During this meeting, a member of the 2045 LRTP planning team gave a brief presentation outlining an overview of transportation planning, the role of GIAMPO, the LRTP process, and initial technical analysis results. After the presentation, members of the CYC were invited to provide their insight into the issues and opportunities facing the GIAMPO transportation system, like the activities held during the focus group meetings.
- A second meeting with the CYC was held on Thursday, November 12, 2020 at the at the Grand Island City Hall Community Meeting Room. During this meeting, a member of the 2045 LRTP planning team gave a brief presentation providing an overview and update for the 2045 LRTP, described transportation issues and goals, and presented the draft plan project list.

  After the presentation, the members of the CYC were invited to choose their favorite roadway, and bicycle and pedestrian, projects using a survey tool. The CYC members selected the Broadwell Avenue / UPRR grade separation project (project 7) as their top roadway project, and Capital Ave Trail to Eagle Scout Park Connection (project 3) as their top bicycle and pedestrian project.

Members of the CYC learning about the 2045 LRTP

A 2045 LRTP team member gave CYC members an overview of the 2045 LRTP

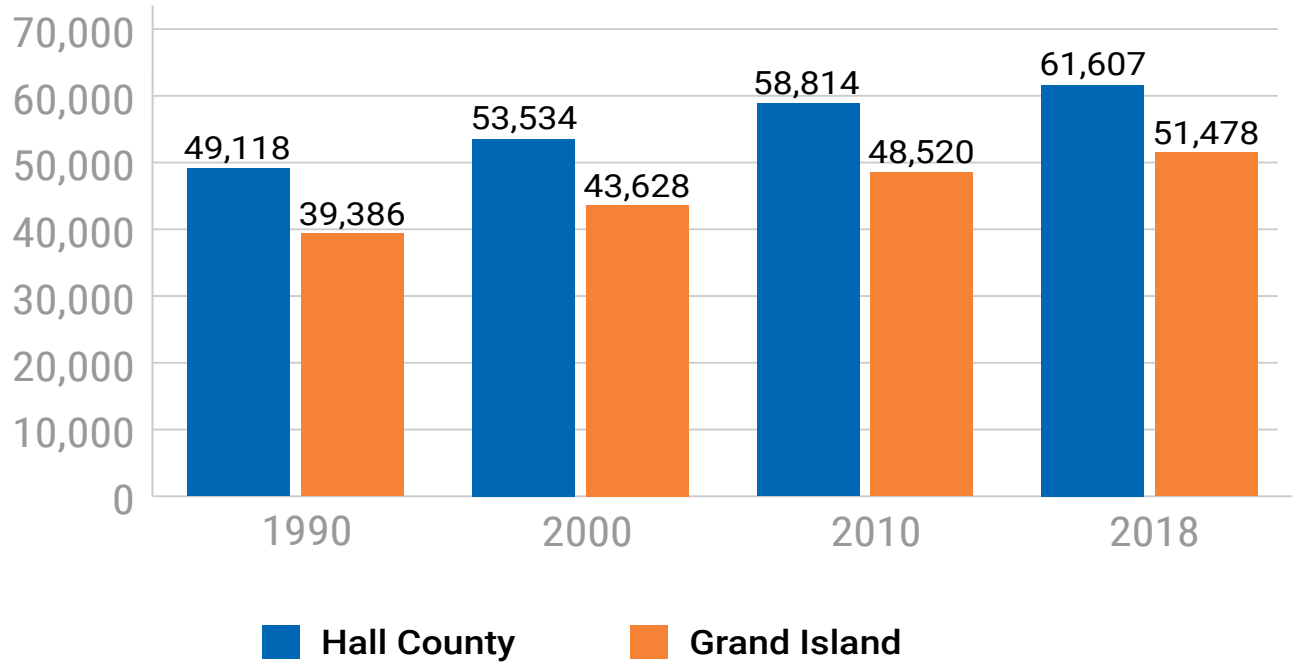
Chapter 3 Regional Profile

As part of planning for an effective transportation system, it is important to understand the current trends and makeup of the region.

Population Trends

The GIAMPO area has grown steadily over recent history, with much of that growth driven by the expansion of the city of Grand Island. As shown in **Figure 3-1**, the current Hall County population is nearly 62,000 people, with over 51,000, or nearly 85%, residing within Grand Island city limits. As shown in the figure, Hall County's population has grown 20.3% over the past 28 years, while Grand Island's population has grown 23.5% during this same period.

Figure 3-1: 10 Year Population Levels for Hall County and Grand Island, 1990-2018



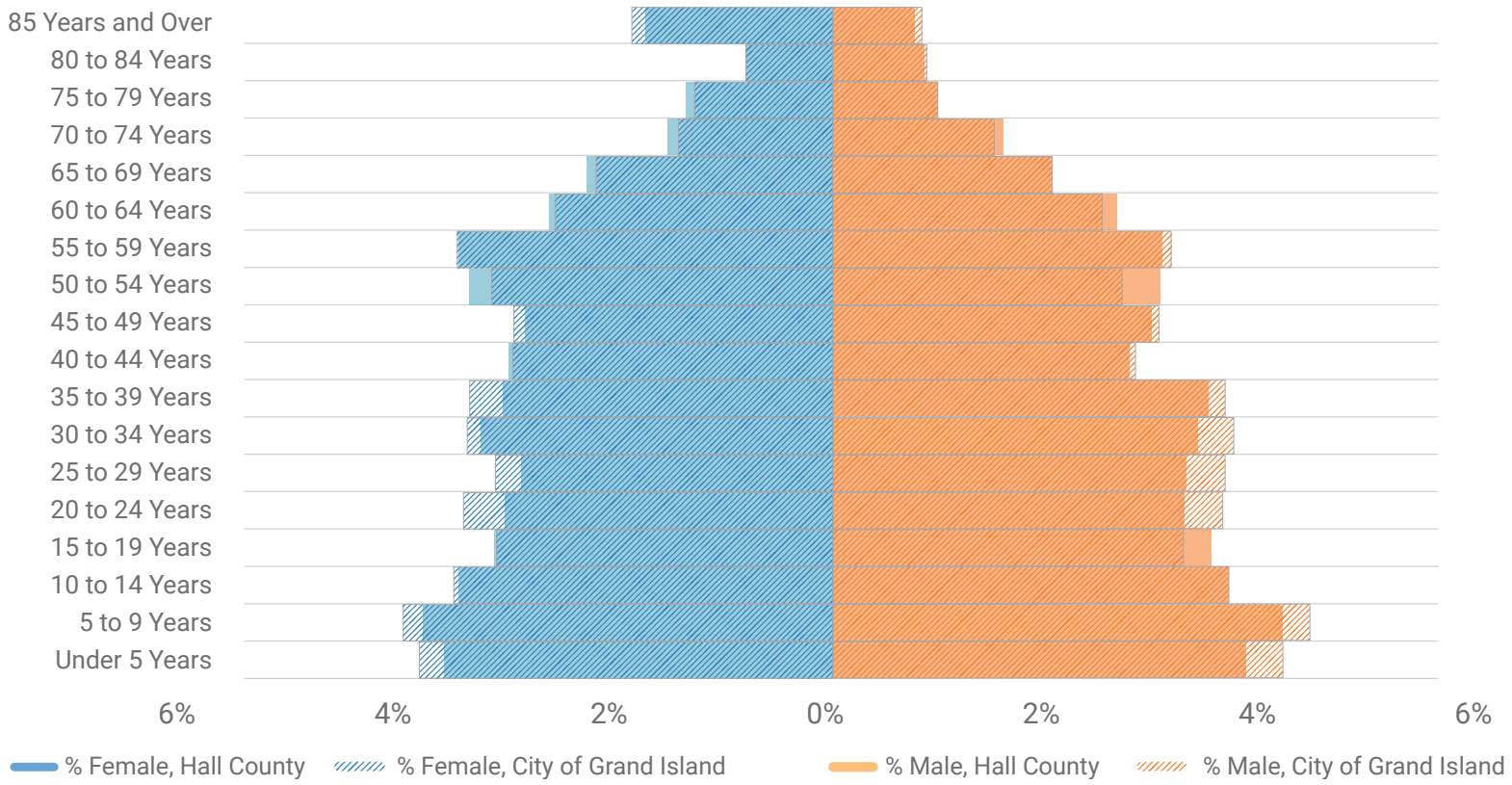
Source: United States Census Bureau

Current Demographics

Figure 3-2 displays population pyramids for the City of Grand Island and Hall County. Key findings of current area population are:

- The median age of Grand Island residents is 34.7 years, while the median age of Hall County residents is 35.8 years of age. The median age of all United States population residents is 37.8.
- The gender breakdown for Hall County residents is 50.4% male, 49.6% female; for Grand Island residents it is 50.2% male, 49.8% female.

Figure 3-2: Hall County and Grand Island Population by Age and Gender



Source: 2013-2017 ACS 5-Year Estimates

Table 3-1 presents Hall County and Grand Island's population by race and ethnicity.

Table 3-1: Race and Ethnicity of Hall County and Grand Island Residents

	HALL COUNTY	PERCENT OF POPULATION	GRAND ISLAND	PERCENT OF POPULATION
White	41,644	68.01%	32,660	63.99%
Black or African American	1,337	2.18%	1,330	2.61%
American Indian and Alaska Native	202	0.33%	183	0.36%
Asian	718	1.17%	684	1.34%
Hispanic or Latino	16,384	26.76%	15,393	30.16%
Native Hawaiian and Other Pacific Islander	146	0.24%	141	0.28%
Some other race	169	0.28%	145	0.28%
Two or more races	633	1.03%	506	0.99%
Two races including Some other race	17	0.03%	17	0.03%
Two races excluding Some other race, and three or more races	616	1.01%	489	0.96%

Source: 2013-2017 ACS 5-Year Estimates

Income and Employment

The 2017 unemployment rate in the Grand Island metropolitan statistical area (MSA) averaged 3.2%[1]. In the same year, the labor force included approximately 43,400 residents[2]. The 2017 median household income in Hall County was $53,807 and for Grand Island households was $51,627. Per capita incomes for Hall County and the City of Grand Island are $26,419 and $25,411, respectively. The percentage of Hall County residents living at or below the poverty level was 13.5%. For the City Grand Island, this number was slightly higher at 14.9%.[3]

Housing Characteristics

The number of occupied housing units in Hall County is 22,817, with 62% owner-occupied and the remaining 38% renter occupied. Occupied housing units in Grand Island are 58% owner-occupied and 42% renter occupied. The Hall County vacancy rate is 6.5% of units. The Grand Island vacancy rate is 6.6% of units.[4]

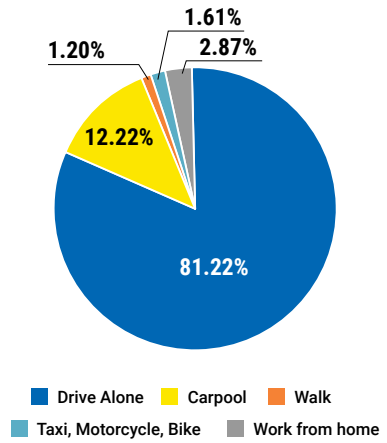
Commuting Characteristics

The majority of Hall County and Grand Island residents drive alone to work in a private vehicle. This trend holds true for the City of Grand Island as well, with carpooling being the next largest commute mode. Walking is the least utilized mode for work commutes in Hall County and the City of Grand Island. **Figure 3-3** summarize total modal splits for work commutes.

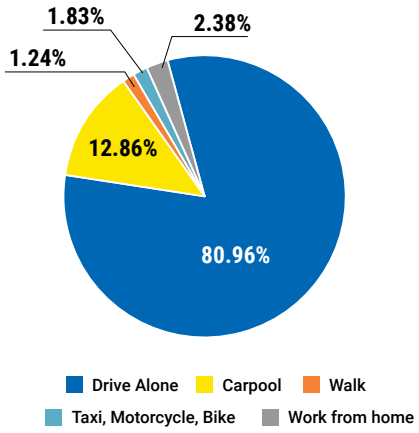
1 U.S. Bureau of Labor Statistics, 2017
2 U.S. Bureau of Labor Statistics, 2017
3 ACS 2017 5-year estimates
4 ACS 2017 5-year estimates

Figure 3-3: Transportation Modes Used for Work Commutes, Hall County and Grand Island

Modal Share for Work Commutes, Hall County



Modal Share for Work Commutes, Grand Island, NE



The majority of residents in both Hall County and the City of Grand Island recorded work commutes below the average US commute time of 26.4 minutes as indicated in **Table 3-2.**

Table 3-2: Daily Travel Times for Hall County and Grand Island Residents

TRAVEL TIME	HALL COUNTY	GRAND ISLAND
Less than 5 minutes	4.79%	4.96%
5-9 minutes	20.88%	22.83%
10-14 minutes	26.56%	28.70%
15-19 minutes	22.36%	22.48%
20-24 minutes	9.59%	6.98%
25-29 minutes	2.78%	2.02%
30-34 minutes	5.13%	4.34%
35-39 minutes	0.81%	0.76%
40-44 minutes	1.10%	1.13%
45-59 minutes	2.75%	2.67%
60-89 minutes	1.80%	1.63%
90 or more minutes	1.46%	1.52%

Source: 2013-2017 ACS 5-Year Estimates

A commute analysis of inflow and outflow trips was conducted for Hall County. As indicated in **Table 3-3**, the Grand Island area attracts more commute trips than it produces to other markets. This means that approximately 14,000 individuals traveled from outside the Grand Island MPO area to work within it, compared to 8,600 residents who live in the MPO region commute out for their primary job. In addition to commutes into and out of the area, roughly 19,000 residents live and work within the MPO boundary.

Table 3-3: Inflow/Outflow Analysis for Hall County and Grand Island, 2017

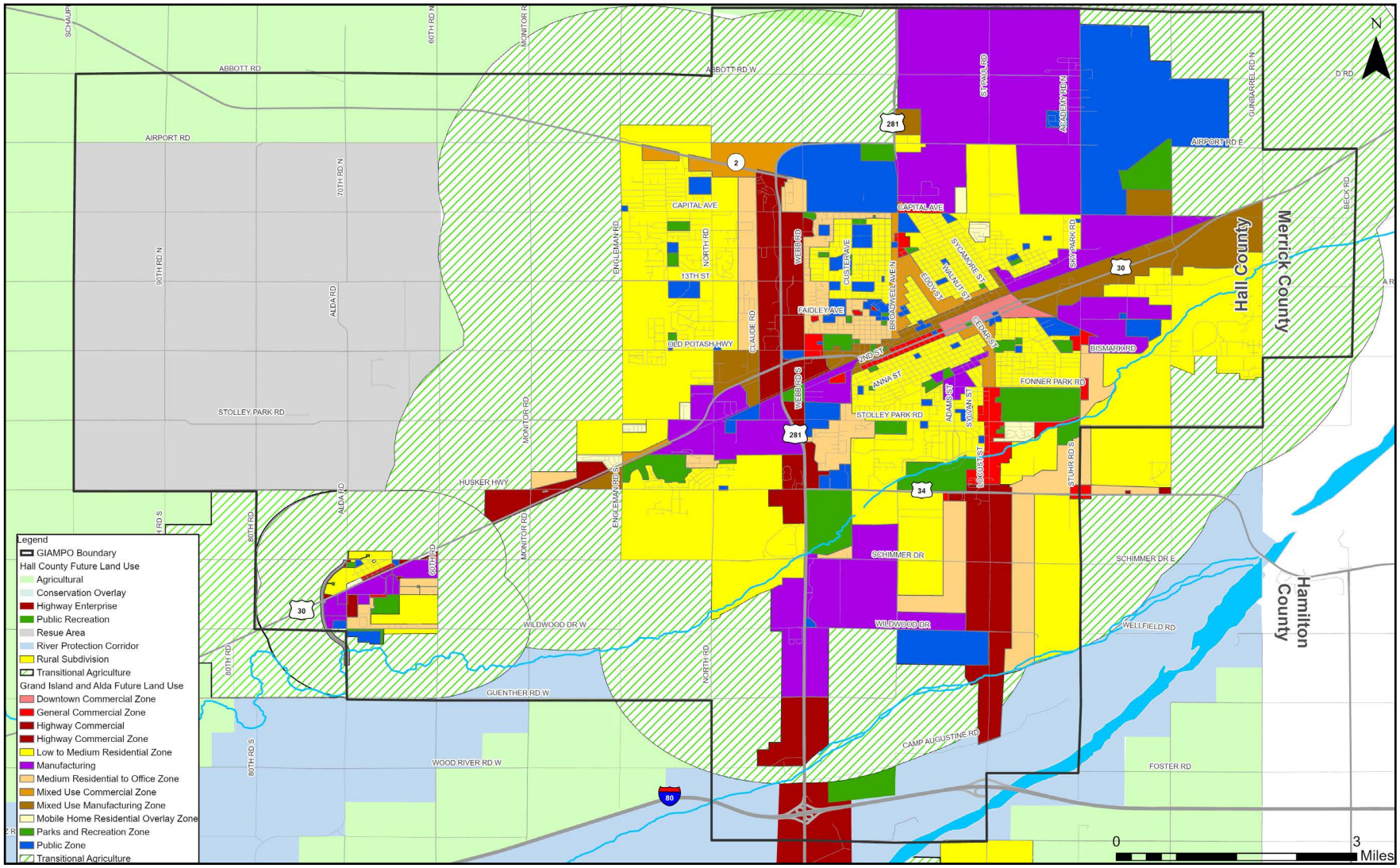
2017		
	COUNT	**SHARE**
Employed in the Selection Area	32,964	100.0%
Living in the Selection Area	27,637	97.7%
Net Job Inflow (+) or Outflow (-)	5,327	+

Source: U.S. Census Bureau LEHD Program, 2017

Land Use

Current and future land uses impact how residents of the MPO area travel today and in the future. **Figure 3-4** illustrates current and future land uses for the MPO area.

Figure 3-4: Existing and Future Land Use



Chapter 4 Goals, Objectives, and Performance Measures

2045 LRTP Goals and Objectives

The Grand Island area's goals and objectives provide direction for the vision of how the multimodal transportation system should operate. These goals and objectives are considered a reflection of the community's values and have framed the development of the 2045 LRTP update. The goals and objectives were developed through a combination of public and stakeholder input, national planning factors as outlined in CFR 450.306, and the Nebraska State Transportation Plan. The major goal areas and associated draft objectives identified through this process are shown in **Table 4-1**.

Table 4-1: 2045 LRTP Goals and Objectives

System Safety	• Reduce the incidence and rate of crashes • Reduce severe injury and fatal crashes • Reduce bicycle and pedestrian crashes
Multimodal Connectivity and Accessibility	• Provide improved connections to key destinations across the community • Reduce regional freight impediments • Increase the connectivity of the bicycle and pedestrian system • Continue to provide quality public transit services
Economic Development	• Identify transportation strategies that support economic development projects • Identify transportation strategies that provide enhanced access to jobs for low income residents • Provide active transportation options that promote the health and well-being of residents
System Preservation	• Identify sufficient financial resources to maintain all Federal-Aid streets and bridges in fair or good condition
Environment and System Resiliency	• Promotes energy conservation, especially for non-renewable energy sources • Transportation projects should limit impacts to the natural and build environment • Invest in alternative and renewable fuel infrastructure when practical • Identify strategies to make transportation infrastructure more resilient to natural and manmade events
Traffic Operations and System Reliability	• Limit the emergence of recurring congestion • Improve travel reliability on arterial roadways • Support high levels of freight reliability on the state highway system

Federal Planning Factors

The LRTP update process uses a performance-driven and outcome-based approach for achieving the goals and objectives presented in **Table 4-1**. Under the Fixing America's Surface Transportation (FAST) Act, the LRTP process is required to be integrated into the GIAMPO's overall continuous, cooperative, and comprehensive planning process, while addressing the following factors:[1]

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase accessibility and mobility of people and freight.
5. 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. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
10. Enhance travel and tourism.

To illustrate how the goals and objectives of this LRTP align with the planning factors listed above, the matrix shown in **Table 4-2** was developed.

1 23 CFR § 450.306 - Scope of the metropolitan transportation planning process.

Table 4-2: 2045 LRTP Goals and Objectives Support of Federal Planning Factor

Goal	Objectives	1 Economic Vitality	2 Safety	3 Security	4 Accessibility and Mobility for People and Freight	5 Environment and Energy Conservation, Quality of Life, Economic Development	6 System Integration and Connectivity for People and Freight	7 Efficient Operation and Management	8 Preserve the existing transportation system	9 System Resiliency and Reliability; reduce or mitigate stormwater impacts	10 Enhance Travel and Tourism
GOAL 1: SYSTEM SAFETY											
	Reduce the incidence and rate of crashes		✓								
	Reduce severe injury and fatal crashes		✓								
	Reduce bicycle and pedestrian crashes		✓								
	Maintain safety on transit vehicles		✓	✓							
GOAL 2: MULTIMODAL CONNECTIVITY AND ACCESSIBILITY											
	Provide improved connections to key destinations across the community	✓			✓		✓				
	Reduce regional freight impediments	✓			✓		✓	✓		✓	
	Increase the connectivity of the bicycle and pedestrian system	✓			✓	✓	✓				
	Continue to provide quality public transit services.	✓			✓	✓	✓		✓		

Table 4-2: 2045 LRTP Goals and Objectives Support of Federal Planning Factor (continued)

Goal	Objectives	1 Economic Vitality	2 Safety	3 Security	4 Accessibility and Mobility for People and Freight	5 Environment and Energy Conservation, Quality of Life, Economic Development	6 System Integration and Connectivity for People and Freight	7 Efficient Operation and Management	8 Preserve the existing transportation system	9 System Resiliency and Reliability; reduce or mitigate stormwater impacts	10 Enhance Travel and Tourism
GOAL 3: ECONOMIC VITALITY											
	Identify transportation strategies that support economic development projects	✓			✓						✓
	Identify transportation strategies that provide enhanced access to jobs for low income residents	✓			✓						
	Provide active transportation options that promote the health and well-being of residents			✓	✓						✓
	Provide access to tourist destinations	✓		✓							✓
	Identify how transportation can support affordable housing	✓			✓						
	Promote freight connectivity and access	✓		✓							
GOAL 4: SYSTEM PRESERVATION											
	Identify sufficient financial resources to maintain all Federal-Aid streets and bridges in fair or good condition	✓						✓	✓		

Table 4-2: 2045 LRTP Goals and Objectives Support of Federal Planning Factor (continued)

Goal	Objectives	1 Economic Vitality	2 Safety	3 Security	4 Accessibility and Mobility for People and Freight	5 Environment and Energy Conservation, Quality of Life, Economic Development	6 System Integration and Connectivity for People and Freight	7 Efficient Operation and Management	8 Preserve the existing transportation system	9 System Resiliency and Reliability; reduce or mitigate stormwater impacts	10 Enhance Travel and Tourism
GOAL 5: ENVIRONMENT AND SYSTEM RESILIENCY											
	Promotes energy conservation, especially for non-renewable energy sources					✓					
	Transportation projects should limit impacts to the natural and build environment					✓				✓	
	Invest in alternative and renewable fuel infrastructure when practical					✓				✓	
	Identify strategies to make transportation infrastructure more resilient to natural and manmade events			✓		✓				✓	
GOAL 6: TRAFFIC OPERATIONS AND SYSTEM RESILIENCY											
	Limit the emergence of recurring congestion				✓			✓		✓	
	Improve travel reliability on arterial roadways	✓			✓			✓		✓	
	Support high levels of freight reliability on the state highway system	✓						✓		✓	
	Promote development outside of flood prone areas									✓	

Project Prioritization and Performance Measures

Transportation objectives were developed to be specific, measurable actions whose progress could be monitored by the MPO. These objectives play a central role in the LRTP project selection process, in which potential roadway, bicycle and pedestrian, and transit projects are identified then evaluated against a series of project prioritization metrics based on the objectives. Projects with the highest scores are those that meet the most prioritization metrics, and thus align with the highest number of Plan objectives. These project scores were a general guide to a performance-based project evaluation. However, some projects were developed to be more focused on a single element, like safety. These single-factor projects might be very important in addressing that single element but may not receive high scores across all objective categories. In these cases, more discretion is applied in the prioritization process. Table **4-3** presents the prioritization metrics by goal area.

Table 4-3: Project Prioritization Metrics by Goal Area

Goal Area	Objectives	Prioritization Measure	PROJECT SCORING METHOD			
			+2	+1	0	-2
System Safety	• Reduce the incidence and rate of crashes • Reduce severe injury and fatal crashes	Vehicular Safety Assessment	Has the potential to improve safety at top crash frequency or crash rate intersection	Has the potential to improve safety at any intersection	Does not impact safety at top crash frequency or crash rate intersection	Has the potential to negatively impact safety
	• Reduce bicycle and pedestrian crashes	Non-motorized Safety Assessment	Has the potential to improve non-motorized safety at top crash frequency or crash rate intersection	Has the potential to improve non-motorized safety at any intersection	Does not impact non-motorized safety at top crash frequency or crash rate intersection	Has the potential to negatively impact non-motorized safety
	• Maintain safety on transit vehicles	Policy Objective – Identify Strategies to Improve Transit Safety through Public Transportation Agency Safety Plans				
Multimodal Connectivity and Accessibility	• Provide improved connections to key destinations across the community	Connection to Dense Development Nodes	Creates new, multimodal connection between highest density tier of land uses and mixed uses	Creates new, multimodal connection between 2nd highest density tier land uses and mixed uses	Does not create new, multimodal connection to dense / diverse land uses and mixed uses	Removes multimodal connection to dense / diverse land uses and mixed uses
	• Increase the connectivity of the bicycle and pedestrian system	Multimodal Connectivity	Enhances connection between two or more modes or connects two existing facilities	Enhances connection for non-motorized or transit modes	No impact on multimodal connectivity for non-motorized or transit modes	Non-motorized or transit connection is removed, or barrier to non-motorized or transit modes is created
	• Continue to provide quality public transit services	Transit Operations and State of Good Repair	Supports existing transit services and operations or helps preserve transit capital; or provides enhanced transit services.		No impact transit services and operations or helps preserve transit capital.	Negatively impacts existing transit services and operations or helps preserve transit capital.

Table 4-3: Project Prioritization Metrics by Goal Area (continued)

Goal Area	Objectives	Prioritization Measure	PROJECT SCORING METHOD			
			+2	+1	0	-2
Economic Vitality	• Identify transportation strategies that support economic development projects	Economic Development Priorities	Project supports access to regional economic development priority site		No impact on access to economic development priority sites	Project negatively impacts access to regional economic development priority site
	• Identify transportation strategies that provide enhanced 8for low income residents	Equity Access to Jobs	Directly supports enhanced multimodal access to lower-income jobs or EJ residential areas		No impact on access to lower-income jobs or EJ residential areas	Negatively impacts access to lower-income jobs or EJ residential areas
	• Provide active transportation options that promote the health and well-being of residents	Active Transportation Elements	Project would encourage walking or biking		Project would have no significant impact on walking or biking	
	• Provide access to tourist destinations	Enhanced Tourism Access	Enhances multimodal access to identified tourist destinations		No access impact to identified tourist destinations	Negatively impacts multimodal access to identified tourist destinations
	• Identify how transportation can support affordable housing	Access to Affordable Housing	Provides enhanced transit, bicycle, or pedestrian access to identified affordable housing area		No impact to access to identified affordable housing area	Removes transit, bicycle, or pedestrian access to identified affordable housing area
	• Promote freight connectivity and access•	Access to Freight Generators	Has potential to improve freight access to highest density tier of industrial employment		No expected impact on freight access	Has potential to degrade freight access to highest density tier of industrial employment
System Preservation	• Identify sufficient financial resources to maintain all Federal-Aid streets and bridges in fair or good condition	Project Enhances Pavement or Bridge Condition	Enhances pavement or bridge condition of asset in poor conditions	Enhances pavement or bridge condition of asset that will require reconstruction by 2045	No impact to pavement or bridge condition	

Table 4-3: Project Prioritization Metrics by Goal Area (continued)

Goal Area	Objectives	Prioritization Measure	PROJECT SCORING METHOD			
			+2	+1	0	-2
Environment and System Resiliency	• Promotes energy conservation, especially for non-renewable energy sources	Vehicular Travel Reduction	Anticipated to have a measurable reduction in vehicle-miles traveled and vehicle-hours traveled	Anticipated to have a measurable reduction in vehicle-miles traveled or vehicle-hours traveled	Anticipated to have limited impact to vehicle-miles traveled and vehicle-hours traveled	Anticipated to have a measurable increase in vehicle-miles traveled and vehicle-hours traveled
	• Transportation projects should limit impacts to the natural and build environment	Project Impact Screening	Anticipated project or strategy would reduce existing natural and built environment impacts		Anticipated project alignment would have no impact to environmental resources of right-of-way	Anticipated project alignment would impact environmental resources, or would require significant right-of-way acquisition
	• Invest in alternative and renewable fuel infrastructure when practical	Policy Objective – LRTP may identify strategies to improve renewable energy infrastructure				
	• Identify strategies to make transportation infrastructure more resilient to natural and manmade events	Infrastructure Resiliency	Improves resiliency to natural events or improves security against manmade events.		No impact to resiliency or security.	Reduces resiliency to natural events or reduces security against manmade events.
Traffic Operations and System Reliability	• Limit the emergence of recurring congestion	Corridor Level of Service	Improves traffic operations for a location operating at LOS D or worse in 2045	Improves traffic operations	No impact on traffic operations	Degrades traffic operations
	• Improve travel reliability on arterial roadways	Corridor Reliability LOTTR	Improves reliability on a corridor identified as having reliability issues	Improves reliability on an NHS or Interstate route	No impact on reliability	Negatively impacts reliability on a corridor identified as having reliability issues
	• Support high levels of freight reliability on the state highway system	Freight Reliability TTTR	Improves freight reliability on state highway or Interstate Corridor		No impact on freight reliability	Negatively impacts freight reliability on a state highway or Interstate Corridor
	• Promote development outside of flood prone areas	Policy Objective – LRTP may identify strategies to promote development outside of flood prone areas				

Chapter 5 Existing System Performance

This chapter describes the performance of the existing transportation system. Performance refers to roadway and nonmotorized safety, traffic operations, and infrastructure (bridge and pavement) conditions. Also described are the existing freight, bicycle and pedestrian, transit systems as well as other surface transportation modes operating in the GIAMPO region. Some of the performance measures reflected in this chapter are Federally reported. Summary tables for each of those Federal performance measures are provided at the end of this chapter. A complete summary of existing conditions analysis is included in **Appendix B**.

System Safety

System safety is evaluated based on observed regional crash patterns and trends. Crash data provided by Nebraska DOT for the years 2014-2018 were reviewed and analyzed to support system safety analysis. The data reported in this section are for the GIAMPO planning area, which included 7,650 reported crashes over that five-year period.

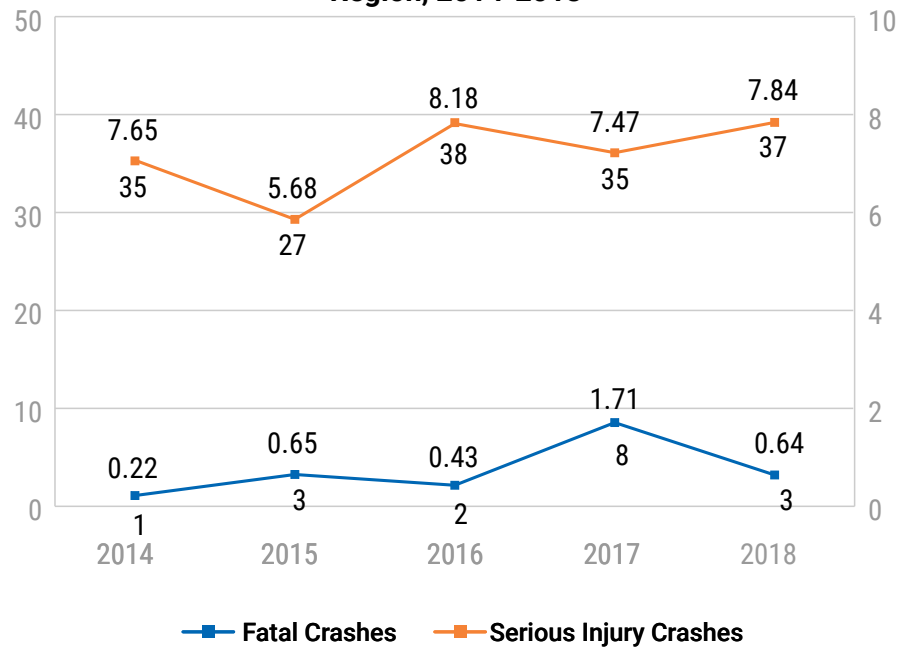
Fatal and Serious Injury Crash Frequency and Rates

Safety performance is measured in terms of both the number of crashes (frequency) and in terms of crash rates (number per 100 million vehicle miles traveled - VMT).

- **Crash Frequency:** There were 189 fatal or serious injuries as a result of vehicular crashes between 2014 and 2018. During the same time, there were 17 fatalities resulting from vehicular crashes.
- **Crash Rates:** The five-year average for fatal crashes was 0.73 fatal crashes per 100 million VMT. The five-year serious crash rate was 7.40 per 100 million VMT during this period.

Figure 5-1 shows the annual totals and trends for fatal and serious injury crashes and crash rates in the GIAMPO region between 2014 and 2018.

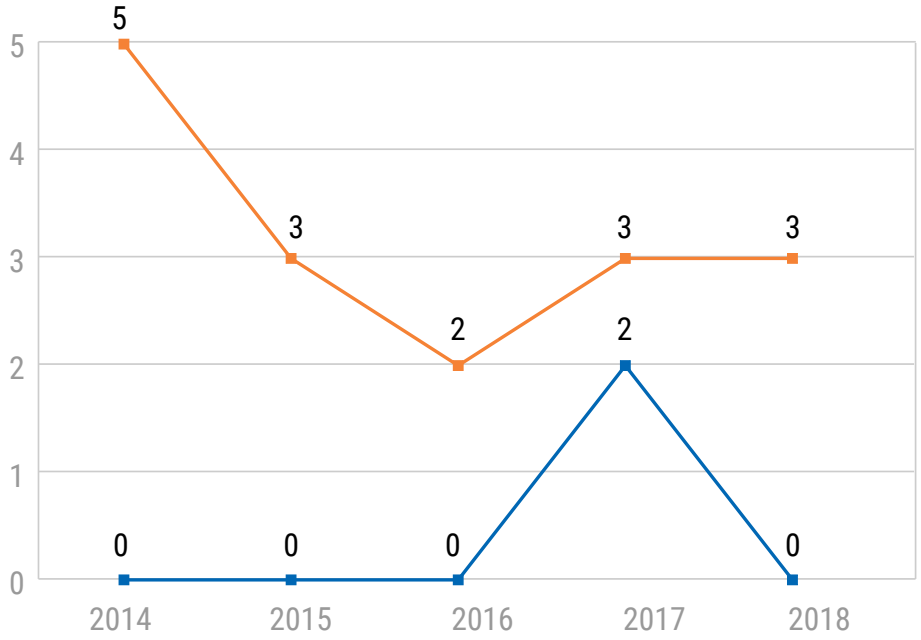
Figure 5-1: Fatal and Serious Crashes and Crash Rates for the GIAMPO Region, 2014-2018



Nonmotorized Crashes

Safety performance is also measured in terms of number of fatal and serious injury nonmotorized crashes. There were 18 total fatal and serious injury nonmotorized crashes that occurred in the GIAMPO region between 2014 and 2018 totaled 18. Of those 18, 2 were fatal and 16 resulted in serious injuries. **Figure 5-2** shows the annual totals and trends for fatal and serious injury nonmotorized crashes in the GIAMPO region between 2014 and 2018.

Figure 5-2: Nonmotorized Fatal and Serious Injury Crashes in the GIAMPO Region, 2014-2018



Traffic Operations

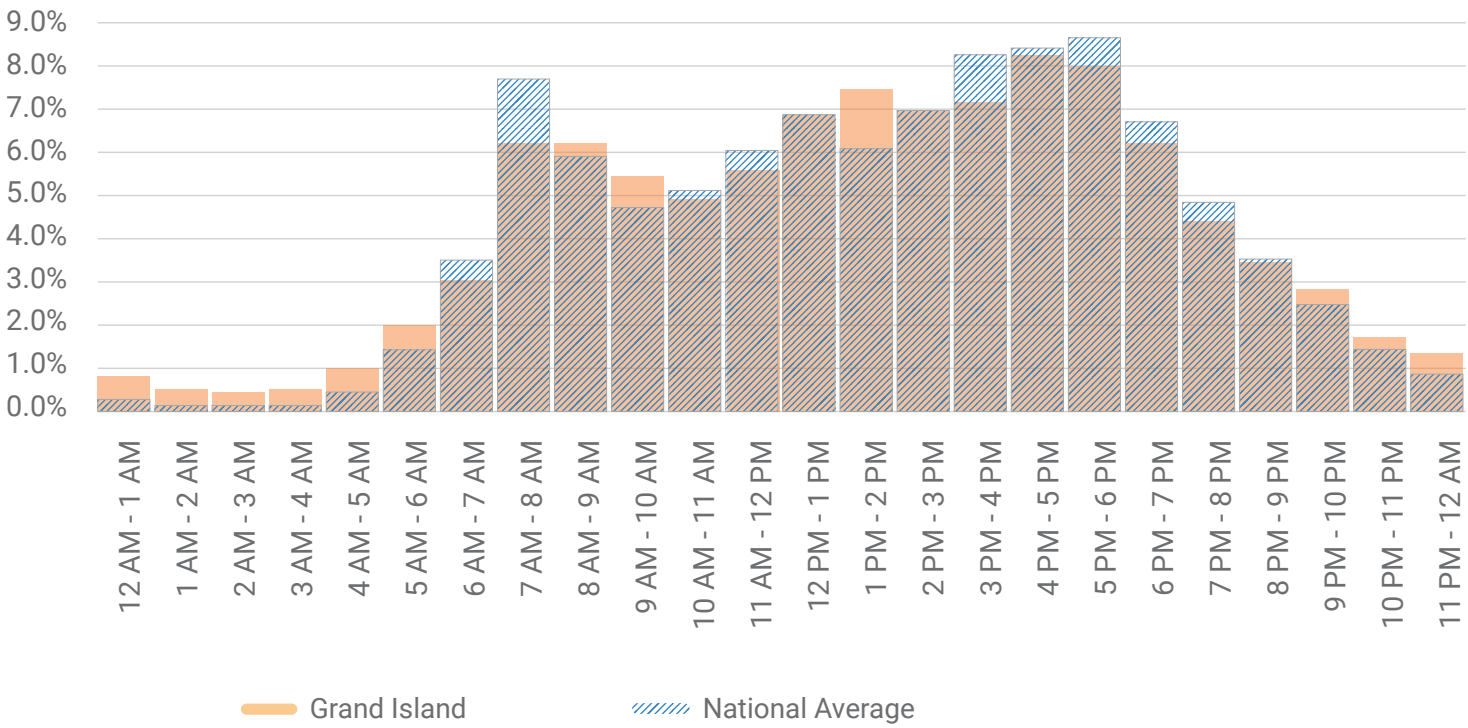
Traffic flows on the existing roadway system were evaluated to identify issues related to regional traffic operations in the GIAMPO region. Traffic operations were reviewed from two different perspectives:

- Peak period travel conditions
- Passenger and freight travel reliability

Peak Period Travel Conditions

The traffic operations analysis focused on evaluating congestion levels during typical peak period ("rush hour") conditions. For the GIAMPO area, the peak period of travel is weekdays between 4 and 6 PM, when the highest percent of daily traffic for any given time is on the road. This is shown in **Figure 5-3,** which compares the hourly percentage of daily traffic in the Grand Island area over the course of a typical weekday to the national average.

Figure 5-3: Comparison of the Hourly Percentage of Daily Traffic in the Grand Island Area and the National Average



Gradations of traffic congestion are communicated in terms of level of service (LOS), which is presented using letter grades ranging from A through F. **Figure 5-4** provides a graphical description of the LOS grading system. The traffic operations analysis indicates limited peak period congestion in Grand Island. Most of the roads in within the GIAMPO area experience LOS A or B conditions, with a few corridors experiencing LOS C or D.

Figure 5-4: Level of Service Descriptions

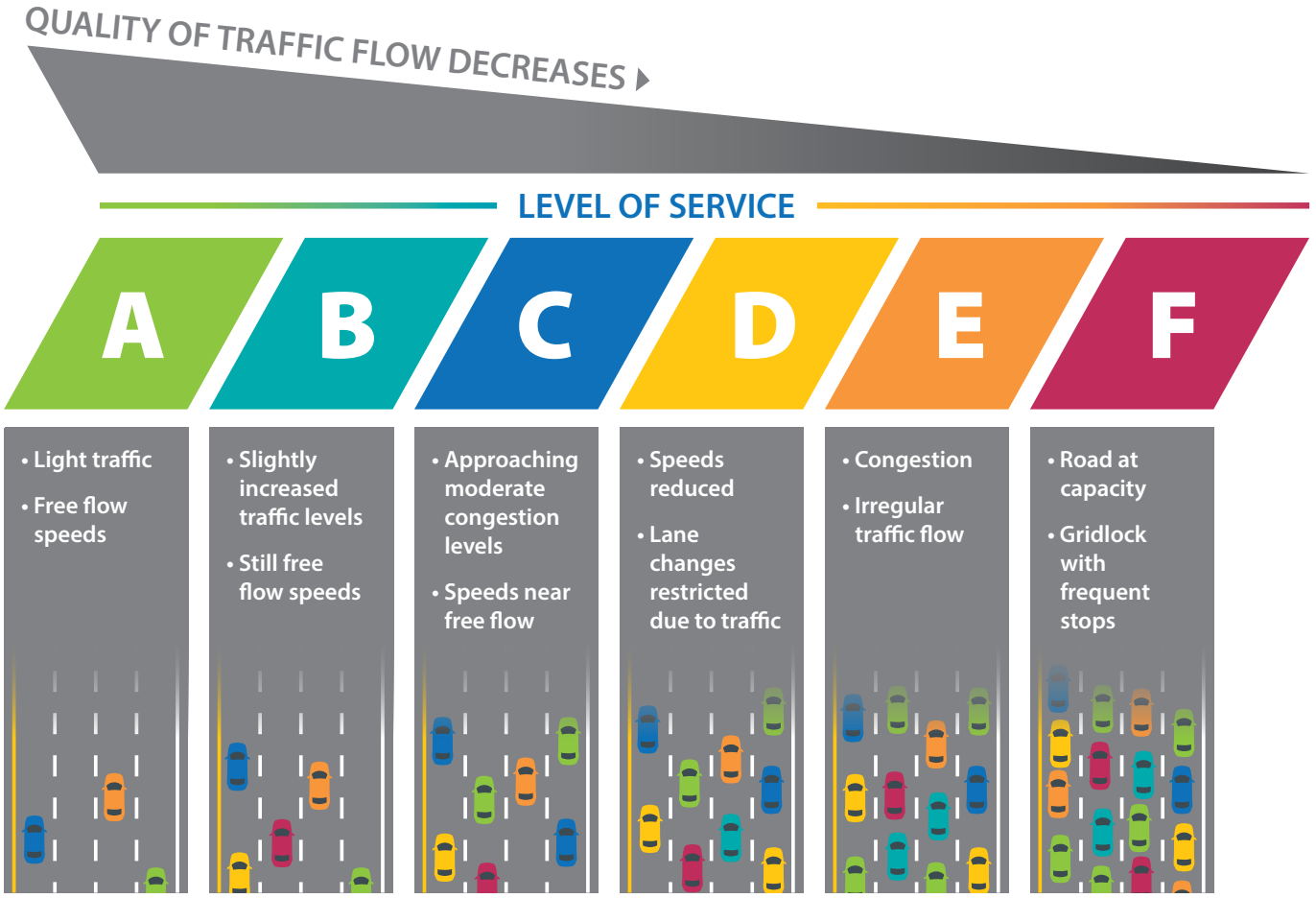
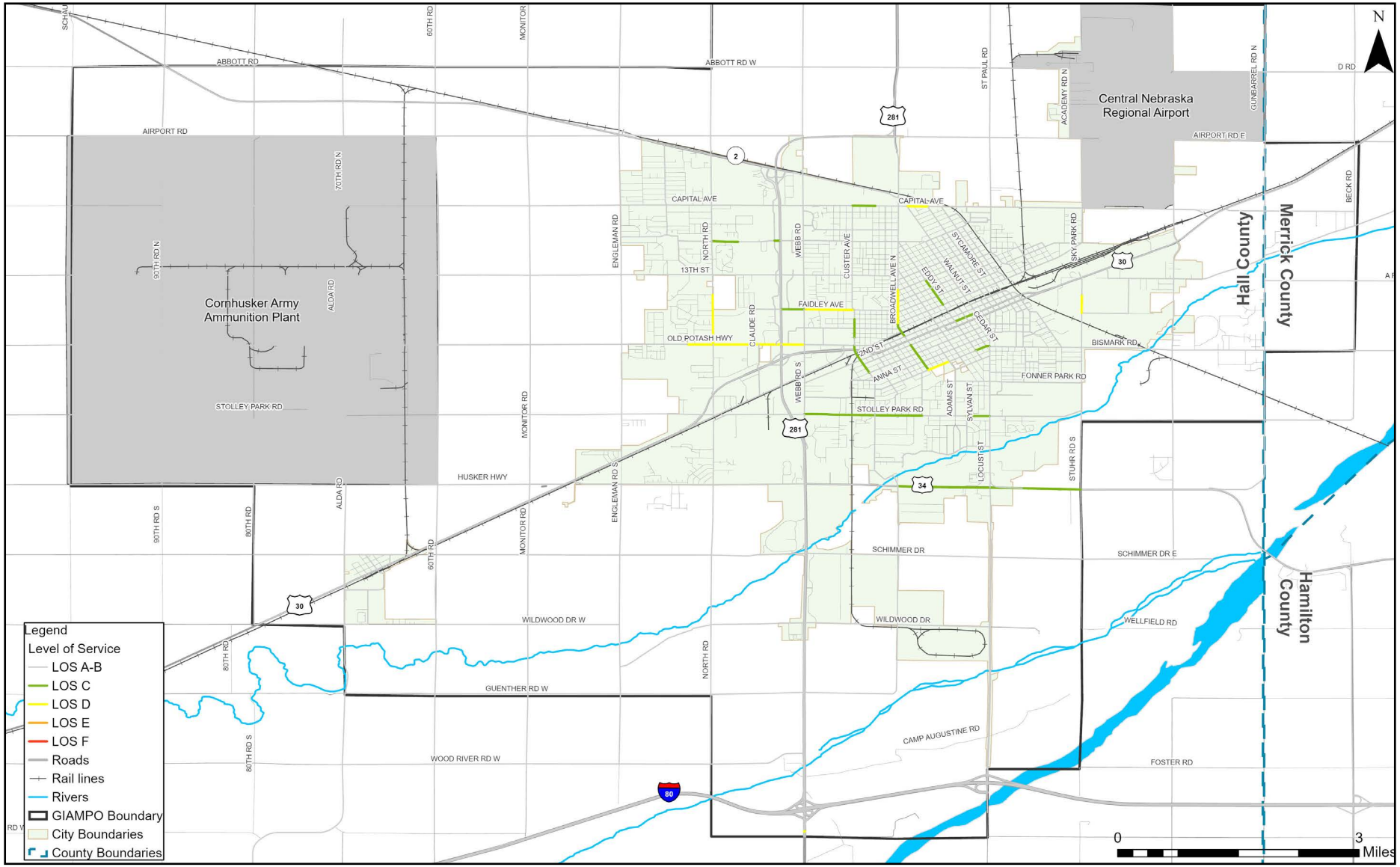


Figure 5-5 illustrates the results of the current peak period traffic conditions analysis, which looks at the ratio of daily traffic volumes to the designed capacity of each functionally classified roadway. This approach is termed "Volume over Capacity" (V/C).

Figure 5-5: Estimated Peak Period Traffic Operations



Travel Reliability

Passenger Travel Reliability

Travel reliability is another method for evaluating traffic operations. Travel reliability evaluates how predictable travel times along corridors are for both passenger and freight traffic.

Passenger vehicle travel reliability is assessed using the Level of Travel Time Reliability (LOTTR) metric. This metric uses a standardized approach to compare a corridor's travel time on a higher delay day (80th percentile travel time) to the same corridor's travel time on an average day. The LOTTR reflects how predictable daily travel is along that corridor and is only applied to the Interstate and non-Interstate NHS corridors.

Within GIAMPO, the LOTTR along the interstate is considered reliable. The only corridors experiencing reliability issues are at small segments of:

- US Highway 281 and US Highway 34.
- US Highway 34 and Locust Street.

Figure 5-6 illustrates the LOTTR for the reliability results for the worst period (AM or PM) for each segment in 2018.

Freight Reliability

Truck travel reliability is assessed using the Truck Travel Time Reliability (TTTR) metric. This metric also uses standard approach to compare truck travel times in a corridor on a higher delay day (95th percentile travel time) to the corridor's truck travel time on an average day. Like the LOTTR, the TTTR reflects how predictable truck travel is along a corridor. One difference between these two metrics is that TTTR is only applied to the Interstate system whereas LOTTR is applied to both Interstate and non-Interstate NHS routes.

The TTTR analysis for the Interstate system in the Grand Island Area MPO shows that much of Interstate 80 (I-80) was classified as "unreliable" for freight traffic during the reporting period. **Figure 5-7** illustrates reported TTTR. It should be noted that during this reporting period, there was construction on I-80 for several months which likely made these segments less reliable for freight travel than during typical conditions. These segments should be monitored in future years for TTTR performance.

Figure 5-6: Level of Travel Time Reliability (LOTTR) for the Grand Island Area MPO, 2018

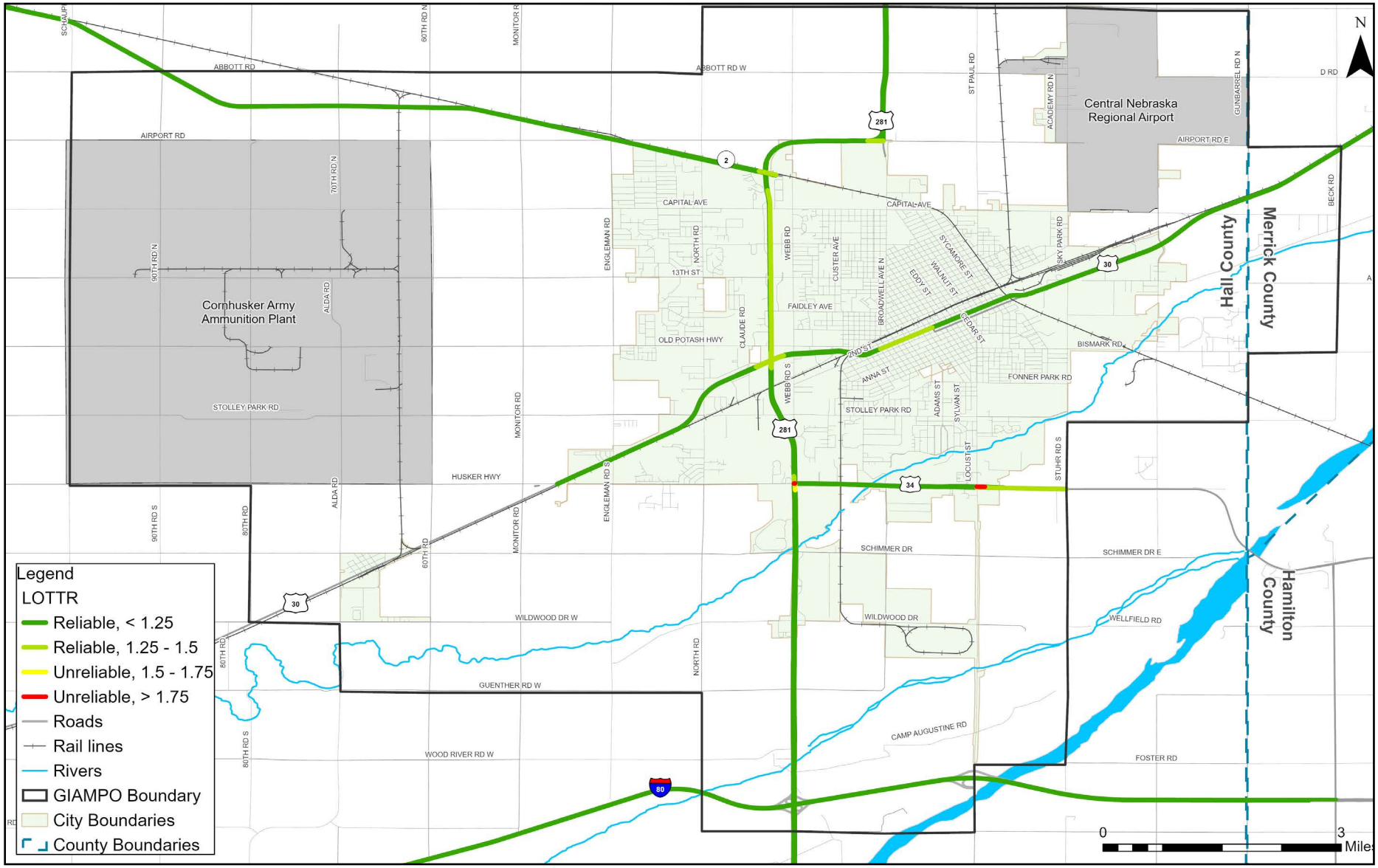
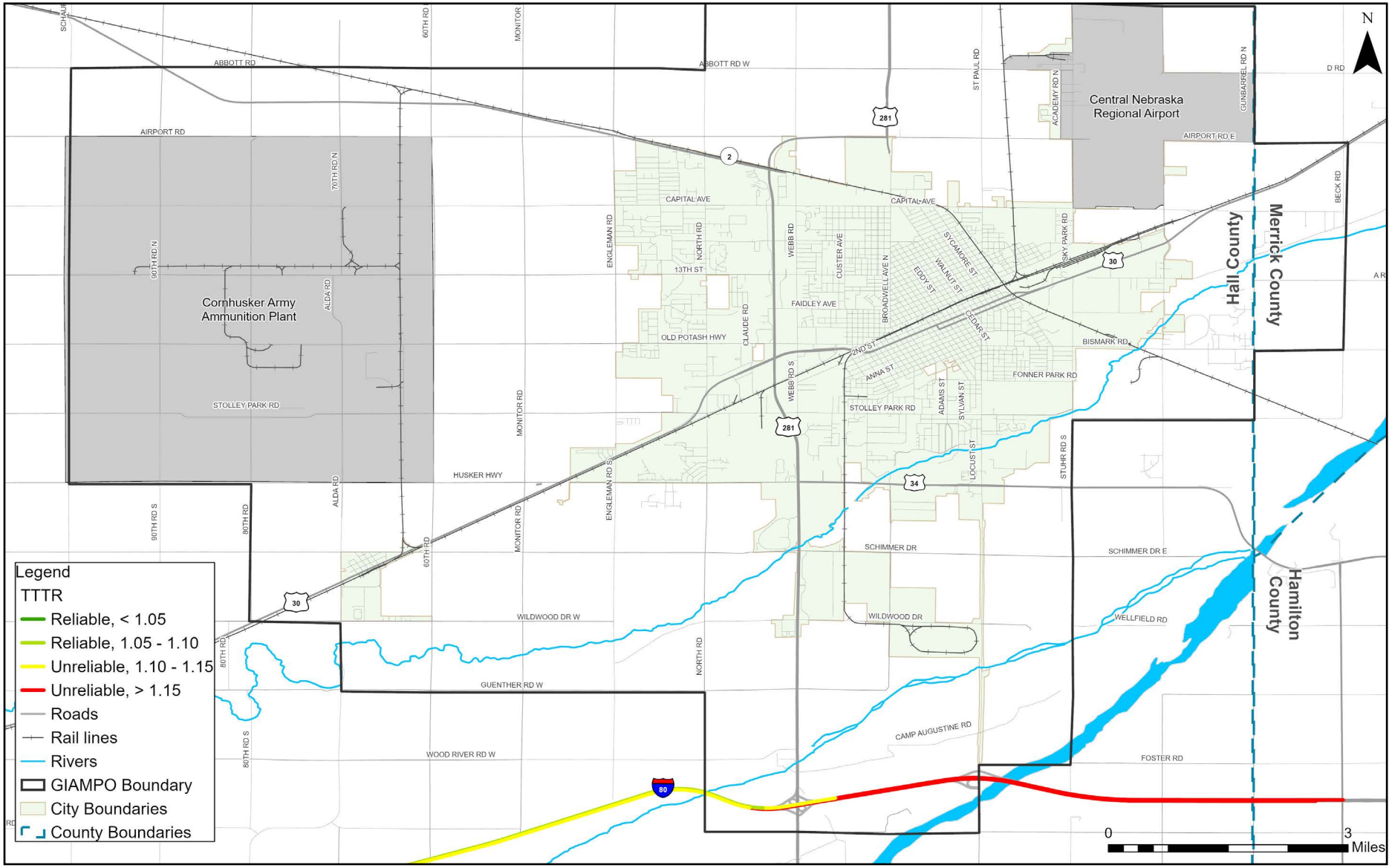


Figure 5-7: Truck Travel Time Reliability (TTTR) for the Interstate System within the Grand Island Area MPO Boundary



Bridge Conditions

Grand Island Area Bridges

There are 99 bridges within the Grand Island MPO area, and 35 of these structures are located on the NHS. The conditions of these bridges, as well as all 99 bridges within the MPO boundary, are presented in **Table 5-1**.

Table 5-1: NBI Ratings of Bridges within the Grand Island MPO Boundary

BRIDGE RATINGS	NHS BRIDGES	ALL BRIDGES (NHS AND NON-NHS)
Good	16	58
Fair	19	41
Poor	0	0

Source: National Bridge Inventory

As shown in **Table 5-1** there are:

- 16 NHS bridges in good condition.
- 19 NHS bridges in fair condition.
- No NHS bridges in poor condition.

The NHS bridges were further analyzed to calculate the bridge condition by deck area. **Table 5-2** presents the total deck area of NHS bridges by condition rating.

Table 5-2: Ratings of Grand Island NHS Bridges by Deck Area

BRIDGE RATING	NHS BRIDGE DECK AREA*	% OF TOTAL DECK AREA*
Good	14,692	36%
Fair	25,993	64%
Poor	-	0%
Total	40,685	100%
Poor	0	0

**Deck area is reported in square meters*

For Grand Island area bridges on the NHS, 36% of the total deck area is rated in Good condition while the remaining 64% is rated in Fair condition. **Figure 5-8** shows the condition of all bridges in the MPO study area.

Bridge Performance Measures

Nebraska DOT has requested that MPOs support these two state targets:

- Keep at least 95% State-Owned Bridges in Good or Fair Condition.
- Keep less than 10% state system of total deck area on NHS classified as Structurally Deficient.

As noted, no bridges on the NHS are in poor condition in the GIAMPO area and are thus supporting the State performance measure targets.

Pavement Conditions

Pavement conditions for the NHS were analyzed based on 2019 data obtained from the NDOT. Pavement ratings were determined based on a series of indicators such as pavement rutting, faulting, and cracking and then organized into the following categories:

- **Good:** Pavement exhibiting minimal rutting, faulting, and/or cracking.
- **Fair:** Pavement has some rutting, faulting, and/or cracking.
- **Poor:** Pavement has significant rutting, faulting, and/or cracking.

Of the 101 miles analyzed, over 75% is rated in Good condition. The next largest proportion of NHS pavement is rated as being in Fair condition while less than 1% is considered in Poor condition.

Table 5-3 summarizes the ratings for all 101 miles.

Table 5-3: Summary of Pavement Ratings for NHS Roads

PAVEMENT CONDITION	LENGTH (MILES)	SYSTEM MILES PERCENTAGE
Good	78.5	77.4%
Fair	22.5	22.2%
Poor	0.5	0.4%
Total	101.5	100%

Source: Nebraska Department of Transportation

The condition of pavement in the MPO study is shown **Figure 5-9**.

Figure 5-8: Bridge Conditions within the Grand Island Area MPO Boundary

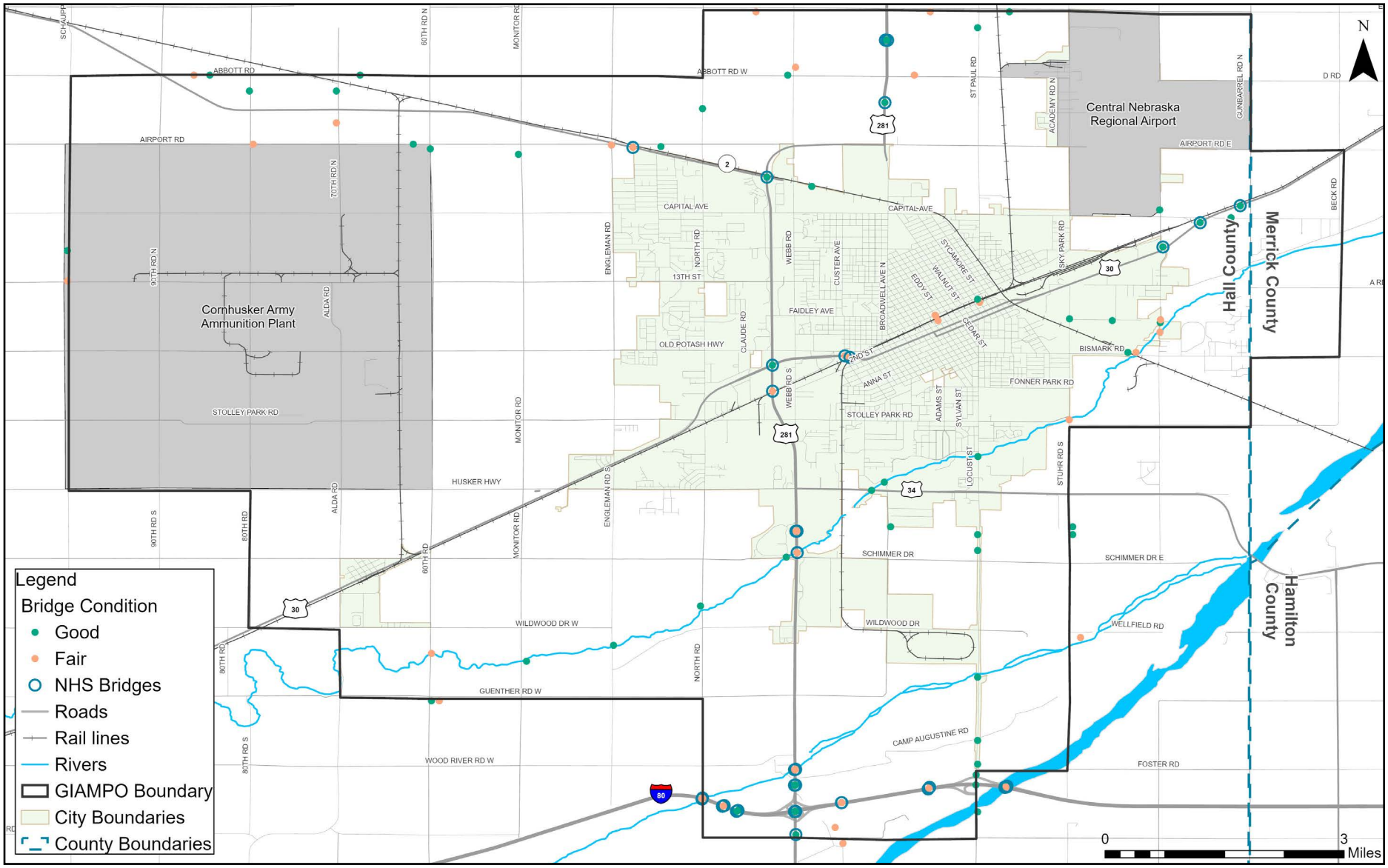
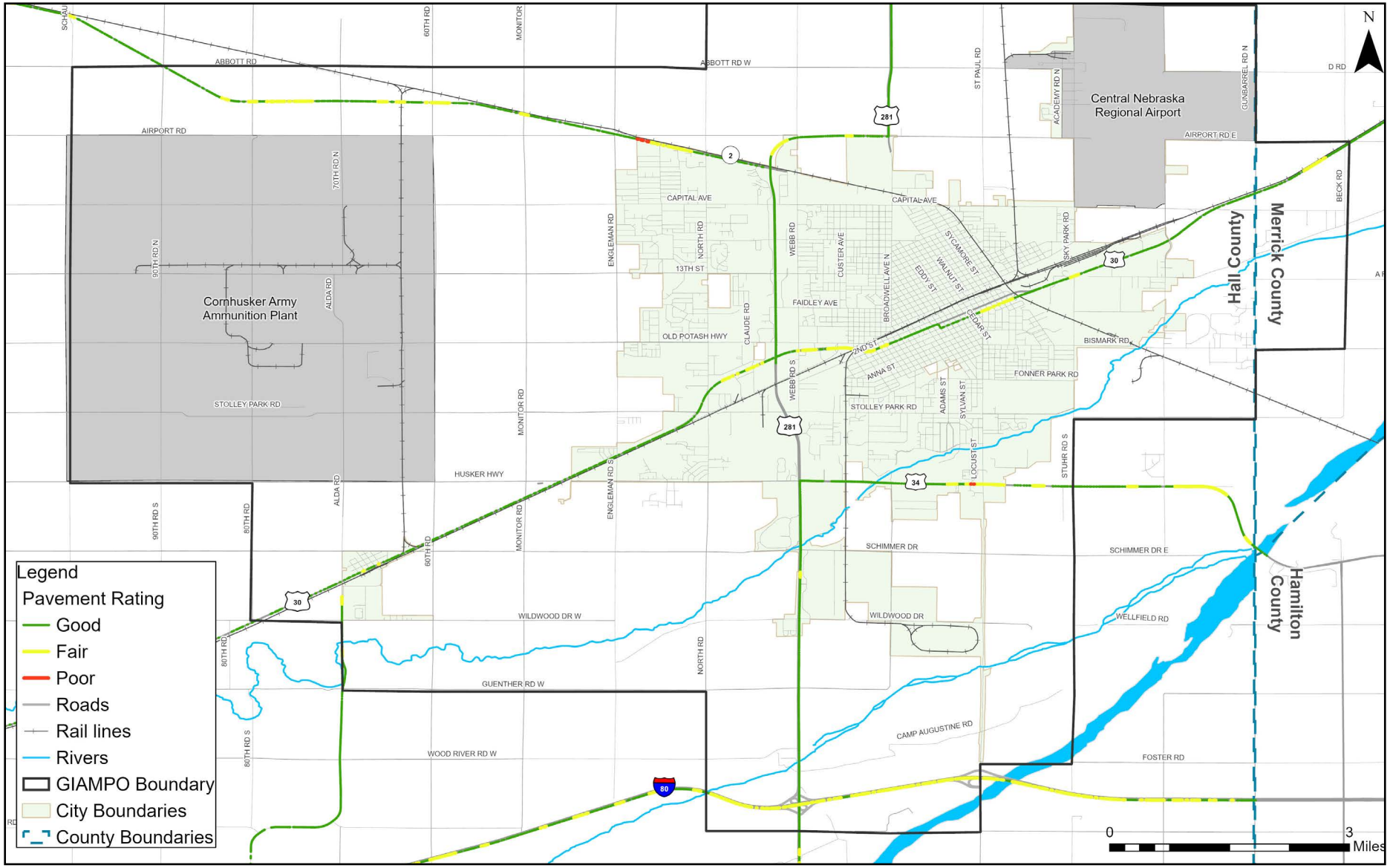


Figure 5-9: Pavement Conditions within the Grand Island Area MPO Boundary



Freight System

Trade has historically been, and will continue to be, an integral part of the Nebraska and Grand Island area economy. As the original transcontinental railroad developed westward in the mid-1860's, Grand Island developed as a change point for Union Pacific Railroad engines and crews. During the late nineteenth century, the city emerged as a hub for rail traffic and connected to rail lines throughout the American west, cementing Grand Island as a center for regional rail freight activity.

Today, the GIAMPO area continues its role as a major multimodal freight center served by highway, rail, air, and pipeline freight carriers. Notable modal freight facilities include:

- **Federal and state highway system facilities:** Interstate 80, US Highways 30, 34, and 281, and Nebraska Highway 2.
- **Air freight services:** Central Nebraska Regional Airport.
- **Rail freight services**: Union Pacific (UP) and Burlington Northern-Santa Fe (BNSF).
- **Natural gas pipeline:** Tallgrass Interstate Gas Transmission.

A more complete summary of freight is included in **Appendix C**.

Highway Freight

Regional Freight Movements

Highway freight facilities within the GIAMPO area include Interstate 80, U.S. Highway 30, U.S. Highway 34, U.S. Highway 281, and Nebraska Highway 2. Additionally, several non-Highway roads in the City of Grand Island are utilized by trucks, including Locust Street, 1st Street, 2nd Street, Eddy Street, and Broadwell Avenue. **Figure 5-10** illustrates the current highway freight network in the GIAMPO region.

Grand Island Area Freight Movements

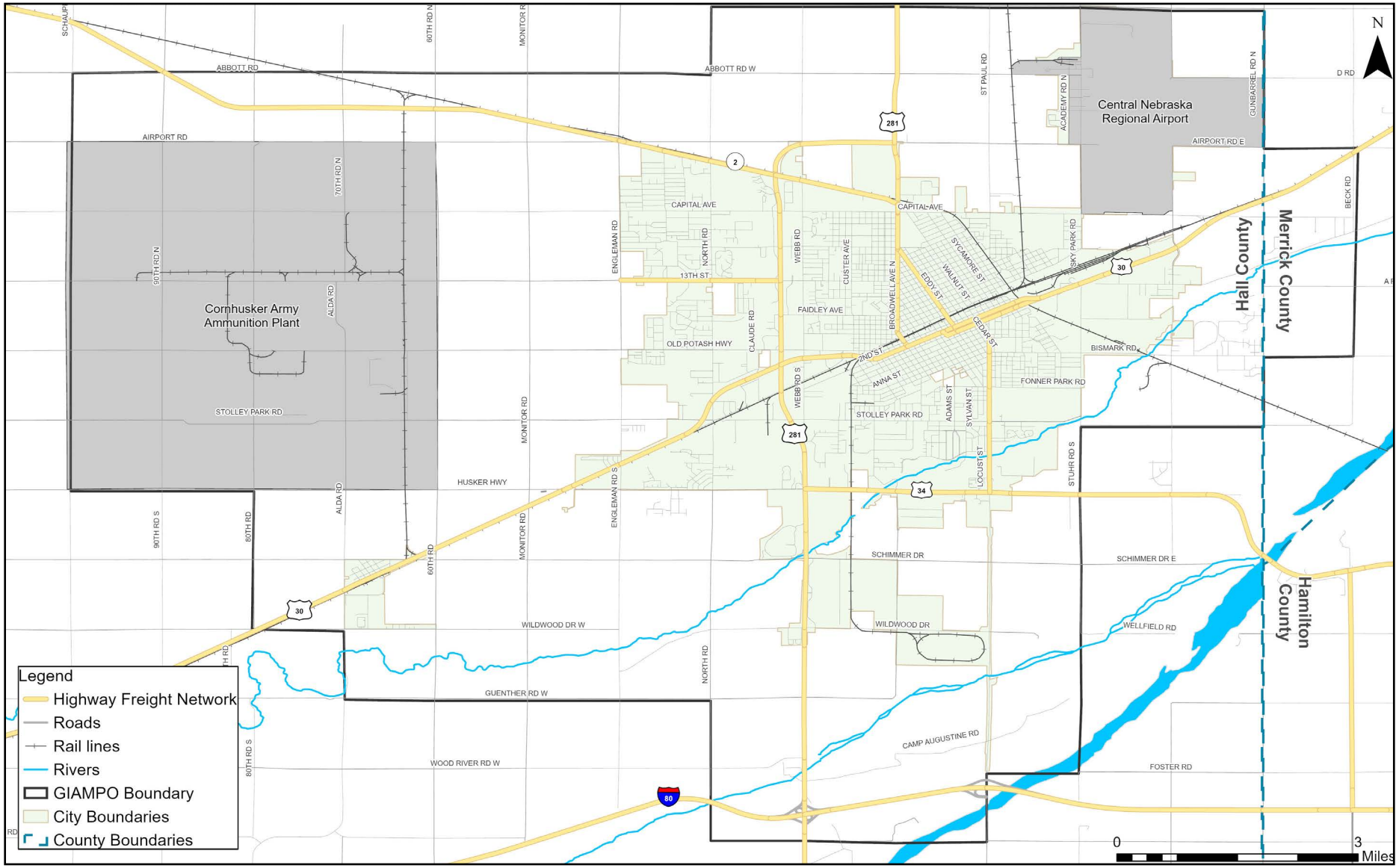
A corridor-level analysis was also conducted for the major NHS freight routes contained within the boundary of the GIAMPO planning area. **Table 5-4** presents the resulting projections for growth in daily truck traffic (referred to as Average Annual Daily Truck Traffic or AADTT) for these corridors through the plan horizon.

Table 5-4: Projected Growth in Daily Truck Traffic on Interstate and NHS Routes

HIGHWAY FACILITY	2012 AADTT	2045 AADTT	% CHANGE
Interstate 80	7,775	26,200	236%
US Highway 281/34	1,750	3,952	122%
US Highway 30	994	1,731	74%
Nebraska Highway 2	315	835	161%

Source: Federal Highway Administration, Freight Analysis Framework

Figure 5-10: Highway Freight Network within the GIAMPO Region



These large future increases in truck volumes can lead to the potential for significant impacts on GIAMPO highway facilities. The needs for public expenditures on roadway maintenance and the potential for highway capital improvements could increase, while the operations and reliability of the highway system for both trucks and passenger vehicles could decrease due to these trends.

The City of Grand Island has demonstrated desire to further improve freight operations in the region through the expansion of the existing intermodal freight facility, Central Nebraska Transload (CNT). CNT provides truck-to-rail and rail-to-truck transloading services, which bolster regional supply chains through increased efficiency owing to freight consolidation. A second benefit of freight consolidation facilitated by CNT is the reduction of long-haul trips taken by freight trucks, resulting in less wear on highway pavement, lower freight truck emissions, and improved safety on the region's roadways. GIAMPO's commitment to enhancing freight access and mobility in the region supports the expansion of CNT and similar intermodal facilities throughout the area.

Air Freight

The Central Nebraska Regional Airport (KGRI) is the major aviation facility in the GIAMPO area. This facility is owned by the Hall County Airport Authority and maintains four runways that service an average of 69 aircraft per day. In terms of operations, the Central Nebraska Regional Airport has 35 aircraft based at the field. At the airport, 41% of operations are associated with transient general aviation, 26% are local general aviation, 26% are commercial aviation, and the remaining 7% are for military aviation purposes.[1] A discussion of commercial air service at the Central Nebraska Regional Airport is provided later in this document.

While the Central Nebraska Regional Airport mainly serves non-freight needs, a 2016 study conducted by the University of Nebraska estimated that this facility receives approximately 1,144 tons in total annual operations each year, making it number two behind Omaha's Eppley Airfield in terms of air cargo operations in the State.[2]

1 Central Nebraska Regional Airport FAA Information, https://www.airnav.com/airport/KGRI.
2 Nebraska State Freight Plan, 2017. https://dot.nebraska.gov/media/10761/nebraska-freight-plan.pdf.

Rail Freight

Rail freight plays a significant role in the local economy of the GIAMPO region as evidenced by the 140 trains that pass through every day.[3] There are three railroads operating in the region:

- **Union Pacific** has a main line route traveling through Grand Island.
- **Burlington Northern Santa Fe** has a main line route traveling through Grand Island.
- **Nebraska Central Railroad Company**, owned by Rio Grande Pacific Railroad, also operates a rail line that connects with UP in the northern part of the City of Grand Island.

In addition to the rail lines found within the GIAMPO boundary, there are a number of rail facilities and crossings throughout the GIAMPO area, including "The Diamond", where Burlington Northern-Santa Fe track passes over a Union Pacific main line and serves as a notable tourist attraction for railroad enthusiasts.[4] The Federal Railroad Administration's Highway-Rail Crossing Inventory indicates that there are 87 rail crossings within the GIAMPO boundary, and 65 of these crossings are at-grade and public.

Pipelines

Freight movements via pipeline accounted for 11% of total freight movement by weight in Nebraska during the year 2015. This important freight mode is utilized mainly for the transmission of energy products, such as petroleum, natural gas, crude oil, and hydrocarbon gas liquids. Within the GIAMPO planning area, a natural gas pipeline operated by Tallgrass Interstate Gas Transmission is the only pipeline currently in operation.

3 Grand Island, Railroad Hot Spot. https://visitgrandisland.com/visitors/
4 Grand Island Tourism, https://visitgrandisland.com/visitors/attractions/railroad.html#targetText=Grand%20Island's%20hotspot%20is%20known,along%20the%20original%20transcontinental%20mainline.

Existing Bicycle and Pedestrian System

Walking and Biking in Grand Island

Walking and biking are a relatively small portion of commute trips, with 1.2% of Grand Island workers walking to work and 0.7% of Grand Island workers using a bicycle for work trips.[5] The walk share is lower than the state of Nebraska as a whole, as 2.7% of commuters statewide walk. However, Grand Island's share of bicycle commuters is higher than Nebraska as a whole, as only 0.4% of statewide commuters bike. **Table 5-5** presents a comparison of non-private vehicle commuting habits for the City of Grand Island, Hall County, the state of Nebraska, and the United States.

Table 5-5: Non-Private Vehicle Means to Work

MEANS TO WORK	CITY OF GRAND ISLAND	HALL COUNTY, NE	STATE OF NEBRASKA	UNITED STATES
Bicycle	0.7%	0.6%	0.4%	0.6%
Walk	1.2%	1.2%	2.7%	2.7%
Public transit	0.7%	0.9%	0.7%	5.1%
Taxi, motorcycle, or other means	1.1%	1.0%	0.9%	1.2%

Source: American Community Survey, 2017 5-Year Estimates

5 American Community Survey (ACS) 2017 5 Year Estimates

Figure 5-11 shows the locations of the on-street and off-street bicycle and pedestrian facilities within the GIAMPO boundary.

Transit System

Public transit for the City of Grand Island and Hall County is provided by the Central Ride Agency of Nebraska (CRANE), which operates a demand-response service open to the public. In addition to serving the City of Grand Island and Hall County, CRANE provides service to residents of Alda, Wood River, Cairo, and Doniphan.[6]

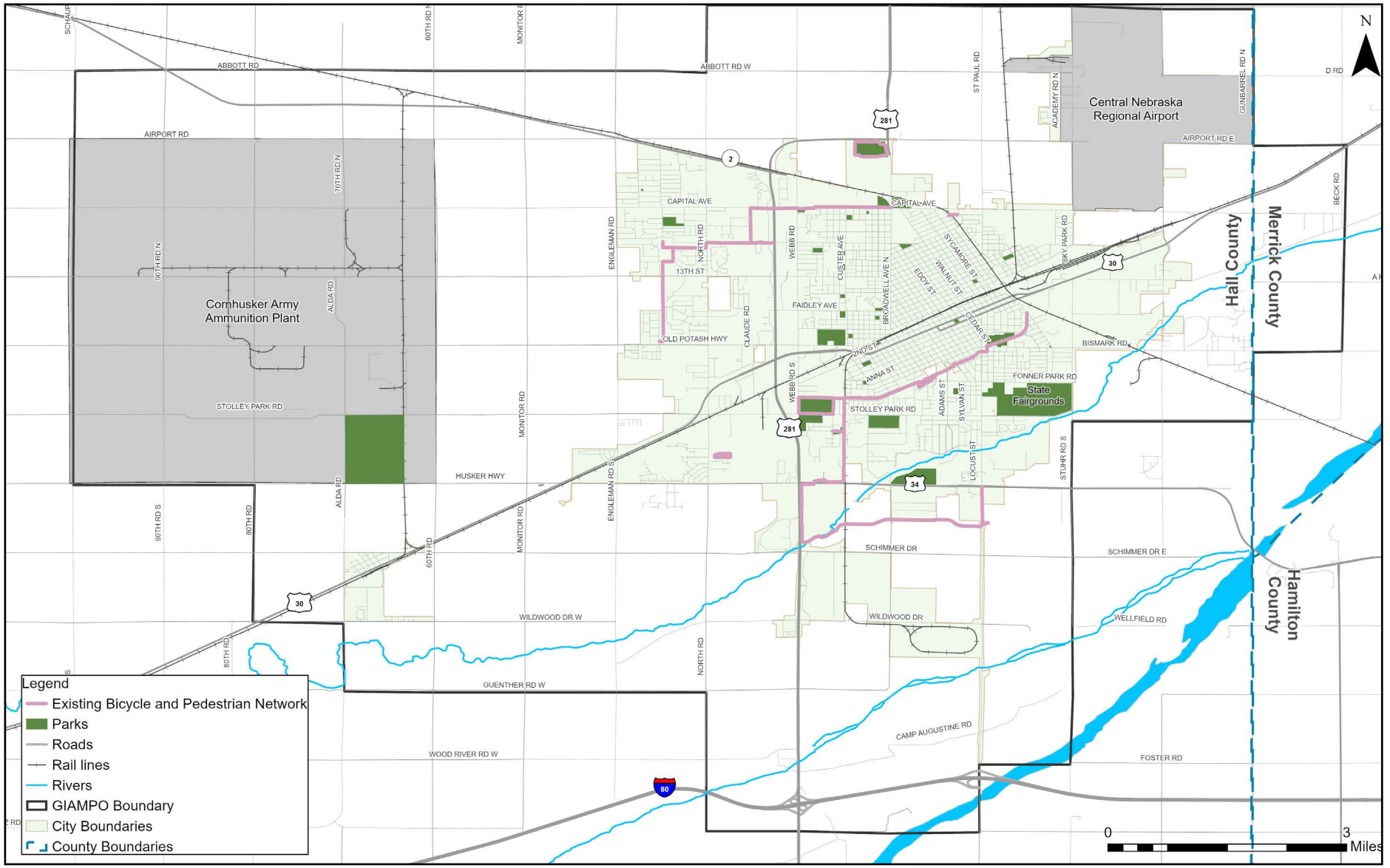
CRANE operates Monday through Friday from 6:00 AM to 5:00 PM, and charges $2.00 per boarding. Since CRANE is a demand-response service, users must schedule their rides a minimum of 24 hours in advance.

According to the National Transit Database (NTD) agency profile for CRANE, the total area served by this organization is 546 square miles. The number of vehicles operated at maximum service is 11, and the average age of the fleet vehicles is 5.2 years.

In addition to CRANE, public transit service within the portion of the GIAMPO region that falls within Merrick County is served by Central City Mini Bus out of Central City, NE. Central City Mini Bus is similar to CRANE in that it is a demand response service available to the public with a 24-hour advance reservation. Central City Mini Bus charges a flat, round-trip rate of $10 for service to the City of Grand Island. For rides to destinations within Central City, the cost of a one-way trip is $0.50.

6 City of Grand Island Public Works, Transit. https://www.grand-island.com/departments/public-works/transit

Figure 5-11: GIAMPO Bicycle and Pedestrian Facilities



Other Regional Connections

The availability of other transportation modes allows for individuals to travel without relying on a private automobile, and the efficiency of these alternate modes is contingent upon their ability to effectively connect to regional destinations. For the GIAMPO area, the existing regional connections include commercial air services, intercity bus service, and passenger rail service.

Commercial Air Service

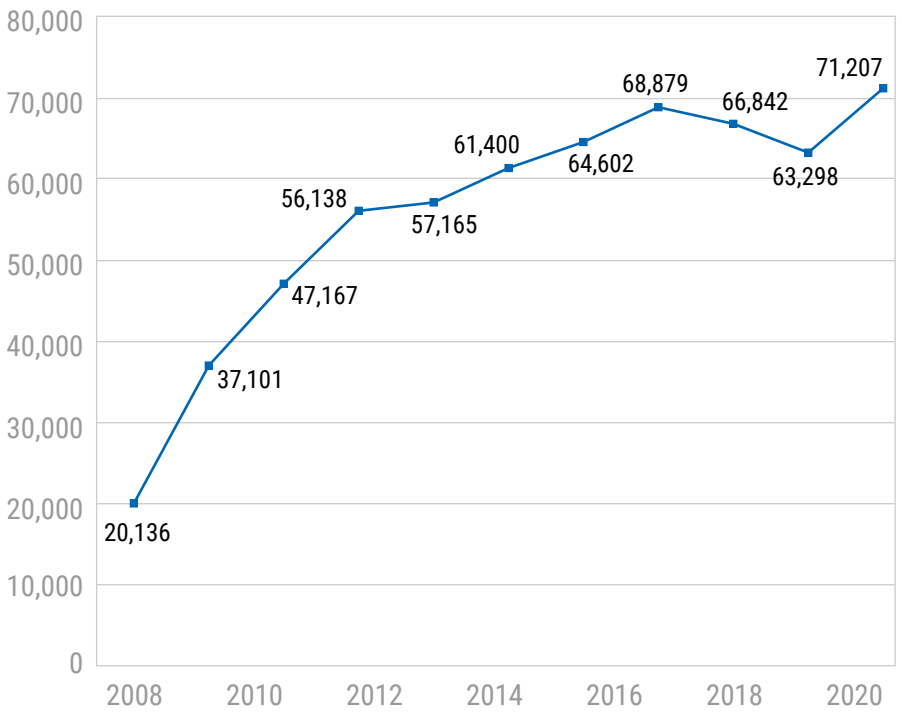
The Central Nebraska Regional Airport offers commercial air service within the GIAMPO area. Two airlines currently operate commercial service at the Central Nebraska Regional Airport:

- **Allegiant Air:** currently offers non-stop flights to the Phoenix-Mesa Gateway Airport and the McCarran International Airport in Las Vegas.
- **American Eagle**: offers non-stop service to the Dallas-Fort Worth Airport.

In addition to Allegiant Air and American Eagle, flights to Wendover, Utah and Laughlin, Nevada can be chartered throughout the year.

Since the year 2009, the number of annual enplanements has increased from 20,136 to 63,298 in 2018. During this ten-year period, annual enplanements peaked at 68,879 in 2016 then saw slight declines in both 2017 and 2018. **Figure 5-12** presents the annual enplanement figures from the Federal Aviation Administration for the ten-year period of 2009-2018.

Figure 5-12: Annual Enplanements for the Central Nebraska Regional Airport, 2009-2019



Source: Federal Aviation Administration, Air Carrier Activity Information System[7]

7 2019 Enplanement data was sourced from the Grand Island Independent, Jan. 7, 2020 https://www.theindependent.com/news/local/central-nebraska-regional-airport-sets-passenger-record-in/article_2eb58eaa-319d-11ea-980c-5717d3da75d9.html.

Intercity Bus Service

Several intercity bus service options exist in the GIAMPO region.

- **Greyhound Bus:** offers intercity bus services to a variety of locations across the U.S. Travelers are picked up and dropped off at the Greyhound Bus Depot located just south of downtown Grand Island, near the junction of NE Highway 2 and U.S Highway 34.
- **Arrow Stage Lines:** offers charter bus rental services and has a facility in northern Grand Island, near the Central Nebraska Regional Airport.
- **The Navigator Airport Express:** offers 6 airport shuttle trips per week and serves the Nebraska communities of Kearney, Grand Island, Hastings, York, Lincoln, and Omaha.

Passenger Rail Service

Passenger rail service is currently not offered in the GIAMPO area. The nearest passenger rail facility is the Amtrak station located 25 miles south of the City of Grand Island, in the City of Hastings.

Additional Mobility Providers

Alternate mobility options for travelers in the GIAMPO region includes the ridehailing services Uber and Lyft, which have been operating in Grand Island since 2016. There are also several traditional taxi services operating throughout the region, serving the GIAMPO area along with the communities of Hastings, York, and Kearney. Ridesharing and carsharing services, such as Zipcar and Getaround, that allow members to use a personal automobile through a membership and hourly fee structure, are not currently available in the GIAMPO region. For individuals who wish to rent a personal vehicle, there are traditional car rental agencies.

System Performance and Progress Towards Targets

As part of the MAP-21 federal legislation, all State transportation agencies and MPO's were required to adopt transportation system performance and report annual progress made towards them. MPO's have the option to adopt statewide targets or adopt their own.

GIAMPO has chosen to support Nebraska DOT's adopted targets, which are concerned with safety, infrastructure condition, system operations performance, and transit asset management. Below is a summary of the statewide performance targets the MPO aims to meet, the baseline target calculated the year prior to the establishment of the statewide performance target, and the actual performance outcome for each measure. Note that performance results shown for the GIAMPO region are for illustrative purposes.

Safety

The safety performance measures adopted by the Nebraska DOT and supported by GIAMPO relate to the number and rate of fatal and serious injury crashes as well as the frequency of non-motorized crashes. **Table 5-6** shows the 2021 safety targets and GIAMPO's performance, in terms of 5-year averages, based on the 2014-2018 crash data.

Table 5-6: Statewide Safety Performance Targets and GIAMPO Progress

PERFORMANCE MEASURE	STATEWIDE TARGET (2016-2021)	STATEWIDE BASELINE (2014-2019)	STATEWIDE PERFORMANCE (2017-2021)*	GIAMPO PERFORMANCE
Number of Fatalities	241	234.0	243.3	3.4
Rate of Fatalities per 100 million VMT	1.13	1.126	1.138	0.73
Number of Serious Injuries	1,408	1,476	1,408.1	34.4
Rate of Serious Injuries per 100 million VMT	6.507	7.102	6.502	7.4
Number of Non-motorized Fatalities and Serious Injuries	126.6	134.2	126.6	3.6

**Statewide performance is recorded as a 5-year rolling average*

Source: Nebraska DOT, Hall County, Merrick County

Infrastructure Condition

Infrastructure condition is concerned with existing pavement and bridge conditions in the GIAMPO area. **Table 5-7** contains the 2020 statewide targets and GIAMPO performance.

Table 5-7: Statewide Infrastructure Performance Targets and GIAMPO Progress

PERFORMANCE MEASURE	STATEWIDE TARGET (2016-2021)	STATEWIDE BASELINE (2014-2019)	STATEWIDE PERFORMANCE (2017-2021)	GIAMPO PERFORMANCE
% of Interstate pavements in Good condition	50%	N/A	80.0%	10.60%
% of Interstate pavements in Poor condition	5%	N/A	0.1%	0%
% of non-Interstate NHS pavements in Good condition	40%	63.4%	63.0%	82.40%
% of non-Interstate NHS pavements in Poor condition	10%	11.5%	12.2%	0.50%
% of NHS bridges by deck area classified as in Good condition	55%	61.0%	56.5%	34%
% of NHS bridges by deck area classified as in Poor condition	10%	1.9%	1.9%	0%

Source: Nebraska DOT, National Bridge Inventory

System Operations Performance

Travel reliability is used as the main performance measure for assessing system operations performance. **Table 5-8** presents the 2021 targets adopted by the Nebraska DOT and supported by GIAMPO, as well as the passenger and freight reliability based on 2019 data.

Table 5-8: Statewide System Operations Performance Targets and GIAMPO Progress

PERFORMANCE MEASURE	STATEWIDE TARGET (2016-2021)	STATEWIDE BASELINE (2014-2019)	STATEWIDE PERFORMANCE (2017-2021)	GIAMPO P8ERFORMANCE
% of Person-Miles Traveled on the Interstate that are Reliable	94.0%	98.9%	97.5%	100%
% of Person-Miles Traveled on the non-Interstate NHS that are Reliable	88.0%	N/A	91.3%	99.7
Freight Reliability	1.25	1.10	1.15	1.21

Source: Nebraska DOT, National Performance Management Research Dataset

Transit Asset Management

Transit asset management (TAM) seeks to ensure that public capital assets are maintained in good condition and proactive steps are taken in managing them. Hall County Public Transit along with the City of Grand Island have elected to participate in group TAM planning in which performance targets are developed based on the transit equipment's Useful Life Benchmark (ULB). **Table 5-9** below shows the group TAM performance targets that were adopted in 2018.

Table 5-9: Transit Asset Management Performance Targets

CATEGORY	CLASS	DEFAULT ULB	PERFORMANCE TARGET
Rolling Stock	Cutaway Bus	10 years	50% of fleet exceeds default ULB
	Minivan	8 years	50% of fleet exceeds default ULB
	Van	8 years	50% of fleet exceeds default ULB
Equipment	Automobile	8 years	75% of fleet exceeds default ULB
Facilities	Admin/ Storage	40 years	70% of facilities rated under 3.0 on TERM scale

Source: Nebraska DOT

Transit Safety

Under the Federal Public Transportation Agency Safety Plan (PTASP) rule, public transit agencies receiving Federal funding under the FTA's Urbanized Area Formula Grants are required to publish safety plans that include processes and procedures to implement Safety Management Systems. As part of these PTASP plans, public transit agencies must publish safety performance targets for their operations. The PTASP safety targets for CRANE are shown in **Table 5-10**.

Table 5-10: Public Transportation Agency Safety Plan Performance Targets for CRANE Public Transit

CATEGORY	PERFORMANCE TARGET	2021 BASELINE	TARGET
Fatalities	Total	0	0
	Rate per 100,000 VRM*	0	0
Injuries (Major/Minor)	Total	TBD**	Reduction from 2024 Baseline
	Rate per 100,000 VRM	TBD	Reduction from 2024 Baseline
Safety Events (Minor/ Major)	Total	TBD	Reduction from 2024 Baseline
	Rate per 100,00 VRM	TBD	Reduction from 2024 Baseline
System Reliability (Minor/ Major)	VRM Between Failures	TBD	Reduction from 2024 Baseline

Source: CRANE Public Transportation Agency Safety Plan, 2020

**VRM is Vehicle Revenue Mile*

***TBD-To be determined in 2024 as GIAMPO will not publish a 2021 baseline for these measures*

Chapter 6 Future System Performance

Regional Growth Overview

Several sources of data were evaluated for identifying growth trends and reasonable forecasts of future population, household, and employment levels. Data from the Center for Public Affairs Research (CPAR) at University of Nebraska Omaha, Woods and Poole economics[1], and historical population data from the US Census Bureau were all reviewed. The study team considered the planning impacts of each dataset and decided that for planning purposes, a combination of US Census historical trends and Woods and Poole Economics was the preferred source of projection data.

- **Population Projections:** Historical trend analysis for US Census data for Grand Island indicated very steady population growth between the years 1980 to 2017. This trend was combined with estimates of MPO areas not in Grand Island MPO areas to develop an overall MPO area population growth projection of 24% growth between 2017 and 2045.
- **Employment Projections:** Woods and Poole data for Hall County were used as the basis for the employment projections, with adjustments made to the MPO-level employment projections for population growth, and accounting for MPO areas not in Hall County. Based on this methodology, job growth by sector was projected through 2045 for the following sectors: Service, Government, Basic sector, and Retail.
- **Household Projections:** Woods and Poole data also include projections of age cohorts, birth rates, and household formation. The data for Woods and Poole for Hall County indicated that the average household size (persons per household) would increase by 1.4% through 2045.

The resulting population, household, and employment projections are shown in **Table 6-1**.

Table 6-1: GIAMPO Population, Household, and Employment Projections through 2045

	2017	2045	CHANGE
Population	58,756	72,772	+24%
Households	21,769	26,588	+22%
Employment Totals	*32,590*	*41,715*	*+28%*
Retail Sector Jobs	*4,801*	*4,829*	*+1%*
Service Sector Jobs	*14,752*	*21,562*	*+46%*
Basic Sector Jobs	12,011	14,050	+17%
Government Sector Jobs	1,026	1,274	+24%
Average Household Size	2.70	2.74	
Population-Jobs Ratio	1.80	1.74	

Sources: Grand Island MPO, US Census Bureau, Woods and Poole Economics

1 Woods and Poole is an economics firm specializing in national and regional models for long-term county economic and demographic data projections. These data provide insights into employment trends within industry sectors.

Allocation of Growth

The purpose of development allocation was to identify the location of the new jobs and housing associated with the future development anticipated in **Table 6 -1**. For the purposes of use in the GIAMPO Travel Demand Model (TDM), this growth needed to be allocated to the transportation analysis zone (TAZ) structure of the model for the 2045 planning horizon. The allocation was developed on input from local planning and engineering staffs, and rooted in their understanding of current development densities (jobs per acre, housing units per acre), local planning and development expertise related to the market, and an understanding of which areas have or are anticipated for urban services (water, sewer, etc.).

The resulting growth by TAZ is shown in **Figure 6-1** and **Figure 6-2**. Each figure displays the net growth in number of households and net growth in number of jobs for each respective TAZ.

GIAMPO Travel Demand Model

As a part of the LRTP update, the TDM was updated to reflect conditions representative of a base year 2017. The TDM is a computer simulation that evaluates the interaction of land development and the transportation system that allows for testing of various projects and growth scenarios. It is the primary tool for forecasting future traffic conditions in the GIAMPO area. It does not currently have the capability to model transit, walking, or biking trips. More information on the TDM is provided in the GIAMPO 2045 Travel Demand Model Validation Report, included as **Appendix D**.

Figure 6-1: 2018-2045 Household Growth by TAZ

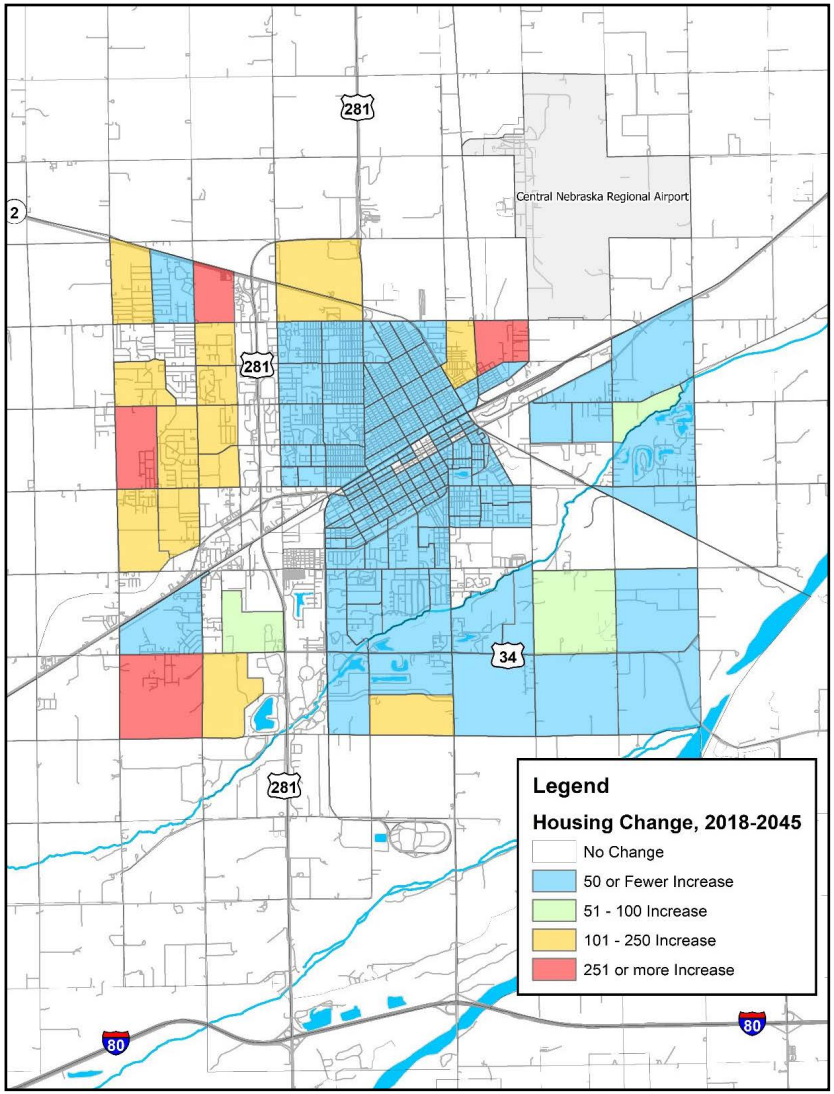
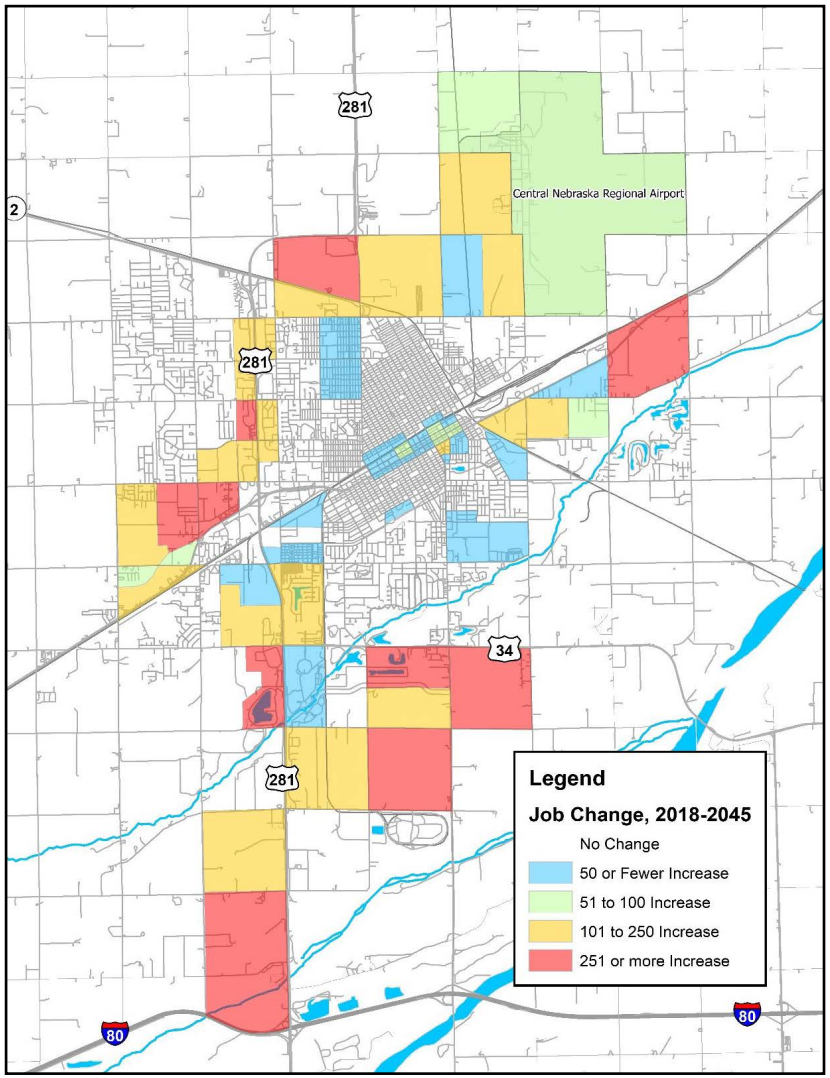


Figure 6-2: 2018-2045 Employment Growth by TAZ



2045 Existing Plus Committed Future Baseline

The baseline future year TDM scenario used as a starting point for the 2045 LRTP is the "existing-plus-committed" (E+C) roadway network scenario. The 2045 E+C scenario represents no improvements to the current roadway network beyond those projects currently under construction, included in GIAMPO's Transportation Improvement Program (TIP), or in a member jurisdiction's Capital Improvement Program (CIP). These projects are considered "committed" as project funding is anticipated to be available for implementation over the next four years. The projects that are considered "committed" and included in the E+C scenario are:

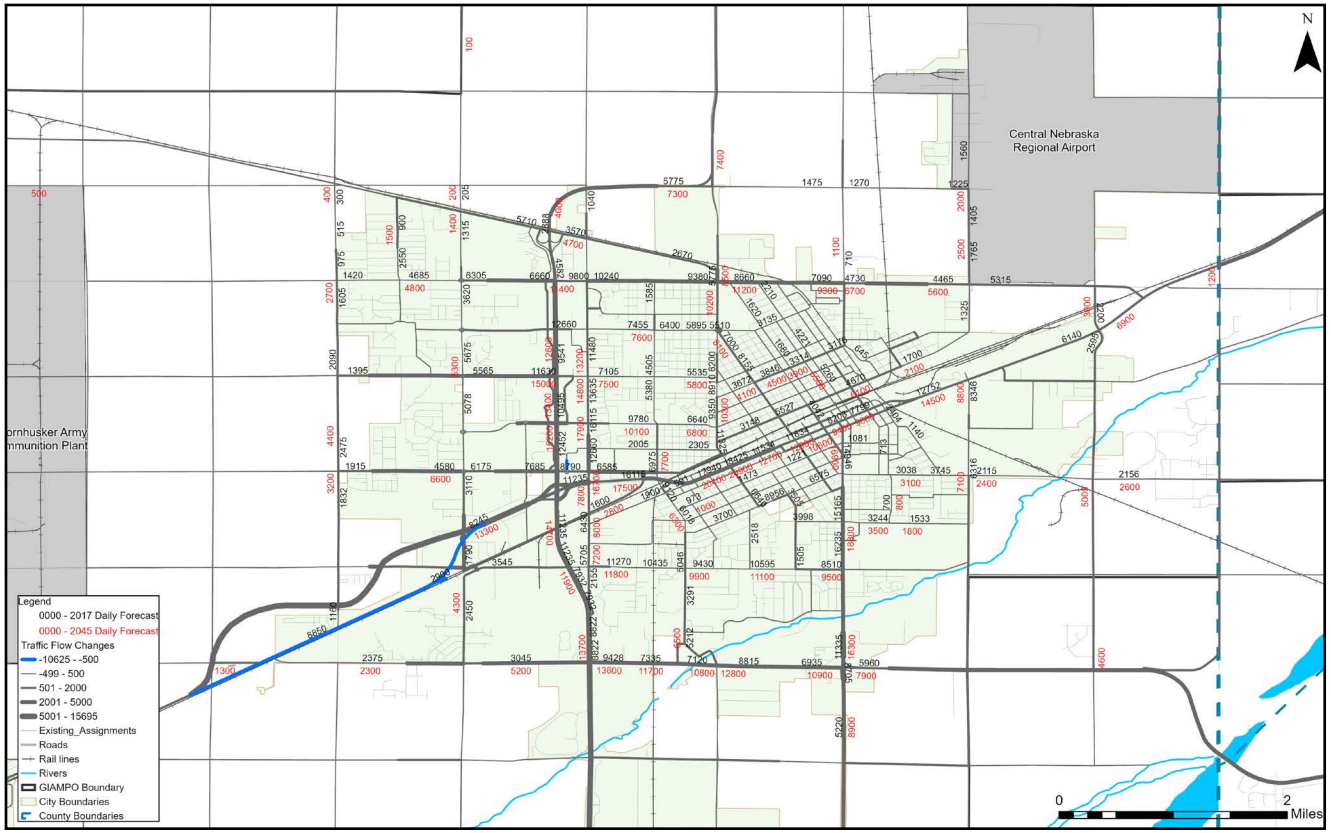
- Old Potash Highway reconstruction and widening between North Road and Old Fair Road.
- North Road reconstruction to 3-lanes between Highway 30 and Highway 2.
- Claude Road construction between Old Potash Highway and Faidley Avenue.
- Reconstruction of Broadwell Avenue-State Street-Eddy Street intersection as a roundabout.
- Highway 30 realignment and reconstruction from west of Monitor Road to Claude Road.
- Capital Avenue widening to 3-lanes from Morrows Creek to North Road.

There are other roadway projects included in current TIP and CIPs that are not included on this list, since those other projects are maintenance projects, such as a road resurfacing, that do not impact roadway capacity and would have no impact on model forecasts. The current GIAMPO TIP is shown in **Appendix F**.

Using the housing and employment data reflected in **Figure 6-1** and **Figure 6-2**, traffic volume forecasts were developed by comparing output from the 2015 base travel model and 2045 E+C network scenario travel model. The resulting traffic forecast operations for peak conditions in 2045 is shown in **Figure 6-3**.

Future traffic operational issues were assessed using a Level of Service approach like the existing conditions traffic operations analysis.

Figure 6-3: 2045 E+C Scenario Traffic Forecasts

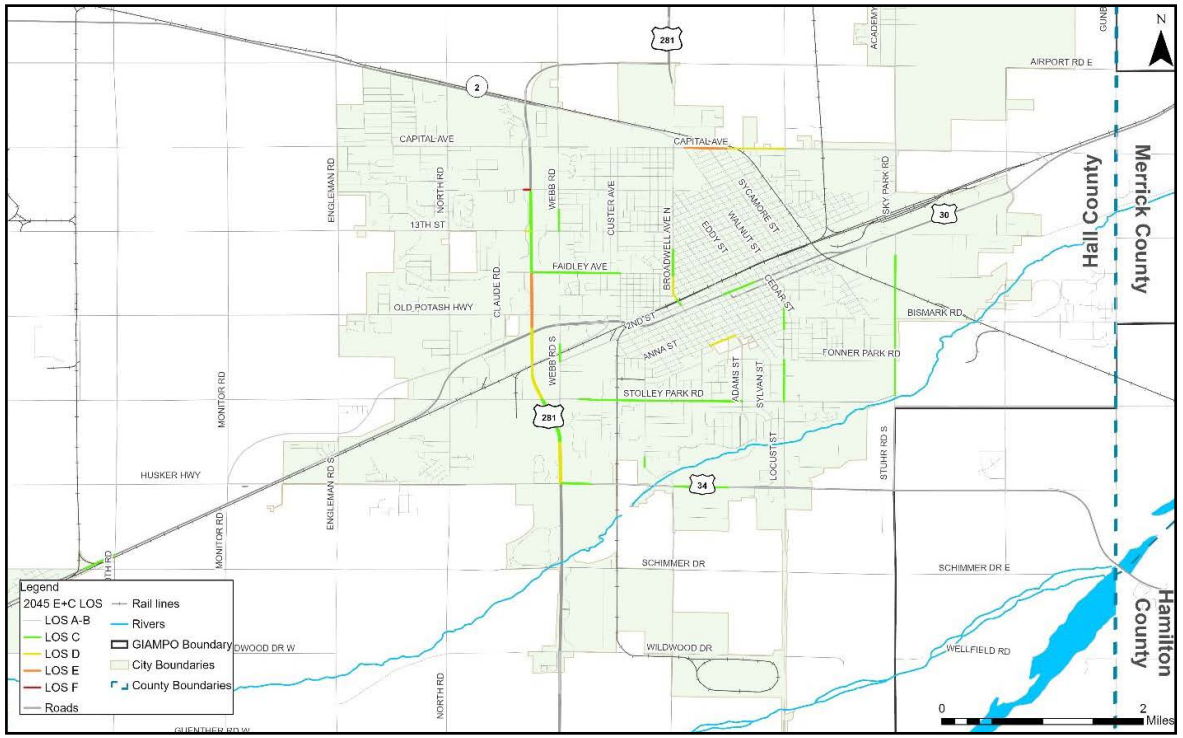


The resulting analysis indicates a limited set of future corridors with anticipated peak period congestion in Grand Island. This analysis found that after the committed projects have been implemented, there are some future areas of congestion expected to emerge:

- US 281 between US 34 and Faidley (LOS D/E).
- Capital Ave between Broadwell and St Paul Rd (LOS D/E).
- Broadwell Ave between Faidley and 3rd (LOS D).
- Anna St between Broadwell and Adams (LOS D).

Figure 6-4 shows the level of service results for the 2045 E+C scenario.

Figure 6-4: 2045 E+C Scenario Peak Period Traffic Operations



Future System Performance

In addition to identifying corridor-level traffic operations, the TDM can be used to evaluate overall system performance and regional travel characteristics between today and 2045. **Table 6-2** shows a summary of the growth. The highlights of this regional travel changes include:

- **Total System Trips:** Daily trips represent the number of vehicle trips estimated by the TDM. Trips are a function of households and employment and were estimated to increase by 21% during the 28-year forecast period.
- **Vehicle Miles Traveled (VMT) Growth:** VMT represents the total distance people drive in the Grand Island Area. VMT is a calculation of the number of study area trips multiplied by each trip's length in miles. VMT is forecasted to grow by 25%, more than trip growth. This means in the future the average trip will be longer distance than it is today.
  - Average trip lengths, which are estimated by comparing VMT to total trips for 2018 and 2045, are forecasted to increase by 3%.

- **Vehicle Hours Traveled (VHT) Growth:** VHT represents the total time spent driving in vehicles across the Grand Island Area. VHT is a calculation of the number of study area trips multiplied by each trip's time duration. VHT is forecasted to grow by 25%, more than trip growth. This means in the future the average trip will take more time than it does today.
  - Average travel speeds, which are estimated by comparing VMT to VHT for 2017 and 2045, are forecasted to decrease slightly by less than 1%.

Table 6-2: Grand Island Area System Performance Statistics

	2017	2045 E+C	GROWTH
Households	21,769	26,588	22%
Employment	31,009	40,134	29%
Balanced Trips	309,974	375,619	21%
Daily VMT (Miles)*	1,283,168	1,603,418	25%
Daily VHT (Hours)*	28,419	35,566	25%
Average Trip Length (Miles)	4.14	4.27	3%
Average Travel Speed (MPH)	45.15	45.08	<-1%

**Centroid Connectors not included*

Multimodal System Opportunities

The future growth estimated for the GIAMPO planning area has several implications for the multimodal system. As population and employment levels in the region grow, investment in the bicycle and pedestrian and transit systems can improve regional multimodal opportunities and connectivity while helping the MPO make further progress towards the LRTP goals. The multimodal system opportunities within the GIAMPO region are discussed below.

Bicycle and Pedestrian System Opportunities

The 2018 Bicycle and Pedestrian Master Plan provided detailed strategies for improving the regional bicycle and pedestrian system. Building off these strategies, the analysis completed, and input received during the 2045 LRTP, the major bicycle and pedestrian system strategies being considered are:

- **Off-Street Facilities:** Pursue further development of the regional trail system and create connections to existing and future trails. This includes incorporating trail accommodations into future roadway improvement projects and identifying key corridors not adjacent to streets that will improve overall regional trail system connections.
- **On-Street Facilities:** Identify potential on-street corridors where bicycle and pedestrian facilities could be sited on low-volume and low-speed streets. Specific on-street treatments might include bicycle boulevards, separated bicycle lanes, or similar facilities.

Transit System Opportunities

The major public transit opportunity presented by future development and regional growth is to identify future development areas whose design and density could support expanded transit service. Some of the major residential and employment growth areas include:

- Northwest and southwest Grand Island are anticipated to see the highest residential growth
- Southern Grand Island, along the U.S. 281 and U.S. 34 corridors, as well as northern Grand Island around Highway 2 and N Webb Road are anticipated to see the highest employment growth.

Areas with dense, walkable development patterns and a diversity of land use types are often the most conducive to supporting effective transit service. As development occurs over the planning horizon, development patterns that emerge will be the key to whether transit services can effectively serve those areas.

Crane Bus

Chapter 7 Future Transportation Revenues

MPO Funding

An important aspect of LRTPs is the identification of potential transportation projects and their associated funding mechanisms. The LRTP must be fiscally constrained and demonstrate the MPO and local jurisdictions' capability to implement planned projects using committed or reasonably assumed future revenue sources while ensuring the Federal-aid transportation system is still in adequate operation and is well-maintained.[1] This section of the report will summarize:

- Current and potential Federal, State, and local revenue sources for the GIAMPO
- Historical funding trends
- Projected future revenues

Federal Revenue Sources

Overview of Federal Funding Programs

Multiple Federal programs have been used to fund past transportation projects in the GIAMPO region. These Federal funding programs include:

- **Surface Transportation Block Grant Program (STBG):** The STBG program allocates funds to States and Localities for projects that improve the performance and/or condition of the Federal-aid highway system, bridges, tunnels, pedestrian, bicycle, and transit capital projects. GIAMPO does not receive any STBG funding directly.
- **Surface Transportation Block Grant Program funding for Transportation Alternatives (STBG-TA):** The STBG-TA program provides funding for a range of smaller-scale projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school, historic preservation, vegetation management, and environmental mitigation. A portion of STBG-TA funds are awarded by NDOT to local jurisdictions for eligible projects on a competitive basis.
- **National Highway Performance Program (NHPP)**: The NHPP provides funds for projects that support the condition and performance of the National Highway System, such as new NHS facilities, that support progress towards performance measure targets. All NHPP funding in the GIAMPO area is directed by NDOT.
- **Highway Safety Improvement Program (HSIP):** The HSIP provides funds for highway safety projects that achieve significant reductions in traffic fatalities and serious injuries. Non-State-owned roads and tribal roads are eligible for HSIP funds. A portion of HSIP projects are awarded by the state on a competitive basis.
- **National Highway Freight Program (NHFP):** The NHFP provides funds for projects that improve the efficient movement of freight on the National Highway Freight Network (NHFN). State DOT's receive apportionments of Federal NHFP funds then distribute the funds for state and local projects. The only GIAMPO corridor that is part of the NHFN is Interstate 80.
- **FTA Section 5307 Urbanized Area Formula Program:** Section 5307 funds are available to urbanized areas to support transit capital investments and operating assistance.
- **FTA Section 5339 Bus and Bus Related Facilities:** Section 5339 funds are available to States and direct recipients to replace, rehabilitate, and purchase transit buses, and equipment as well as to construct bus facilities that incorporate innovative technologies.
- **FTA Section 5311 Formula Grant for Rural Areas:** Section 5311 is a formula-based funding program designed to support the mobility needs of rural communities through funding for capital, planning, and operating assistance for public transit agencies in rural areas with populations below 50,000.

1 Federal Highway Administration, Financial Planning & Fiscal Constraint. https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/financial-planning-fiscal-constraint.

Historic Federal Funding Levels

Historic Federal funding levels for the Grand Island Area MPO were identified through the review of past years Transportation Improvement Programs (TIPs) and interviews with MPO and Nebraska DOT staff. In addition to presenting historic funding levels by year, average yearly funding values are given in:

- **Year of Expenditure (YOE):** Value in the given year's dollars.[2]
- **2020 Dollars:** Value in 2020 dollars.[3]

NHPP Funding

Historical NHPP funding levels are presented in **Table 7-1**. Current funding for the STBG and STBG-TA programs is discussed below.

Table 7-1: Historical Funding Levels for NHPP Projects

YEAR	NHPP
2016	$998,000
2017	$11,396,000
2018	$14,684,000
2019	$0
2020	$0
Average (YOE $)	$5,415,600
Average (2020 $)	$5,830,850

Source: Grand Island Area MPO, Transportation Improvement Program

It should be noted that NHPP funds are directed by Nebraska DOT for projects as needed on the NHS state routes. No NHPP funding levels beyond currently programmed projects will be shown in the fiscally constrained portions of the LRTP.

STBG Funding

Jurisdictions in the GIAMPO area have opted to forgo STBG funding in favor of receiving Federal Fund Purchase Program (FFPP) buyout funds. For areas of Nebraska outside of Lincoln and Omaha that receive FFPP funding, the STBG dollars are used by Nebraska DOT for state highway projects.[4] District Engineers coordinate with Local Public Agency (LPA) officials to identify state highway projects within their jurisdictions and allocate STBG funds for them. More discussion of FFPP funding is provided later in this chapter.

STBG-TA Competitive Funding

LPAs within the State of Nebraska compete annually for the STBG-TA funds allocated to the Nebraska DOT from the Federal government. These funds are eligible for the same small-scale transportation projects that are eligible under the Federal STBG-TA program. Establishing anticipated future funding streams based on the historical funding levels was difficult, since the MPO has only existed since 2013 and funding for the STBG-TA program during that short period has been temporarily interrupted. The LRTP team discussed this with NDOT staff, and it was suggested that this short, choppy funding history was not an ideal way to project future revenues forward. It was decided the best approach was to look at the proportion of the state within the Grand Island area to estimate the long-term share of funding the region might attain. It was thought that over time, the proportion of funding secured within the MPO area might be approximately equivalent to its proportion of state representation via population. While not a guarantee of future funding,

2 Year of Expenditure assumptions are: 3% budget growth, 4% project cost growth
3 Based on assumed 3% budget growth, directed by NDOT staff.

4 For STBG-eligible project categories described in this document.

this method provided a reasonable funding projection. Documentation of NDOT's support for this methodology is included in **Appendix A.**

Estimates of current funding levels are that approximately $3.4 million in STBG-TA dollars are distributed each year; approximately $500,000 annually is allocated to first class cities and the remaining $2.9 million is allocated statewide. While no allocations of this funding are guaranteed, based on population it is estimated that in a typical year the Grand Island area could reasonably secure 4.2% of this statewide share, or $143,000 annually in 2020 dollars.[5] **Table 7-2** shows the projected STBG-TA funding levels by future year time band, in year of expenditure dollars. The time bands for the plan include 20-years beyond the current GIAMPO 2021-2025 TIP:

- **Short Term:** 2026-2030
- **Mid-Term:** 2031-2037
- **Long Term:** 2038-2045

Highway Safety Improvement Program

Similar to STBG-TA funds, local jurisdictions are eligible to compete for HSIP funding for safety projects. Estimates of current funding levels are that approximately $16 million in HSIP dollars are distributed each year; approximately $5 million annually is allocated to state projects and the remaining $11 million is allocated to jurisdictions statewide. While no allocations of this funding source are guaranteed, based on population it is estimated that in a typical year the Grand Island area could reasonably secure 3.1% of the statewide jurisdiction portion, or $340,000 annually in 2020 dollars. **Table 7-2** shows the projected HSIP funding levels by future year time band, in year of expenditure dollars.

5 Estimate based on GIAMPO study area having 10.9% of first class cities population and 3.1% of statewide population. This is not a guaranteed level of funding. GIAMPO will not receive funds every year.

Table 7-2: Projected Grand Island Area STBG-TA and HSIP Budget (YOE $)

TIME BAND	YEARS	HSIP FUNDS	STBG-TA FUNDS
Short Term	2026-2030	$2,154,900	$906,700
Mid-Term	2031-2037	$2,497,800	$1,516,900
Long Term	2038-2045	$6,253,400	$2,164,900
Total		$10,906,100	$4,588,500

Source: NDOT Supported Methodology, Grand Island Area MPO

Federal Transit Funding

Review of past years TIP documents identified the historical funding levels for the regional transit system, which are shown in **Table 7-3**.

Table 7-3: Historical Funding Levels for FTA Programs

YEAR	SECTION 5307	SECTION 5311	SECTION 5339
2016	$183,000	$18,000	$-
2017	$414,920	$-	$104,000
2018	$459,000	$19,000	$104,000
2019	$408,000	$18,000	$-
2020	$498,000	$21,000	$-
Average (YOE $)	$392,580	$15,200	$41,600
Average (2020 $)	$412,910	$15,990	$44,800

Source: Grand Island Area MPO, Transportation Improvement Program

State Revenue Sources

Overview of State Funding Programs

The Nebraska DOT allocates additional transportation funds to localities across a series of different programs. These State programs include:

- **State Highway Trust Fund:** The main transportation funding program for the State of Nebraska. This funding source draws from several local and Federal sources that are then allocated to Nebraska counties and municipalities.
- **Build Nebraska Act:** Enacted by the State Legislature in 2011, the Build Nebraska Act is a 20-year funding program that captures one-quarter (1/4th) of one cent of the existing state sales tax to fund improvements to state and local highways, roads, and streets. 85% of the receipts are designated to the NDOT for expansion and construction of the State expressway and High Priority Corridors. The remaining 15% is allocated to counties and municipalities on a formula basis. The portion of the Build Nebraska Act dedicated to specific highway projects includes these two projects in:
  - Construction of the *US 30 / US 281 realignment* and 4-lane widening just west of Grand Island in the GIAMPO area (anticipated for construction between fiscal years 2020 - 2023).
  - Design of the *Grand Island East Bypass* (anticipated for planning and design between fiscal years 2024 – 2033). This does not include construction of the bypass.
- **Motor Vehicle Fees:** Motor vehicle fees collected by each of Nebraska's counties are distributed as 50% to the county treasurer of each county as a proportion of the most recent amount paid by that county into the Highway Allocation fund, and 50% to the treasurer of each municipality as a proportion of the most recent amount paid by that municipality into the Highway Allocation Fund.
- **Federal Funds Purchase Program (FFPP):** NDOT began the FFPP in 2013 as means of providing localities with more flexible funds to meet their transportation needs. Counties and municipalities can trade their STBG and Highway Bridge Program funds to NDOT in exchange for state funding for highway and bridge projects.

Past Funding Levels

State Highway Trust Fund, Nebraska Build Act, and Motor Vehicle Fees

Each year, Nebraska DOT publishes a Highway User Revenue Distribution Report that discloses the amount of State Highway Trust Fund, Nebraska Build Act, and Motor Vehicle Fee monies that are disbursed to the counties and municipalities of the Nebraska. The amount of funds distributed to Hall and Merrick Counties, and the Cities of Grand Island and Alda since 2016 were reviewed and presented in **Table 7-4**.

Table 7-4: State Highway Trust Fund, Nebraska BUILD Act, and Motor Vehicle Fee Amounts Allocated to GIAMPO Member Jurisdictions, 2016-2019

YEAR	MUNICIPAL HIGHWAY ALLOCATION*	NEBRASKA BUILD ACT	MOTOR VEHICLE FEE
2016	$8,380,080	$346,690	$702,900
2017	$8,844,630	$349,450	$720,590
2018	$9,235,140	$365,550	$741,820
2019	$9,849,230	$373,060	$758,160
Average (YOE $)	$9,077,270	$358,690	$730,870
Average (2020 $)	$9,759,720	$386,030	$786,610

Source: Nebraska Department of Transportation

**Municipal Highway Allocation includes Nebraska Build Act funds allocated in that year.*

Federal Funds Purchase Program

State legislation passed in 2011 authorized the Nebraska DOT to enter annual purchase agreements for federal aid transportation funds from LPA's at discount rates. The purpose of the FFPP is to grant LPA's more flexibility in disbursing their monies to projects that better suit their immediate needs and remove some of the rigidity associated with federal aid funds. While the FFPP requires state funds be used for roadway and/or bridge projects, many of the federal requirements and much of the federal oversight is removed and LPA's can pursue a broader range of transportation projects.

The specific federal funds and agencies that qualify under the FFPP are:

- **STBG:** All Nebraska Counties, Cities, and First Class outside of the Omaha and Lincoln Metropolitan Areas.
- **Highway Bridge Program (HBP):** Counties and Cities of the First Class with deficient bridges.

The eligible activities under the FFPP are:

- **Road Projects:** Construction, reconstruction, maintenance, or repair of public highways, streets, roads, bridges, facilities, appurtenances, and roadway structures.
- **Bridges:** construction, reconstruction, improvements, repair, or maintenance of LPA public road bridges.
- **Other eligible activities**: erosion protection, sidewalks, ADA ramps, curb and gutter repair, and storm sewer repair.

Past and Projected FFPP Amounts for Jurisdictions in the GIAMPO Area

The City of Grand Island, with a population of more than 5,000 and less than 100,000, is defined as a First Class City which makes it eligible for the FFPP. The city has been eligible since 2015 while Hall and Merrick Counties have been eligible for the program since it began in FY 2013. All three LPA's have been eligible for the HBP FFFP program since FY 2013.

Table 7-5 presents the previous seven years of FFPP program funds allocated to the City of Grand Island, Hall County and Merrick County. **Table 7-6** presents the same data for the HBP program buy outs.

Table 7-5: Historical and Projected Funding Levels of the Federal Funds Purchasing Program

	FISCAL YEAR (FY)	CITY OF GRAND ISLAND*	HALL COUNTY	MERRICK COUNTY
Past Funding	2013	$0	$110,950	$96,280
	2014	$0	$109,950	$95,490
	2015	$866,750	$121,630	$106,170
	2016	$904,530	$127,190	$110,930
	2017	$918,400	$129,320	$113,070
	2018	$946,600	$143,950	$115,900
	2019	$970,020	$137,370	$121,200

**City of Grand Island was eligible for FFFP beginning FY2015*

Source: Nebraska Department of Transportation

Table 7-6: Historical and Projected Funding Levels of the HBP Federal Fund Purchasing Program

	FISCAL YEAR (FY)	CITY OF GRAND ISLAND	HALL COUNTY	MERRICK COUNTY[6]
Past Funding	2013	$14,340	$39,460	$72,280
	2014	$21,560	$49,270	$94,260
	2015	$24,770	$43,690	$102,820
	2016	$19,420	$66,640	$109,050
	2017	$19,440	$63,970	$100,000
	2018	$20,130	$66,250	$103,570
	2019	$21,410	$50,190	$106,060

Source: Nebraska Department of Transportation

Local Revenue Sources

Overview of Local Funding Programs

While the Grand Island Area MPO receives Federal monies to fund local transportation projects, Federal funds normally do not cover the entire cost of a project. Localities are typically required to match a portion of total costs with their own monies; for most Federal programs, the match is 80% of total project cost sourced from the Federal program and the remaining 20% from local funds.

GIAMPO relies on several local funding sources to provide revenues for various transportation projects, including public transit. Per the City of Grand Island's Budget Book, the Capital Improvements fund draws from the City's General fund, Cemetery fund, State Gas Tax fund, Keno fund, and Special Assessment fund.[7] These funding sources are grouped into the category "City funds". Hall and Merrick Counties also provide annual funding for projects in the GIAMPO area and are categorized as "County funds". **Table 7-7** displays the historical funding levels from City and County sources for non-transit transportation projects, while **Table 7-8** contains local funding levels for transit projects. As shown in **Table 7-7**, there has been significant "banking" of funds over several years to complete several projects in 2019. The City of Grand Island estimates that after paying for maintenance activities, that the future city transportation funding levels will be approximately $2.5M per year.

Table 7-7: Historical City Funding Levels for Non-Transit Transportation Projects

YEAR	CITY FUNDS
2016	$125,000
2017	$-
2018	$168,000
2019	$26,686,000
2020	$2,372,000
Average (YOE $)	$5,870,200
Average (2020 $)	$6,035,500

Source: Grand Island Area MPO, Transportation Improvement Program

6 The majority of Merrick County is outside of the MPO area, thus most of this funding will be spent outside of the MPO area.

7 City of Grand Island, 2019 Budget Book. https://www.grand-island.com/home/showdocument?id=23101.

Table 7-8: Historical City and County Funding Levels for Transit Projects

YEAR	CITY FUNDS	COUNTY FUNDS
2016	$60,000	$6,000
2017	$-	$-
2018	$343,000	$6,000
2019	$286,000	$7,000
2020	$360,000	$9,000
Average (YOE $)	$209,800	$5,600
Average (2020 $)	$217,200	$5,870

Source: Grand Island Area MPO, Transportation Improvement Program

Local Operations and Maintenance

The City of Grand Island maintains most of the local street system. Part of demonstrating fiscal constraint within the LRTP is providing an understanding of operations and maintenance (O&M) requirements for the GIAMPO study area. Based on a review of the most recent City of Grand Island budgets, there is $6,438,000 spent on O&M for streets. Based on current budgeted O&M costs, **Table 7-9** provides projections on the future O&M levels.

Table 7-9: Projected Grand Island O&M Budget

TIME BAND	YEARS	O&M SPENDING
Short Term	2026-2030	$40,810,000
Mid-Term	2031-2037	$68,290,000
Long Term	2038-2045	$97,460,000
Total		$206,560,000

Source: City of Grand Island 2020 Adopted Budget

Transit Operations and Maintenance

The transit system allocates sufficient funds to operated and maintain bus service. CRANE budgets in three categories for the Transit Award Management System (TrAMS) system. These three categories are:

- Operations
- Other Capital Items such as preventative maintenance and City administration costs
- Equipment for bus support and facilities

O&M costs are included in the "Operating" category, and partially in the "Other Capital Items" category. **Table 7-10** illustrates the funding levels allocated to each of these three categories for the current TIP period.

Table 7-10. Projected CRANE O&M and Capital Budget

YEAR	FUNDING SOURCE	OPERATING	OTHER CAPITAL ITEMS	BUS SUPPORT EQUIPMENT / FACILITIES	TOTAL BUDGET
2021	FTA 5307	$304,000	$157,000	$36,000	$497,000
	Grand Island	$304,000	$61,000	$9,000	$374,000
2022	FTA 5307	$313,000	$249,000	$37,000	$599,000
	Grand Island	$313,000	$62,000	$9,000	$385,000
2023	FTA 5307	$323,000	$177,000	$38,000	$538,000
	Grand Island	$323,000	$44,000	$10,000	$376,000
2024	FTA 5307	$348,000	$167,000	$39,000	$554,000
	Grand Island	$336,000	$42,000	$10,000	$388,000

Source: Grand Island Area MPO, Transportation Improvement Program

Future Transportation Funding Levels

Future anticipated funding levels were developed for the LRTP, based on the financial analysis completed in this chapter, and budget assumptions provided by Nebraska DOT program management staff. The key assumption was a 3% annual budget growth, and 4% annual cost growth (discussed in more detail in **Chapter 9**).

Future Federal Program Funding Levels

Future funding levels for Federal programs are shown in **Table 7-11**.

Table 7-11: Projected Federal Program Revenues for GIAMPO, Year of Expenditure

TIME BAND	YEARS	STBG-TA	HSIP	FTA 5307	FTA 5311
Annual Level	2020	$151,000	$340,000	$497,000	$20,000
Short Term	2026-2030	$957,700	$2,154,900	$3,312,000	$131,000
Mid-Term	2031-2037	$1,603,000	$3,605,000	$5,865,000	$233,000
Long Term	2038-2045	$2,289,000	$5,146,200	$8,996,000	$358,000
2026-2045 Total		**$4,849,700**	**$10,906,100**	**$18,173,000**	**$722,000**

There are potential NHPP and Congestion Mitigation and Air Quality (CMAQ) funding that might become available for future use within the GIAMPO area, but the use of these funds are state-directed and no revenue estimates were developed for these programs could reasonably be developed for the LRTP.

Additional Transit Fund

CRANE received an award of $2.2 million in additional funds through the Coronavirus Aid, Relief, and Economic Security (CARES) Act in March 2020. CRANE is planning to use the money for service expansion and to address facility needs.

Future Local Program Funding Levels

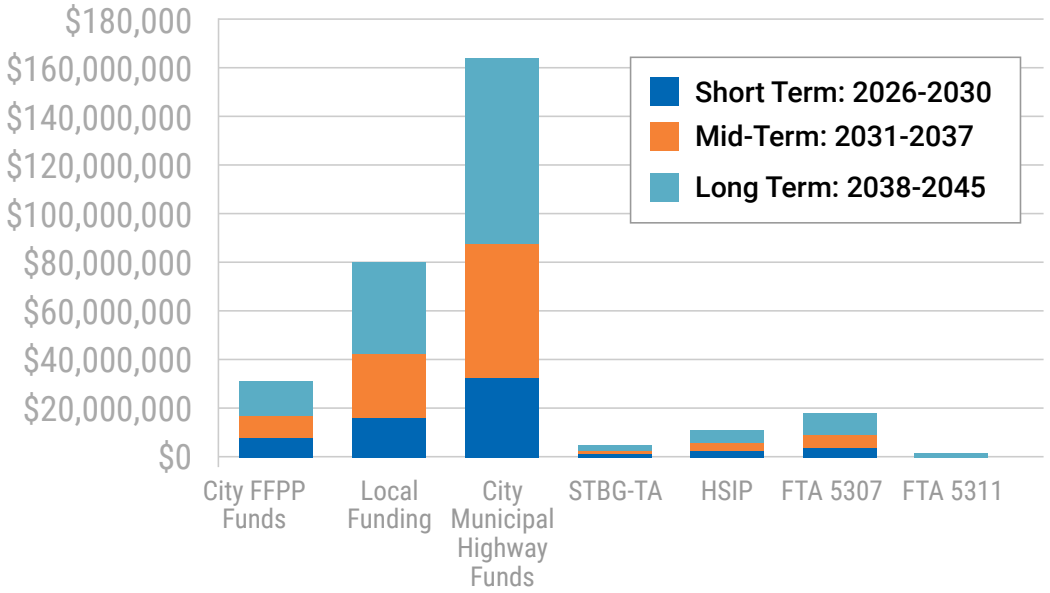
Future funding levels for locally directed programs are shown in **Table 7-12**. Note that this analysis focuses on funding for Grand Island, as all of the city is within the GIAMPO area, and the majority of the other two large jurisdictions (Hall County and Merrick County) lie outside of the GIAMPO study area. The table also shows anticipated outlays for operations and maintenance budgets for each time band.

Table 7-12: Projected Grand Island Transportation Revenues, Year of Expenditure

TIME BAND	YEARS	GRAND ISLAND FFPP FUNDS	GRAND ISLAND LOCAL FUNDING	GRAND ISLAND MUNICIPAL HIGHWAY FUNDS	TOTAL CITY FUNDS FOR TRANSPORTATION	O&M BUDGET	REMAINING LOCAL FUNDS FOR PROJECTS
Annual Level	2020	$999,125	$2,500,000	$5,124,050	$8,623,175		
Short Term	2026-2030	$6,333,841	$15,848,465	$32,483,330	$54,665,636	$40,810,000	$13,855,636
Mid-Term	2031-2037	$10,597,363	$26,516,599	$54,348,952	$91,462,914	$68,290,000	$23,172,914
Long Term	2038-2045	$15,125,367	$37,846,517	$77,570,979	$130,542,862	$97,460,000	$33,082,862
2026-2045 Total		**$32,056,571**	**$80,211,581**	**$164,403,260**	**$276,671,413**	**$206,560,000**	**$70,111,413**

Figure 7-1 illustrates the funding projections by source that are anticipated in this plan. As shown, the majority of funding for the transportation system in the GIAMPO region is locally-sourced.

Figure 7-1. Funding Projections by Funding Source and Time Band



Chapter 8 Project Alternatives and Strategies Development

Project and policy alternatives that were considered during development of the 2045 LRTP came through a range of avenues. This includes input received during the Plan's public engagement activities, alternatives developed through the technical analysis process, and from previous plans and studies in the area. These plans and studies include:

- *Journey 2040* Long-Range Transportation Plan
- 2018 Bicycle and Pedestrian Master Plan
- 2017 Grand Island Transit Needs Assessment and Feasibility Study

The projects that were screened were categorized by mode, then evaluated based on how well they aligned with the goals and objectives of the 2045 LRTP. The roadway and bicycle and pedestrian projects were then assessed based on how well they fit into the project scoring metrics shown in **Chapter 4**.

The process includes both quantitative and qualitative elements when identifying which projects should be implementation priorities. The project metrics provide a quantitative-based approach to assessing project alternatives and how well they fit with the multiple project goals. Qualitative elements include considering project context, or how well a project fits into the surrounding environment. Furthermore, some projects address a critical need in one goal area (like safety) and might not receive as many project scoring points since that project is singularly focused and would potentially meet a smaller number of project metrics.

Alternative Strategies

For each of the transportation modes assessed in the alternatives development process, a range of different project types were considered.

Roadway Strategies

Different roadway project types include:

- **New Corridor:** A new roadway.
- **Bypass:** A high-speed regional route with limited access.
- **Roadway Widening:** Adding new travel lanes to an existing roadway. For instance, an existing two-lane road is widened to a three-lane road (center turn lane is added).
- **Access Management:** Construction of medians and other geometric changes to restrict critical vehicular movements to manage roadway access and improve safety.
- **Intersection Control:** Changes to how an intersection is operating, such as improved signal technologies or new designs such as roundabouts.

Road Construction at Faidley Ave and Claude Road, 2020

Transit Strategies

- **Transit Operations:** These strategies would continue investing in operations and maintenance of the current bus fleet and continue vehicle replacements as older vehicles reach the end of their serviceable life.
- **Transit Development Plan:** Complete a study that looks ahead and identifies services the agency can provide based on funding and the needs of Grand Island area users.
- **Transit Facility Improvements:** Build a transit operations facility for CRANE, the Grand Island area transit service provider. The building will allow for improved transit operations, preventative maintenance, system communications, and route planning for the system.
- **Transit Service Expansion:** Expand the services offered by CRANE to include options such as limited fixed route or flexible fixed route services. Other service expansions might include longer hours of operation.

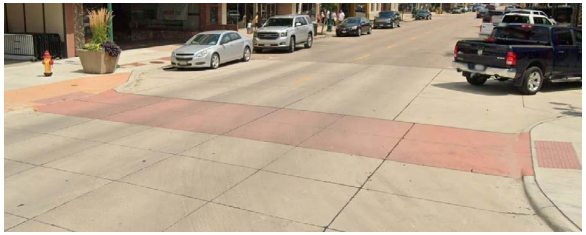
  Any future strategies that expand service to include permanent transit stations should consider how access to stations can be enhanced through the bicycle and pedestrian strategies outlined in this document. CRANE has researched needs related to these potential future stations and is prepared to pursue FTA section 5339 funding to connect trails to these potential future stops if established.

Crane Bus

Bicycle and Pedestrian Strategies

On-Street Facilities

- **Shared Lanes:** Use markings on street pavement that indicate a shared lane environment for road users. Commonly referred to as "sharrows" that offer proper positioning and directional guidance for cyclists.
- **Bicycle Boulevards:** Improvements that prioritize bicycle usage on roads that have low motorized vehicle traffic and low speeds. Vehicle volumes and speeds are managed through signage, pavement markings, sometimes vehicular access control improvements, and speed and volume management designs.



Curb Extensions, 3rd and Wheeler. Source: Google StreetView

- **Multi-Use Shoulders:** Roadway shoulder designed to serve bicycle traffic and parking. The roadway shoulder should be sufficiently wide and surface condition good enough to support bicycles.
- **Advisory Bike Lanes:** Marked bicycle lanes within vehicular travel lanes with low vehicular traffic. Includes advisory signage of cycling activity.
- **Protected Bike Lanes:** Bicycle lane separated from vehicular traffic by a physical barrier, i.e. a raised curb, vehicle parking, concrete barrier, etc.
- **Pedestrian Crossing Improvements:** Improved intersection crossing infrastructure for pedestrians, including curb extensions and enhanced median crossings.

Off-Street Facilities

- **Multi-Use Trail:** Bicycle and pedestrian trail separated from vehicle traffic. These facilities are commonly used for recreational purposes but can provide some transportation connections.
- **Sidepaths:** A bicycle and pedestrian path separated from vehicular traffic. These facilities are typically located parallel to a street and function similarly to a sidewalk, but typically wider.

Beltline Trail, Grand Island

Alternative Strategy Scoring Results

The resulting scores for the roadway and bicycle and pedestrian projects screened in the alternatives development were categorized into the tiers "High, Medium, and Low" based on their resulting scores, with roughly 1/3rd of projects falling into each of the tiers. These tiers guided the development of the Fiscally Constrained Plan of the LRTP, as projects receiving "High" and "Medium" scores were considered as top candidates for the Fiscally Constrained Plan. For more information on the scoring methodology and to see a complete list of the scoring results, see **Appendix E**.

Figure 8-1 shows the roadway projects by scoring tier while **Figure 8-2** shows the bicycle and pedestrian projects by scoring tier.

Figure 8-1: Alternate Roadway Projects Scoring Results

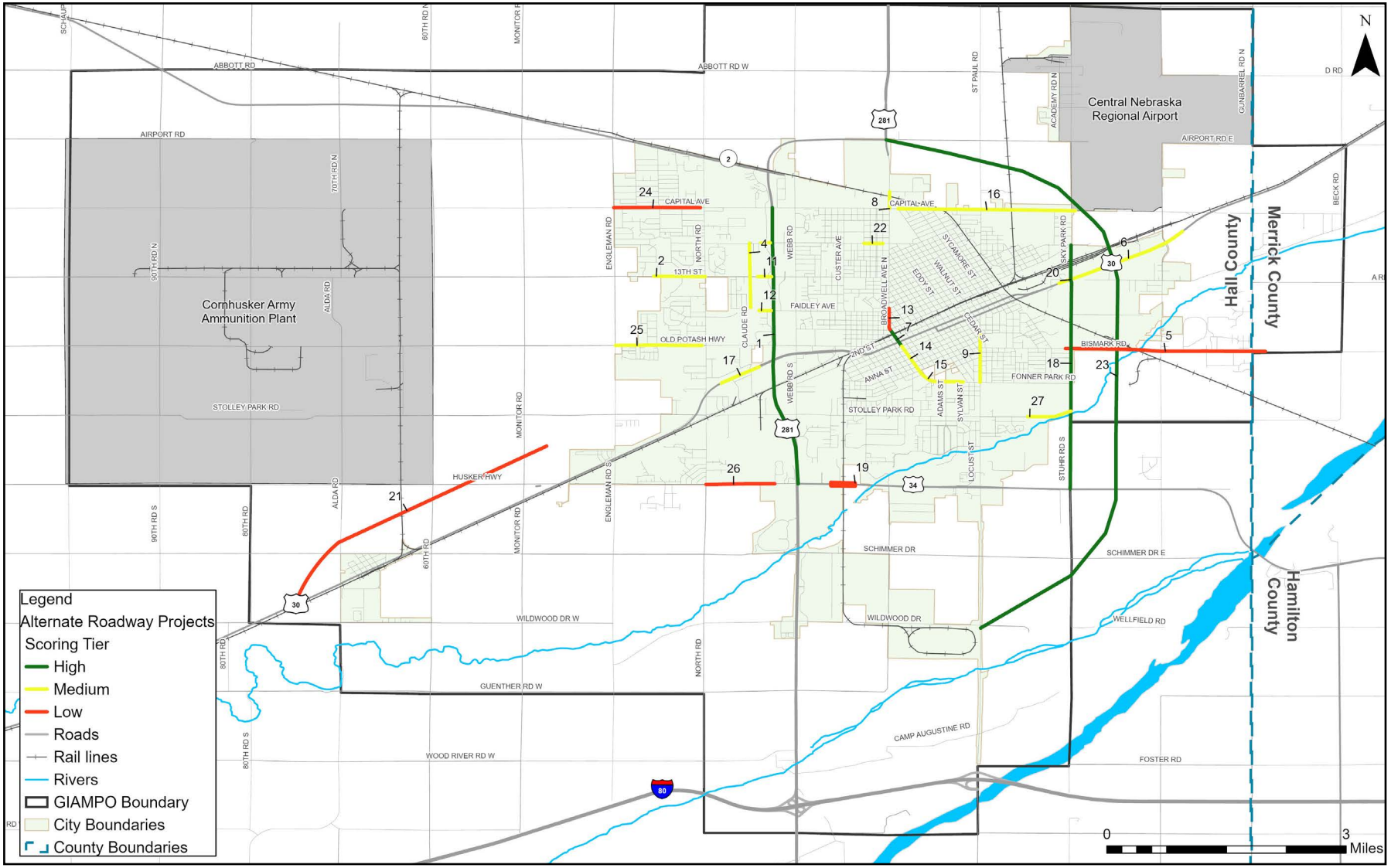
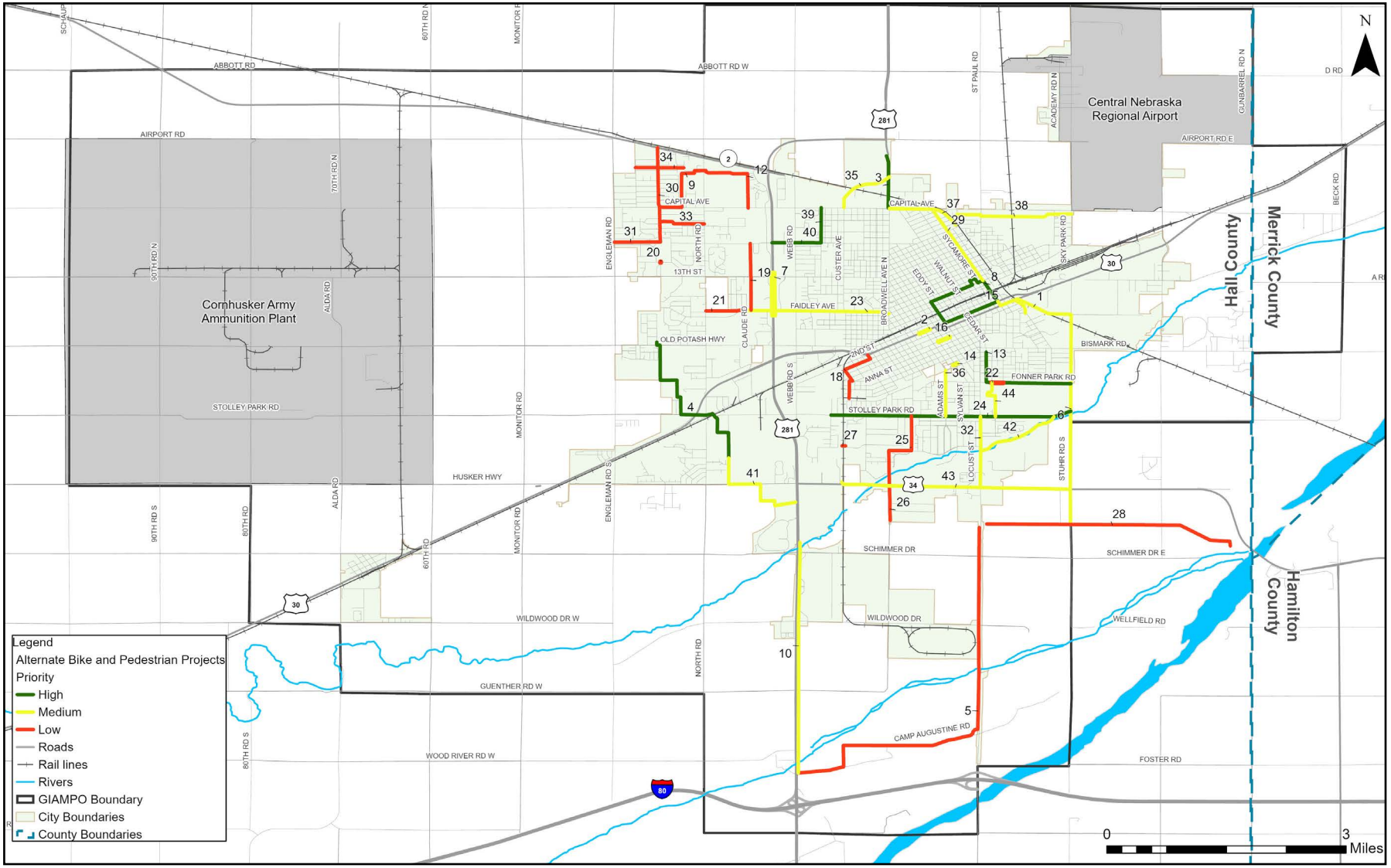


Figure 8-2: Alternate Bicycle and Pedestrian Projects Scoring Results



Chapter 9 Fiscally Constrained Plan

LRTPs are required to be fiscally constrained, meaning the MPO should demonstrate that the plan's project costs can be reasonably funded by future transportation revenues. For the GIAMPO 2045 LRTP, this was accomplished by developing future budgets based on the funding analysis documented in **Chapter 7**.

2021-2045 Fiscally Constrained Plan

The projects selected for the Fiscally Constrained Plan were chosen based on their scoring results from the alternatives development process described in **Chapter 8** as well as how their costs fit with anticipated future transportation revenue levels. Some of the high scoring projects that could not fit within the funding projections of the Fiscally Constrained Plan have been identified as High Priority Vision Projects. These projects are considered as regional priorities that will be the first projects implemented should the required funding levels become available in the future.

Fiscally Constrained projects are grouped by time band and include two costs—2020 dollars and Year-of-Expenditure (YOE) dollars. The YOE costs were projected using the mid-point year of each time band and applying a 4% annual cost inflation factor to the 2020 project cost. Additional project information shown in the table is potential funding source and potential project sponsor.

Committed Projects

GIAMPO's current TIP spans the years 2021-2025. All transportation projects programmed in this document are considered committed for the purposes of fiscal constraint. All projects in the fiscally constrained plan are considered candidates for implementation beyond the current TIP period, beginning in 2026. **Table 9-1** shows the projects included in GIAMPO's 2021-2025 TIP.

Table 9-1: Committed Roadway Projects

PROJECT NUMBER	PROJECT DESCRIPTION	COST (YOE $)
S-30-4(1046)	US-30 West, 4-lane divided roadway on new alignment	$31,966,000
NH-30-4(162)	Bridge rehabilitation on 3 bridges on US-30 in Grand Island	$5,490,000
NH-2-4(112)	Highway 2 resurfacing from Cairo to US-281 in Grand Island	$15,668,000
NH-34-4(134)	US-34 resurfacing from 2.2 miles south of Grand Island to US-281	$5,506,000
MISC-40(65)	District 4 Wetland Bank survey, design, and construction	$1,128,000
ELEC-80-6(1047)	West Grand Island Interchange build new lighting towers, install cable and control boxes	$1,045,000
HSIP-80-7(170)	Grand Island Area Bridges add High Friction Surface Treatment to bridges and horizontal curves on I-80	$1,770,000
HSIP-5409(3)	5-Points Intersection Improvements-roundabout	$3,420,000
	Capital Avenue from North Road to Moore's Creek	$2,375,000
	North Road from Old Potash Highway to US-30	$2,821,000
	Old Potash Highway Improvements, widen and extend Claude Road	$17,930,000
	Broadwell and UPPR Planning & Environmental Linkage Study	$412,000
	North Road Improvements from Highway 2 to Capital Avenue	$4,188,000
	North Road Improvements from Capital Avenue to 13th Street	$6,724,000
	North Road Improvements from 13th Street to Old Potash Highway	$6,158,000

Source: GIAMPO Transportation Improvement Program, 2021-2025

Table 9-2: Committed Transit Projects

PROJECT DESCRIPTION	COST (YOE $)
Urban Transit Operations	$3,711,000
Rural Transit Operations	$164,000
Transit Planning	$100,000
Transit Capital Acquisition	$1,608,000
Transit Development Plan	$150,000

Source: GIAMPO Transportation Improvement Program, 2021-2025

Fiscally Constrained Projects

The fiscally constrained roadway projects for 2026 through 2045 are presented in **Table 9-3**. The location and implementation time band for each fiscally constrained roadway project is shown in **Figure 9-1**. High Priority Vision roadway projects are included in this figure while **Table 9-5** summarizes them.

The fiscally constrained bicycle and pedestrian projects are presented in **Table 9-4**. The location and implementation time band for each fiscally constrained bicycle and pedestrian project is shown in **Figure 9-2.** High Priority Vision bicycle and pedestrian projects are included in this figure while **Table 9-5** summarizes them.

The next three sub-sections address the LRTP's fiscal constraint by describing the anticipated budget, projects costs, and budget balance by major funding category: HSIP, STBG-TA, and local funding.

High Priority Vision projects are transportation investments that do not fit within the current fiscally constrained budget but would be the first projects that GIAMPO and member jurisdictions would promote into the Transportation Improvement Program should additional future funding become available.

HSIP Fiscal Constraint

As outlined in **Chapter 7**, HSIP funds are not directly allocated to GIAMPO on an annual basis but are reasonably expected to be awarded in proportion to regional needs for eligible projects. Based on the project funding assumptions in **Table 9-3**, the following summarizes HSIP budgets, project costs, and balances:

- **HSIP Budget:** $10,573,000 in year-of-expenditure HSIP funds are projected for the GIAMPO area for the years 2026-2045.
- **HSIP Project Costs:** $3,488,000 in year-of-expenditure HSIP project costs for the 2026-2045 period. This specifically includes:
  - $2,488,000 in Short-term (2026-2030) HSIP project funding
  - $960,000 in Mid-term (2031-2037) HSIP project funding
- **Remaining HSIP Budget Balance:** $7,125,000 balance in HSIP funds between 2026-2045.[1]

STBG-TA Fiscal Constraint

As with HSIP funds, STBG-TA funds are not directly allocated to GIAMPO annually. The reasonably-expected funding levels were evaluated against eligible project costs. Based on the project funding assumptions in **Table 9-4**, the following summarizes STBG-TA budgets, project costs, and balances:

1 Note these are not actual remaining funds but illustrate that assumed HSIP funding contributions are below the anticipated regional HSIP funding budget.

- **STBG-TA Budget:** $4,849,700 in year-of-expenditure STBG-TA funds are projected for the GIAMPO area for the years 2026-2045.
- **STBG-TA Project Costs:** $4,837,500 in year-of-expenditure STBG-TA project funding for the 2026-2045 period. This specifically includes:
  - $952,000 in Short-term (2026-2030) STBG-TA project funding
  - $1,605,500 in Mid-term (2031-2037) STBG-TA project funding
  - $2,280,000 in Long-term (2038-2045) STBG-TA project funding
- **Remaining STBG-TA Budget Balance:** $12,200 balance in STBG-TA funds between 2026-2045.[2]

Local Fiscal Constraint

As outlined in **Chapter 7**, there are several local transportation funding sources used by the City of Grand Island. The reasonably expected local transportation funding levels were evaluated against eligible project costs. Based on the project funding assumptions in **Table 9-3** and **Table 9-4**, the following summarizes local transportation funding budgets, project costs, and balances:

- **Local Transportation Budget:** $70,111,400 in year-of-expenditure local funds are projected for the GIAMPO area, after anticipated required operations and maintenance investments, for the years 2026-2045.
- **Local Transportation Project Costs:** $60,388,500 in year-of-expenditure local transportation project costs for the 2026-2045 period. This specifically includes:
  - $21,243,000 in short term (2026-2030) local roadway project funding and $448,000 in STBG-TA local funds matching.
  - $9,880,000 in mid term (2031-2037) local roadway project funding and $742,000 in STBG-TA local funds matching.
  - $27,540,000 in long term (2038-2045) local roadway project funding and $527,500 in STBG-TA local funds matching.
- **Remaining Local Transportation Budget Balance:** $9,731,500 balance in local transportation funds between 2026-2045.

2 Note these are not actual remaining funds but illustrate that assumed STBG-TA funding contributions are below the anticipated regional STBG-TA funding budget.

Table 9--3: Fiscally Constrained Roadway Projects

TIME FRAME	PROJECT ID	PROJECT DESCRIPTION	IMPROVEMENT TYPE	COST (2020 $)	COST (YOE $)	POTENTIAL LOCAL SHARE	POTENTIAL FUNDING SOURCES	POTENTIAL SPONSOR(S)
Short-Term (2026-2030)	4	Claude Rd, Faidley to State	New Corridor	$5,950,000	$8,140,000	$8,140,000	Developer / Local	City of Grand Island
	7	Broadwell Ave at UP railroad	Grade Separation	$25,000,000	$34,210,000	$3,421,000	Local / State	City of Grand Island
	9	Locust St, Walnut to Fonner Park	Reconstruction and Intersection Improvement	$6,620,000	$9,060,000	$9,060,000	City	City of Grand Island
	10	State St west of US 281	Access Management	$750,000	$1,030,000	$206,000	HSIP / City	City of Grand Island
	11	13th St west of US 281	Access Management	$760,000	$1,040,000	$208,000	HSIP / City	City of Grand Island
	12	Faidley Ave west of US 281	Access Management	$760,000	$1,040,000	$208,000	HSIP / City	City of Grand Island
Mid-Term (2031-2037)	16a	Capital Ave, Broadwell to St Paul	Widen	$5,150,000	$8,920,000	$8,920,000	City	City of Grand Island
	22	State St, Lafayette to Broadwell	Widen	$1,400,000	$1,920,000	$960,000	HSIP / City	City of Grand Island
Long-Term (2038-2045)	2	13th St, North Ave to Independence Ave	Widen	$3,850,000	$8,950,000	$8,950,000	City	City of Grand Island
	25	Old Potash, Engelman to North	Widen	$5,000,000	$11,620,000	$11,620,000	City	City of Grand Island
	27	Stolley Park Road widening to 3 lanes between Kingswood Dr and Stuhr Rd	Widen	$3,000,000	$6,970,000	$6,970,000	City	City of Grand Island

Figure 9-1: Fiscally Constrained and High Priority Vision Roadway Projects

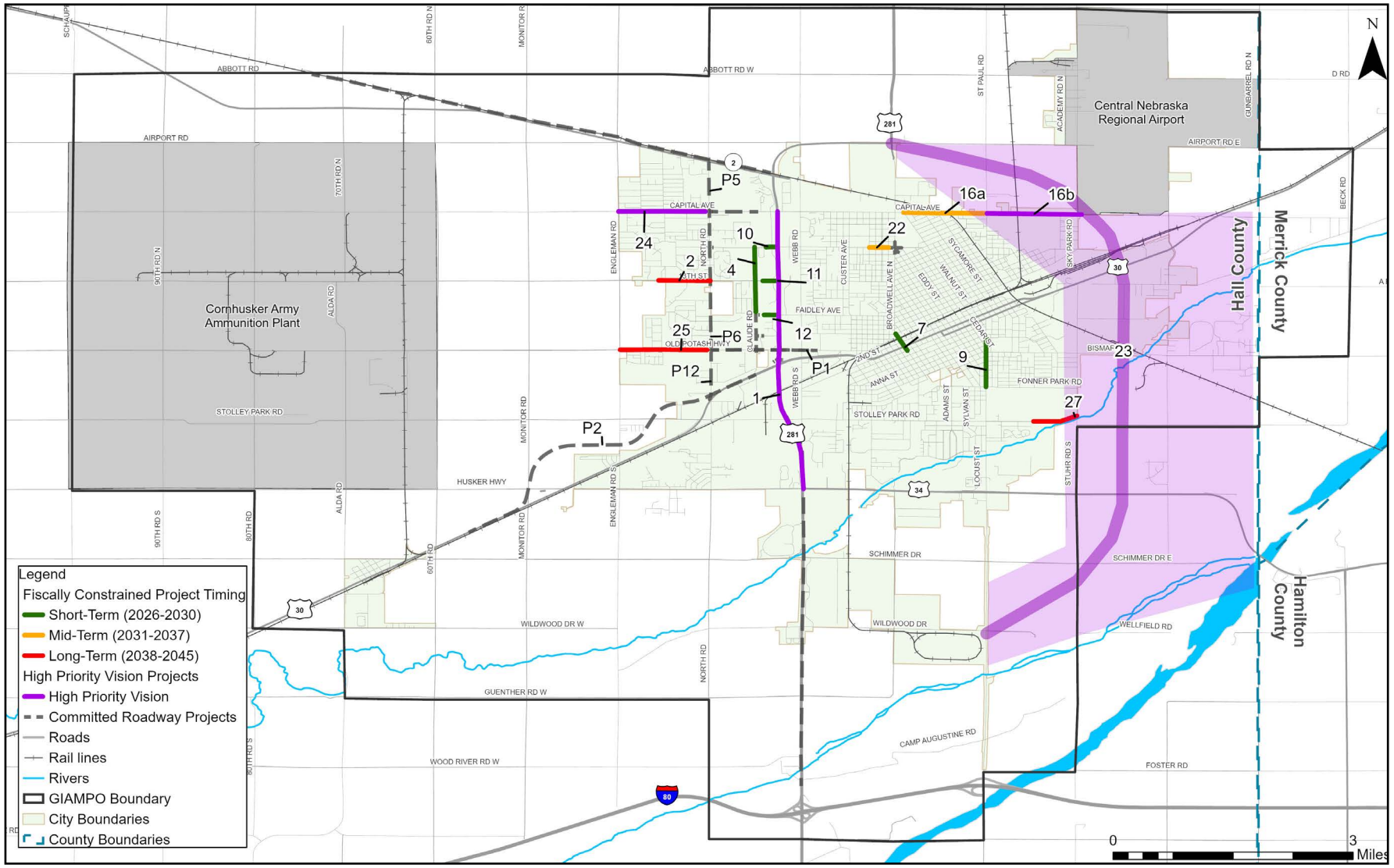


Table 9-4: Fiscally Constrained Bicycle and Pedestrian Projects

TIME FRAME	PROJECT ID	PROJECT DESCRIPTION	COST (2020 $)	COST (YOE $)	POTENTIAL FEDERAL SHARE	POTENTIAL LOCAL SHARE	POTENTIAL FUNDING SOURCES	POTENTIAL SPONSOR(S)
Short-Term (2026-2030)	3	Capital Ave Trail to Eagle Scout Park Connection	$300,000	$410,000	$278,800	$131,200	STBG-TA	City of Grand Island
	41	Trail between Cedar Hills Park and the new medical center, Stuhr Trail and Riverway Trail.	$720,000	$990,000	$673,200	$316,800	STBG-TA	City of Grand Island
Mid-Term (2031-2037)	4	Connection between Shoemaker Trail and Cedar Hills Park.	$980,000	$1,700,000	$1,105,000	$595,000	STBG-TA	City of Grand Island
	44	State Fair Boulevard / Bellwood Drive Trails	$240,000	$420,000	$273,000	$147,000	STBG-TA	City of Grand Island
	29	Oak Street Bike Boulevard	$200,000	$350,000	$227,500	$122,500	STBG-TA	City of Grand Island
Long-Term (2038-2045)	12	NW High School to State Street Trail Connection	$400,000	$930,000	$697,500	$232,500	STBG-TA	City of Grand Island
	25	Stolley Park to LE Ray Park Trail	$500,000	$1,160,000	$870,000	$290,000	STBG-TA	City of Grand Island
	32	South Locust Street Trails	$410,000	$950,000	$712,500	$237,500	STBG-TA	City of Grand Island
Trail Funded by Roadway Projects	19	Claude Avenue Trail from Faidley Ave to Capital Street						

Figure 9-2: Fiscally Constrained Bike and Ped Projects

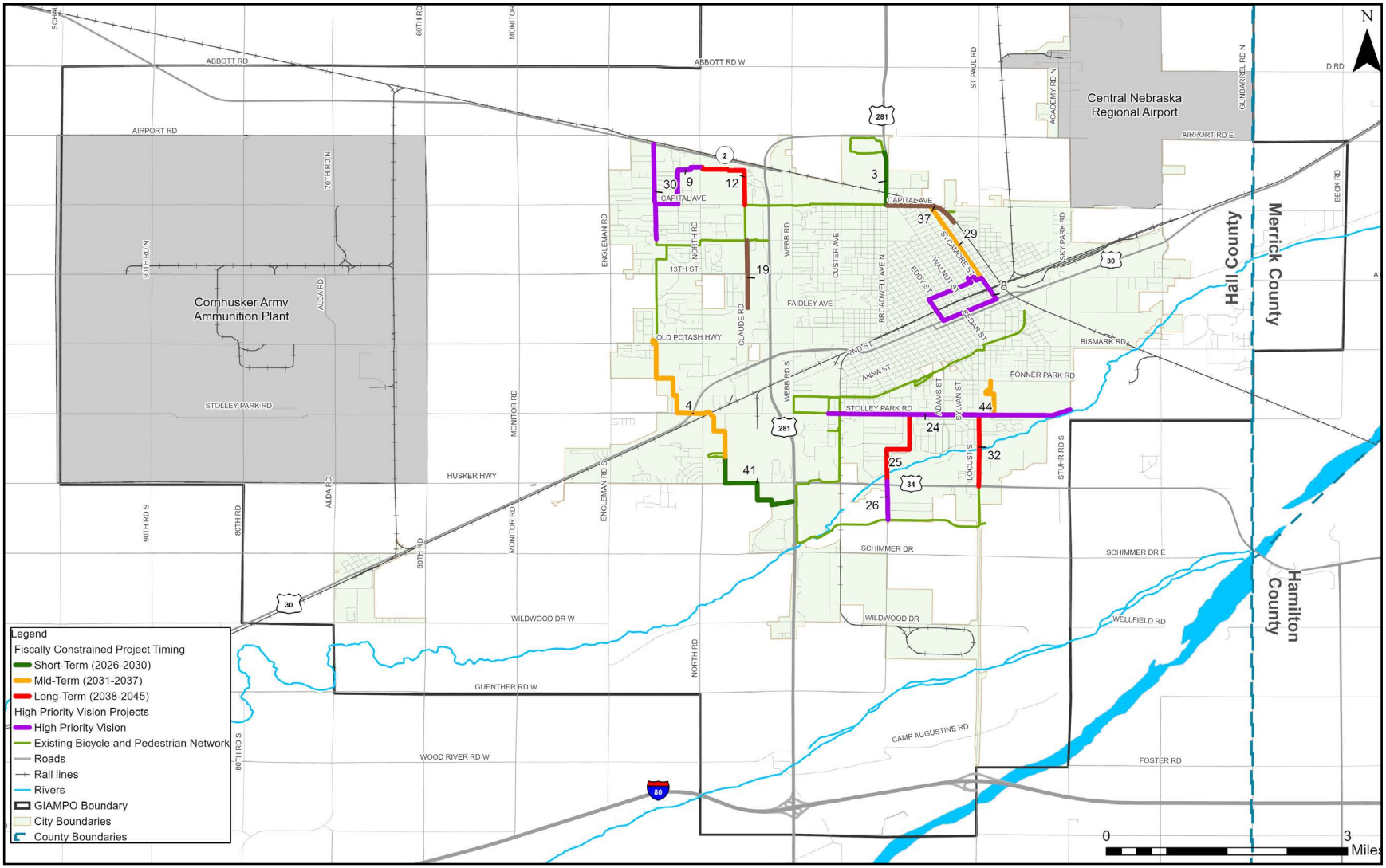


Table 9-5: High Priority Vision Projects

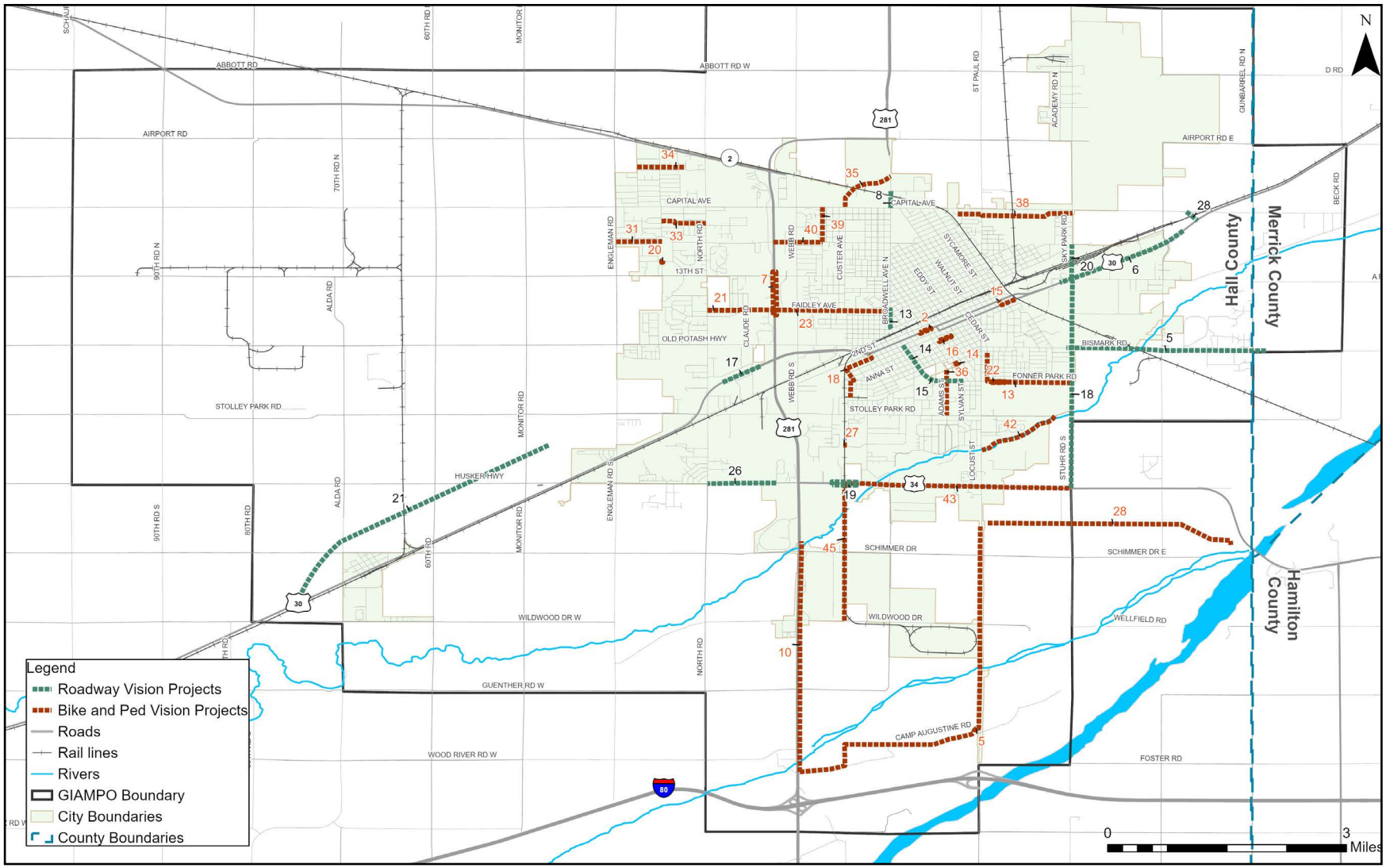
PROJECT ID	PROJECT DESCRIPTION	IMPROVEMENT TYPE	COST (2020 $)
Roadway			
1	US 281, US 34 to Capital Ave	Intersection Improvements	$11,800,000
16b	Capital Ave, St Paul to Sky Park	Reconstruct and Widen	$5,150,000
23	East Bypass	New Expressway	$60,000,000
24	Capital Ave, Engelman to North	Widen	$5,000,000
Bike and Pedestrian			
8	Downtown curb extensions with major redevelopment projects	Pedestrian Crossings	$750,000
9	Independence to Northwest High Trail	Trail	$400,000
24	Stolley Park Trail	Trail	$1,100,000
26	LE Ray to Riverway Trail Connection via Blaine Ave	Trail	$200,000
30	Independence Avenue Trails	Trail	$550,000

Roadway and Bicycle / Pedestrian Vision Plan

The Vision Plan are the remaining projects that recorded Medium and Low priority scores during the alternatives screening process and were not included in the Fiscally Constrained or High Priority Vision Plans. If sufficient future funding becomes available, these projects could be implemented; however, this would require an amendment to the LRTP.

Figure 9-3 shows the roadway and bicycle and pedestrian Vision Plan projects.

Figure 9-3: Roadway and Bicycle and Pedestrian Vision Plan



Fiscally Constrained Transit Plan

As noted in **Chapter 7** and **Table 9-2**, the CARES Act funding will allow CRANE to complete some service expansion and addressing facility needs by 2025. Future service changes are accounted for by the funding analysis included in the LRTP, but the exact nature of the future service is not yet determined. The "Transit Planning" and "Transit Development Plan" costs shown in **Table 9-2**, are anticipated to be completed by 2022 that will identify the preferred concept for future transit service and facility needs in the Grand Island area.

Future fiscally constrained transit program funding levels by time band are shown in **Table 9-6**.

Table 9-6: Fiscally Constrained Transit Projects

TIME FRAME	PROJECT DESCRIPTION	COST (2020 $)	COST (YOE $)	POTENTIAL FEDERAL SHARE	POTENTIAL LOCAL SHARE	POTENTIAL STATE SHARE	POTENTIAL FUNDING SOURCES
Short-Term (2026-2030)	Transit Operations	$4,245,000	$5,810,000	$3,312,000	$2,498,000		FTA 5307 / City of Grand Island
	Rural Transit Operations	$185,000	$253,000	$131,000	$61,000	$61,000	FTA 5311 / Hall County / NDOT
Mid-Term (2031-2037)	Transit Operations	$5,942,000	$10,290,000	$5,865,000	$4,425,000		FTA 5307 / City of Grand Island
	Rural Transit Operations	$259,000	$449,000	$233,000	$108,000	$108,000	FTA 5311 / Hall County / NDOT
Long-Term (2038-2045)	Transit Operations	$6,791,000	$15,782,000	$8,996,000	$6,786,000		FTA 5307 / City of Grand Island
	Rural Transit Operations	$296,000	$688,000	$358,000	$165,000	$165,000	FTA 5311 / Hall County / NDOT

Future Planned System Performance

The fiscally constrained projects discussed in this chapter were analyzed in the TDM along with the E+C scenario described in **Chapter 6**. The plan network scenario, also called the "existing plus committed plus planned" (E+C+P), yielded the systemwide statistics shown in **Table 9-7**. The table also contains the results of the E+C scenario for comparison.

Table 9-7: Comparison of Grand Island Area Existing and Future System Performance Statistics

	2017	2045 E+C	2045 Planned Network	2017-2045 E+C Change	2017-2045 E+C+P Change
Households	21,769	26,588	26,588	22%	22%
Employment	31,009	40,134	40,134	29%	29%
Balanced Trips	309,974	375,619	375,619	21%	21%
Daily VMT (Miles)*	1,283,168	1,603,418	1,602,947	25%	25%
Daily VHT (Hours)*	28,419	35,566	35,462	25%	25%
Average Trip Length (Miles)	4.14	4.27	4.27	3%	3%
Average Travel Speed (MPH)	45.15	45.08	45.20	<-1%	<1%

**Centroid Connectors not included*

As shown in **Table 9-7**:

- **Daily VMT** for the 2045 planned network scenario is anticipated to increase by 25% over the 2017 baseline scenario.
  - Compared to the E+C scenario, the planned network scenario reduces daily VMT by 500 miles.
- **Daily VHT** for the 2045 planned network scenario is anticipated to increase by 25% over the 2017 baseline scenario.
  - Compared to the E+C scenario, the planned network scenario reduces daily VHT by 100 hours.
- **Average Trip Length** for the 2045 planned network scenario is anticipated to increase by 3% over the 2017 baseline scenario.
  - Average Trip Length for both the 2045 E+C and 2045 planned network scenarios is 4.27 miles.
- **Average Travel Speed** for the 2045 planned network scenario is anticipated to increase by less than 1% over the 2017 baseline scenario.
  - Compared to the E+C scenario, the planned network scenario has average travel speeds that are slightly higher than the 2045 E+C scenario.

Chapter 10 Environmental Review and Mitigation

Environmental Analysis

The transportation alternatives, particularly the candidate roadway projects, in the 2045 LRTP were evaluated as a part of the alternatives assessment process to gauge how well they fit within the natural and built environment. State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation were consulted via letter during the alternatives assessment and draft plan phases of the LRTP. The letter and response received are included in **Appendix A**.

Environmental Screening / Considerations

Environmental resources that could potentially be affected by transportation projects identified in the 2045 Long Range Transportation Plan are discussed in this section. The LRTP process included the screening of environmental characteristics for each alternative. The 2045 LRTP is a regional-scale assessment, and projects included in the LRTP would require additional project development prior to implementation. As those project details are developed, more detailed environmental review would be conducted in the future phases of study.

Figure 10-1 and **Figure 10-2** show some of the environmentally sensitive natural and human-built areas in the study area. Discussion regarding the resources shown in the figures, such as historic resources and waters of the United States, are detailed below.

Figure 10-1: Physical Environmental Constraints

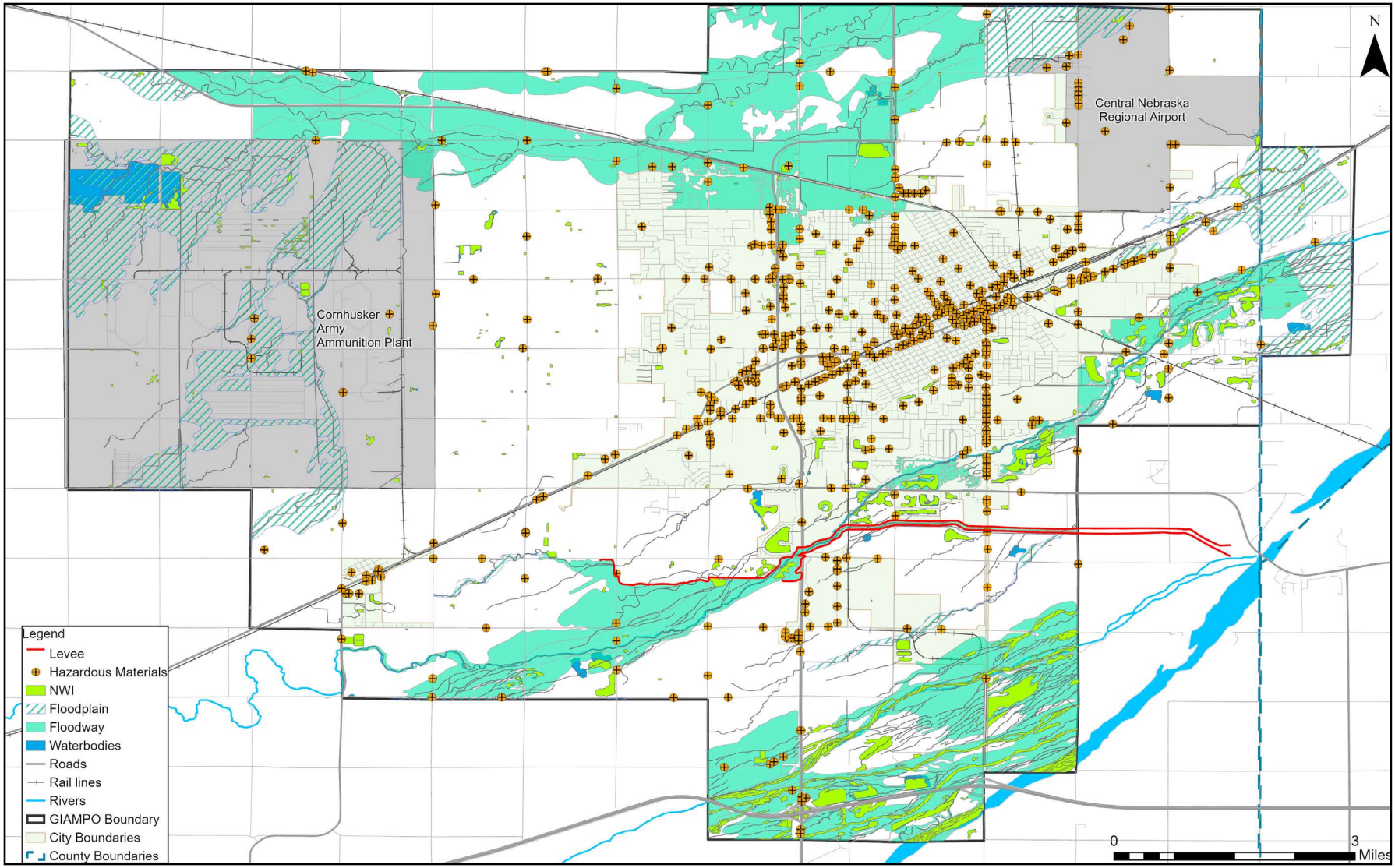
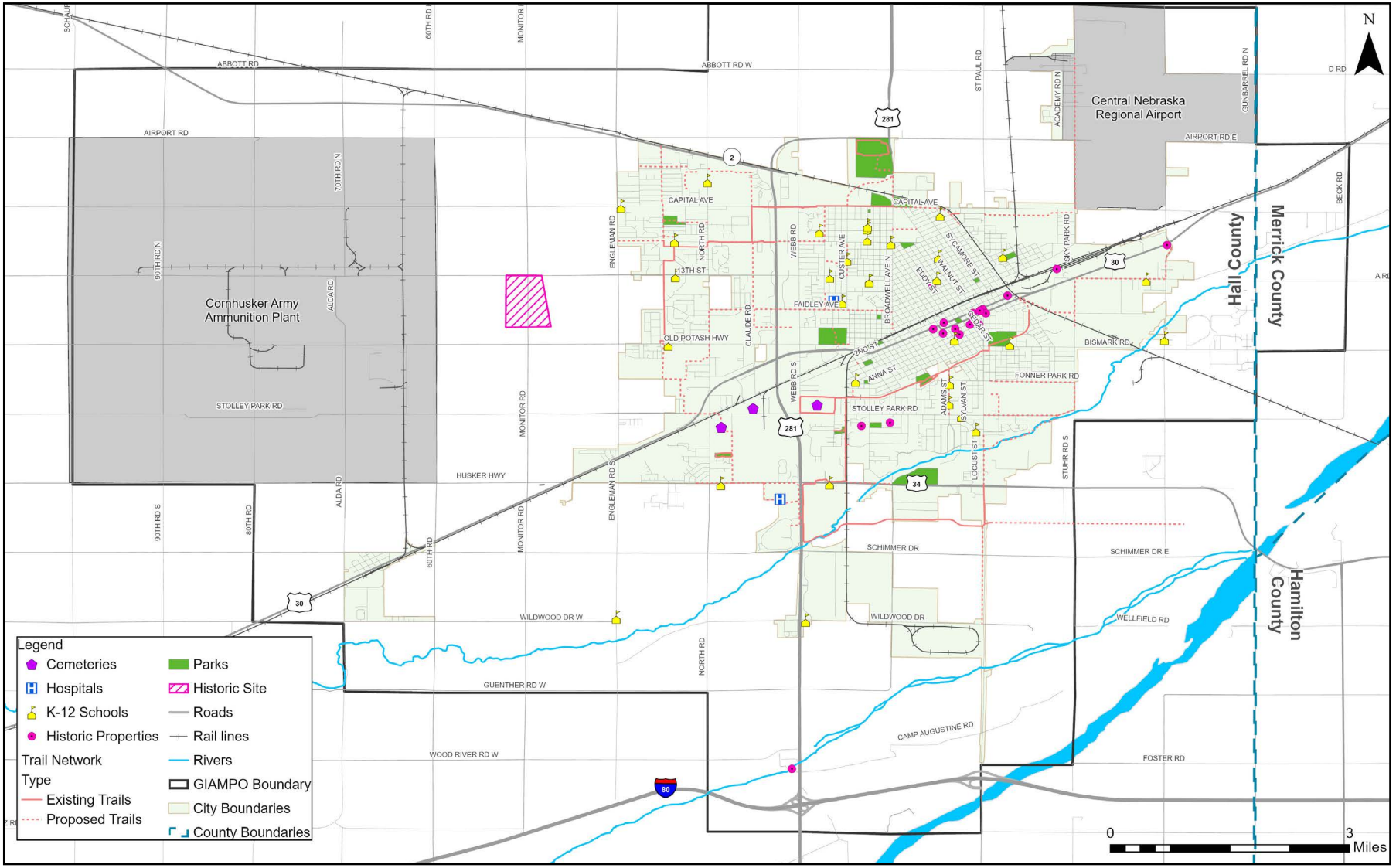


Figure 10-2: Human Environmental Constraints



Archaeological and Historical Resources

The consideration of impacts on cultural resources is subject to several federal laws, regulations and guidelines. Principal among these are the National Environmental Protection Act (NEPA) and Section 106 of the National Historic Preservation Act . Section 106 requires federal agencies (and agencies receiving federal assistance for projects) to take into account the effects of their undertakings on historic properties (any prehistoric or historic district, site, building, structure, or object listed on or eligible for listing on the National Register of Historic Places). Through the consultation process among agency officials and other parties, the effects of the undertaking on historic properties are considered, beginning with the earliest stages of project planning. The goal is to identify historic properties within the area of potential effect (APE) as early as possible in project development, evaluate the historic significance of the properties, assess the expected project impacts, and seek ways to avoid, minimize, or mitigate any adverse effects.

The National Register of Historic Places was used to identify listed historic properties within the Grand Island area. As roadway alternatives continue to evolve throughout the project development process, an APE for the project would be proposed by sponsoring agencies (NDOT and local governments). Coordination with the Nebraska State Historic Preservation Office (SHPO) would confirm the APE. Records of known historic sites would be searched to determine the presence of historic resources within the APE. The potential for unknown archaeological sites would be determined through site specific cultural resource surveys. Through consultation with Nebraska SHPO, the potential for projects to affect historic resources would be determined – No Historic Properties Affected, No Adverse Effect on Historic Properties, or an Adverse Effect on Historic Properties (when a historic resource cannot be avoided). In the event of an adverse effect on historic properties, FHWA must contact the Advisory Council to advise it of the situation, and offer an opportunity for participation in the consultation with SHPO and others to plan measures to minimize harm and, ultimately, to mitigate the adverse effects. The agency sponsoring the project would consult with SHPO and other interested parties to formulate a mitigation plan which would become the basis for a Memorandum of Agreement (MOA) drawn up and executed between FHWA, SHPO, and the DOT or local agency. Execution of the MOA completes consultation under Section 106 unless there are changes or additions to the project.

Section 4(f) and Section 6(f) Resources

The Department of Transportation Act (DOT Act) of 1966 included a provision – Section 4(f) – which is intended to protect any publicly-owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance or any land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site). U.S. Department of Transportation (USDOT) agencies, including FHWA, cannot approve any program or project which requires the use these lands unless:

- There is no feasible and prudent alternative to the use of such land, and the program or project includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use; or
- FHWA determines that the use of the property, including any measures to minimize harm (such as avoidance, minimization, mitigation, or enhancement measures), would have a de minimis impact (a determination that the project would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f) or a Section 106 finding of no adverse effect or no historic properties affected on a historic property).

There are three types of Section 4(f) impacts: direct use, temporary occupancy, and constructive use. A direct use would be the conversion

of public park land into a transportation use and may include de minimis impacts. Temporary occupancy is the temporary use of Section 4(f) land for construction operations. Constructive use is proximity impacts, such as noise, of a proposed project that is adjacent, or nearby, to a Section 4(f) property resulting in a substantial impairment to the property's activities, features, or attributes that qualify the property for protection under Section 4(f). Several roadway alternatives are located near parks and other Section 4(f)-protected properties. These alternatives would be further evaluated in the project planning phase.

Section 6(f), which was created as a part of the Land and Water Conservation Act, protects state and locally sponsored projects that were funded as part of the Land and Water Conservation Fund (LWCF). These lands cannot be converted to non-park/recreation use without the approval of the National Park Service. Conversion of these lands is allowed if it is determined that there are no practicable alternatives to the conversion and that there would be provision of replacement property. Mitigation for Section 6(f) lands impacted by a project must include replacement with land of at least the same fair market value, and reasonably equivalent usefulness and location relative to the impacted land. The potential for roadway alternatives to impact Section 6(f) lands was evaluated by determining the proximity of alternatives to public parks, recreation areas, and refuges using GIS data from the City of Grand Island and Nebraska DNR. A few alternatives may be located near Section 6(f)-protected lands; further evaluation would be needed in the project planning phase.

Veterans Memorial Park

Regulated Material Sites

Regulated materials are hazardous substances that are regulated by federal, state, or local entities based on their potential to result in environmental contamination and potentially affect public health. The purpose of an initial regulated materials review is to identify properties that are, or may be, contaminated with regulated materials along the alternatives within the corridor study area so that the presence of these properties may be factored into subsequent alternative selection and design considerations. It is preferable to avoid highly contaminated sites in order to minimize potential additional costs, liability, or schedule delays due to site remediation.

Roadway alternatives were evaluated using GIS data from the U.S. Environmental Protection Agency (EPA) to determine the proximity of any contaminated sites as defined by U.S. EPA. Several roadway alternatives are located near regulated material sites. More detailed assessments of projects moving forward in the planning process would be needed in future environmental reviews.

Wetlands and Waters of the United States

For purposes of the Clean Water Act (CWA) and its implementing regulations, the term "waters of the United States" means: all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters, including interstate wetlands; the territorial seas; all impoundments of waters otherwise identified as waters of the United States (U.S.) in the CWA; and all tributaries, as defined in the CWA. Waters of the U.S. are subject to the CWA and are under the jurisdiction of the United States Corps of Engineers (USACE) . A permit from USACE is necessary for all projects that would discharge dredged or fill material into waters of the U.S., including wetlands.

For the 2045 LRTP, the National Wetlands Inventory (NWI) and aerial photography were reviewed within the Grand Island MPO study area to determine potential project impacts on wetlands and other waters of the U.S. Several roadway alternatives would potentially affect wetlands and other waters of the U.S. Wetland delineations are recommended in the initial stages of these roadway improvement project to determine the boundaries of wetlands and other waters of the U.S. within the project area and to coordinate with USACE to determine if USACE has jurisdiction over these areas.

Floodplains and Levees

Development in floodplains is regulated by the Federal Emergency Management Agency (FEMA) and the Nebraska Department of Natural Resources. A floodplain permit from the city or county is required for most projects within a floodplain. A hydraulic review must be completed for projects within floodplains to determine the effect of the project on the water surface elevation of the 100-year flood. FEMA regulations prohibit encroachments in regulated floodways unless it is accompanied by a no-rise analysis that demonstrates the project would cause no increase in the 100-year flood level. Civil Works projects such as levees, floodwalls, dams, and reservoir are regulated by the USACE as part of Section 14 of the Rivers and Harbors Act (33 USC 408). The Wood River levees, located adjacent to Wood River throughout Grand Island, were constructed as part of a Civil Works project to protect the City of Grand Island from floods. Modification or alteration of these levees would require clearance from the USACE to help ensure that modifications would not reduce the intended benefits to the public.

Elm Street in Alda

Roadway alternatives for the 2045 LRTP were reviewed to determine the extent that they would occur within the 100-year floodplain using the latest Flood Insurance Rate Maps showing the extent of the 100-year floodplain in Hall County. Roadway alternatives were also reviewed to determine the extent that they would potentially alter the Wood River levees. Several alternatives are located adjacent to the levees and would need to be further evaluated.

Threatened and Endangered Species

Threatened and endangered species listed under the federal Endangered Species Act (ESA) would need to be considered for each project. The State of Nebraska maintains a list of state-listed threatened and endangered species, as well as species of special concern. Federally listed species are outlined below. Consultation with U.S. Fish and Wildlife Service (USFWS) and Nebraska Game and Parks would be required to determine which listed species have the potential to occur within each project area and the potential for the project to affect each species present.

- Whooping crane (Grus americana)
- Piping Plover (Charadrius melodus)
- Least tern (Sterna antillarum)
- Western prairie fringed Orchid (Platanthera praeclara)
- Northern Long-Eared Bat (Myotis septentrionalis)

Roadway alternatives were reviewed for their potential to affect protected species by assessing the potential habitat affected by each alternative. Potential habitat does exist along various alternatives. Projects moving forward in the planning process would need further review for their potential to affect species by completing habitat surveys and potential consultation with the U.S. Fish and Wildlife Service and Nebraska Game and Parks Commission.

Fiscally Constrained Plan Impact on Environmental Resources

The fiscally constrained roadway and bicycle and pedestrian projects were screened to determine which projects could potentially impact sensitive environmental resources of wetlands and floodplains. The projects were mapped for proximity to resources, with proximity defined as being located within 500 feet. This is a conservative approach to screening for potential impacts and found 74% of the fiscally constrained projects are located within proximity of an identified wetland while 47% of the projects are within proximity of an identified floodplain. **Table 10-1** lists each project and whether they are in proximity to potentially impact an identified wetland or floodplain.

Table 10-1: Fiscally Constrained Plan Potential Impacts on Wetlands and Floodplains in the GIAMPO Region

TIME FRAME	PROJECT ID	PROJECT DESCRIPTION	PROJECT TYPE	WETLANDS	FLOODPLAIN
Roadway Projects					
Short-Term (2026-2030)	4	Claude Rd, Faidley to State	New Corridor	■	
	7	Broadwell Ave at UP railroad	Grade Separation		
	9	Locust St, Walnut to Fonner Park	Reconstruction and Intersection Improvement	■	■
	10	State St west of US 281	Access Management	■	■
	11	13th St west of US 281	Access Management	■	
	12	Faidley Ave west of US 281	Access Management	■	
Mid-Term (2031-2037)	16a	Capital Ave, Broadwell to St Paul	Widen		
	22	State St, Lafayette to Broadwell	Widen		
Long-Term (2038-2045)	2	13th St, North Ave to Independence Ave	Widen		
	25	Old Potash, Engelman to North	Widen	■	
	27	Stolley Park Road widening to 3 lanes between Kingswood Dr and Stuhr Rd	Widen	■	■

Table 10-1: Fiscally Constrained Plan Potential Impacts on Wetlands and Floodplains in the GIAMPO Region (continued)

TIME FRAME	PROJECT ID	PROJECT DESCRIPTION	PROJECT TYPE	WETLANDS	FLOODPLAIN
Bicycle and Pedestrian Projects					
Short-Term (2026-2030)	3	Capital Ave Trail to Eagle Scout Park Connection	Trail		
	41	Trail between Cedar Hills Park and the new medical center, Stuhr Trail and Riverway Trail.	Trail	■	■
Mid-Term (2031-2037)	4	Connection between Shoemaker Trail and Cedar Hills Park.	Trail	■	■
	29	Oak Street Bike Boulevard	Bike Boulevard	■	■
	44	State Fair Boulevard / Bellwood Drive Trails	Trail	■	■
Long-Term (2038-2045)	12	NW High School to State Street Trail Connection	Trail	■	
	25	Stolley Park to LE Ray Park Trail	Trail	■	■
	32	South Locust Street Trails	Trail		

Environmental Justice Assessment

Executive Order 12898 requires federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations in the United States. USDOT Order 5610.2(A) and FHWA Order 6640.23A define an adverse effect as the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to:

- Bodily impairment, infirmity, illness or death;
- Air, noise, and water pollution and soil contamination;
- Destruction or disruption of human-made or natural resources;
- Destruction or diminution of aesthetic values;
- Destruction or disruption of community cohesion or a community's economic vitality;
- Destruction or disruption of the availability of public and private facilities and services;
- Vibration;
- Adverse employment effects;
- Displacement of persons, businesses, farms, or nonprofit organizations;
- Increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and
- The denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities.

In accordance with FHWA Order 6640.23A, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, minority and low-income populations were identified in the area affected by the LRTP. Projects identified as part of the 2045 Long Range Transportation Plan were analyzed to determine if they would potentially disproportionately highly and adversely affect minority and low-income populations in the Grand Island area. The City would engage all populations, including minority and low-income populations, in the LRTP public involvement process to obtain public comments during the planning process. The Grand Island MPO's Public Participation Plan is the basis for the public engagement efforts for the Long Range Transportation Plan update and provides the direction with the intent of involving all populations within the community.

NEPA documentation for the LRTP projects would analyze these populations at a more detailed level, address potential disproportionate impacts to these populations, document efforts to inform minority and low-income populations of proposed road improvement activities and engage them in the public involvement process, and document efforts to minimize and avoid environmental impacts on the environmental justice populations.

Minority Populations

FHWA defines a minority population as any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed FHWA program, policy, or activity. FHWA defines a minority as:

- **Black:** a person having origins in any of the black racial groups of Africa
- **Hispanic or Latino:** a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race

- **Asian American:** a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent
- **American Indian and Alaskan Native:** a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition
- **Native Hawaiian and Other Pacific Islander:** a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

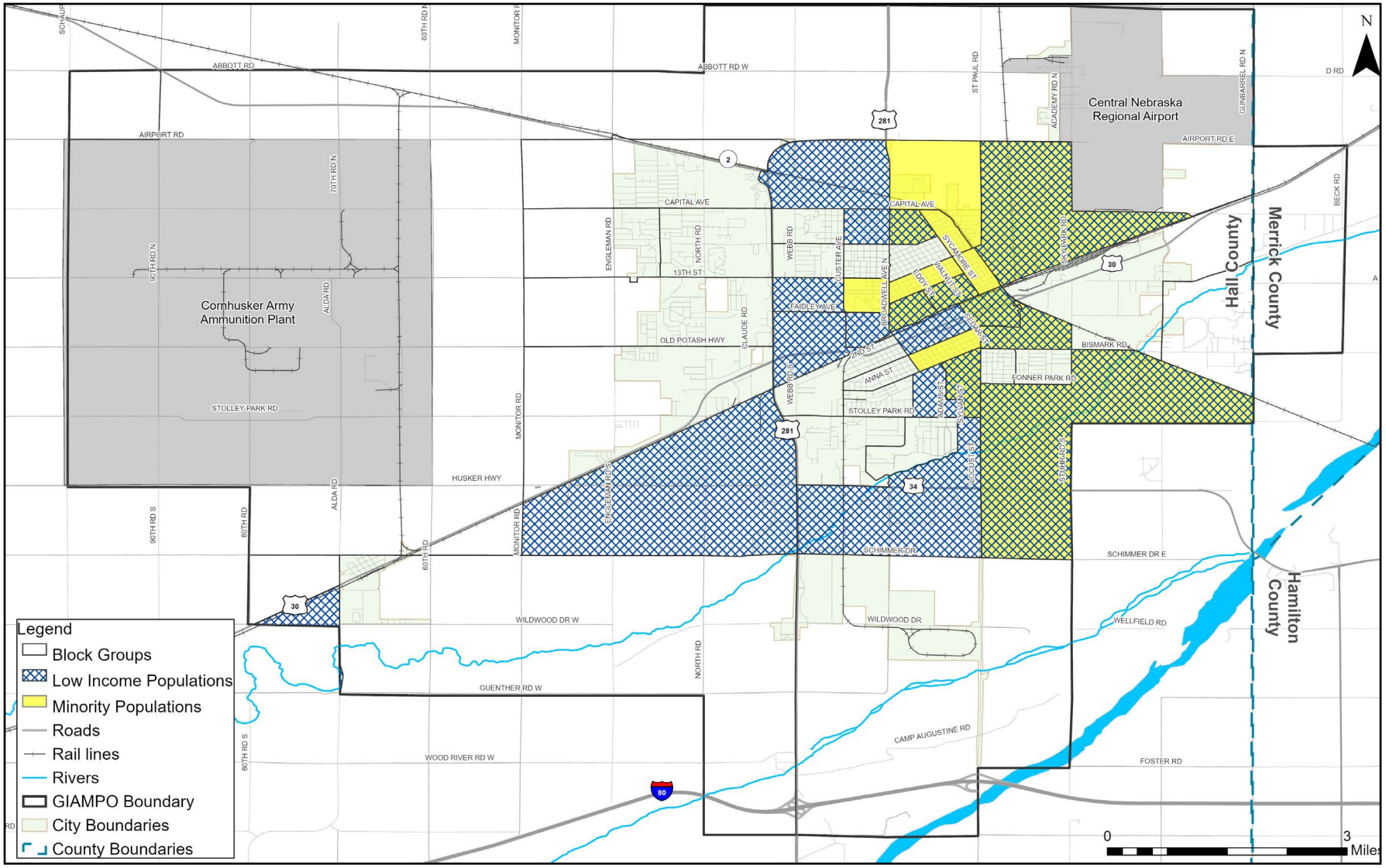
The 2045 LRTP utilized the 2014-2018 ACS to determine the number and percentage of minority populations in Grand Island Area MPO. The 2020 decennial census is currently underway and data for 2020 is not available. Per FHWA guidance, readily identifiable groups of minority persons of minority populations were identified. A group of minority persons was identified as any census block group[1] with a substantial minority population: where the percentage of minority population was at least one standard deviation (11%) higher than the mean of a typical normal data distribution curve as compared to the percentage of the minority population within the Grand Island MPO boundary. The minority population of the Grand Island MPO area is 13% of the total population; the threshold value used to determine a substantial minority population is 15% (13% multiplied by 1.17). Figure 10 3 shows the Environmental Justice populations identified.

Low-Income Populations

FHWA defines a low-income population as any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed FHWA program, policy, or activity. FHWA defines low-income as a person whose median household income is at or below the Department of Health and Human Services (DHSS) poverty guidelines. The best approximation for the number of people below the DHHS poverty guidelines in a particular area is the number of persons below the Census Bureau poverty thresholds in that area. In this analysis, 2014-2018 ACS was used to determine low-income data for the Grand Island MPO area. Similar to the minority population, a readily identifiable group of low-income population was identified as any census block group with a substantial low-income population: where the percentage of low-income population was at least one standard deviation (34%) higher than the mean of a typical normal data distribution curve as compared to the Grand Island MPO area percentage of the low-income population. The low-income population of the Grand Island MPO area is 26% of the total population; the threshold value used to determine a substantial low-income population is 35%. **Figure 10-3** shows the Environmental Justice populations identified.

1 Block Groups (BGs) are statistical divisions of census tracts and are generally defined to contain between 600 and 3,000 people. A block group consists of clusters of blocks within the same census tract that have the same first digit of their four-digit census block number

Figure 10-3: Preliminary Identified Environmental Justice Populations



Fiscally Constrained Plan Impact on Environmental Justice Populations

Projects included in the Fiscally Constrained Plan (documented in **Chapter 9**) were evaluated for their proximity to the identified environmental justice populations shown in **Figure 10-3**. This evaluation provides an assessment the proportion of roadway and bicycle and pedestrian projects that could potentially benefit or impact EJ populations. The analysis used in this process considers a project to have potential benefits or impacts on EJ populations if that project is within a quarter mile of a low-income and/or minority population group. For the purpose of this analysis, project benefits and impacts are defined as:

- **Benefits:** Projects assumed to provide benefits are those that improve mobility and accessibility in EJ neighborhoods through the construction of new trails, pedestrian facilities, and roadway rehabilitation and system management projects with limited impacts to adjacent residents.
- **Impacts:** Projects assumed to have impacts are those with the potential for negative outcomes for adjacent EJ populations. The construction of new roadways and roadway widenings are examples of projects that could impact adjacent residents through increased travel speeds and neighborhood noise, property acquisitions, and discourage bicycle and pedestrian activity and/or degrade environmental resources.
- **Mixed:** Some projects have the potential for significant impacts and benefits to the surrounding community and were placed in the mixed category. The specific example of this mixed project type is railroad grade separation. This type of improvement provides the neighborhood with improved access reliability and emergency response times without train interruptions, but also has the potential for some property impacts.

Proportion of Regional Households Located in EJ Areas

This analysis compares the distribution of planned projects for both EJ and non-EJ populations. The EJ populations were defined based on the number of regional households located within a transportation analysis zone (TAZ) located within identified EJ areas. This analysis has identified 10,823 households within EJ areas, or 49.7% of the total 21,768 households in the region. This does not mean that 49.7% of the regional households contain EJ populations but means that they are within the areas designated as containing EJ populations.

Accessibility of Fiscally Constrained Projects to Environmental Justice Areas

There are 11 roadway projects and 8 bicycle and pedestrian projects in the Fiscally Constrained Plan. The resulting proximity analysis shows:

- 64% of fiscally constrained roadway projects (7 of 11) are accessible, or within a quarter mile of an identified EJ area.
- 100% of fiscally constrained bicycle and pedestrian projects (8 of 8) are accessible, or within a quarter mile of an identified EJ area.

Potential Benefits and Impacts of Fiscally Constrained Projects on Environmental Justice Areas

The summary of potential project benefits and impacts in relationship to EJ accessibility is shown in **Table 10-2.**

Table 10-2: Benefits and Impacts of Fiscally Constrained Projects on EJ Populations

Project Category	EJ Accessible Projects		Total Projects (EJ and Non-EJ)	
	Number	Percentage	Number	Percentage
Bicycle and Pedestrian Projects with Potential Benefits	8	100%	8	100%
Roadway Projects with Potential Benefits	3	75%	4	100%
Roadway Projects with Potential Impacts	3	50%	6	100%
Roadway Projects - Mixed Benefits and Impacts	1	100%	1	100%

The following bullets summarize the relationship between EJ populations and planned project impacts and benefits:

- **Bicycle and Pedestrian Projects with Potential Benefits:** All eight, or 100% of bicycle and pedestrian projects included in the fiscally constrained plan were accessible to EJ populations. This is significantly higher than the 49.7% of the population located within EJ areas.
- **Roadway Projects with Potential Benefits:** Three of the four, or 75% of roadway projects with potential benefits included in the fiscally constrained plan were accessible to EJ populations. This is significantly higher than the 49.7% of the population located within EJ areas.
- **Roadway Projects with Potential Impacts:** Three of the six, or 50% of roadway projects with potential impacts included in the fiscally constrained plan were adjacent to EJ populations. This is approximately equivalent with the 49.7% of the population located within EJ areas.
- **Roadway Projects with Mixed Potential Benefits and Impacts:** The one project (100%) with a mix of potential benefits and impacts was adjacent to EJ populations. While only one project, this percentage is significantly higher than the 49.7% of the population located within EJ areas.

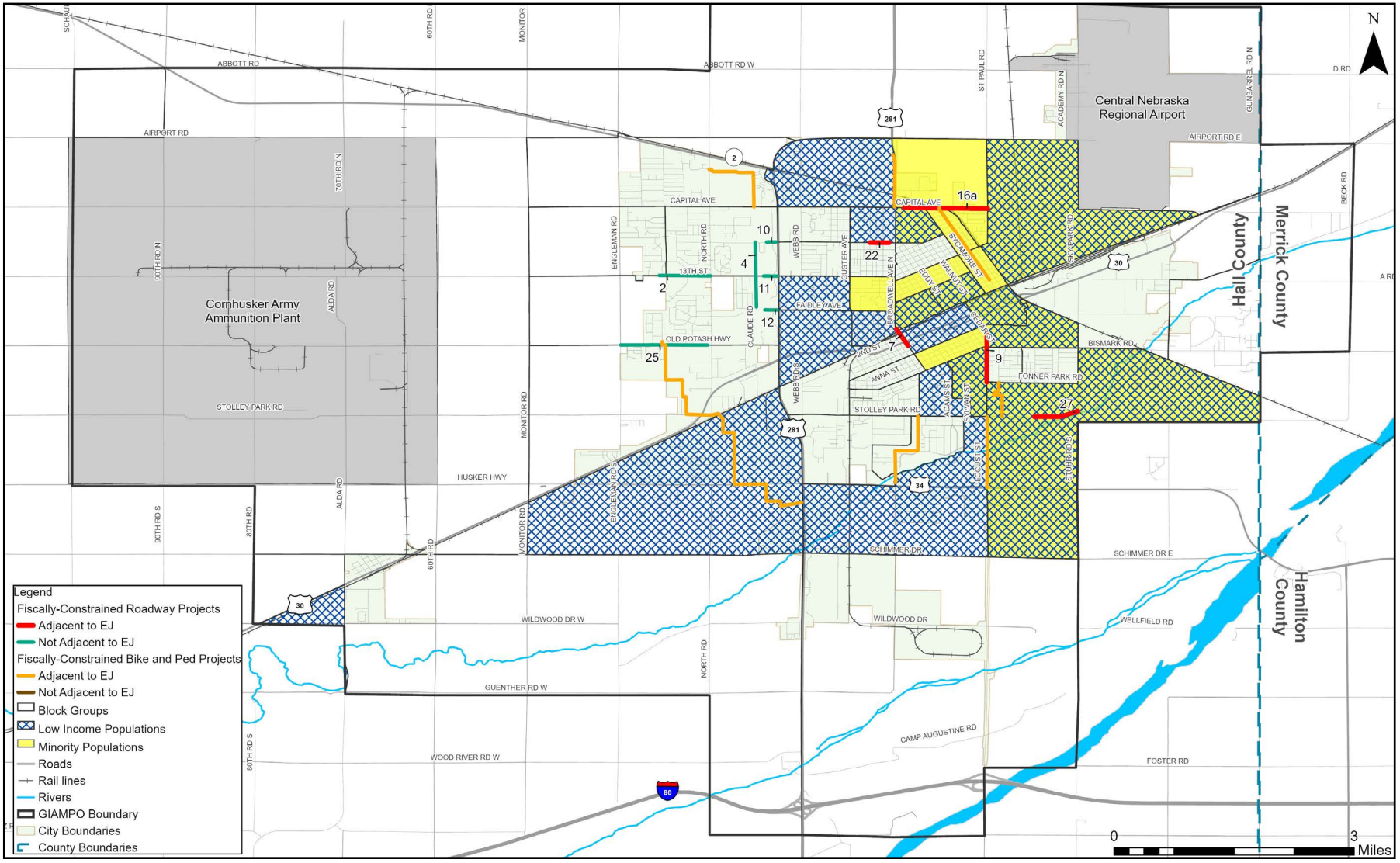
Figure 10-4 shows fiscally constrained roadway and bicycle and pedestrian projects, and their adjacency to EJ populations in the GIAMPO region.

More EJ Project benefits than regional average

Similar EJ Project impacts as regional average

More EJ projects with mixed benefits and impacts than regional average

Figure 10-4: Fiscally Constrained Roadway and Bike and Ped Project Proximity to EJ Populations



The Role of Transit in Environmental Justice

Transit can play a key role in providing benefits to Environmental Justice populations. Transit services provide a key linkage between low income and minority communities to jobs and services, particularly for households with limited automobile availability. Thus, transit services need to be tailored with low-income and mobility-challenged households in mind. CRANE and GIAMPO are committed to effective transit service for environmental justice populations, and in 2019 included an environmental justice analysis as a part of local planning for future service and facility needs.

Chapter 9 outlined the fiscally constrained transit plan, and how potential future service expansions will be developed through more detailed transit planning studies in the next two years. One of the factors that will go into any future transit service changes in Grand Island is how those service changes can be equitable and provide transit access to low-income neighborhoods and communities of color.

Chapter 11 FAST Act Compliance

Metropolitan long-range transportation plans must be performance-driven and outcome-based. The GIAMPO 2045 LRTP addresses these Federal requirements with a performance-driven approach that combines Federal, state, and local goals, objectives, planning factors, and performance measures. **Table 4-2** previously showed how the goals and objectives fit with the national planning factors. This chapter demonstrates how the LRTP is compliant with the Federal performance requirements contained in the FAST Act.

Below is a summary of how each GIAMPO 2045 LRTP goal area ties into the Federal metropolitan planning factors, Federal performance measures, and LRTP project scoring metrics outlined in Chapter 4. In this section, each of the Federal performance measures are listed, and how they line up with the three major performance measure categories:

- Safety Performance (PM 1)
- Pavement and Bridge Condition Performance (PM 2)
- NHS System Performance/Freight on Interstates/CMAQ Performance (PM 3)

SYSTEM SAFETY	
Objectives	Reduce the incidence and rate of crashes
	Reduce severe injury and fatal crashes
	Reduce bicycle and pedestrian crashes
Federal Performance Measures	Fatal and Serious Crash Rates (PM 1)
	Nonmotorized Fatal and Serious Crash Rates (PM 1)
Project Scoring Metrics	Vehicular Safety Assessment
	Non-motorized Safety Assessment
National Planning Factors	Safety
	Security

MULTIMODAL CONNECTIVITY AND ACCESSIBILITY	
Objectives	Provide improved connections to key destinations across the community
	Reduce regional freight impediments
	Increase the connectivity of the bicycle and pedestrian system
	Continue to provide quality public transit services.
Federal Performance Measures	Freight Reliability (PM 3)
Project Scoring Metrics	Connection to Dense Development Nodes
	Multimodal Connectivity
	Transit Operations and State of Good Repair
National Planning Factors	Economic Vitality
	Accessibility and Mobility for People and Freight
	Environment and Energy Conservation, Quality of Life, and Economic Development
	System Integration and Connectivity for People and Freight
	Efficient Operations and Management
	System Resiliency and Reliability; Reduce or Mitigate Stormwater Impacts

ECONOMIC VITALITY	
Objectives	Identify transportation strategies that support economic development projects
	Identify transportation strategies that provide enhanced access to jobs for low income residents
	Provide active transportation options that promote the health and well-being of residents
	Provide access to tourist destinations
	Identify how transportation can support affordable housing
	Promote freight connectivity and access
Federal Performance Measures	No Direct Federal Performance Measures
Project Scoring Metrics	Identify transportation strategies that support economic development projects
	Identify transportation strategies that provide enhanced access to jobs for low income residents
	Provide active transportation options that promote the health and well-being of residents
	Provide access to tourist destinations
	Identify how transportation can support affordable housing
	Promote freight connectivity and access
National Planning Factors	Economic Vitality
	Accessibility and Mobility for People and Freight
	Environment and Energy Conservation, Quality of Life, and Economic Development
	System Integration and Connectivity for People and Freight
	Enhance Travel and Tourism

SYSTEM PRESERVATION	
Objectives	Identify sufficient financial resources to maintain all Federal-Aid streets and bridges in fair or good condition
Federal Performance Measures	Pavement and Bridge Condition (PM 2)
Project Scoring Metrics	Project Enhances Pavement or Bridge Condition
National Planning Factors	Economic Vitality
	Efficient Operation and Management
	Preserve the Existing Transportation System

ENVIRONMENT AND SYSTEM RESILIENCY	
Objectives	Promotes energy conservation, especially for non-renewable energy sources
	Transportation projects should limit impacts to the natural and build environment
	Invest in alternative and renewable fuel infrastructure when practical
	Identify strategies to make transportation infrastructure more resilient to natural and manmade events
Federal Performance Measures	No Direct Federal Performance Measures
Project Scoring Metrics	Vehicular Travel Reduction
	Project Impact Screening
	Infrastructure Resiliency
National Planning Factors	Security
	Environment and Energy Conservation, Quality of Life, and Economic Development
	System Resiliency and Reliability; Reduce or Mitigate Stormwater Impacts

TRAFFIC OPERATIONS AND SYSTEM RELIABILITY	
Objectives	Limit the emergence of recurring congestion
	Improve travel reliability on arterial roadways
	Support high levels of freight reliability on the state highway system
	Promote development outside of flood prone areas
Federal Performance Measures	Passenger Reliability (PM 3)
	Freight Reliability (PM 3)
Project Scoring Metrics	Corridor Level of Service
	Corridor Reliability LOTTR
	Freight Reliability TTTR
National Planning Factors	Economic Vitality
	Accessibility and Mobility for People and Freight
	Efficient Operation and Management
	System Resiliency and Reliability; Reduce or Mitigate Stormwater Impacts

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PLANNING ORGANIZATION