Grand Forks – East Grand Forks

Long Range Transportation Plan Update

Street and Highway Element

Plan Document

January 2008

Grand Forks - East Grand Forks
Metropolitan Planning Organization

URS

Placeholder Page for MPO Resolution Adopting Street and Highway Plan

GRAND FORKS – EAST GRAND FORKS LONG RANGE TRANSPORTATION PLAN

STREET AND HIGHWAY ELEMENT

Adopted
November 2007

Prepared for:

Grand Forks - East Grand Forks
Metropolitan Planning Organization

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URS TRANSPORTATION

Street and Highway Acronyms

ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
ATAC	Advanced Traffic Analysis Center (at North Dakota State University)
BNSF	Burlington Northern Santa Fe Railway
CAA	Clean Air Act
CBD	Central Business District
CMAQ	Congestion Mitigation Air Quality Improvement Program
CPI	Consumer Price Index
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
HBW	Home-based Work Trips
HCM	Highway Capacity Manual
HOV	High-Occupancy Vehicle
HSIP	Highway Safety Improvement Program
IM	Interstate Maintenance Program
ITS	Intelligent Transportation System
LWCF	Land and Water Conservation Fund
LOS	Level of Service
MEV	Million Entering Vehicles
Mn/DOT	Minnesota Department of Transportation
MOE	Measure of Effectiveness
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
NHS	National Highway System
NDDOT	North Dakota Department of Transportation
O-D	Origin-Destination
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHSP	Strategic Highway Safety Plans (SHSP)
SOV	Single-Occupant Vehicles

SRTS	Safe Routes to School
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
TAC	MPO Technical Advisory Committee
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TE	Transportation Enhancement Program
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TSM	Transportation System Management
V/C	Volume-to-Capacity Ratio
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles of Travel
VPD	Vehicles per Day
UND	University of North Dakota

STREET AND HIGHWAY GLOSSARY

Americans With Disabilities Act (ADA) - Federal civil rights legislation for disabled persons passed in 1990; calls on public transit systems to make their services more fully accessible as well as to underwrite a parallel network of paratransit service.

Arterial Street – A major thoroughfare used primarily for through traffic rather than for access to adjacent land, that is characterized by high vehicular capacity and continuity of movement.

Average Daily Traffic (ADT) – The total amount of traffic observed, counted or estimated during a 24-hour period.

Capacity – The maximum sustainable vehicle flow rate that can be expected to traverse a roadway segment / intersection during a specific time period given roadway, geometric, traffic, environmental, and control conditions. Capacity is usually expressed in vehicles per day (vpd) or vehicles per hour (vph).

Clean Air Act (CAA), aka FCAA – Federal legislation that sets national air quality standards; requires each state with areas that have not met Federal air quality standards to prepare a State Implementation Plan (SIP). The sweeping 1990 amendments to the CAA, sometimes referred to as CAAA, established new air quality requirements for the development of metropolitan transportation plans and programs.

Clean Air Act Amendments of 1990 (CAAA) – The comprehensive Federal legislation that establishes criteria for attaining and maintaining the Federal standards for allowable concentrations and exposure limits for various air pollutants; the act also provides emission standards for specific vehicles and fuels.

Conformity – The ongoing process that ensures the planning for highway and transit systems, as a whole and over the long term, is consistent with the state air quality plans for attaining and maintaining health-based air quality standards; conformity is determined by metropolitan planning organizations (MPOs) and the U.S. Department of Transportation (U.S. DOT), and is based on whether transportation plans and programs meet the provisions of a State Implementation Plan.

Congestion Mitigation and Air Quality Program (CMAQ) – A transportation funding source contained in SAFETEA-LU for projects and activities that reduce congestion and improve air quality in regions not yet attaining Federal air quality standards.

Delay – The amount of time spent not moving due to a traffic signal being red, or being unable to pass through an unsignalized intersection.

FCAA - Federal Clean Air Act See CAA.

FHWA - Federal Highway Administration (See U.S. DOT).

Fixed Cost - An indirect cost that remains relatively constant, regardless of the level of operational activity.

FTA – Federal Transit Administration See U.S.DOT.

Highway Trust Fund – The Federal trust fund established by the Highway Revenue Act of 1956; this fund has two accounts -- the Highway Account and the Mass Transit Account. Trust fund revenues are derived from Federal highway-user taxes and fees such as motor fuel taxes; trust fund uses and expenditures are determined by law.

Intermodal – Those issues or activities that involve or affect more than one mode of transportation, including transportation connections, choices, cooperation and coordination of various modes. Also known as "multimodal."

ISTEA - the Intermodal Surface Transportation Efficiency Act, passed into law in 1991. ISTEA authorized the Federal surface transportation highway and transit programs for 1991-1997.

Level of Service (LOS) – A qualitative measure of intersection or road segment operating condition. A grading scale of A through F is used to characterize traffic operating conditions. The scale is based on the ability of an intersection or street segment to accommodate the amount of traffic using it, and can be used for both existing and projected conditions. The scale ranges from "A" which indicates little, if any, vehicle delay, to "F" which indicates significant vehicle delay and traffic congestion.

Metropolitan Planning Organization (MPO) – A Federally required transportation planning body responsible for the regional transportation program and the transportation improvement plan (TIP) in its region; the governor designates an MPO in every urbanized area with a population of over 50,000.

Multimodal – The concept of incorporating private passenger vehicles, transit, and non-motorized (bicycles and pedestrians) transportation features into the planning process.

NEPA – National Environmental Policy Act of 1969.

National Highway System (NHS) – An approximately 155,000-mile network designated (partially) in ISTEA to provide an interconnected system of principal routes to serve major travel destinations and population centers. The NHS picks up where the Interstate Highway System left off.

Obligation – A Federal budgetary term that refers to a binding agreement that will result in an outlay; an agreement by the Federal government to pay for goods or services immediately or at some future time when the goods or services are delivered. Also known as a "commitment".

Peak Hour – The hour of greatest traffic flow at an intersection or on a road segment during a day. Typically, it is broken down into AM and PM peak hours.

Reverse Commuting – Movement in a direction opposite the main flow of traffic, such as from the central city to a suburb during the morning peak period.

Ridesharing – A form of transportation, other than public transit, in which more than one person shares the use of the vehicle, such as a van or car, to make a trip. Also known as "carpooling" or "vanpooling."

SAFETEA-LU – The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, signed on August 10, 2005. SAFETEA-LU authorizes the Federal surface transportation highway and transit programs for 2005-2009.

Single-Occupant Vehicle (SOV) – A vehicle with one occupant, the driver, who is sometimes referred to as a "drive alone."

Surface Transportation Program (STP) – STP monies are "flexible," meaning they can be spent on mass transit, pedestrian and bicycle facilities as well as on roads and highways.

Superelevation – The roadway grade from a cross-section view (i.e., tilt of the roadway), used to assist in counteracting the centripetal forces of a vehicle traveling through a roadway curve.

TEA-21 - The Transportation Equity Act for the 21st Century, enacted in 1998. TEA-21 authorized the Federal surface transportation highway and transit programs for 1998-2003

Transportation Control Measure (TCM) – A strategy to reduce driving or smooth traffic flows in order to cut auto emissions and resulting air pollution. Examples of TCMs include roving tow truck patrols to clear stalls and accidents from congested roadways, new or increased transit service, or a program to promote carpools and vanpools.

Transportation Demand Management (TDM) – Low-cost programs developed to reduce the levels or patterns of transportation demand in order to use the transportation system more efficiently, such as programs to promote telecommuting, flextime and ridesharing.

Transportation Enhancement Program (TE) – A transportation funding source in SAFETEA-LU used on projects / programs to strengthen the cultural, aesthetic, and environmental aspects of the Nation's intermodal transportation system.

Transportation Improvement Program (TIP) – This is primarily a spending plan for Federal funding expected to flow to the region from all sources for transportation projects of all types.

Transportation Management Area (TMA) – Urban areas with a population over 200,000 are given this a Federal designation for metropolitan planning purposes. TMAs have additional requirements and responsibilities placed upon them beyond smaller MPOs.

Transportation System Management (TSM) – Projects designed to increase the efficiency of the existing transportation system through minor, localized improvements such as focused intersection and signalization improvements.

Travel Speed - The speed at which a vehicle travels between two points including all intersection delays.

United States Department of Transportation (U.S. DOT) – The Federal cabinet-level agency with responsibility for highways, mass transit, aviation and ports; headed by the secretary of transportation. The DOT includes the Federal Highway Administration and the Federal Transit Administration, among others.

Vehicle Miles Traveled (VMT) – This term helps pin down the numbers. Reducing VMT can help ease traffic congestion and improve air quality.

Volume to Capacity (V/C) Ratio – The resultant of dividing the counted / estimated traffic volume in a corridor by the estimated corridor / intersection capacity for a similar increment of time.

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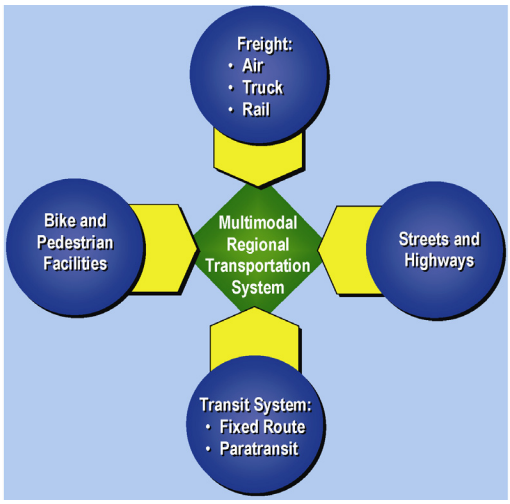
INTRODUCTION

OVERVIEW

The purpose of the **Grand Forks – East Grand Forks Transportation Plan** is to identify the region's existing and future multimodal transportation needs and provide a list of projects that support the system needs for the next 25+ years. The transportation planning process is a collaborative effort between the Grand Forks, East Grand Forks, Polk County, Grand Forks County, North Dakota Department of Transportation (NDDOT), Minnesota Department of Transportation (Mn/DOT), the Cities Transit, the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and the citizens and businesses. Through this process a set of actions and strategies has been developed that will guide the Grand Forks - East Grand Forks area to a desired outcome, as defined by locally identified issues, goals, objectives and benchmarks. The Grand Forks - East Grand Forks Transportation Plan will address the study area displayed in Figure 1.

This Plan update focuses on the street and highway element of the multimodal transportation system and reflects changes in the metropolitan area since the last plan was completed in 2003. The MPO has also developed a separate the Alternate Mode Transportation Plan, which addresses the current and future issues and needs for the metropolitan area's transit and pedestrian/ bicycle systems for the metropolitan area. While separate documents, they are integrated elements that constitute a unified transportation planning program for Grand Forks/East Grand Forks. The Alternate Mode Transportation Plan will be updated next year (2008).



SAFETEA-LU COMPLIANCE

The Street and Highway Plan update also addresses new planning requirements associated with passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), signed into law in 2005. SAFETEA-LU authorizes the Federal surface transportation programs for highways maintenance and operations, highway safety, transit, non-motorized facilities for the 5-year period from 2005 to 2009. It is the goal of the MPO to ensure that Grand Fork–East Grand Forks area transportation planning process is consistent with the Federal requirements. As such, the following changes to the planning process have been implemented or an action plan to address a gap between the SAFETEA-LU requirements and current practices has been prepared:

- Enhanced Focus on Security and Safety: Previous Federal transportation planning requirements addressed system security and safety in a combined effort. The current SAFETEA-LU legislation, while acknowledging the need

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Grand Forks-East Grand Forks MPO Study Area

Study Area

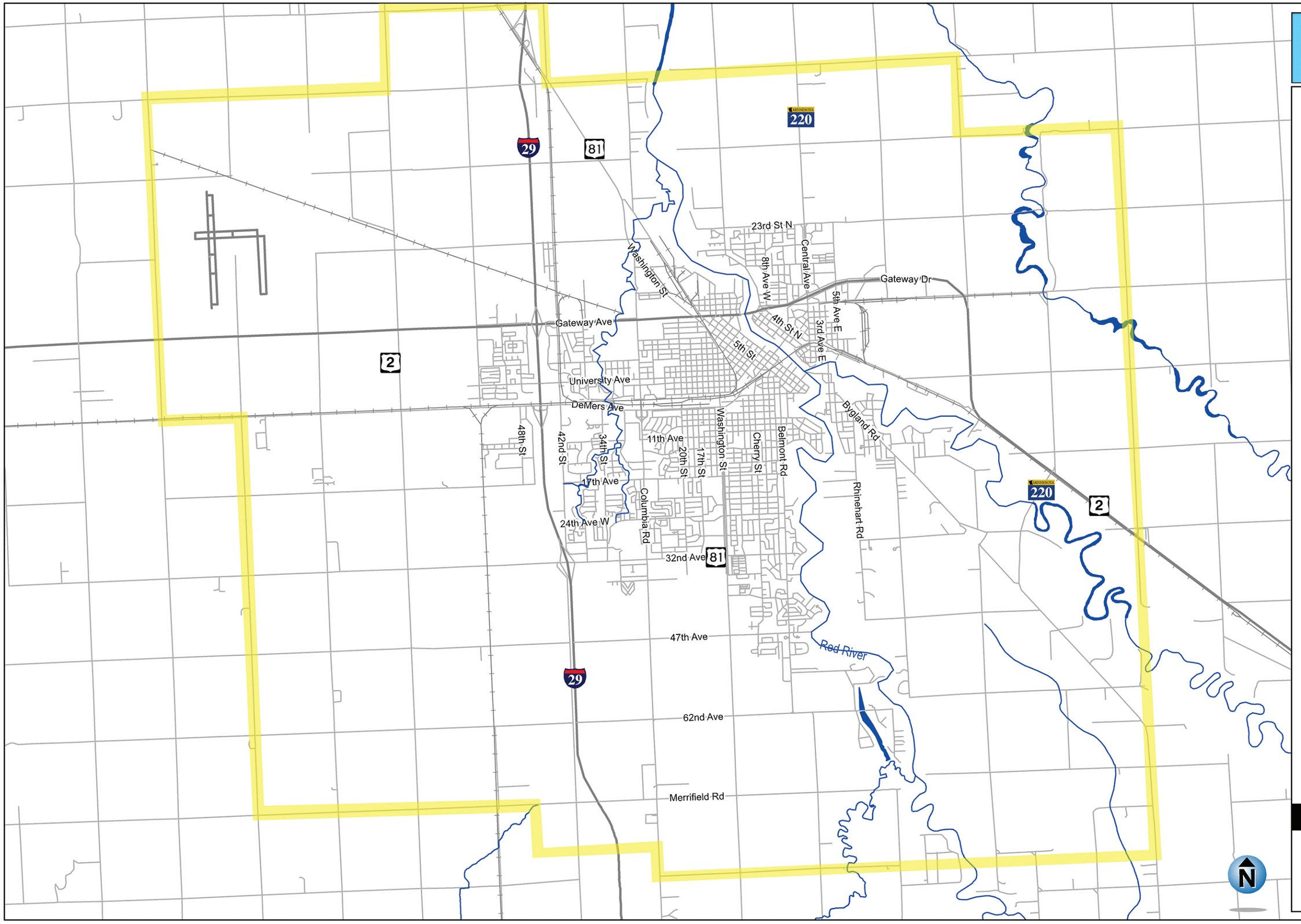

Figure 1

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to coordinate safety and security activities/actions, takes the approach that each of these areas are so integral to providing for the welfare of the users that each warrants individual attention.

- Project Cost in the Anticipated Year of Expenditure: Previous plans updates have included proposed improvement cost estimates in dollars reflective of the current in which the update was being done. To be in compliance with SAFETEA-LU, this update includes an estimate of the future year/period in which recommended improvements would be implemented and the estimated project cost representative of that year/period.
- Agency Coordination: In many regions long range plans have been developed through a process that does not directly involve many of the Federal and state agencies that have responsibility for approving various aspects of individual projects prior to their construction. The Grand Forks – East Grand Forks MPO has long embraced involvement by a wide range of agencies and jurisdictions that may not have direct approval responsibility for the LRTP, but would have approval responsibility at some point in the future for individual projects.
- Environmental Impacts and Mitigation: The analysis methodology employed in screening the universe of reasonable alternatives to the recommended improvements incorporated an assessment of the level of impacts to the adjacent natural and social environment. Thus, the overall selection of an improvement for an identified issue was not simply the concept that would best accommodate the level of traffic. How accommodating the traffic affects the adjacent current and/or future parcel activities was also incorporated into the improvement determination.

Additional detail on how each of these substantial changes in the planning efforts is provided in the SAFETEA-LU Compliance section of this document.

THE LONG RANGE PLAN PREPARATION PROCESS

The street and highway element update has been led by the Grand Forks – East Grand Forks Metropolitan Planning Organization (MPO). The MPO is responsible for multi-modal transportation planning in the region, including automobile, truck, pedestrian, bicycle and bus transit travel, of which this element is one part.

The Plan update has considered a wide range of social, engineering, environmental and economic factors in establishing the transportation system goals and objectives. These goals and objectives have been developed to reflect the overall values of the community and are important because they have provided the general course for the Plan update. The outcome of the plan is a set of actions that lead to the development of a street and highway system that efficiently moves people and goods.

The Grand Forks – East Grand Forks Street and Highway Plan includes the following chapters and topics:

- Public Involvement Process: This chapter is a summary of the various methods / structures utilized in the Plan update for disseminating information to and gathering input from the public and stakeholders.

- Street and Highway System Issues: This chapter is a summary of identified street and highway system issues / concerns collected through the Plan update involvement process.
- Goals, Objectives and Standards: This chapter is the set of transportation system goals and objectives that reflect input from a broad range of perspectives.
- Existing Conditions: This chapter is a summary of the existing street and highway system conditions, including technical analyses of available transportation datasets of traffic data and crash records.
- 2035 Housing, Employment and Traffic Projections: This chapter is a summary of travel demand and forecasted street and highway system operations in the study area over the planning period (through the year 2035).
- Street and Highway Alternatives Analysis: This chapter is an overview of the various projects and programs evaluated to address the long-term needs of the community. The alternatives analysis process included:
  - Review of identified congestion-management and safety improvement strategies to systematically address current and future travel demand.
  - Assessment methods for efficient use of the existing system to relieve roadway congestion and enhance the mobility of people and goods.
  - Evaluation of the transportation, socioeconomic, environmental and economic impacts of the plan.
- Funding the Street and Highway Plan: This chapter provides background on the available and projected sources of revenue through the 2035 horizon year.
- Recommended Street and Highway Plan: This chapter is a summary of the projects that are included in the recommended Street and Highway Plan. Includes a financial plan that demonstrates the consistency of proposed investments with the anticipated revenue identified in the previous chapter.
- Environmental Mitigation: This chapter provides a discussion of potentially environmentally-sensitive areas that may be impacted by general street and highway projects, the types of mitigation analyses that may be conducted and potential mitigation strategies that may be utilized.
- Transportation System Security: This chapter provides a discussion of the role of surface transportation the Grand Forks – East Grand Forks in regional security.
- SAFETEA-LU Compliance: This chapter is an overview of how the Grand Forks – East Grand Forks MPO Plan reflects the requirements of SAFETEA-LU.

Public Involvement Process

The Grand Forks – East Grand Forks Long Range Transportation Plan (LRTP) is founded on the consent of the general community as well as the various committees and bodies formed within the area. Long term support for implementation of the Plan requires that it reflect the community's expectations for its street and highway system. The Plan also documents the tradeoffs the community is willing to make in order to achieve those expectations. A variety of public involvement methods have been used throughout the planning process. This section of the report summarizes the public involvement process employed.

The MPO staff and the Technical Advisory Committee (TAC) are the local bodies responsible for the day-to-day management and review of the various milestone products for the Plan. The TAC is composed of staff from both cities and counties, the North Dakota Department of Transportation (NDDOT), the Minnesota Department of Transportation (Mn/DOT), and Cities Area Transit. Meetings were held on approximately a monthly basis throughout the Plan development period. Plan update meetings with the TAC were held more frequently during the later stages of the Plan development.

The planning commissions from Grand Forks and East Grand Forks acted in an advisory role for the Plan update. The commissions were used throughout the planning process to:

- Gather input on current and emerging transportation issues in the region.
- Act as a sounding board for ideas for potential changes to the transportation system.

Meetings with the Planning Commissions followed a similar content and structure as the TAC meetings and included:

- December 2006: Separate presentations were made to both Grand Forks and East Grand Forks Planning Commissions. Topics covered were a Plan update overview and the housing / employment growth information.
- May 2007: At a meeting of the Grand Forks County Planning Commission, an overview of the Plan update process was presented. Additionally, a status of the Merrifield Road projects (Red River Bridge and interchange) were presented since these improvements would be within the County's jurisdiction if constructed.
- June 2007: Separate presentations were made to both Grand Forks and East Grand Forks Planning Commissions. The presentation included the future street and highway system conditions and the types of street and highway improvements being evaluated.
- September 2007: Presentation made to the City of Grand Forks Planning and Zoning Commission, to update them on the draft recommended Transportation Plan.

Two additional tools have been used to involve the general public through the Street and Highway Plan update:

- The MPO website at www.theforksmpo.org provides an always available resource that is able to disseminate information and receive feedback from the general public. Study documents and meeting presentations were posted at the site through every study milestone.
- A newsletter was developed and distributed in both the Grand Forks Herald and The Exponent in East Grand Forks in October 2006. The content of the newsletter included an overview of the Plan update, issues mapping for citizens to add to / comment on and space for respondents to record additional issues / comments. The newsletter was formatted for easy return mailing to the MPO.

Various other methods for disseminating information to the public and / or receiving their feedback have been and will be used throughout the study. These additional methods have included:

- Local Media: Interviews have been and will continue to be conducted with the newspapers and television stations. Press releases were developed and distributed to local outlets.
- Organization Outreach: The study team has made several outreach efforts to various stakeholders and organizations throughout the Plan update.
  - Local Freight Interest Meeting (October 2006)
  - South Forks Bypass Group Meeting (May 2007)
  - Grand Forks Fire Department Staff (June 2007)
  - Crystal Sugar Plant Staff (June 2007)

Public meetings were held at milestone points in the planning process. The materials presented at the meetings were also posted on the MPO website immediately following the meetings. The public meetings are summarized in the following bullet points:

- Public Meeting #1: August 23, 2006. This meeting was held at the Alerus Center early in the Plan development process. The information covered in this meeting included:
  - Introduction to the transportation planning process.
  - Overview of the tasks included in the plan development.
  - Identification of local transportation issues in a workshop setting with meeting attendees.
- Public Meeting #2: May 10, 2007. This meeting was held at the East Grand Forks City Hall. Material presented at this meeting included:
  - The land development concept.
  - Traffic levels and summary of travel pattern changes associated with the development concept.
  - Locations of capacity deficiencies.
  - Presentation of the types of concepts tested and the measures of effectiveness applied through the alternatives analysis.

- Public Meeting #3: September 25, 2007. This meeting was held at the Alerus Center, following the results of the alternatives evaluation and development of the preliminary recommended Street and Highway Plan. Each of the alternatives was reviewed with the TAC and the Policy Board prior to this meeting. The content of this meeting was presentation of the draft plan recommendations and staging to the general public.

Appendix A includes a summary of meeting notices, sign-in sheets and comments received for public meetings, and includes meeting notes for stakeholder meetings.

As required by SAFETEA-LU, the MPO engaged in consultation with various State and Federal resource agencies throughout the planning process. As a part of the same outreach effort, the MPO also consulted with several public and private entities including:

- Resource Agencies
- Environmental groups
- Utilities
- Schools
- Shipping / freight companies
- Economic development groups
- Native American Tribes

A contact list and records of correspondence with the various agencies / entities whom the MPO consulted with are included in Appendix B. A more detailed summary of the Environmental Coordination process is provided in the "Environmental Coordination and Mitigation" Chapter.

Street and Highway System Issues

The initial stages of the plan included working with the general community and the MPO TAC to document current or emerging transportation system issues. Local issues were identified through four primary means:

- Technical Advisory Workshops.
- Public meetings.
- Citizen comments received via returned newsletters, emails, telephone calls and letters.
- Stakeholder groups.

Technical Advisory Committee Workshops

Issues identification workshops were held during the TAC committee meetings in July and August 2006. During the workshops, the issues identified by the TAC were recorded on large aerial maps of the study area. The information was summarized following the meeting and documented.

Public Information Meetings

At the first public meeting, citizens and staff gathered around maps with markers to facilitate and record discussions about the current transportation issues. Maps of the study area were provided. The purpose of the breakout session was to allow meeting participants an opportunity to talk one-on-one with representatives from the study team. Participants were encouraged to label issues on the mapping and to document their issues on the comment forms.

A summary map from the TAC and public meeting discussions is displayed in Figure 2. Issues identified and discussed during the small group breakouts were organized into categories and are described below:

- Congested corridors: Those corridors / routes where travelers experience recurring congestion.
- Congested intersections: Key arterial and collector intersections in the study area that experience recurring unacceptable levels of delay.
- Traffic safety: Locations in the community where there were issues related to vehicular safety and / or pedestrian crossing safety.
- Anticipated development areas: Those locations in the community that were identified as key current and / or future development areas that need to be served by transportation improvements.

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Identified Street / Highway Issues

- Traffic Operations / Connectivity Issue
- Safety / Geometry Concern
- Congested Intersection

Location Number - Issue Description

1 Consider intersection improvement alternatives.

2 Re-evaluate potential for North Bypass.

3 Rail crossings of Gateway Ave. can cause long delays.

4 Access /congestion issues.

5 Short distance between 5th Street and railroad.

6 Desire for continuous north - south corridor.

7 Concern about dense traffic signals and poor traffic operations.

8 Poor sight distance at railroad crossings.

9 Pedestrian / vehicle conflicts through UND campus.

10 Tight turn radii for trucks at I-29 ramps and Industrial Park roads. Relatively narrow cross section and frequent lane changes.

11 Short acceleration lanes from ramp.

12 Congestion in Columbia Road corridor.

13 Future rail underpass reconstruction.

14 Congestion. Poor sight distance. Too many access points.

15 Historic granitoid pavement. Can surface quality be improved?

16 Through traffic in residential corridor.

17 Concern that time frame for future bridges is too far off.

18 Heavy truck volumes due to processing plants. Review access options.

19 Desire for Red Lake River crossing/dike conflicts.

20 Safety concern.

21 Safety concerns at intersections.

22 Resolve 40th Avenue extension and proposed parks facility location.

23 Access issues to commercial development.

24 Traffic operations issues related to school.

25 47th Avenue has no shoulders or turn lanes.

26 Safety concern for northbound on-ramp. Short acceleratiion lane, limited sight distance for I-29 traffic.

27 Difficult access onto Bygland from side streets during peak periods.

Figure 2

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There were additional issues that were identified that were not included in the mapping, including "regional" street and highway system issues not related to a specific location. The additional issues / comments that were not included in Figure 2 are listed below:

- Recently emerging areas of congestion, including:
  - 38th Street / 32nd Avenue South
  - 34th Street / 32nd Avenue South
  - Columbia Rd / 36th Avenue South
- Need to preserve rural corridors to ensure high level of operations / access control once they urbanize.
- There are special areas that generate high levels of traffic, including:
  - Airport
  - Current and planned industrial park west of I-29 between DeMers and 32nd Avenue South
  - East Grand Forks Downtown
  - Grand Forks Downtown
  - Sugar beet processing in eastern East Grand Forks
  - New schools in Grand Forks and East Grand Forks

COMMENTS RECEIVED VIA RETURNED NEWSLETTERS, EMAIL, TELEPHONE CALLS AND LETTERS

The goal of the public involvement process was to offer local stakeholders a broad range of opportunities to provide input. While public information meetings are a key opportunity to interact with the stakeholders, it is the desire of the MPO to provide continuous capabilities to access information and provide comments. The MPO website and other outreach methods described in the Public Involvement Process provided a means for the public to contact the study team. The most common comments on issues are presented below:

- Need for additional Red River Crossings. Most responses that favored a new crossing did not include a specific location; 32nd Avenue was favored most often in those responses that included a specific location. A few responses did not want a bridge located at 32nd Avenue South.
- Need to improve the intersection of 24th Avenue / Columbia Road. This intersection was constructed during 2007.
- Need to construct a 17th Avenue South overpass of I-29.
- Requests for improved sidewalk / pedestrian crossings in the region.

STAKEHOLDERS GROUPS

As described in the Public Involvement chapter, there were several involvement efforts with various stakeholder groups. Issues identification was part of this involvement effort, including:

- Meetings with and presentations to the Grand Forks and East Grand Forks Planning Commissions. At the first meeting, issues that were raised by commission members were recorded.
- Issues were collected from freight representatives who attended a meeting in October 2006.

Goals, Objectives and Standards

The transportation plan goals, objectives and standards were developed through an open meeting / workshop process involving both public and TAC input. The previous 2030 long-range transportation plan, completed in 2003, included a set of transportation planning goals, objectives and standards for the Grand Forks - East Grand Forks area. These goals, objectives and standards were developed and approved by the MPO committees and Executive Board within the last few years with input from the public. Thus, the 2030 Plan goals, objectives and standards provided a solid basis for completing a revised set of 2035 Plan update goals, objectives and standards. There were two main reasons for revising and adding to the 2030 plan's set of goals, objectives and standards:

- *To address the changes in Federal MPO planning requirements included in the 2005 transportation bill, SAFETEA-LU*. Two key areas of emphasis in SAFETEA-LU include an increased emphasis on transportation system security and the need for coordination with environmental resource agencies when developing metropolitan area transportation plans. Goals and objectives were added to address these requirements.
- *To address substantial changes in area conditions*. Substantial changes or new trends identified in the metropolitan area between 2003 and today must be reflected with adjusted plan goals. These adjusted goals and objectives address any new "directions" for the transportation system. The 2035 street and highway goals, objectives and standards include notable changes from the 2003 plan to reflect changes in local conditions.

The application of goals, objectives and standards for the transportation planning process are connected, but represent different levels of the process.

- **Goals** are far-reaching, generalized statements of Plan intent. For example, the first transportation plan goal is "to provide a safe transportation system". This example goal communicates an intention, but cannot be quantified or measured to determine the relative success of Plan outcomes.
- **Objectives** are more-focused statements of specific measures or procedures related to attaining the established goals. A related transportation plan objective is to "reduce incidence of traffic crashes on the roadway system". This example objective offers a concrete means of measuring the relative success of Plan outcomes, the relative level of crashes.
- **Standards** are benchmarks / performance measures for quantifying progress towards achieving objectives. A related transportation plan standard is to "Identify and reduce crash rates at high-incident crash locations", which provides a metric for assessing the crash reduction objective.

The development of the Plan goals, objectives and standards is a critical step in the planning process, because to a large extent they define the general course of Plan development. The remainder of this chapter documents the Plan goals, objectives and standards.

GOAL 1: PROVIDE A SAFE TRANSPORTATION SYSTEM

Objective: Reduce incidence of traffic crashes on the roadway system.

- Standard: Reduce the number of and rate of crashes compared with previous years, by facility type.
- Standard: Identify and reduce crash rates at high-incident crash locations.

Objective: Preserve, maintain and improve the existing transportation facilities.

- Standard: Maintain pavement, signal systems, signage, striping and other features of the transportation system to a level that permits safe traffic operation.

Objective: Preserve, maintain and improve identified safe routes to school (SRTS) routes.

- Standard: Recommended street and highway improvements adjacent to an SRTS route should not degrade pedestrian and bicycle safety, and when possible should enhance pedestrian and bicycle safety.

Objective: Identify and incorporate available state Strategic Highway Safety Plans (SHSP) into Plan update.

- Standard: Recommended street and highway improvements should not conflict with the SHSPs of North Dakota and Minnesota

GOAL 2: PROVIDE AN EFFICIENT TRANSPORTATION SYSTEM

Objective: Reduce excessive travel delays.

- Standard: Reduce vehicle-miles of travel (VMT) growth rate.
- Standard: Reduce vehicle-hours of travel (VHT) growth rate.
- Standard: Reduce travel delays.

Objective: Define a proper mix of local, collector, and arterial streets according to land use and network continuity.

- Standard: Establish a network function hierarchy that reflects state guidelines for mileage by classification and that reflects the regional definitions established as part of the planning process.

Objective: Preserve, maintain and improve the existing street and highway system.

- Standard: Reduce the system mileage that falls below the NDDOT and Mn/DOT minimum thresholds for ride quality / condition.

GOAL 3: PROVIDE MOBILITY AND ACCESSIBILITY TO THE USERS OF THE TRANSPORTATION SYSTEM

Objective: Provide an acceptable level of service for all streets during peak hours.

- Standard: Provide the locally desired level of service C where practical (with the understanding that Mn/DOT sets a lower level of service D threshold for determining deficiencies on the trunk system).

Objective: Provide access control guidelines for functionally classified facilities.

- Standard: Mileage of the roadway system that is compatible with local access guidelines for collector and arterial streets.

Objective: Establish standards for location of local, collector, arterial, and freeway facilities.

- Standard: Document that new roadways conform to adopted local, state and national standards and practices.

GOAL 4: PROVIDE COMPATIBLE TRANSPORTATION AND LAND USE SYSTEMS

Objective: Map the current street system to reflect the appropriate functional classification based on adjacent activities, characteristics of the street and area type (urban / rural).

- Standard: Document that the current roadways reflect the established classification guidelines.

Objective: Design roadways to new land uses using appropriate facility types.

- Standard: Document that new roads are consistent with established functional classification guidelines.

Objective: Develop processes to coordinate the transportation plan with local land use planning activities.

- Standard: The Street and Highway Plan recommendations should recognize and address the types and locations of future development identified in the Grand Forks and East Grand Forks Land Use Plans.
- Standard: Refrain from street and highway system expansions that promote development which is not contiguous to currently developed areas.

Objective: Consider local economic development activities in the transportation planning process.

- Standard: Invite economic development officials to be a part of the alternatives analysis process to provide for comment on the consistency with economic development plans and initiatives.
- Standard: Provide documentation of the alternatives screening process to local economic development officials.

GOAL 5: MINIMIZE ADVERSE IMPACTS FROM TRANSPORTATION

Objective: Minimize, avoid, and / or mitigate adverse social, environmental, and economic impacts resulting from existing or new transportation facilities.

- Standard: Initiate corridor preservation and right-of-way acquisition procedures where appropriate.
- Standard: Incorporate assessment of potential for environmental impacts into the alternatives screening process.
- Standard: Seek transportation enhancement projects that have the potential to reduce existing transportation impacts to the environment.
- Standard: Reduce VMT and VHT growth rate, and reduce travel delays.
- Standard: Promote projects / policies that increase the use of non-motorized modes, transit, and other travel demand management strategies.

Objective: Coordinate with appropriate resource and environmental agencies on Plan development.

- Standard: Compare available resource maps, plans and inventories when developing plan.
- Standard: Provide documentation of screened improvement alternatives to agencies during the alternatives analysis.

GOAL 6: FINANCE THE TRANSPORTATION SYSTEM

Objective: Identify sufficient funding for each proposed improvement.

- Standard: Associate a funding source(s) with each recommended improvement

Objective: Identify timing and likelihood of funding. Higher likelihood should be associated with near-term projects.

- Standard: Increased likelihood of funding, corresponding to the timing of projects.

Objective: Encourage public / private partnerships and other applicable innovative financing alternatives.

- Standard: Inclusion of public / private partnerships and other innovative funding sources in funding plan.

Objective: Improve the cost-effectiveness of maintenance and preservation of the existing pavement.

- Standard: Develop a life-cycle cost analysis of pavement type done for projects with cost estimates over $25,000,000.

Objective: Recognize the relationship between planning and financing of needed transportation infrastructure.

- Standard: Incorporate transportation facility costs into each community's capital improvement program.

Objective: Increase the flexibility in funding for both construction and maintenance of transportation facilities in the annual transportation budget.

- Standard: Effect administrative procedures to obtain increased funding flexibility.

GOAL 7: PROMOTE A BALANCED, COMPACT LAND USE GROWTH PATTERN

Objective: Obtain a balance between transportation capacity and land use.

- Standard: Ensure compatibility between street functional classification and adjacent uses, while monitoring locations of congestion.

Objective: Obtain a balance between transportation services and land use.

- Standard: Refrain from street and highway expansion which would promote development which is not contiguous to currently developed areas.

GOAL 8: PROVIDE A SECURE TRANSPORTATION SYSTEM

Objective: Identify critical street and highway system assets.

- Standard: Improvement projects should not compromise the security of identified critical street and highway assets.

Objective: Identify and incorporate state and regional emergency, evacuation and security plans into Plan update.

- Standard: Improvement projects should enhance / compliment existing emergency, evacuation and security plans.

Objective: Coordinate traffic operations with flood control operations during flood events.

- Standard: Compatibility with current flood control operations plans.

Objective: Maintain and update the regional ITS architecture.

EXISTING CONDITIONS

This chapter documents an evaluation of the current street and highway system operations and issues. In order to plan for the long-term needs of the street and highway system, it is vital to first have a good understanding of the current system, as the current system forms the underlying foundation for the street and highway system needs between now and 2035. This chapter will evaluate the various elements of the current street and highway system, including:

- Street and highway functional classification
- Existing traffic volumes
- Existing traffic operations
- Traffic safety

FUNCTIONAL CLASSIFICATION

The existing street and highway systems were categorized into a functional hierarchy based on the type of facility, facility ownership, and the role the facility serves in the local, regional and national transportation system. Within the study area, the MPO has grouped streets and roadways into six general functional categories:

- Interstate
- Principal Arterial
- Minor Arterial
- Urban Collector
- Rural Collector
- Local

A general description of this classification system is included in Table 1. The table provides descriptions of the functions and characteristics of the various functional classes in the Grand Forks – East Grand Forks area.

The current functional classification of the street and highway network is displayed in Figure 3. The functional classification was established by the MPO in accordance with state DOT policies and Federal Highway Administration (FHWA) guidelines. The facility mileage by functional class, based on the classifications presented in Figure 3, is documented in Table 2.

TABLE 1. URBAN FUNCTIONAL CLASSIFICATION SYSTEM DESIGN CRITERIA

Criteria	Interstate	Principal Arterial	Minor Arterial	Urban Collector	Local
Trip-Making Service Performed	Connects Grand Forks - East Grand Forks to other regions.	Connects Grand Forks - East Grand Forks and other regions within sub-areas of the region.	Connects activity centers within the metropolitan area.	Connects neighborhood and commercial areas to arterials; offers subarea mobility.	Provides mobility within neighborhoods and subareas.
Location	Edge of development areas.	On edges of neighborhoods and commercial areas.	On edges or within neighborhoods and commercial areas.	On edges or within neighborhoods and commercial areas.	Within neighborhoods or commercial areas.
Mobility / Access	Highest traffic mobility; no direct land access.	Mobility is emphasized; limited land access.	Medium traffic mobility; medium land access.	Limited traffic mobility; high land access.	Most limited traffic mobility; highest land access.
Approximate Daily Traffic (VPD)	10,000+	15,000 to 30,000+	5,000 to 10,000+	1,000 to 8,000	<1,000
Approximate Spacing (Miles)	--	1 to 2, less in Central Business District (CBD)	½ to 1, less in CBD	½ or less	As needed
Typical Speed Limit (MPH)	65 to 75	30 to 60	30 to 45	30	15 to 25
Minimum Right-of-Way Width	400 Feet	150 to 200 Feet	100 to 150 Feet	80 to 100 Feet	60 to 100 Feet
Linkage to Regional Roadways	Serve as regional roadways	Yes, often serve as regional roadways	Sometimes	Rarely	No
Parking	Prohibited	Prohibited	Generally prohibited	Limited	Permitted
Traffic Management Tools	Interchange spacing; no direct land access	Signal timing, land access spacing, junction control	Signal timing, land access spacing, junction control	Geometry, number of lanes, access spacing	Discontinuity, stop signs, etc.
Level of Continuity	Continuous	Semi-continuous	Semi-continuous	Usually not continuous	Discontinuous

Source: URS Corporation, Grand Forks – East Grand Forks MPO

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Existing (2005) Street and Highway Functional Classification

- Interstate
- Principal Arterial
- Minor Arterial
- Urban Collector
- Rural Collector
- Study Area Boundary

Figure 3

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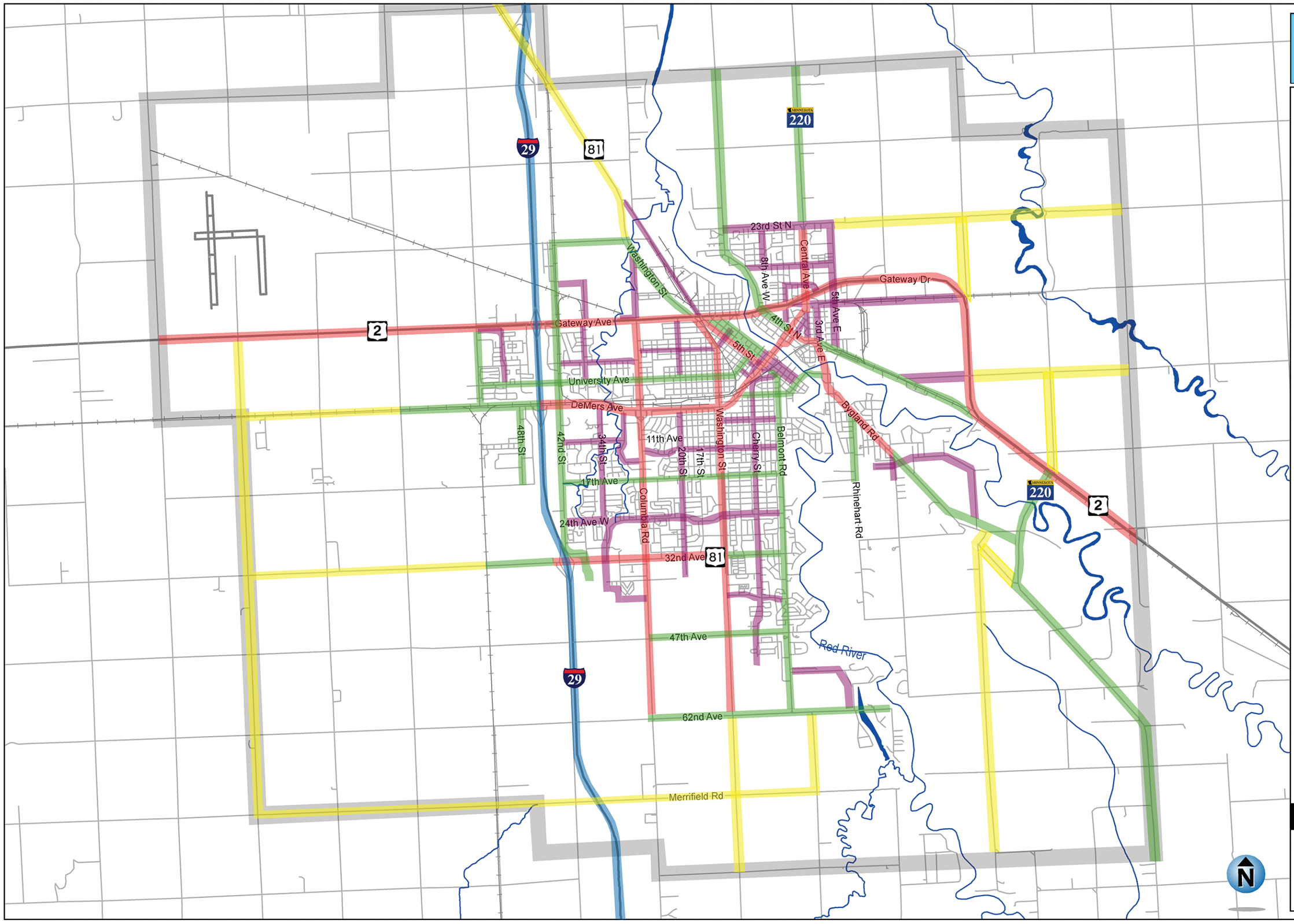

TABLE 2. MPO SYSTEM MILEAGE BY FACILITY TYPE

MPO Totals by State	Miles by Facility Type						
	Interstate	Principal Arterial	Minor Arterial	Urban Collector	Rural Collector	Local	All Roads
North Dakota	11.3	22.0	31.3	29.0	21.5	218.8	333.9
Minnesota	-	11.6	15.4	12.1	11.8	82.4	133.3
Total Miles	11.3	33.6	46.7	41.1	33.3	301.2	467.2

Sources: Grand Forks – East Grand Forks MPO and URS Corporation

Guidelines have been established by the FHWA for appropriate mix of functional classifications for a street and highway system. Table 3 presents the suggested guidelines for percentage mileage by functional classification for urban areas such as Grand Forks – East Grand Forks, and compares those guidelines to the functional classification mileage totals for the metropolitan area.

TABLE 3. FUNCTIONAL SYSTEM SUMMARY COMPARED TO FHWA GUIDELINES

Facility Type	Percentage of Total System Miles	
	Grand Forks – East Grand Forks	FHWA Urban Guidance
Principal Arterials[1]	10%	5 to 10 %
Principal Arterials plus Minor Arterials	20%	15 to 25 %
Urban Collectors[2]	9%	5 to 10 %
Local Streets[3]	64%	65 to 80%

Sources: Grand Forks – East Grand Forks MPO, URS Corporation and *FHWA Functional Classification Guidelines*, FHWA, 1989.

As shown in Table 3, the overall ratios of mileage by functional classification are in line with the suggested guidance from the FHWA. It should be noted that the percentages presented for Grand Forks – East Grand Forks are sensitive to where the boundary between urban and rural is assumed. All of the street and highway segments illustrated in Figure 3 are within the MPO boundary and are included in the Table 3 calculations. Review of the data in Table 3 would indicate that the metropolitan area currently has an appropriate functional mix of streets to offer a balanced level of access and mobility across the community.

[1] Includes Interstate 29 mileage.
[2] Does not include rural collectors, which were not part of the FHWA guidance. Thus, total system miles will not sum to 100%.
[3] Includes UND and private streets.

COORDINATING LAND USE AND TRANSPORTATION FACILITIES

The connection between the transportation system and the land uses in Grand Forks – East Grand Forks is important, because the travel demands on the regional street and highway system are tightly linked to the region's land uses and development patterns. Goals and objectives established for this Plan recognize the connection between the two. Specifically, the goals and associated objectives are:

- Goal 2: Provide an Efficient Transportation System
  - Objective: Define a proper mix of local, collector, and arterial streets according to land use and network continuity.
- Goal 4: Provide Compatible Transportation and Land Use Systems
  - Objective: Map the current street system to reflect the appropriate functional classification based on adjacent activities, characteristics of the street and area type (urban / rural).
  - Objective: Design roadways to new land uses using appropriate facility types.
  - Objective: Develop processes to coordinate the transportation plan with local land use planning activities.

Guidelines were established in previous planning efforts that describe the relationship between the various types of land uses, the appropriate street facility types to serve each land use and the various multimodal services provided to each land use. These Land Use / Transportation Facility guidelines are documented in Table 4.

ROADWAY GEOMETRICS

The consultant reviewed existing MPO databases and collected additional information to determine the number of lanes for each approach to key intersections. Key intersections were defined by MPO staff, and in all cases were the junction of two roadways functionally classified as collector, minor arterial, principal arterial or Interstate ramp junction intersections. The intersection lane geometry was collected on the basis of number of through lanes, and number of left-turn and right-turn lanes. This intersection information is a key input into determining the capacity of the current roadway system and is contained in the regional travel demand model.

TABLE 4. COORDINATING LAND USE AND TRANSPORTATION FACILITIES

Land Use	Appropriate Facility Type by Functional Classification	Transit Service	Freight & Commercial Transportation	Pedestrian and Bicycle Facilities
Residential	Penetrating Development – Local Streets Bordering Development – Collector Streets	Typically on collector streets, low-profile bus stops on local streets.	Ideally, no trucks or rail rights-of-way.	Sidewalks on both sides. Bike/ pedestrian trails encouraged. Local streets accommodate local bike traffic.
Park and open space	Penetrating – Local Streets Bordering – Collector Streets	Service provided on periphery and serving main entrance of park.	No truck routes allowed or active rail lines.	Extensive pedestrian and bicycle facilities in interior of park and non-motorized connections to other areas of city.
CBD	Penetrating – Local or Collector Streets Bordering – Collector or Arterial Streets	High level of transit service. Transit center to provide convenient transfer and rider information. Transit shelters typically provided at key stops.	Truck delivery facilities on and off street. Rail lines through the CBD should be avoided.	Urban pedestrian and bicycle amenities, such as curb ramps for ADA compliance, pedestrian walk signal, pavement markings, and adequate sidewalk width, and bike lanes and bike racks/lockers.
Outlying Business District	Penetrating – Collector Streets Bordering – Collector or Arterial Streets	Transit service to a central location. Shelter and rider information often provided.	Truck access via arterial and collector streets.	Pedestrian facilities are typically oriented to retail establishments, providing parking to font door accessibility. Exclusive bike paths and bicycle storage.
Industrial	Penetrating – Collector Streets Bordering – Arterial Streets or Freeways	Transit service to a central location. Shelter and rider information often provided.	Truck routes provided and truck movements accommodated with wide turning radii.	Minimal pedestrian and bicycle facilities typically provided.
Agricultural / Rural	Penetrating – None Bordering – Collector, Arterial Streets or Freeways	Fixed-route transit service not warranted, paratransit if demand exists.	Agricultural truck hauling requires truck routes serving area farms and processing plants.	Minimal Pedestrian and Bicycles due to low demand.

Source: Grand Forks – East Grand Forks MPO.

TRAFFIC VOLUMES

The current study area traffic volumes are key data in evaluating the study area's existing transportation system conditions. Average daily traffic (ADT) counts are available from the MPO. The most recent available ADT data, collected in 2005, are illustrated in Figure 4. These data came from counts completed by the MPO, Mn/DOT and NDDOT.

In addition to the daily traffic volumes documented in Figure 4, turning movement counts were collected by the MPO. These counts were collected in the spring and fall of 2006 at key intersections across the metropolitan area. These intersections were:

- 32nd Ave S / I-29 West Ramps
- 32nd Ave S / I-29 East Ramps
- 32nd Ave S / 38th St
- 32nd Ave S / 34th St
- 32nd Ave S / Columbia Road
- 32nd Ave S / Washington St
- 28th Ave S / Washington St
- 24th Ave S / 20th St
- Campbell Dr / Washington St
- 17th Ave S / 42nd St
- 17th Ave S / Columbia Road
- 17th Ave S / Washington St
- DeMers Ave / I-29 East Ramps
- DeMers Ave / I-29 West Ramps
- DeMers Ave / 42nd St
- DeMers Ave / Columbia Rd East Ramp
- DeMers Ave / Washington St
- DeMers Ave / 5th St (GF)
- DeMers Ave / 4th St (GF)
- 4th Ave S / Belmont Rd
- University Ave / 42nd St
- University Ave / Washington St
- Gateway Dr / 47th St
- Gateway Dr / I-29 West Ramps
- Gateway Dr / I-29 East Ramps
- Gateway Dr / Columbia Road
- Gateway Dr / Washington St
- Gateway Dr / Central Ave
- DeMers Ave / 3rd St W (EGF)
- DeMers Ave / 4th St W (EGF)
- 1st St S / 3rd Ave E

TRAFFIC OPERATIONS

Observations of traffic volumes provide an understanding of the general nature of traffic, but are insufficient to describe / quantify the quality of service provided. For this reason, the concept of level of service (LOS) has been developed to correlate numerical traffic volume data to subjective descriptions of traffic performance at intersections. LOS is a term used to qualitatively describe roadway and intersection traffic operations. A graphical representation of traffic flow conditions for each LOS is displayed in Figure 5, and definitions of LOS are provided in Table 5.

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2005 Daily Traffic Volumes

1,000 - 2005 Daily Traffic Count

Figure 4

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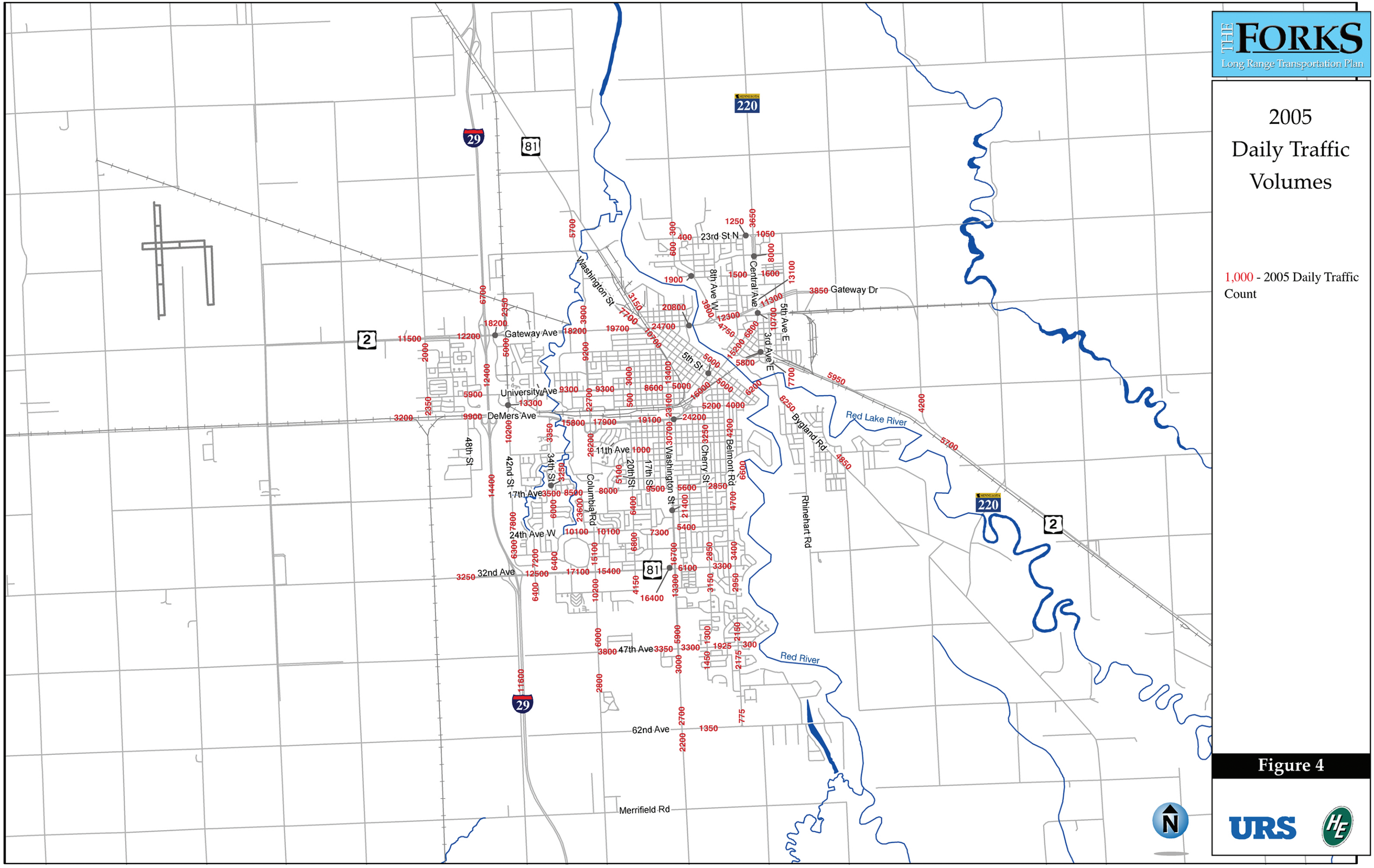
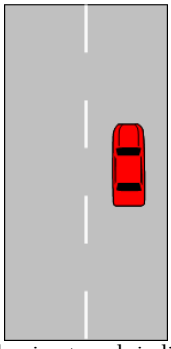
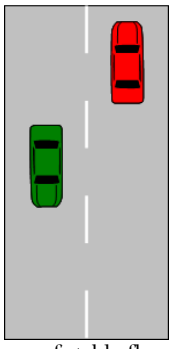
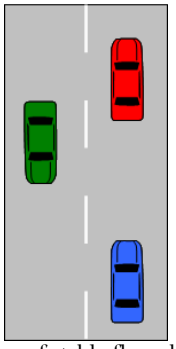
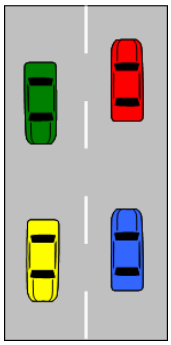
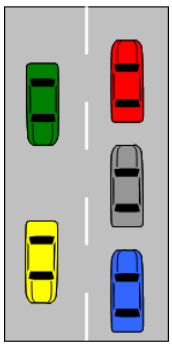
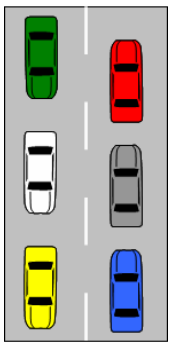


FIGURE 5. TRAFFIC FLOW CHARACTERISTICS BY LEVEL OF SERVICE

LOS A  Free flowing travel, individual drivers are virtually unaffected by the presence of other traffic.	**LOS B**  In the range of stable flow, but the presence of others in the traffic stream begins to be noticeable.	**LOS C**  In the range of stable flow, but marks the beginning of the range of flow where the operations of drivers becomes significantly affected by the interactions of other traffic.
LOS D  Represents high density, but stable flow. Speed and freedom to maneuver are severely restricted and the driver experiences a poor level of comfort and convenience.	**LOS E**  Represents conditions at or near capacity level. Comfort and convenience levels are extremely poor and driver frustration is relatively high.	**LOS F**  Represents forced or breakdown flow.

Source: *2000 Highway Capacity Manual,* Transportation Research Board, 2000 and URS Corporation.

The maximum number of vehicles that could be accommodated through an intersection, however, is greater than the number typically acceptable in a community such as the Grand Forks – East Grand Forks area. The transportation plan has set a goal of achieving LOS C where practical, with the understanding that Mn/DOT sets a lower LOS D threshold for identifying deficiencies on its trunk system. Thus, for the purposes of this analysis a deficiency is defined as LOS D or worse.

At signalized intersections, LOS is based on the weighted average of all approach delays. For unsignalized intersections, the LOS is based on the worst condition minor street movement delay (usually the left turn movements on the cross street).

TABLE 5. DEFINITION OF LEVEL OF SERVICE FOR INTERSECTIONS

Level of Service	Delay per Vehicle (Seconds)		Description
	Signalized	Unsignalized	
A	≤10	≤10	*Free Flow, Insignificant Delays.* Very little, if any, delay incurred at intersections (< 10 seconds per vehicle). Corridor travel speed is within 10% of the free-flow operating speed (travel speed without any outside influences controlling any one drivers decision as how fast to drive).
B	>10 and ≤20	>10 and ≤15	*Stable Operation, Minimal Delays*. Described as reasonably unimpeded operations. A driver's ability to maneuver within the traffic stream is only minimally restricted by other vehicles. Operating speeds are within approximately 30 percent of the free-flow speed. Typical intersection delay is between 10 and 20 seconds per vehicle.
C	>20 and ≤35	>15 and ≤25	*Stable Operation, Acceptable Delays.* Operations with the corridor are stable, however, one driver's ability to maneuver between lanes or make a turn, may be restricted due to needing to yield to other vehicles. Not all vehicles during every signal cycle clear the intersection (cycle failures). The average delay per vehicle at a controlled intersection ranges from 20 to 35 seconds.
D	>35 and ≤55	>25 and ≤35	*Restricted Flow, Regular Delays.* Reflects the limits of stable flow, and a slight change in vehicle flow may result in substantial increases in delay. The average vehicle travel speed is approximately 40 percent of the estimated free-flow speed. Queues may develop, but dissipate rapidly without excessive delays. The average intersection delay per vehicle ranges from 35 to 55 seconds.
E	>55 and ≤80	>35 and ≤50	*Maximum Capacity, Extended Delays*. Volumes at or near the finite capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. Typical operating speeds in the corridor are less than 35 percent of the free-flow speed and intersection delay ranges from 55 to 80 seconds per vehicle.
F	>80	>50	*Forced Flow, Excessive Delays*. Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: *2000 Highway Capacity Manual,* Transportation Research Board, 2000.

The PM peak hour intersection analyses were conducted using the Synchro software program, utilizing the methodologies found in the 2000 Highway Capacity Manual (HCM). Traffic operations results are based on current (2006) traffic, the existing

roadway network characteristics and traffic signal timing information. A summary of the traffic operations analysis, presented on a street / roadway segment basis is presented in Figure 6.

As depicted in Figure 6, two intersections and one corridor are estimated to currently operate at LOS D or worse:

- DeMers Avenue and Washington Street
- 17th Avenue and Columbia Road
- DeMers Avenue through the downtown areas

TRAFFIC SAFETY ASSESSMENT

The existing traffic safety analysis in the Grand Forks - East Grand Forks study area was based on evaluation of the crash / accident records available from the NDDOT and Mn/DOT. Summaries of crash records for the study area street system were obtained and reviewed for the following periods:

- NDDOT data were obtained for the period from January 1, 2003 to December 31, 2005.
- Mn/DOT data were obtained for the period from January 1, 2002 to December 31, 2004.

Both crash datasets were evaluated for intersection-based crashes. Due to the format of the North Dakota data, segment-based analyses were not feasible. Segment-based crash analyses were conducted with the East Grand Forks dataset.

For the intersection-based crash assessment, the crash rate was reported as the number of crashes per million entering vehicles at the intersection. Intersection crash data were available for 77 intersections in Grand Forks and 27 intersections in East Grand Forks. The average crash rate for the 104 intersections was approximately 0.6 crashes per million entering vehicles (MEV), and was consistent between Grand Forks and East Grand Forks.

For the segment-based crash assessment on the Minnesota side, the crash rate was reported as the estimated number of crashes per million VMT along each segment. Segment crash data was calculated for 13 segments along state routes in East Grand Forks. The average crash rate for state routes was 1.05 crashes per million VMT.

Identifying the intersections and segments with the most crashes is the most straight-forward approach to determining locations with safety issues. There were 43 intersections in the Grand Forks – East Grand Forks study area with 10 crashes or more during the studied three-year periods. The intersections are identified in Figure 7. This approach, however, ignores the rate at which crashes occur. Most of the intersections with 10 or more crashes also carry high levels of traffic and on average would likely have more crashes. Thus, even with a below-average crash rate, these locations might have a relatively high number of crashes compared to lower-volume locations. Therefore, it is beneficial to identify which locations in the study area experience a statistically higher crash rate.

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2005 Level of Service

- Level of Service C
- Level of Service D
- Level of Service E
- Level of Service F

Figure 6

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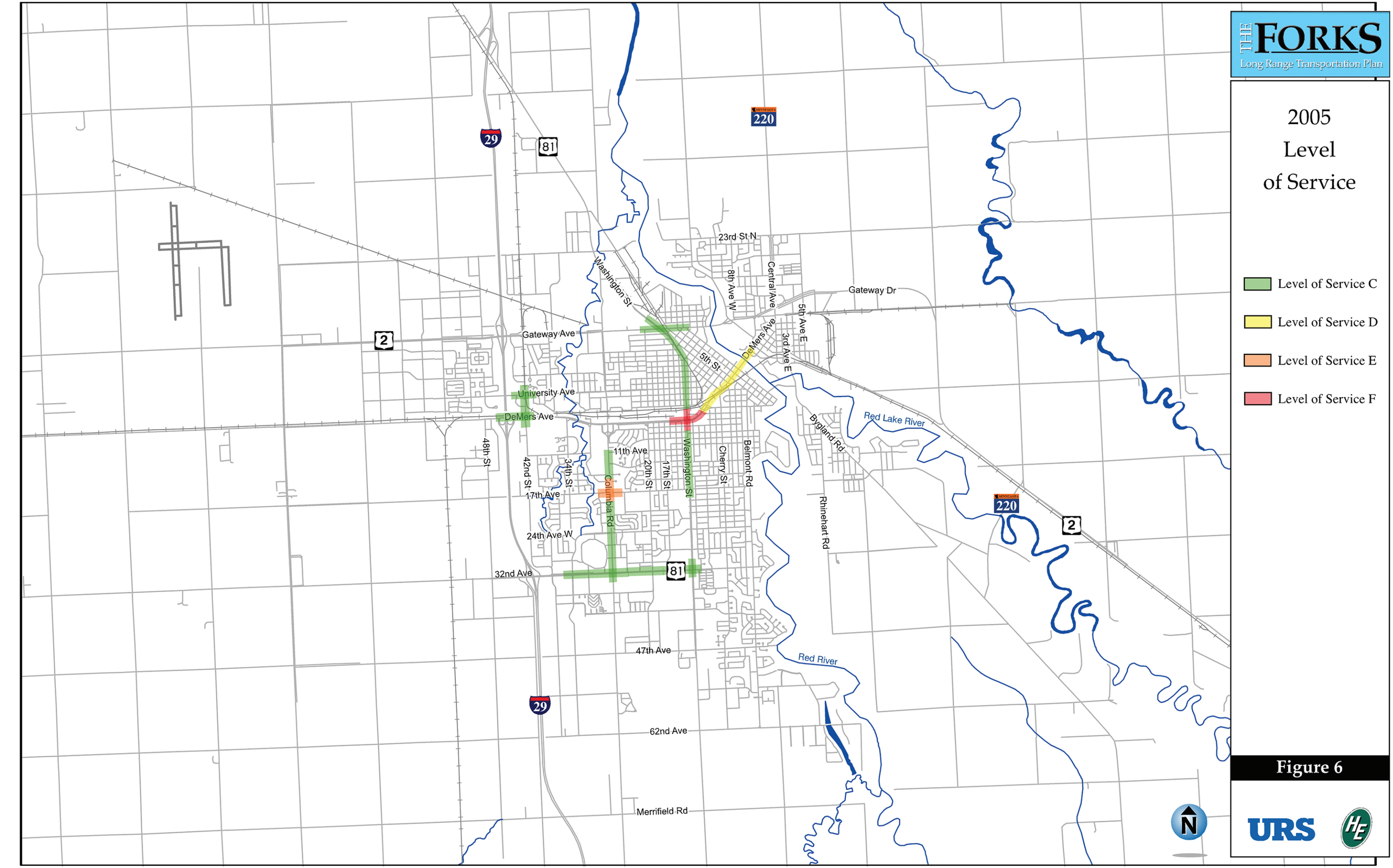

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Three Year Crash Assessment Summary

Intersections with 10 or More Crashes

Intersection with Higher Crash Rates

Figure 7

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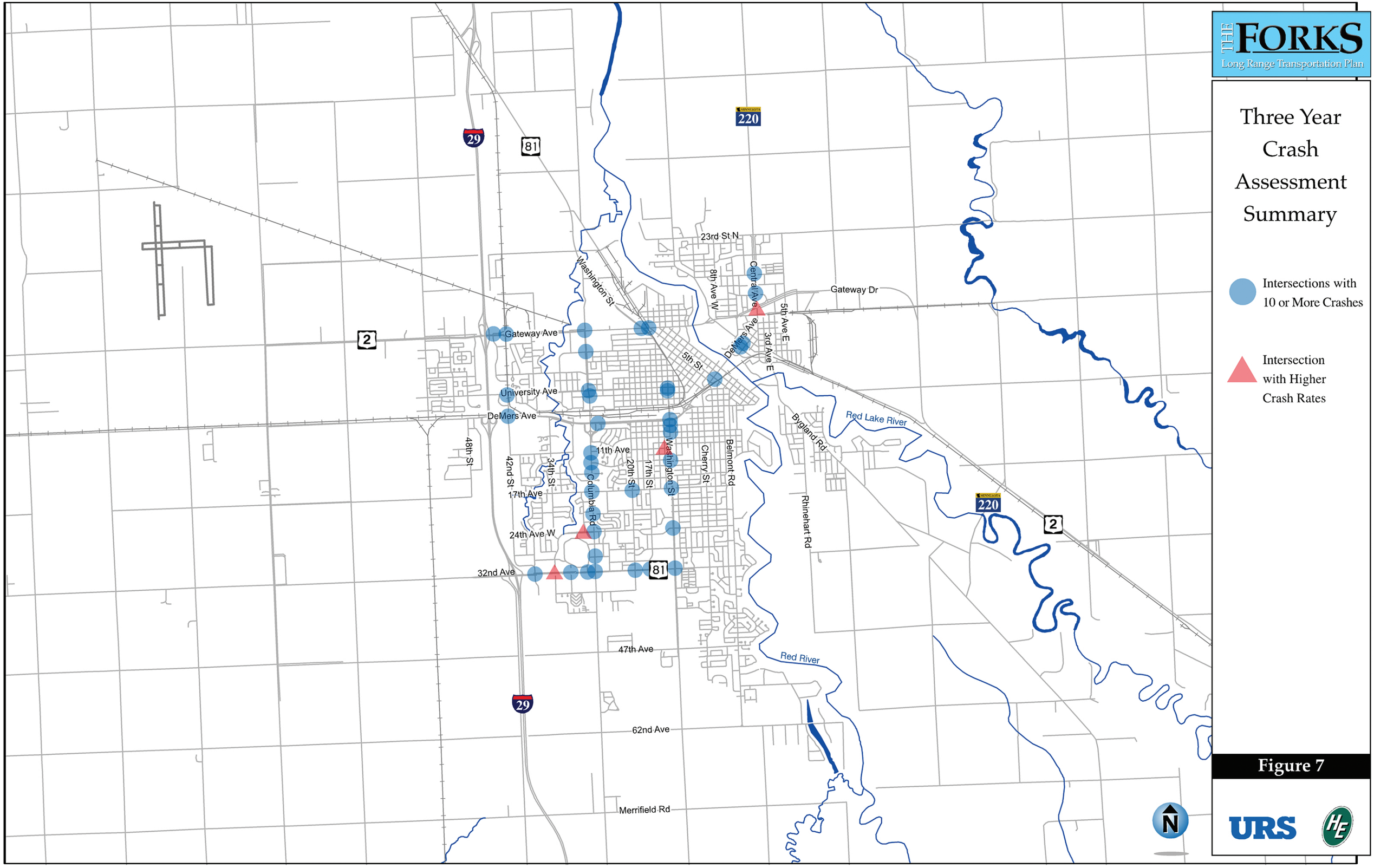

Mn/DOT has developed a methodology for identifying intersections and segments demonstrating a statistically higher crash rate. This approach calculates a "critical crash rate" for each intersection and segment by comparing:

- Intersection traffic volumes
- Intersection crash rate
- Study-area wide crash rate

Locations that exceed this critical crash rate are defined as having a "higher" crash rate. The locations of higher crash rates are shown in Figure 7, and are listed below:

- Gateway Drive - Central Avenue: 51 crashes between 2002 and 2004, with a crash rate of 1.5 crashes per MEV.
- 32nd Avenue S - 34th Street: 33 crashes between 2003 and 2005, with a crash rate of 1.3 crashes per MEV.
- 24th Avenue S - 29th Street: 22 crashes between 2003 and 2005, with a crash rate of 2.11 crashes per MEV.
- 11th Avenue S - 14th Street: 11 crashes between 2003 and 2005, with a crash rate of 4.08 crashes per MEV.

There were no segments in the study area which were identified to have higher crash rates.

A second level of crash evaluation was completed for locations with higher crash rates, to analyze both the type and severity of crashes. Table 6 summarizes the types of crashes by percentage occurring at each location.

Based on the data summarized and presented in Table 6, two types of crashes are most prevalent:

- Angle or Turn Crashes: All three North Dakota intersections with higher crash rates experienced angle or turn crashes at significantly higher rates than the average for all study-area intersections. All three Grand Forks intersections exceeded the study area average by more than 30 percentage points. The Gateway Drive – Central Avenue intersection in East Grand Forks had a somewhat lower incidence of angle or turn crashes than the study area as a whole.
- Rear End Crashes: The Gateway Drive – Central Avenue intersection had a somewhat higher incidence of rear end crashes than the study area.

TABLE 6. CRASH TYPE, HIGHER CRASH RATE INTERSECTIONS

Intersection	Crash Type					
	Angle / Turn[4]	Rear End	Head On	Single Vehicle	Side Swipe	Other
Gateway Dr - Central Ave	50%	31%	2%	2%	10%	5%
32nd Ave S - 34th St	91%	3%	3%	3%	0%	0%
24th Ave S - 29th St	100%	0%	0%	0%	0%	0%
11th Ave S - 14th St	91%	0%	0%	9%	0%	0%
All Study Area Intersections	59%	27%	3%	3%	6%	2%

Source: URS Corporation and NDDOT and Mn/DOT Crash Databases

The severity of crashes for the higher crash rate intersections is documented in Table 7. The crash severity evaluation for the intersections and segments is summarized in the bullets below.

- There were no fatalities at the higher crash rate intersections or the analyzed (East Grand Forks) segments during the analysis periods.
- At three of the higher crash rate intersections documented above, the percentage of crashes reported that involved injuries was lower than the study area average of 33 percent. Only the 32nd Avenue South – 34th Street intersection exceeded the study area average injury percentage, where 39 percent of accidents were involved an injury.

TABLE 7. CRASH SEVERITY BY LOCATION, HIGHER CRASH RATE INTERSECTIONS

Intersection	Crash Severity			
	Fatal	Injury	Possible Injury[5]	Property Damage Only
Gateway Dr - Central Ave	0%	12%	14%	74%
32nd Ave S - 34th St	0%	39%	-	61%
24th Ave S - 29th St	0%	27%	-	73%
11th Ave S - 14th St	0%	18%	-	82%
All Study Area Intersections	<1%	33%	-	67%

Sources: URS Corporation and NDDOT and Mn/DOT Crash Databases

[4] Only "angle" crashes are defined in North Dakota crash reports, no left-turn or right-turn crashes. Minnesota includes both angle and turn crash types.

[5] Possible Injury was a category only used in the Minnesota crash data, not North Dakota. The "possible injury" data were split evenly between "injury" and "property damage only" categories for the Study Area totals.

2035 Housing, Employment and Traffic Projections

Overview

This chapter summarizes the housing and employment forecasting process carried out as part of the Street and Highway Plan update. The housing and employment forecasts were a required input data to the Grand Forks – East Grand Forks regional travel demand model.

The basis for the 2035 daily traffic forecasts is the Grand Forks / East Grand Forks travel model. The travel model was developed and has been maintained by the MPO as a tool capable of evaluating the interaction between the region's land uses (the locations and amounts of housing and employment) and its roadway system. Within the model, traffic volumes associated with a specific level and type of land development, whether existing or future development scenarios, can be simulated to gain an understanding of the potential traffic impacts associated with that scenario.

Three general steps were completed to develop the 2035 daily traffic forecasts:

- The first step of the forecasting process was to update and validate an existing conditions traffic model. Staff from the Advanced Traffic Analysis Center (ATAC) at North Dakota State University updated and validated a base year (2005) travel model that was reviewed and approved by MPO staff[6]. The travel model validation report from ATAC is included for reference in Appendix C.
- The second step of the process was to produce a 2035 land development concept, which represents a likely future land development scenario. The development concept documents the number of and type of new jobs (whether retail or non-retail) and households (whether single-family or multi-family) by traffic analysis zone (TAZ) through the planning horizon of 2035. The 2035 land development concept was developed to be consistent with both the *East Grand Forks Land Use Plan* and the *Grand Forks Land Use Plan*. Detailed information summarizing the population and land use aspects of these two documents is provided on page 33 under the "Socioeconomic Characteristics" section.
- The third step of the process was to develop a 2035 base travel model scenario. The 2035 base travel model includes:
    - Forecasts of 30-year housing and employment growth included in the development concept.

[6] ATAC is a research center that has been retained by the Grand Forks – East Grand Forks MPO to be responsible for model development and maintenance.

- The "base" condition future roadway network. The base network includes roadway improvement projects in the MPO's four-year TIP, specifically:
  - 5th Street NW / Gateway Avenue intersection in East Grand Forks
  - 13th Street SE extension between Bygland Road and 19th Avenue SE in East Grand Forks
  - 48th Street south extension between 32nd Avenue and 17th Avenue.

  The base condition 2035 network also includes new collector roads that support access to future growth areas, including:
  - 40th Avenue South, 52nd Street to 42nd Street and 20th Street to Washington Street (currently being constructed)
  - 55th Avenue South, 38th Street to Columbia Road and Washington Street to Cherry Street
  - 52nd Street, DeMers Avenue to 40th Avenue South
  - 48th Street south of 32nd Avenue
  - 38th Street south of 36th Avenue South

  No additional roadway projects are assumed in the 2035 Base network, beyond this relatively short list of improvements.

The 2035 base condition traffic conditions represents a starting point for the development of future improvement alternatives, where no significant improvements are made to the future roadway network beyond those programmed in the current Transportation Improvement Program (TIP). An evaluation of the 2035 base condition reflects the traffic conditions in 2035 if no significant improvements are made to the existing roadway system.

SOCIOECONOMIC CHARACTERISTICS

Demographic and economic background of the metropolitan area can provide an overall understanding of the community, while at the same time this data can be used as an indicator or predictor of travel behavior.

DEMOGRAPHICS

Forecasts of growth in population, households and employment are translated into future travel patterns and provide the basis for developing the 2035 LRTP for the Grand Forks – East Grand Forks metropolitan area. By studying the population, housing, and employment, future travel needs can be determined and a plan for an efficient transportation system can be developed.

POPULATION INCREASE

The MPO conducts population estimates and forecasts for both cities. Population estimates are derived from a combination of data from the census, building permits, and the board of realtors. In Table 8, the MPO's population estimates show a metropolitan increase of 5,684 persons during the period of 2000 through 2006.

TABLE 8. MPO POPULATION ESTIMATES, 2000 TO 2006

City	Year						
	2000	2001	2002	2003	2004	2005	2006
Grand Forks	49,366	49,561	50,065	50,872	51,810	53,230	54,083
East Grand Forks	7,501	7,626	7,730	7,926	8,041	8,355	8,477
Metropolitan Area	56,867	57,187	57,795	58,798	59,851	61,585	62,560

Source: Grand Forks / East Grand Forks MPO

Population forecasts predict future growth rates based on current and historical trends. The MPO and both City Councils have adopted a 1.2% annual growth rate for planning purposes and forecasts. Table 9 demonstrates the city and metropolitan population forecasts through the year 2040.

TABLE 9. MPO POPULATION FORECASTS, 2000 TO 2040

City	Year				
	2000	2010	2020	2030	2040
Grand Forks	49,366	56,097	63,747	72,440	81,250
East Grand Forks	7,501	8,523	9,686	11,007	12,715
Metropolitan Area	56,867	64,620	73,433	83,447	94,965

Source: Grand Forks / East Grand Forks MPO

LAND USES

The Grand Forks 2035 Land Use Plan differs from previous plans completed in Grand Forks in that it emphasizes implementation and takes a proactive approach to managing growth both in the City and in its Growth Management Area. Much of Grand Forks' new development will occur in the Growth Management Area.

The future land use map is focused on the city's Growth Management Area, which is the area outside the city limits, but within the four-mile zoning jurisdiction. Growth Management identifies a three level tier system for managing timing and sequencing of growth for Grand Forks. Future land uses have been identified for all three tiers of the city's Growth Management Area. Specific uses and locations have been identified for Tier 1, where more immediate growth is anticipated, and Tier 2, which is not anticipated to develop for another 25 years. Tier 3 is identified broadly as an agricultural zone, an area where no urban development is expected within the planning period.

Tier 2 future land uses have been identified to provide a broad brush approach for the city and its residents. Although Tier 2 is not anticipated for immediate development,

it is important for the community to establish a vision for this area's eventual land uses and their most appropriate location. Should there be a need to expand Tier 1 to accommodate increased development, the map provides a land use guide for determining where expansion might be appropriate for particular land uses. Figure 8 shows the Grand Forks future land use plan map.

The East Grand Forks 2035 Land Use Plan carries forward a similar Growth Management philosophy, but with one major difference. The flood protection system in the City has provided the growth boundaries for the future, so a tier system is not necessary. The City promotes the growth within city limits, where municipal services are available. The City thus preserves an urban expansion area located inside the flood protection system for future urban development. Figure 9 shows the East Grand Forks future land use plan map.

LAND DEVELOPMENT ASSUMPTIONS

The preliminary 2035 traffic forecasts rely on the 2035 development concept as an input. The 2035 development concept, based on the land use plans and the population growth documented above for Grand Forks and East Grand Forks, was reviewed by the MPO TAC and was presented to both planning commissions for comment. Whereas the Land Use Plans for each community documents city-wide anticipated population growth and future land uses, the development concept provides a projected number of new jobs and households by location (at the TAZ level).

As documented in Table 10, the development concept for the region assumes that housing and employment levels increase by approximately 35 percent between today and 2035.

TABLE 10. STUDY AREA HOUSING AND EMPLOYMENT SUMMARY, 2005 AND 2035

Year	Housing Units	Employment
2005	26,100	40,500
2035	35,400	54,700
Growth (2005 to 2035)	9,300	14,200
Percentage Growth	36%	35%

Source: Grand Forks / East Grand Forks Travel Demand Model

Figure 10 illustrates the level of housing unit growth by TAZ, and Figure 11 the level of employment growth by TAZ.

FUTURE LAND USE

GRAND FORKS, NORTH DAKOTA

LEGEND

- TIER 1
- TIER 2
- TIER 3
- AGRICULTURAL
- RESIDENTIAL
- COMMERCIAL
- OFFICE PARK
- MIXED USE
- INDUSTRIAL
- PUBLIC / SEMI PUBLIC
- OPEN SPACE
- EXISTING NON FARM RESIDENTIAL

NOTE

All dimensions, descriptions, measurements, boundaries and data contained in this nonstandard document are included for general information only. No warranties or covenants are made or given by the City of Grand Forks, or the Grand Forks/East Grand Forks Metropolitan Planning Organization. Any user must confirm the accuracy of this same with official records/by survey.

County Rd 11
54th Ave N
40th Ave N
27th Ave N
Demers Ave
17th Ave S
32nd Ave S
47th Ave S
62nd Ave S
Merrifield Rd
11th Ave NE
10th Ave NE
Gateway Dr
University Ave
DeMers Ave
17th Ave S
32nd Ave S
47th Ave S
62nd Ave S
N Washington St
S 42nd St
S 69th St
17th St
Airport Rd
S 62nd St
S 48th St
55th St S
Belmont Rd
Columbia Rd
Washington St
Belmont Rd
8th St NE
81
2
29

NORTH

2

MILES

2035 Land Use Plan

City of Grand Forks, ND

Future Land Use

Grand Forks - East Grand Forks Metropolitan Planning Organization

G:\GF Land Use\2035 Land Use Plan\Land_Use_lark

THE FORKS Long Range Transportation Plan

Grand Forks 2035 Land Use Plan Map

Source: Grand Forks – East Grand Forks MPO

Figure 8

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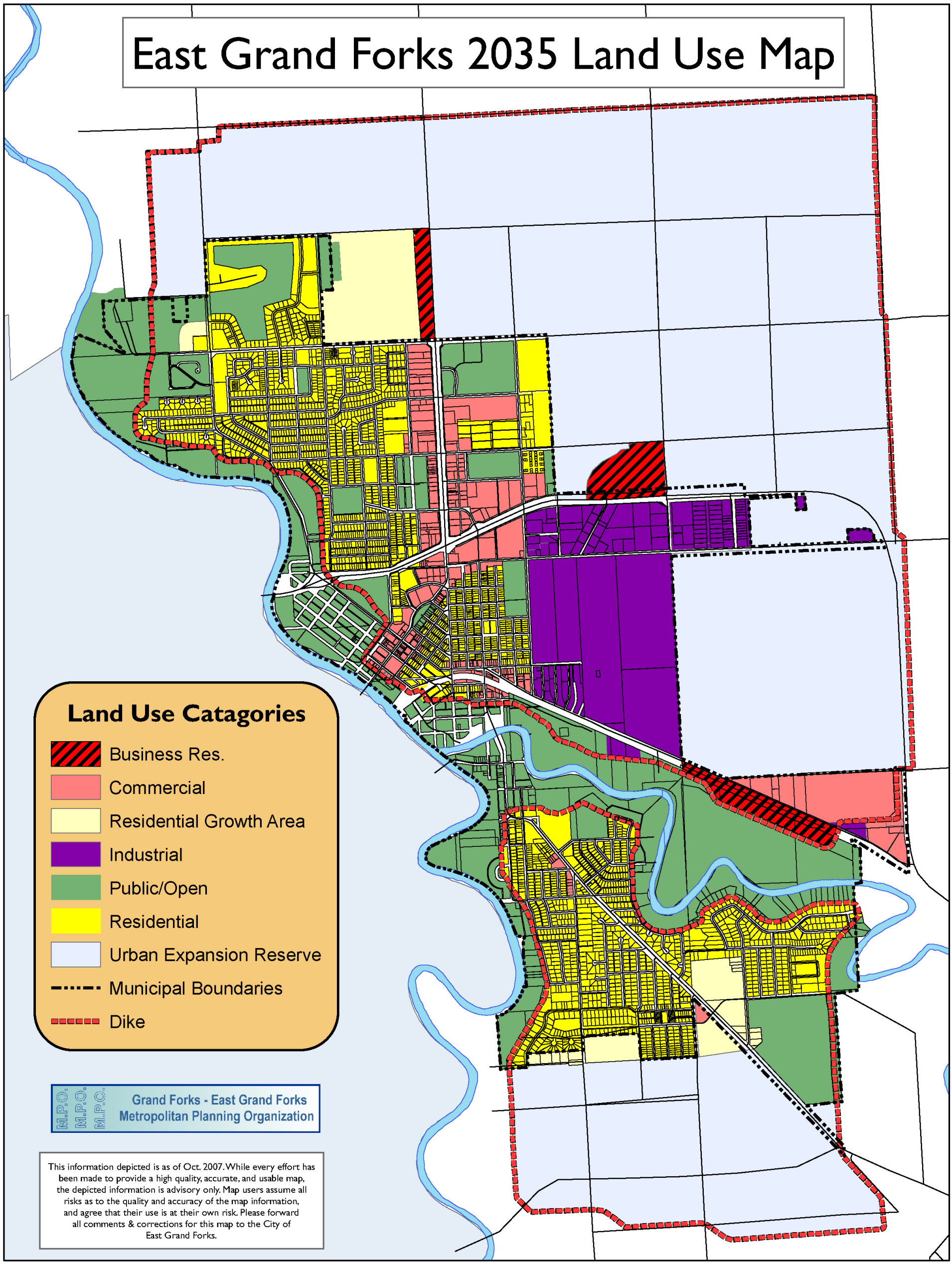
East Grand Forks 2035 Land Use Map



THE FORKS
Long Range Transportation Plan

East Grand Forks 2035
Land Use Plan Map

Source: Grand Forks – East Grand Forks MPO

Figure 9

URS

THE FORKS
Long Range Transportation Plan

Growth in Housing Units by TAZ 2005 to 2035

484 - Number of Added Houses (if more than 50)

- Less than 50 Added Houses
- 51 - 100 Added Houses
- 101 - 250 Added Houses
- 251 - 500 Added Houses
- More than 500 Added Houses

Figure 10

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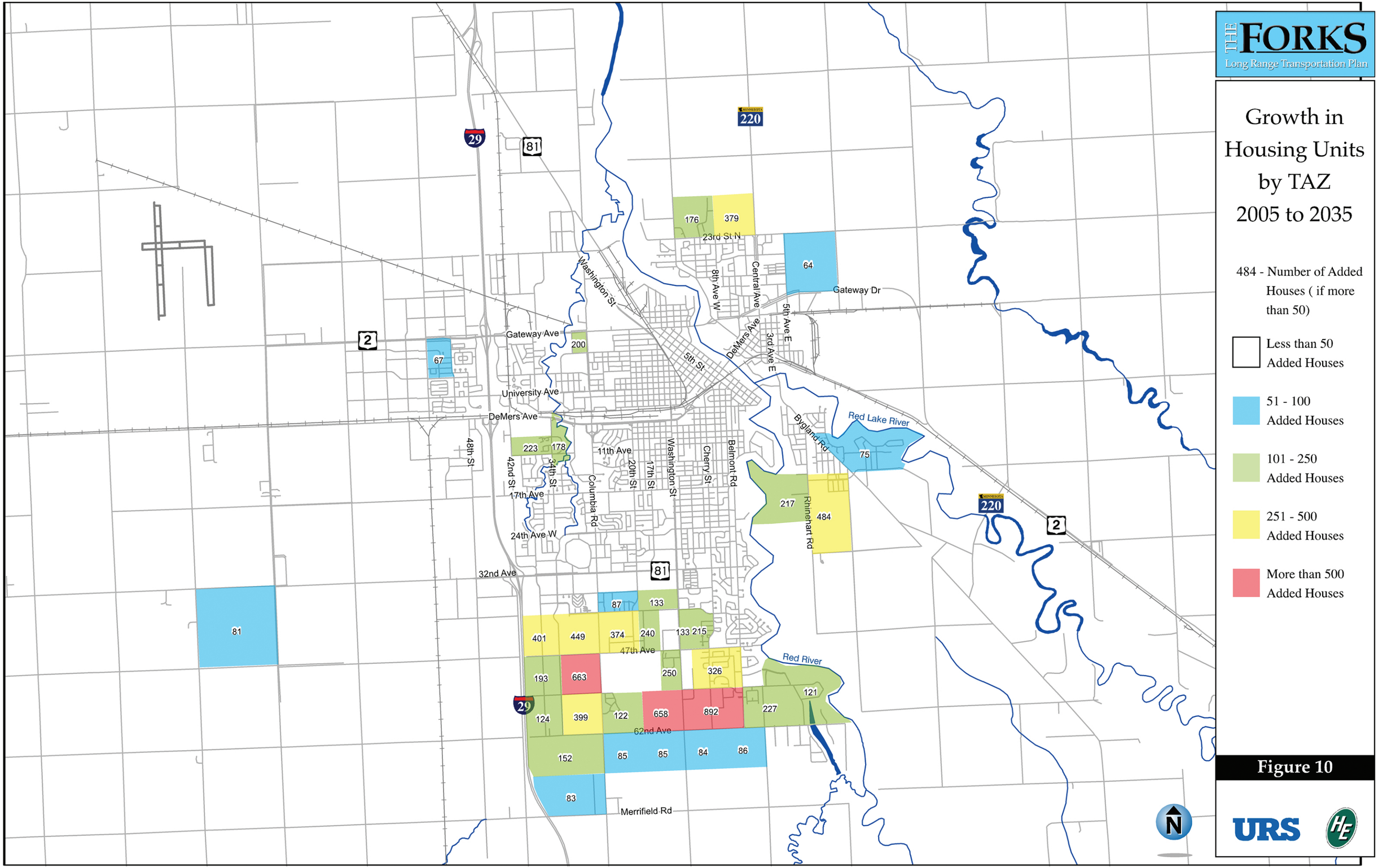

THE FORKS
Long Range Transportation Plan

Growth in Employment by TAZ 2005 to 2035

62 - Number of Added Jobs (If more than 50)

- Less than 50 Added Jobs
- 51 - 100 Added Jobs
- 101 - 250 Added Jobs
- 251 - 500 Added Jobs
- More than 500 Added Jobs

Figure 11

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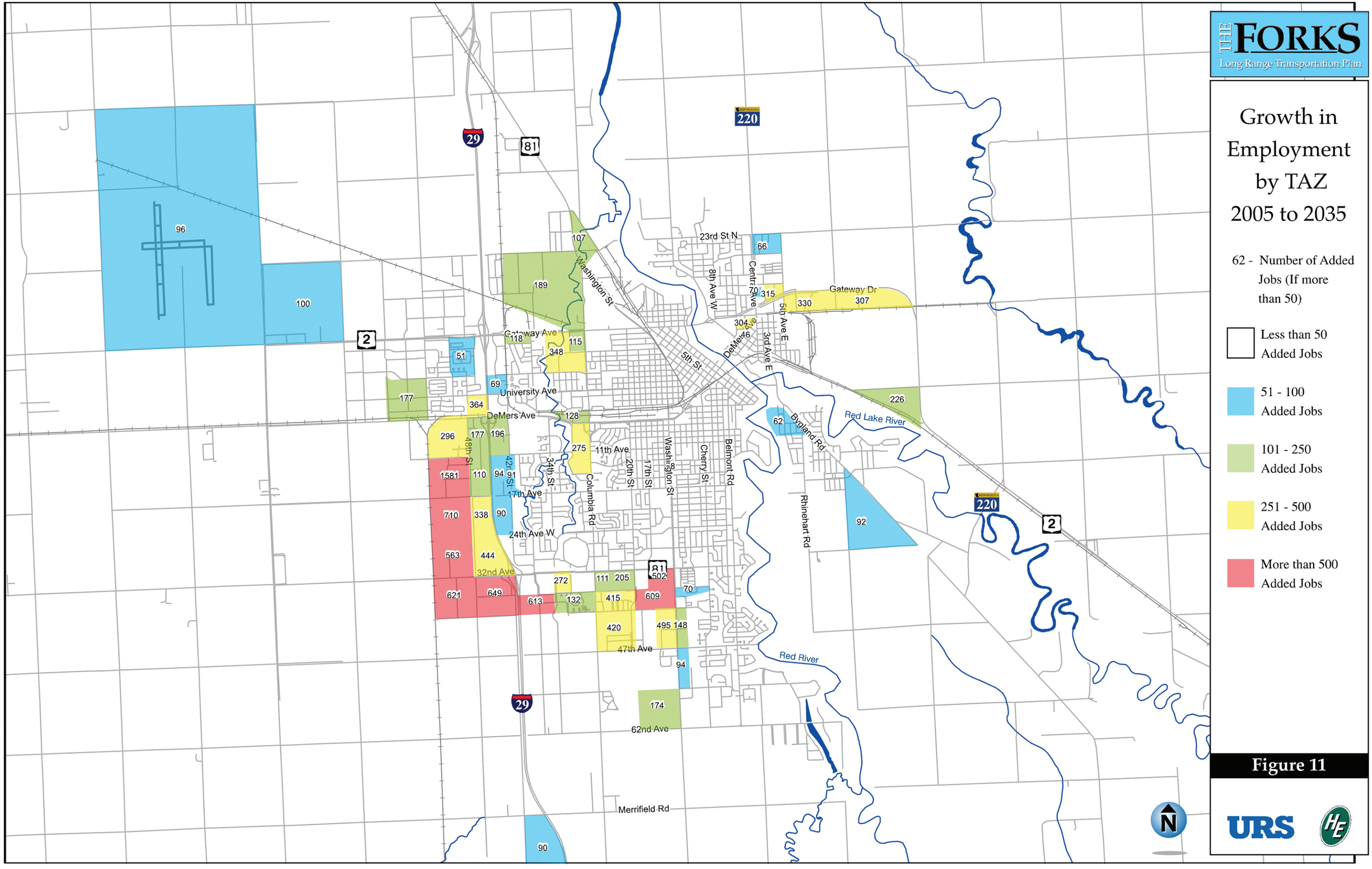

REGIONAL 2035 TRAFFIC FORECASTS

DAILY TRAFFIC FORECASTS

Traffic volumes for 2035 were forecasted by applying the travel model, based on the 2035 household and employment levels projected in the development concept. Table 11 documents the existing and forecasted trip generation levels for the study area, from three different perspectives:

- Trip generation growth: A summary of the daily number of trips that occur across the metropolitan area. Trip generation is projected to increase by approximately 34 percent, a rate similar to the level of housing and employment growth.
- VMT growth: A calculation of the number of metro area trips multiplied by their trip length. VMT between 2005 and 2035 is projected to grow by more (56 percent) than trip generation (34 percent), indicating that the average trip length is forecasted to increase over the planning horizon. This should be expected, given that the majority of new development is anticipated to occur on the fringe of existing development.
- VHT growth: A summary of the total, daily metropolitan travel time. VHT grew 57 percent between 2005 and 2035, approximately the same amount as VMT. This indicates that average vehicle speeds were approximately the same in 2005 and 2035. There was additional congestion along many corridors in the metropolitan area, which had the effect of lowering average speeds. However, this was offset by the fact that much of the growth in VMT was on the current urban fringe, where access control and capacity will allow traffic to travel at higher speeds.

TABLE 11. TRIP GENERATION AND VEHICLE MILES TRAVELED GROWTH

Model Scenario	Daily Vehicle Trips	Daily VMT	Daily VHT
2005	620,000	1,080,000	31,600
2035 Base Network	830,000	1,690,000	49,500
Percentage Growth (2005 to 2035)	34%	56%	57%

Sources: Grand Forks / East Grand Forks Travel Demand Model and URS Corporation

The daily traffic forecasts associated with the 2035 base roadway network are presented in Figure 12, along with existing (2005) daily traffic volumes. In general the corridors with the most traffic growth were adjacent to areas projected to have the most housing and employment growth. The following corridors are predicted to have at least 75 percent growth in daily traffic volumes:

- 48th Street between DeMers and 32nd Avenue South
- Columbia Avenue south of 28th Avenue
- Washington Street south of 32nd Avenue
- Belmont Road south of 32nd Avenue
- 47th Avenue South
- 32nd Avenue west of 34th Street
- DeMers Avenue west of I-29
- Bygland Road between Rhinehart Drive and the Point Bridge
- Point Bridge
- Central Avenue north of 15th Street
- United States Highway 2 (US 2) / Gateway west of 2nd Avenue NE

PEAK HOUR TRAFFIC FORECASTS

The existing (2005-2006) PM peak hour volumes and characteristics, including percentage of daily traffic and the percentage split by direction, were applied to the 2035 future daily traffic forecasts to convert daily traffic forecasts to peak hour traffic forecasts at the key intersections for which existing conditions were evaluated. Where appropriate, the existing peak hour characteristics were adjusted to reflect forecasted changes in adjacent land uses.

TRAFFIC OPERATIONS

The traffic operations analysis approach was the same as the approach used for the existing conditions. As with the existing conditions, the PM peak hour intersection analyses were conducted using the Synchro software program. Traffic operations were analyzed at key study area intersections for forecasted 2035 traffic levels. The traffic operations results are shown in Figure 13.

As with the existing conditions evaluation, a future traffic operations deficiency is defined as LOS D or worse. Table 10 includes a summary of the street / roadway mileage that is estimated to have deficient traffic operations. As shown in Table 10, the number of miles of street / roadway that operates at LOS D or worse is anticipated to increase from approximately two (2) miles in 2005 to approximately 12 miles in 2035.

Of primary concern is the change in congested miles in the principal arterial and minor arterial classifications, because these routes carry the majority of the regional traffic. Thus, if these routes are congested, a greater proportion of travelers in the region would experience delay. As shown in Table 12, there are 10.8 miles of principal and minor arterials projected to be congested by 2035.

THE FORKS
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2035 Daily Traffic Forecasts, Base Future Network

1,000 - 2005 Daily Traffic Count

1,000 - 2035 Daily Traffic Forecast

Figure 12

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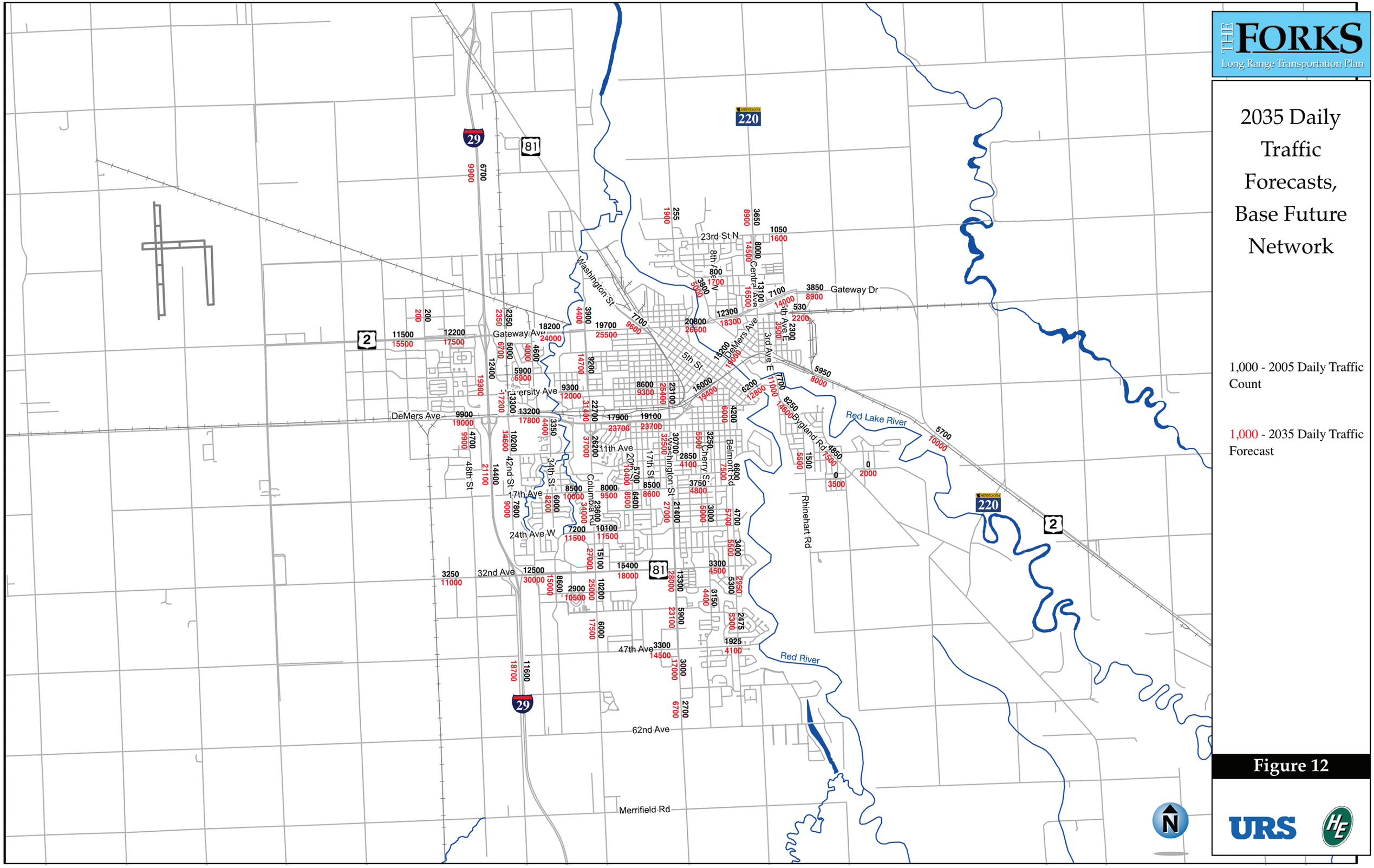

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2035 Base Condition Levels of Service

- Level of Service C
- Level of Service D
- Level of Service E
- Level of Service F

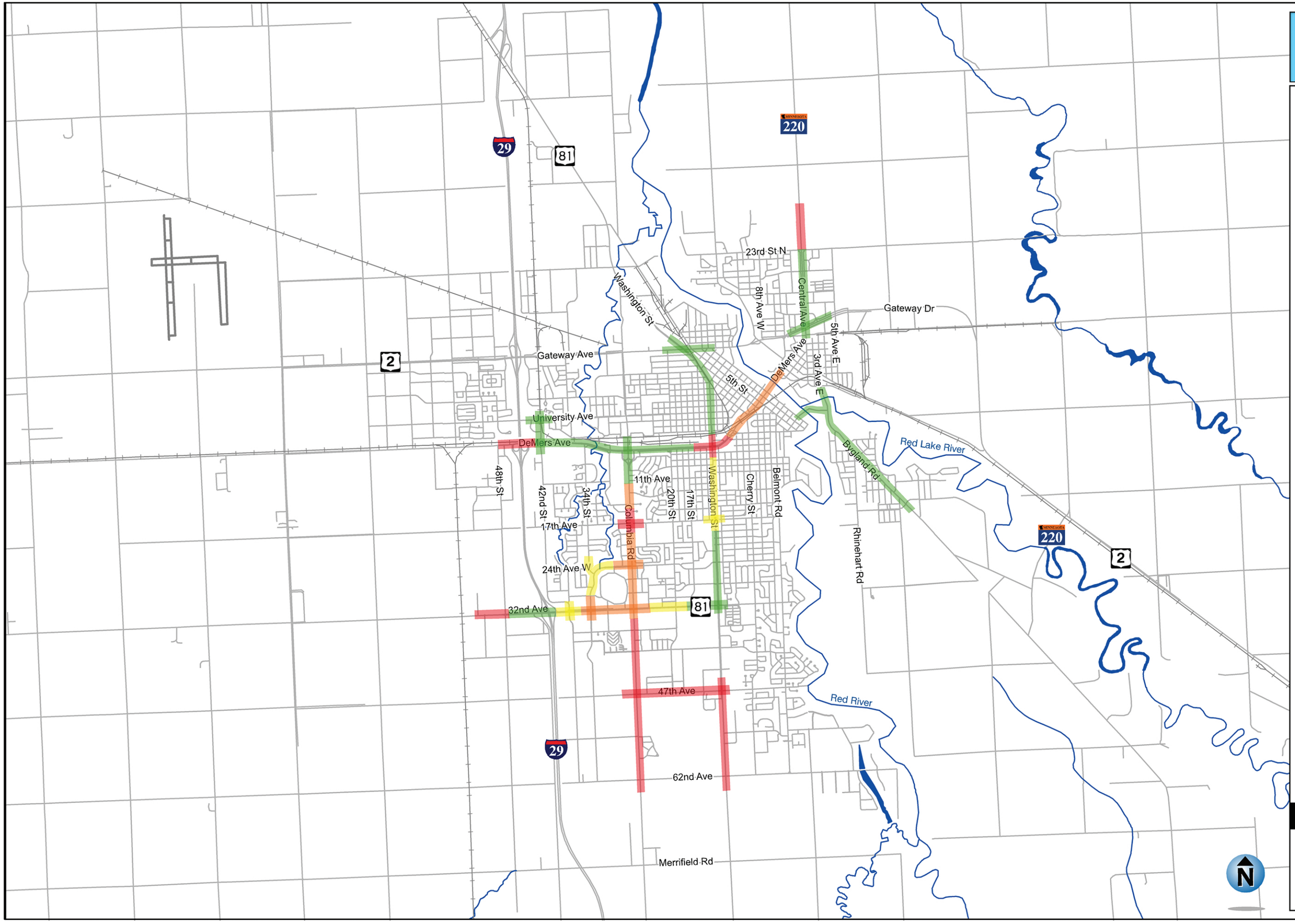

Figure 13

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As depicted in Figure 13, several corridors are forecasted to operate at LOS D or worse in the 2035 Base condition:

- DeMers Avenue between 48th Street and the I-29 ramps
- DeMers Avenue and Washington Street intersection
- Columbia Road between 13th Avenue South and 32nd Avenue South
- 32nd Avenue South between 38th Street and 20th Street
- Central Avenue north of 23rd Street N
- Columbia Road between 36th Avenue South and 62nd Avenue South
- Washington Street between 47th Avenue South and 62nd Avenue South
- 47th Avenue South between Columbia Road and Washington Street
- 32nd Avenue between 52nd Street and 48th Street
- 24th Avenue and 34th Street intersection

TABLE 12. CONGESTED MILES OF ROADWAY BY FUNCTIONAL CLASSIFICATION, 2005 AND 2035

Functional Classification	Existing (2005) Mileage			Future Base (2035) Mileage		
	LOS D	LOS E	LOS F	LOS D	LOS E	LOS F
Interstate	0.0	0.0	0.0	0.0	0.0	0.0
Principal Arterial	0.8	0.3	0.3	1.6	2.2	4.5
Minor Arterial	0.0	0.3	0.3	0.4	0.0	2.1
Urban Collector	0.0	0.0	0.0	0.7	0.5	0.0
Total	0.8	0.6	0.6	2.7	2.7	6.6

Source: URS Corporation

Street and Highway Alternatives Analysis

Overview

The alternatives analysis conducted as part of the Street and Highway Plan update process incorporated both quantitative and qualitative means to review the range of potential street and highway improvement concepts. While it may be desirable to develop the plan recommendations through purely analytical methods (quantitative) and testing, it was clear early in the alternatives analysis process that it is not really feasible to do so. There are a broad range of factors to evaluate when reviewing transportation improvements, with an equally broad range of perspectives and preferences in a diverse community such as Grand Forks – East Grand Forks. Due to these complexities, addressing the improvements selection through a purely by-the-numbers approach proves to be unreasonable. Thus, qualitative assessments based on broad community input were brought into the process.

The alternatives analysis process was implemented to focus on developing and evaluating a list of potential improvement alternatives, to address each issue and / or deficiency. The list of potential improvement alternatives was referred to as the "universe of alternatives". The universe of alternatives was developed to address:

- Locations where current and / or future capacity and / or connectivity deficiencies were identified.
- Locations where local planning and programming documents have identified potential corridor extensions and / or improvements.
- Safety concerns identified through the analyses completed by the study team and through the public involvement process.
- Roadway improvements / extensions into areas identified as residential and employment growth areas through the 2035 planning period.
- Provision of a regional system that transports persons and goods efficiently within and through the metropolitan area.

While the process of determining the most appropriate action for addressing a specific transportation issue can be complex as the technical and public involvement aspects interact, the identification of the universe of street / roadway improvement alternatives can be fairly straightforward. The possible alternatives generally fall into one, or a combination of, the following categories:

- Expand the deficient corridor by adding the through or turning lanes to reduce / eliminate the identified capacity or continuity gap deficiency. This category also includes smaller scale intersection improvements that do not result in additions to through capacity. These small-scale improvements are termed transportation system management (TSM) improvements.
- Develop alternate corridor(s) that would share / divert a part of the traffic load currently or forecasted to be within the deficient corridor.

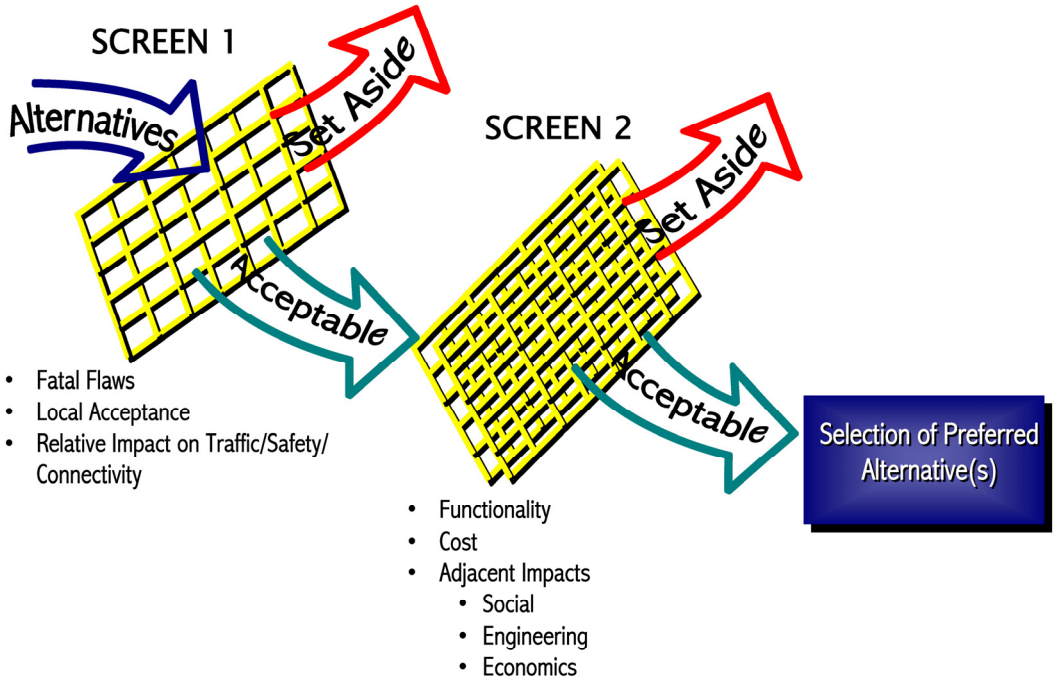
- Improve existing adjacent or complementary corridors, through adding capacity or increasing the level of connectivity and / or continuity that would result in sharing / diverting the traffic load currently carried within the deficient corridor.
- Create one-way pairs. If the deficient corridor carries traffic in both directions, additional capacity can be created by converting the corridor to one-way flow and pairing it with a complementary route that also carries traffic in only one direction.
- Upgrade the type of intersection treatment employed at the junction of two routes. The improvements could include upgrading a stop-controlled intersection to signal control, modifying a stop- or signal-controlled intersection to a roundabout (depending on the traffic patterns, levels and potential right-of-way impacts), or upgrading an at-grade intersection to a grade-separated interchange.
- Reduce the level of residential and / or employment growth assumed / allowed in either the region or within the travelshed of the deficient corridor. This alternative is most appropriate for corridors located outside the mature areas of the community.

SCREENING PROCESS

The alternatives analysis process incorporated a two-phased screening of the street and highway universe of alternatives. The two-level alternatives analysis process included:

- *Phase 1 Screening*: This analysis phase narrowed the universe of alternatives by removing those concepts that did not reasonably reflect the transportation goals or did not have local support. In this phase, the study team reviewed each of the street / highway alternatives relative to a set of criteria that reflect the local transportation system goals and the Federal MPO planning factors to identify potential fatal flaws. Those alternatives identified as containing fatal flaws were dismissed from further consideration.
- *Phase 2 Screening*: For each of the alternatives that were maintained through the Phase 1 assessment, additional levels of assessment were conducted, which evaluated the positive and negative aspects of the concepts relative to the established standards / evaluation criteria. The product of this stage was a prioritized listing of the projects to be included in the transportation plan. The prioritized listing was based on how well an individual alternative (or combination of alternatives) scored across all criteria compared to the other alternatives, using similar criteria and rating scale.

The two-level alternatives analysis process is illustrated below:



The screening process relied on the standards / evaluation criteria that were documented in the "Goals, Objectives and Standards" Chapter. The evaluation criteria are performance measures which have been developed to quantify how well each alternative achieves the locally-defined Plan goals and objectives. Each criterion represents an evaluation perspective that generally falls into one of three general categories:

- *Social Perspective*, including assessments of impacts to developed land, economic benefits and costs, project consistency with existing land use plans and economic initiatives, public support and community connectivity / continuity.
- *Environmental Perspective*, including transportation impacts to adjacent natural and built environs.
- *Engineering / Traffic Perspective*, including assessments of benefits / impacts to travel safety, congestion, constructability, and operations and maintenance.

PHASE 1 SCREENING

To accomplish the alternatives analysis goal of reviewing a broad range of alternatives within a reasonable time frame, the first step in the screening included review of the alternatives using more broadly-described measures intended to determine whether alternatives had a fatal flaw, through:

- Development of the Universe of Alternatives to address:
  - Locations of capacity and / or connectivity deficiencies
  - Locations of safety concerns identified through the analyses and through the public and stakeholder involvement process.

- Review of the alternatives using more broadly described measures intended to determine whether an alternative has a fatal flaw. A fatal flaw generally falls into one of the following categories:
  - The alternative does not address the issue intended or another issue.
  - The alternative results in a substantial impact on the adjacent surroundings (either built or natural) that cannot be reasonably mitigated.
  - The alternative exceeds the transportation improvement budget estimate for the metropolitan area.
  - The alternative cannot be reasonably constructed using current engineering standards or through allowing reasonable exceptions to the standards.

PHASE 2 SCREENING

The lit of alternatives maintained following the Phase 1 initial screening were not necessarily those that the study team believed should be included in the recommended long range transportation plan, but the maintained list included concepts that provided some utility in meeting the transportation goals and in addressing identified transportation issues / concerns / deficiencies. The maintained alternatives were promoted to the second level of screening and reviewed in greater detail to establish the extent to which each concept met the transportation goals and if they could reasonably be funded over the planning period. Many of the concepts / ideas that were maintained through the initial screening were eliminated, or set aside, through completion of the second level of the screening analysis.

The purpose of the Phase 2 screening process was to more thoroughly review each of the remaining ideas / concepts and prioritize them such that those alternatives likely to be implemented by were 2035 combined to provide a roadway system that supports the regional transportation goals and is within the region's anticipated long-range funding capabilities. Development of the prioritized list required several iterations of review and prioritization.

The alternatives were reviewed relative to the following perspectives:

- Social acceptability / effects
- Engineering feasibility; operations and safety benefits.
- Environmental impacts.

In the second level screening a project scoring system was employed to identify a hierarchy of how well each of the projects would meet the goals and objectives of the plan and how they were viewed by the community. Using the scoring system each improvement concept was evaluated on a scale from 0 to 6 in abroad range of criteria categories. The criteria addressed the impacts / benefits of a project from the social, engineering and environmental perspectives. Categories of assessment included:

- Local public support for project / program
- Multi-modal support
- Consistency with local / regional plans
- Connectivity / continuity
- Consistency with local economic development activities

- Safety
- Congestion relief
- Security
- Cost
- Operations and maintenance
- Level of impact to VMT / VHT / Trip Generation
- Air quality impacts
- Impacts to adjacent built / natural environment
- Economic impact

Within the categories of each of the measures of effectiveness listed above, qualitative and quantitative definitions for the scores from 0 through 6 were derived. A matrix of the scoring definitions by measure of effectiveness is documented in Table 13.

In working with the MPO TAC throughout the alternatives analysis process, it was stressed that the projects with the highest prioritization scores were not those that necessarily were ultimately selected. The prioritization exercise was intended to allow the study group to focus on how each project met the overall Plan goals and objectives in relation to others. A project that scored the highest did not automatically become the selected project for a given issue / deficiency. At the request of TAC members, two different approaches to the prioritization were reviewed, including weighting certain factors more heavily to evaluating the sensitivity of project scoring. The fact that TAC members had different interpretations of how the scoring system should be employed illustrates how the prioritization system is merely another evaluation tool for the alternatives, but was not the ultimate determination of which projects were to be included in the Recommended Plan. This prioritization process effectively provided a general sense of how each project met the regions goals and objectives.

Supporting documentation that provides an overview of the alternatives analysis process and the universe of alternatives evaluated is presented in Appendix D. The alternatives analysis process was presented at the second public meeting held in May 2007 and alternatives analysis documents and figures were made available to the general public via the MPO website.

TABLE 13. ALTERNATIVES ANALYSIS PRIORITIZATION CRITERIA AND SCORING

Assessment Perspective / Measure of Effectiveness	Score / Definition			
	6	4	2	0
Social				
Local Public Support for Project / Program	Significant Community Support / Consistent with Other Plans / Guidelines	Moderate Support from Community / Leaders	Minimal Support from Community / Leaders	No / Limited Support
Multi-Modal Support	Project Includes Significant Multi-Modal Links (Transit / Non-Motorized / Roadway); Incorporated into Design	Project Includes Moderate Multi-Modal Links (Transit / Non-Motorized / Roadway)	Project Includes Minimal / Isolated Multi-Modal Links (Transit / Non-Motorized / Roadway)	Project Does Not Address Multi-Modal Connectivity
Consistency with Local / Regional Plans	Supports Land Use Plan Concepts and is in TIP	Supports Land Use Plan Concepts / Other Plans	Not Addressed in Other Plans / Inconsistent with Some Plans	Inconsistent with Land Use Plans / Other Plans
Connectivity / Continuity	Provides Significant New Connections Between Key Areas in the Region	Provides Improved Connectivity Between Neighborhoods, Limited Impact to Neighborhood Integrity	Little Impact on Continuity / Connectivity	Isolated Route Provides Access to Growth Area, But No Through Connection or Reduced Connectivity
Consistency with Local Economic Development Activities	Would Directly Support / or is Strongly Consistent with Local Economic Development Activities	Moderately Consistent with Local Economic Development Activities	Not Addressed by Economic Development Activities	Inconsistent with Local Economic Development Activities

TABLE 13. ALTERNATIVES ANALYSIS PRIORITIZATION CRITERIA AND SCORING (CONTINUED)

Assessment Perspective / Measure of Effectiveness	Score / Definition			
	6	4	2	0
Engineering				
Safety	Project Targets Known High Accident Location	Project Targets Known Moderate Accident Location	Generally Safer Design Concept with No Identified Crash Problem, or Diverts Traffic from High / Moderate Crash Location	No Impact
Congestion Relief	Directly Mitigates Congestion in a Corridor Currently Severely Congested	Directly Mitigates Congestion in a Corridor Currently Moderately Congested or Forecasted to be Severely Congested	Directly Mitigates Congestion in Corridors Forecasted to be Moderately Congested	Limited / No Direct Impact on Corridor Congestion
Security	Significantly Enhances System Security, Flood Control and / or is Consistent with Security Plans	Moderately Enhances System Security and / or Flood Control Plans	Limited Enhancement to System Security and Flood Control Plans	Negative Effects on System Security and / or Is Detrimental to Flood Control / Security Plans
Cost	Low Cost (Locally) and Within the Transportation Budget Constraints	Moderate Local Cost / Within Transportation Budget Constraints	Moderate / High Cost, But Within the Transportation Budget Constraints	High Cost / Not within the Transportation Budget Constraints
Operations and Maintenance	High Maintenance Priority / Would Significantly Reduce Operations / Maintenance Costs	Moderate Maintenance Priority / Reduces Operations / Maintenance Costs	Neutral Affect on Operations / Maintenance Costs	Results in an Increase in Operations / Maintenance Costs

TABLE 13. ALTERNATIVES ANALYSIS PRIORITIZATION CRITERIA AND SCORING (CONTINUED)

Assessment Perspective / Measure of Effectiveness	Score / Definition			
	6	4	2	0
Environmental				
Level of Impact to VMT / VHT / Trip Generation	Positive Impact by Reducing Growth in VMT, VHT or Trips	Moderate Impact by Slightly Slowing the Increase in VMT, VHT and / or New Trips	Minimal Impact on Rate of Change in VMT, VHT and / or New Trips	No Impact / Increases VMT / VHT / New Trips
Air Quality Impacts	Significant Decrease in Transportation Emissions	Moderate Decrease in Transportation Emissions	Minimal Increase or Decrease in Transportation Emissions	Increase in Transportation Emissions
Impacts to Adjacent Built / Natural Environment	No / Few Impacts to Adjacent Homes, Businesses, Natural Features	Minimal Impacts to Adjacent Homes, Businesses, Natural Features	Moderate Level of Impacts to Adjacent Homes, Businesses, Natural Features	Significant Level of Impacts to Adjacent Homes, Businesses and / or Natural Features
Economic Impact	Project Would Result in Significant Improvement to Goods and People Movement / Tourism Enhancement	Supports Improvement to Movement of People and Goods / Tourism Enhancement	Project Supports Speculative / Temporary Opportunities	No Impact / Negative Impact

FUNDING THE STREET AND HIGHWAY PLAN

Passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 transformed the long-range transportation planning process in many metropolitan areas away from "needs" based analyses, with little-to-no consideration given to the transportation funding amount, to a financially-constrained project / program planning approach. The fiscal evaluation element of the process has evolved considerably since that point. Through ISTEA and the Congressional transportation funding re-authorizations of TEA-21 in 1998 and SAFETEA-LU in 2005, MPOs were required to demonstrate that projects and program activities included in the transportation plan were reasonably fundable for both the long-term and the near-term TIP.

The process of determining a fundable / financially-constrained plan involves determining both: 1) the level of anticipated street and highway funding / revenue through the planning horizon of 2035 and 2) the cost associated with the projects and programs included in the recommended street and highway plan. This chapter will focus on the funding side of the plan development

FUNDING APPROACH

Estimating future funding levels for the region is much like the process of forecasting land development or future traffic levels. The process requires making a number of assumptions relative to the individual components that impact the allocation of transportation dollars. As Outlined in 49 USC Section 3005, the improvement plan incorporated into the metropolitan areas Long Range Transportation Plan is required to contain:

"A financial plan that demonstrates how the adopted transportation plan can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financing strategies for needed projects and programs. The financial plan may include, for illustrative purposes, additional projects that would be included in the adopted transportation plan if reasonable additional resources beyond those identified in the financial plan were available.[7]"

The legislation and FHWA guidance do not provide an approach to demonstrating that metropolitan transportation plan funding estimates are "reasonably expected to be made available". The methodology used for Grand Forks – East Grand Forks was developed specifically for the region based on the information available and was reviewed by FHWA. The approach to forecasting future funding relied on a review of historical expenditure levels in the MPO area and an assessment of future "expected" levels of funding included in the current transportation system authorization bill.

[7] TITLE 23, CHAPTER 1, SUBCHAPTER I, § 134

STREET AND HIGHWAY FUNDING ESTIMATES (2007 DOLLARS)

The process of estimating funding levels specifically employed the following steps:

1. Examined actual expenditures in the MPO area over a historical period. Data were available for East Grand Forks from 1993 through 2006 and were available for Grand Forks from 1995 through 2006.
2. Divided projects over the historical period into two categories: 1) maintenance / rehabilitation and 2) expansion projects. Expansion projects were the focus of this exercise, since the LRTP-recommended project list will only include expansion projects. Maintenance and rehabilitation projects will not be included on the list of Plan projects; as such, the LRTP will not need to identify funding for maintenance / rehabilitation projects, and thus historical spending on such projects needs to be removed from the Plan's historical-based funding evaluation.
3. Inflated the historical period expenditure levels to 2007 dollars, on a year-by-year basis. Consumer Price Index (CPI) inflation rates observed over the period were applied to expenditure values in each of the years in a period to develop 2007 dollar amounts. Application of a Construction Price Index rate of change in costs was not used because the real value of the expended dollars is not directly tied to that more focused basket of goods and services index.
4. For the historical period, developed an annual average expenditure on transportation system for the combined categories of maintenance / rehabilitation and expansion.
5. Extrapolated the annual average expenditure level through the 2035 planning period.
6. Applied the historical split between maintenance / rehabilitation and expansion observed in the data reviewed.

Generally, reviewing 12 to 14 years of data, such as the period available for Grand Forks - East Grand Forks, results in observing a full cycle of local / regional street and highway expenditures. Over an extended period in a given urban area there generally is a cycle of years with low expenditures and years of high expenditures, relative to the mean. More specifically, the historical period studied should also capture a good representation of both Federal allocations of street and highway dollars and of local / state capacity to match those Federal dollars. Thus, this approach provides a reasonable expectation of future available funding resources as it is based on a solid trend of historical performance.

Listed below are the annual average funding estimates for each community:

- Annual historical period expenditures (2007 dollars):
  - Grand Forks: $5,549,000
  - East Grand Forks: $1,662,000.

- Expansion, rehabilitation / maintenance and transportation enhancements division (annual levels in 2007 dollars):
  - Grand Forks:
    - Expansion: $3,884,000
    - Rehabilitation / maintenance: $1,387,000
    - Transportation enhancements: $277,000
  - East Grand Forks:
    - Expansion: $831,000
    - Rehabilitation / maintenance: $665,000
    - Transportation enhancements: $166,000

STREET AND HIGHWAY FUNDING PROJECTIONS

As the LRTP must be cost constrained, an analysis of the revenue estimates for the expected year of expenditure must be completed. A locally-derived methodology for estimating street and highway revenue was developed based on the steps outlined below:

- From available sources, including the TIPs, planning documents and DOT staff, estimate the potential for change in absolute dollar funding levels over time. (i.e., not adjusted for inflation) relative to historical levels.
- From the information gathered as part of the above step, determine a planning period annual adjustment to apply to the 2007 dollar annual funding estimate.
- Escalate the funding level through the planning period, summing the levels for each of the Short-term, Mid-term and Long-term periods.

For each state, forecasts of potential funding changes beyond the 2007 levels were based on available documents and discussions with staff at the state DOT level. The general approach to this, by state, is:

- *North Dakota*: The primary source of locally-expended transportation funds are the Urban Roads, Urban Regional and Transportation Enhancement programs. The Statewide Transportation Improvement Program (STIP) for the period from 2008 through 2011 documents an annual average increase of 5.4 percent per year. Based on discussions with NDDOT staff, the 5.4 percent annual growth shown in the Urban Roads portion of the STIP was exceptionally high compared to long-term expectations. A more conservative assumption of two (2) percent per year was agreed upon as a more reasonable rate of revenue growth for the state. Annual and planning period cumulative funding estimates associated an annual escalation rate of 2.0 percent per year are shown in Table 14. The cumulative planning period funding estimate would be $150.7 million.
- *Minnesota*: As part of the statewide LRTP, Mn/DOT has developed planning-level roadway construction funding forecasts for each of the districts and a cumulated level for the entire state. Part A of the General Guidance also states that the Mn/DOT district projections used in the statewide LRTP be used to project each District's fiscally constrained investment scenarios. For District 2 the state road construction funding estimates for the various periods are as follows:

- 2008-2010: $31 million per year.
- 2011-2014: $34 million per year.
- 2015-2023: $36 million per year.
- 2024-2030: $38 million per year.

The projected change in district funding reflects an annualized growth rate of approximately one (1) percent per year over the state LRTP planning period. The state LRTP funding forecasts were used only to obtain an estimate of the annualized change in funding (not actual funding levels), since only a portion of the overall projected district construction funding will be allocated to the East Grand Forks study area. The annual and planning period cumulative funding estimates, which result from applying the 1.0 percent annual factor to the current annual funding estimate of $831,000 (for expansion projects), is shown in Table 14.

In addition to the historical-based expectations, transportation funding for projects in the East Grand Forks area will increase due to revisions to the Areawide Transportation Partnership (ATP) sub-target allocation that took effect in 2006. The change in the ATP sub-target increased funding on a four-year cycle from $375,000 to $755,000. Thus, over the planning period through 2035 an additional $2,660,000 would be available to fund street and highway projects. It is estimated that $1,330,000 of the 28-year ATP increase would go towards expansion projects, and the remainder towards rehabilitation / maintenance and enhancement projects.

FEDERAL FUNDING SOURCES UNDER SAFETEA-LU

The purpose of this section is to provide an overview of the various Federal sources from which transportation funds could be available for implementing the recommended plan improvements and to provide estimates of the funding levels. SAFETEA-LU has many distinct funding categories, but the vast majority of Federal funding used in the Grand Forks – East Grand Forks area is provided through a handful of programs, mainly the following:

- Interstate Maintenance (IM) Program
- National Highway System (NHS) Program
- Surface Transportation Program (STP) Program
- Congestion Mitigation Air Quality (CMAQ) Program
- Highway Bridge Program
- Transportation enhancement (TE) program
- Safe Route to School Program

For projects funded through most of the Federal programs, cost responsibilities are generally split 80 percent and 20 percent between Federal and state or local sources, respectively. Outlined in the following sections are the general parameters of each of the Federal and state funding programs likely tapped as part of the financial assessment for the LRTP.

TABLE 14. MPO ANNUAL FUNDING FORECASTS BY YEAR AND STATE

Year	Funding Received by Year	
	North Dakota	Minnesota
2007	$3,884,000	$831,000
2008	$3,962,000	$838,000
2009	$4,041,000	$846,000
2010	$4,122,000	$854,000
2011	$4,204,000	$862,000
2012	$4,288,000	$870,000
2013	$4,374,000	$878,000
2014	$4,461,000	$886,000
2015	$4,550,000	$894,000
2016	$4,641,000	$902,000
2017	$4,734,000	$910,000
2018	$4,829,000	$918,000
2019	$4,926,000	$926,000
2020	$5,025,000	$934,000
2021	$5,126,000	$942,000
2022	$5,229,000	$950,000
2023	$5,334,000	$959,000
2024	$5,441,000	$968,000
2025	$5,550,000	$977,000
2026	$5,661,000	$986,000
2027	$5,774,000	$995,000
2028	$5,889,000	$1,004,000
2029	$6,007,000	$1,013,000
2030	$6,127,000	$1,022,000
2031	$6,250,000	$1,031,000
2032	$6,375,000	$1,040,000
2033	$6,503,000	$1,049,000
2034	$6,633,000	$1,058,000
2035	$6,766,000	$1,068,000
Total Funding Anticipated	$150,706,000	$27,411,000

The Grand Forks – East Grand Forks area also receives transit capital and operating funds, such as Federal Transit Administration (FTA) Section 5307 funds, Section 5309 funds and Section 5311 funds. However, the projects and programs included in the Street and Highway Plan are not eligible to directly receive transit program funding sources. The following sections present general descriptions of the funding programs for which Street and Highway Plan projects are eligible.

INTERSTATE MAINTENANCE (IM) PROGRAM

The Interstate Maintenance (IM) program provides funding for projects on the Interstate System (I-29) involving resurfacing, restoring, and rehabilitation of the existing interstate system. The Federal share for IM projects is 90 percent and the state is responsible for 10 percent.

NATIONAL HIGHWAY SYSTEM (NHS) PROGRAM

National Highway System (NHS) program provides funding for an interconnected system of routes which will serve major population centers, border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities, meet defense requirements, and serve interstate and interregional travel. The NHS includes all Interstate routes, some urban and rural principal arterials, the defense strategic highway network, and strategic highway connectors. NHS routes in the Grand Forks – East Grand Forks region include:

- I-29
- US 2
- US 81

The Federal cost share for an NHS-eligible project is 80 percent and the state is responsible for the remaining share of 20 percent. Activities eligible for NHS funding include construction, reconstruction, resurfacing, restoration, and rehabilitation of segments of NHS routes.

SURFACE TRANSPORTATION PROGRAM (STP) PROGRAM

Surface Transportation Program (STP) funds (including Safety and Enhancement funds) are the most flexible Federal funding program under SAFETEA-LU in that it provides broad discretion for state and local governments to fund a variety of activities. The Federal cost share for an STP-eligible project is 80 percent and the state is responsible for the remaining share of 20 percent. Eligible activities include:

- Construction, reconstruction, rehabilitation, resurfacing, restoration, and operational improvements for roads and bridges. Eligible programs or projects include construction or reconstruction along STP-eligible facilities necessary to accommodate other transportation modes.
- Capital costs for transit projects including vehicles and facilities.
- Carpool projects, fringe and corridor parking facilities and programs, bicycle and pedestrian facilities on any public road and the modification of sidewalks to comply with the Americans with Disabilities Act (ADA).
- Highway and transit safety infrastructure improvements and programs, hazard elimination projects and railway-highway grade crossings.

- Capital and operating costs for traffic monitoring, management, and control facilities and programs.
- Surface transportation planning programs.
- Transportation enhancement activities (see enhancement section).
- Habitat and wetland mitigation efforts.
- Infrastructure-based intelligent transportation system capital improvements.
- Environmental restoration and pollution abatement projects to address water pollution or environmental degradation caused or contributed to by transportation facilities.
- Control of terrestrial and aquatic noxious weeds and establishment of native species

CONGESTION MITIGATION AIR QUALITY (CMAQ) PROGRAM

Congestion Mitigation Air Quality (CMAQ) funds are used on projects and programs intended to address transportation-related pollution concerns. Federal participation is dependent on the specific type of project being funded. Selected project types can be funded 100 percent Federally. The eligible projects / programs are across many modal systems and include:

- Public Transportation Improvements.
- Traffic Flow Improvements such as roundabouts, high-occupancy vehicle (HOV) lanes and left-turn lanes that show net emissions benefits.
- Transportation Demand Management Projects / Programs.
- Bicycle and Pedestrian Projects.
- Alternative Fuel Projects.
- Inspection and Maintenance Programs.
- Intermodal Freight Transportation.
- Public Education and Outreach.
- Idle Reduction Technology.
- Intelligent Transportation Systems.

Projects that add capacity for single-occupant vehicles (SOVs) or routine maintenance / rehabilitation projects are not eligible for CMAQ funding.

HIGHWAY BRIDGE PROGRAM

The Highway Bridge program is a funding source used to improve the condition of highway bridges through replacement, rehabilitation, and preventive maintenance. A set aside of not less than 15% of the amount apportioned to each state will be used for bridge projects that are not on a Federal-aid highway. Bridge replacement funds require an 80 / 20 Federal-to-state matching ratio; the Federal-to-state ratio on interstate bridge projects is 90 / 10.

TRANSPORTATION ENHANCEMENT (TE) PROGRAM

Transportation enhancement (TE) program is a funding source used on projects intended to strengthen the cultural, aesthetic, and environmental aspects of the transportation system. Eligible TE projects / programs include:

- Pedestrian and bicycle facilities.
- Pedestrian and bicycle safety and educational programs.
- Acquisition of scenic or historic easements and sites.
- Scenic / historic highway projects and programs.
- Landscaping and scenic beautification.
- Historic preservation.
- Rehabilitation and operation of historic transportation infrastructure.
- Conversion of abandoned railway corridors to trails.
- Inventory, control, and removal of outdoor advertising.
- Archaeological planning and research.
- Environmental mitigation of runoff pollution and provision of wildlife connectivity.
- Establishment of transportation museums.

SAFE ROUTES TO SCHOOL PROGRAM

Safe routes to school program is a funding source that is targeted at projects and programs that benefit students in kindergarten through 8th grade, ensuring that there are appropriate alternatives to single-family automobile transportation to and from school. The programs focus on enhancing students' transportation options, safety and student health, while providing decreased traffic congestion, fuel consumption and improved air quality around schools.

Recommended Street and Highway Plan

The 2035 Grand Forks – East Grand Forks Recommended Street and Highway Plan was developed through review of numerous potential combinations of improvement projects that address the street / highway goals and objectives. Each potential package of projects was evaluated relative to two questions:

- Does it meet the MPO's transportation system goals and objectives?
- Are the included improvement projects within the MPO's funding capability?

There were multiple iterations of reviewing individual improvement alternatives and evaluating grouped packages of alternatives with the MPO TAC, and discussing the relative impacts and benefits of each alternative and network package. The TAC worked as a group to develop a financially-constrained draft recommended project and program list which was carried forward to the Executive Board as a draft Recommended Street and Highway Plan. The draft Plan was also presented to the various decision-making bodies in each community and to the general public for feedback. Based on input received from each of the stakeholder groups and the technical analyses completed, a recommended street and highway improvement program for the region was developed. Elements of the street and highway system plan include:

- Current 2008 through 2011 TIP projects.
- Street and highway system improvements from the LRTP that address:
  - Safety issues.
  - Existing and future congestion reduction.
  - System connectivity / accessibility goals.

The projects included in the Recommended Street and Highway Plan list represent those projects categorized as system improvement and expansion. Maintenance and operation of the street and highway system is not included as separate list of projects in the recommended Plan improvement list. This does not mean that the need to maintain the current system is not recognized by the Street and Highway Plan. As documented in the Chapter "Funding the Street and Highway Plan", future funding levels were estimated for both maintenance / operations and system improvement / expansion. Only system improvement / expansion projects are included in the Street and Highway Plan of the LRTP.

The remainder of this chapter includes:

- Brief summaries of the recommended projects.
- Identified issues not directly addressed by recommended projects.
- Year of expenditure project costs.
- Comparison of future street and highway costs and revenue.
- Future functional classification.

PROJECT OVERVIEWS BY IMPLEMENTATION PERIOD

This section of the chapter presents the recommended Street and Highway plan. The various projects are grouped and summarized according to their anticipated implementation period:

- Short-term: 0 to 5 years forward (2007-2012).
- Mid-term: 6-15 years forward (2013-2022).
- Long-term: 16-28 years forward (2023-2035).

Each project includes anticipated current year (2007) costs. Alternatives are also presented by their alternative identification name, a number – letter combination that is unique to each project. An illustration and summary of the recommended project list is provided in Figure 14, presented by implementation period.

SHORT-TERM PROJECTS: 2007 THROUGH 2012

Projects included in the short-term were those that addressed immediate needs in the metropolitan area, would likely require a relatively short amount of time for project development and would likely have adequate funding in the short-term. Committed projects that are included in the current MPO TIP were included in the Short-term recommended project list. The TIP projects were consistent with the current Street and Highway Plan goals and objectives, have been studied in previous planning efforts and have identified project funding sources and were therefore incorporated into the LRTP. The current TIP expansion projects which are being included on the recommended project list for the 2035 Street and Highway Plan include:

- Extension of 48th Street South between 17th Avenue South and 32nd Avenue South (Project TIP1).
- Construction of a new intersection at 5th Avenue NW and Gateway Drive (Project TIP2).

Short-term LRTP projects included in the recommended plan list are:

- DeMers Avenue / Downtown Traffic Signal System Improvements (Project 4A).
- Gateway Drive Access Management Study Recommendations (Project 14A).
- Remove On-Street Parking at 11th Avenue South / 14th Street (Project 13A).
- Channelize the Northbound Approach of 24th Avenue South / 29th Street (Project 5B).

THE FORKS
Long Range Transportation Plan

2035 Recommended Street and Highway Plan

Project Listing

TIP Projects
TIP 1 48th Street Extension
TIP 2 5th Avenue NE / Gateway Drive Intersection

Short-term Projects
4A CBD Traffic Signal System Upgrade
5B Channelize Northbound 29th St at 24th Ave
13A 11th Ave / 14th St Parking Restrictions
14A Gateway Drive Access Management Recommendations

Mid-term Projects
1A Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave S
1C Columbia / 17th Ave S: Add dual left-turn lanes for all approaches
1E 20th Ave S Extension to Columbia Road
1I Widen 42nd Street to 4 Lanes: 17th Ave to 29th Ave
1K Merrifield Road Red River Crossing
2H DeMers / Washington: Add Eastbound and Westbound Through Lanes
3H Merrifield Road Interchange
3K 17th Ave S Overpass of I-29
3M Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps
30 34th St / 32nd Ave: Add Southbound Right-turn Lane
5A Roundabout at 34th St / 24th Ave
6A Bygland Road: Restripe as 3-Lane Roadway
10A Signalize 36th / Columbia and Provide 3/4 Access at Wal-Mart SuperOne Driveway
18D 3-Lane 47th Ave South: Columbia Rd to Washington St
18E Widen Central Ave: 17th St to 23rd St
20A Extend NB I-29 DeMers On-Ramp
22D WB Left-Turn Lane at Bygland Rd / CR 58

Long-term Projects
1L 32nd Ave S Red River Crossing
3B 32nd / Columbia: NB and WB Dual Lefts
8A Signalize 48th / DeMers and I-29 / DeMers Ramps
18A 4-Lane 32nd Ave: 52nd St to 48th St
18B 4-Lane Columbia Rd: 34th Ave to 50th Ave
18C 4-Lane Washington St: 48th Ave to 57th Ave
19A DeMers / 42nd / BNSF Grade Separation
22B New East-West Arterial Connecting the 32nd Ave Bridge to Bygland Rd
22E Signalize TH 220 / US 2

Illustrative Projects
1G 47th Ave S: Preserve Corridor for Future Interchange
7A Central Spine Concept
17E New North-South Road Connecting Crystal Sugar Plant to 10th St NE
18E Widen Central Ave: 23rd St to North Dike
23A Continue to Evaluate Long-Term Need for North Bypass / Truck Relief Route

Implementation Period
- TIP Project
- Short-term
- Mid-term
- Long-term
- Illustrative

Figure 14

URS

48TH STREET SOUTH EXTENSION (PROJECT TIP1)

This concept would provide a new connection between DeMers Avenue and 32nd Avenue South, through the industrial park west of I-29. The project would include:

- Extending South 48th Street as a three-lane facility with right turn lanes between 17th Avenue and 32nd Avenue South. The concept would provide improved access and traffic operations for the corridor as the industrial park growth continues.
- Reconstruction of 48th Street between DeMers Avenue and 17th Avenue.
- Improved turn radii at the intersection of 48th Street / DeMers Avenue to improve truck operations.
- Improve turn radii at the intersection of 32nd Avenue / southbound I-29 ramps to improve truck operations.

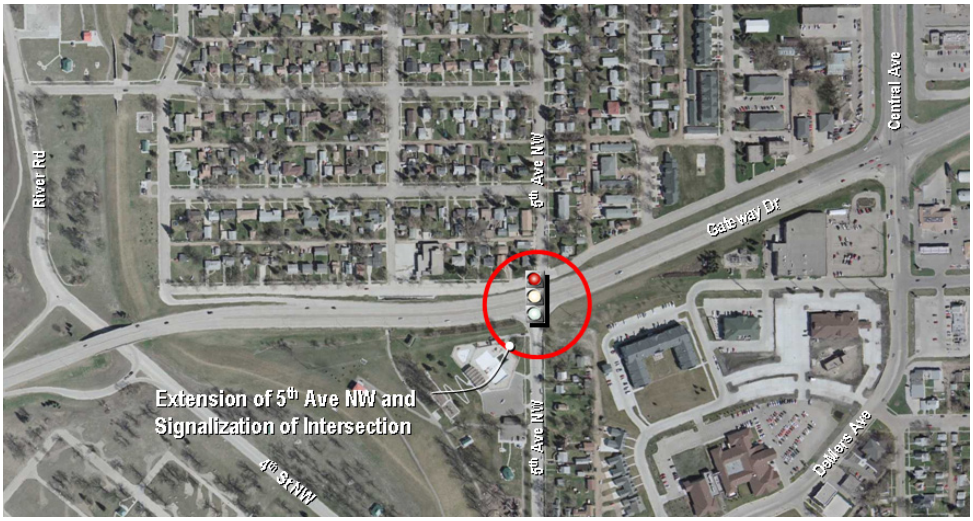
The cost estimate for this project is $8,750,000 in 2007 dollars.

5TH AVENUE NW / GATEWAY DRIVE INTERSECTION (PROJECT TIP2)

To improve system continuity and reduce volumes at the high-crash intersection of Gateway Drive / Central Avenue, the recommended project at 5th Avenue NW / Gateway Drive intersection would:

- Extend and reconstruct 5th Avenue NW so that it would intersect Gateway Drive.
- Add a traffic signal to the 5th Avenue NW / Gateway Drive intersection.

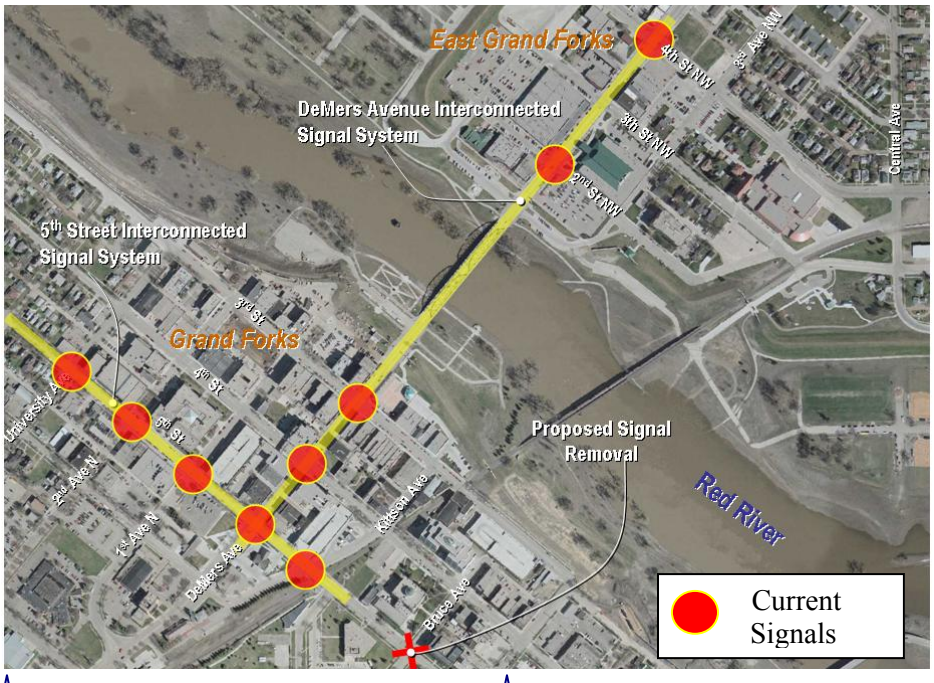
This improved intersection will cost approximately $1,300,000 in 2007 dollars.



DeMers Avenue / Downtown Traffic Signal System Improvements (Project 4A)

To address current peak hour travel delays along DeMers Avenue through downtown Grand Forks and downtown East Grand Forks, improvements to the traffic signal system are recommended based on the *CBD Traffic Circulation Study* (2002). This improvement would interconnect the 5th Street and DeMers Avenue signal systems and remove the signal at 5th Street / Bruce Avenue in Grand Forks, allowing better coordination and traffic flow between signals on both sides of the river.

This improvement is anticipated to provide acceptable corridor capacity through the planning horizon (LOS C or better). The cost estimate for this project is $500,000 in 2007 dollars.

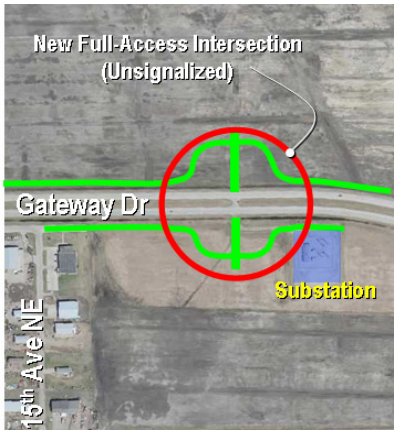


GATEWAY DRIVE ACCESS MANAGEMENT STUDY RECOMMENDATIONS (PROJECT 14A)

To address access and safety issues along Gateway Drive (US 2), including the high crash incidence at the Gateway Drive / Central Avenue intersection, improvements at two intersections are proposed:

- 2nd Avenue NE / Gateway Drive Intersection: Construct a ¾-movement access on both north and south approaches, which prohibits left-turns and through movements from the north and south directions. The south approach would provide access to future retail development south of Gateway Drive. Full northbound access to the future retail parcel would be offered via 11th Avenue NE and Central Avenue.
- 15th Avenue NE / Gateway Drive Intersection (substation access): Construct a full-movement intersection and realigned frontage roads to provide greater intersection setback.

The cost estimate for the listed projects is $200,000 in 2007 dollars.

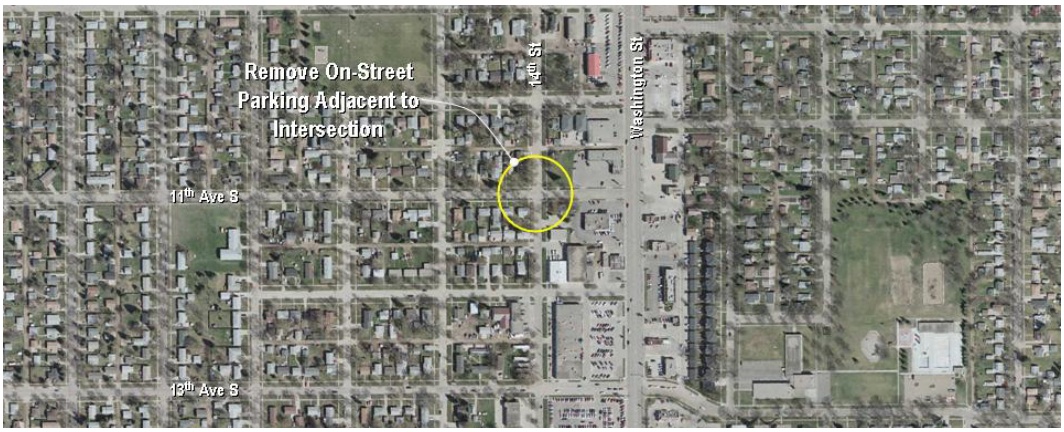


REMOVE ON-STREET PARKING AT 11TH AVENUE SOUTH / 14TH STREET (PROJECT 13A)

The 11th Avenue South / 14th Street intersection is two-way stop controlled for eastbound and westbound traffic, and experiences a higher crash rate compared to other community intersections. On-street parking, which blocks driver sight lines, is currently allowed on all approaches to the intersection.

11th Ave / 14th St: View to South from Eastbound Stop Bar

This concept would restrict on-street parking adjacent to the corners of the intersection, which would improve the sight lines from the intersection. Improved sight lines will have a positive impact through reducing crashes at the intersection.



CHANNELIZE THE NORTHBOUND APPROACH OF 24TH AVENUE / 29TH STREET (PROJECT 5B)

The 24th Avenue South / 29th Street intersection is two-way stop controlled for northbound and southbound traffic, and experiences a higher crash rate compared to other community intersections. This project would restrict the northbound through and left-turn movements by reconstructing the northbound leg to only allow right-turns. Left turns from 24th Avenue to southbound 29th Street would be allowed.

The cost estimate for this project is approximately $100,000 in both 2007 dollars.

MID-TERM PROJECTS: 2013 THROUGH 2022

In many cases, the projects included in the mid-term address current or short-term issues or deficiencies but will likely take several years to plan, design and obtain adequate funding. The mid-term projects anticipated for implementation over the period 6 to 15 years from now (2007) are:

- Widen 42nd Street to 4 Lane Roadway, 17th Avenue S to 29th Avenue South (Project 1I).
- Merrifield Road Red River Bridge (Project 1K).
- Merrifield Road / I-29 Interchange (Project 3H).
- 17th Avenue S Overpass of I-29 (Project 3K).
- DeMers / Washington: Add Eastbound and Westbound Through Lanes (Project 2H).
- Columbia Road TSM Projects, including:
  - Add a Third Southbound Columbia Road Lane between the DeMers Avenue On-ramp and 13th Avenue South (Project 1A).
  - Columbia Road / 17th Avenue S: Add dual left-turn lanes for all approaches (Project 1C).
  - 20th Ave S Extension to Columbia Road (Project 1E).
- Westbound Left-Turn Lane at Bygland Road / CR 58 (Project 22D).
- 42nd Street Realignment / I-29 - 32nd Avenue South Interchange Reconfiguration (Project 3M).
- Southbound Right-Turn Lane at 34th Street / 32nd Avenue S intersection (Project 3O).
- Roundabout at 34th Street / 24th Avenue South (Project 5A).
- Add a Center Left-turn lane to Bygland Road (Project 6A).
- Improvements at Columbia Rd / 36th Ave S and Columbia Rd / Super One Foods – Wal-Mart Driveway (Project 10A).
- Extend Northbound I-29 DeMers Avenue Ramp (Project 20A).
- Urban-to-Rural Transition Improvements (Mid-Term), including:
  - 3-Lane 47th Avenue S, Columbia Rd and Washington St (Project 18D).
  - Widen Central Avenue: 17th Street to 23rd Street (Project 18E).

WIDEN 42ND STREET TO 4 LANE ROADWAY, 17TH AVENUE SOUTH TO 29TH AVENUE SOUTH (PROJECT 1I)

This concept would widen 42nd Street to a 4-lane roadway with a continuous center left-turn lane between 17th Avenue South and 29th Avenue South. This widening would provide a similar cross-section to the current 42nd Street cross-section north of 17th Avenue South. The project would provide sufficient long-term capacity for the corridor.

The cost estimate for this project is $3,900,000 in 2007 dollars.

MERRIFIELD ROAD RED RIVER BRIDGE (PROJECT 1K)

This project would construct a new bridge across the Red River at Merrifield Road. The Merrifield Road corridor, when combined with a new I-29 interchange, would provide a southern bypass / alternate truck route for the metropolitan area and improve the connectivity between southern Grand Forks and East Grand Forks, both higher growth areas.

It is forecasted that the bridge would carry approximately 3,000 vpd by 2035, with other parts of the Merrifield Road corridor carrying approximately 8,000 VPD. Consistent with previously approved planning activities, implementation of the Merrifield Road crossing before construction of the 32nd Avenue South river crossing is a recommendation of this plan. In the interim period between construction of the Merrifield Road crossing and construction of the 32nd Avenue South crossing, Merrifield Road would carry more traffic. Without the 32nd Avenue Bridge in place, by 2035 the Merrifield Road Bridge is forecasted to carry 5,000 VPD.

The cost estimate for this project is $16,900,000 in 2007 dollars.

MERRIFIELD ROAD / I-29 INTERCHANGE (PROJECT 3H)

This concept would provide a Merrifield Road interchange at I-29, where Merrifield Road currently overpasses I-29. The interchange would complement the planned Merrifield Road Bridge of the Red River, providing a southern alternate truck route of the metropolitan area.

The cost estimate for this project is $7,100,000 in 2007 dollars.

17TH AVENUE SOUTH OVERPASS OF I-29 (PROJECT 3K)

This improvement would extend 17th Avenue South to connect between 42nd Street and 48th Street, with an overpass of I-29. The concept would provide a more direct corridor into the industrial park west of I-29 and provide the only crossing of I-29 between DeMers Avenue and 32nd Avenue South, currently a 2-mile gap in system continuity.

The 17th Avenue South overpass would carry approximately 8,500 vehicles per day by 2035, diverting up to 5,000 vehicles per day from 32nd Avenue South at I-29 and 3,000 vehicles per day from DeMers Avenue at I-29. The 17th Avenue south corridor would connect two planned improvements in the 42nd Street and 48th Street corridors south of 17th Avenue.

The cost estimate for this project is $5,800,000 in 2007 dollars.

DeMers / Washington: Add Eastbound and Westbound Through Lanes (Project 2H)

To address the peak hour congestion experienced at the intersection, the recommended improvement at this intersection is to:

- Add an additional eastbound DeMers Avenue through-lane. This would be the third eastbound through lane at the Washington Street / DeMers Avenue intersection and would end as the exit ramp for 4th Avenue South.
- Add an additional westbound DeMers Avenue through-lane. This would be the third westbound through lane at the Washington Street / DeMers Avenue intersection and would end as a left-turn lane at 20th Street.
- Add a northbound left-turn lane. This would be the second northbound left-turn lane at the Washington Street / DeMers Avenue intersection.
- Add a southbound left-turn lane. This would be the second southbound left-turn lane at the Washington Street / DeMers Avenue intersection.

This concept would widen DeMers Avenue to the north, and most likely require the relocation of the adjacent fire station. The wider roadway cross section associated with the recommended improvement would also increase pedestrian crossing times at the intersection, leading to increased concerns for pedestrian safety. The concept is anticipated to provide LOS D peak hour operations through the planning horizon. .

The cost estimate for this project is $8,000,000 in 2007 dollars.

COLUMBIA ROAD TRANSPORTATION SYSTEMS MANAGEMENT IMPROVEMENTS

To address the current and forecasted future deficiencies identified in the corridor, the following TSM improvements have been recommended:

- Add a third lane on southbound Columbia Road south of the DeMers Avenue on-ramp ending as a right-turn lane at 13th Avenue South (Project 1A)
- Improvements at Columbia Road / 17th Avenue South (Project 1C):
  - Add a left-turn lane to all four intersection approaches. After construction, the intersection would have two left-turn lanes on each approach.
  - Add a southbound right-turn lane.
- Extend 20th Avenue South to Columbia Road (Project 1E).

Projects 1A, 1E, and some items included in Project 1C were recommended in the *Columbia Road Corridor Study* (2000), and have been reconfirmed as recommended projects for the 2035 LRTP. It is anticipated that the combination of these projects in tandem with the continued completion / upgrading of 42nd Street and the 32nd Avenue South Red River Bridge would provide acceptable traffic operations in the Columbia Road corridor through the planning horizon.

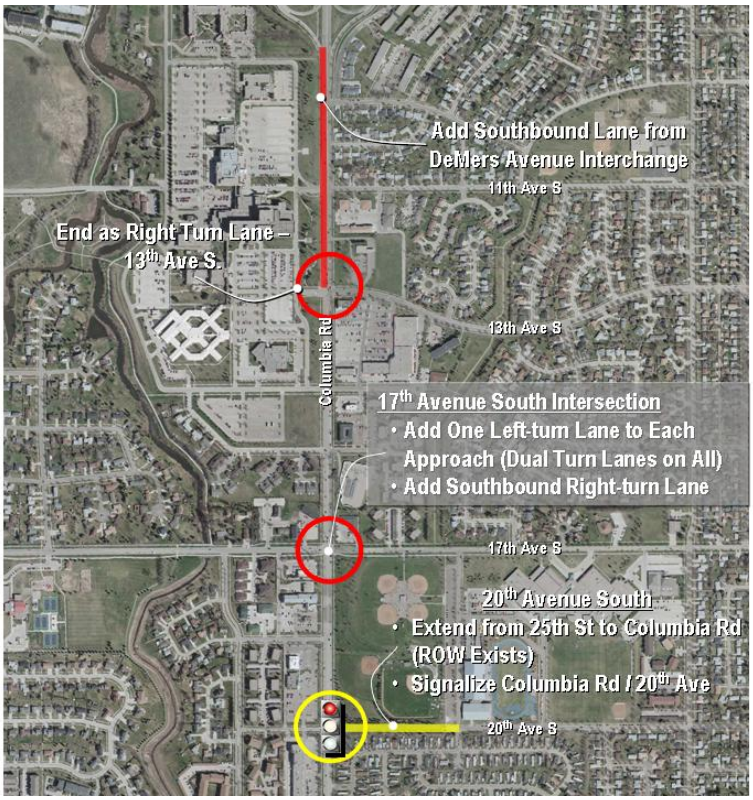
Widening the 17th Avenue South / Columbia Road intersection would have some negative impacts to adjacent properties, including:

- Driveways for the offices on the northwest and northeast corners would need to be converted to right-in-right-out only.
- Depending on the amount of right-of-way acquired to accommodate the added turn lanes and the width needed for the greenspace / boulevard and sidewalk, there is a potential for:

- The need to acquire a portion of the parking lots of the businesses on the northeast and northwest corners.
- A minor widening into Apollo Park or Kraft Field.

The addition of the southbound acceleration lane to Columbia Road (Project 1A) would require minor acquisition from the greenspace owned by Altru Hospital. The 20th Avenue South extension could be accommodated within existing, city-owned right-of-way that is reserved in the corridor.

The cost estimate for these three projects is a combined $3,200,000 in 2007 dollars.



ADD A CENTER LEFT-TURN LANE TO BYGLAND ROAD (PROJECT 6A)

Difficulty in gaining access to / from the Bygland Road corridor during peak hours was an identified issue. The corridor currently has one travel lane in each direction with parking allowed on both sides of the roadway. The corridor is the main travel route to / from Central Middle School, and other local planning efforts have focused on providing sufficient pedestrian / bicycle access to the school. This project would:

- Remove on-street parking from both sides of Bygland Road.

- Restripe the roadway to provide:
  - A continuous center left-turn lane.
  - Five (5) foot wide bike lanes on both sides of the roadway.

The concept would reduce peak hour delays by separating all left-turning traffic on Bygland Road from through traffic, and provides an improved route for bicycles in the corridor.

The cost estimate for this project is $400,000 in 2007 dollars.

42ND STREET REALIGNMENT / I-29 – 32ND AVENUE SOUTH INTERCHANGE RECONFIGURATION (PROJECT 3M)

Vehicles that desire to use 42nd Street to the north of 32nd Avenue South today must follow a circuitous route along 38th Street. As the 42nd Street corridor becomes a more important route to / from I-29 and 32nd Avenue South, the circuitous route will likely create more safety issues. This recommended improvement would:

- Realign 42nd Street to connect with 32nd Avenue at the I-29 northbound off-ramp.
- Add a traffic signal to the new 42nd Street / 32nd Avenue / northbound I-29 off-ramp intersection.
- Reconfigure the northbound I-29 on-ramps with a loop ramp in the southeast quadrant to serve eastbound 32nd Avenue traffic and an on-ramp in the northeast quadrant that serves westbound 32nd Avenue traffic. This reconfiguration eliminates the need for a second signalized intersection

adjacent to the new 42nd Street / 32nd Avenue / northbound I-29 off-ramp intersection.

The system continuity improvement would create a more direct connection to 32nd Avenue South for the 42nd Street corridor. The 42nd Street / 32nd Avenue South intersection would provide sufficient traffic operations through the planning horizon, and provide a design consistent with the connecting project to widen 42nd Street between 17th Avenue South to 29th Avenue South (Project 1I).

The cost estimate for this project is $7,000,000 in 2007 dollars:

- Approximately $6,000,000 of that total is related to costs for interchange ramp reconstruction.
- Approximately $1,000,000 of that total is related to the roadway and signal costs associated with the realignment of 42nd Street between 29th Avenue South and 32nd Avenue South.

SOUTHBOUND RIGHT-TURN LANE AT 34TH STREET / 32ND AVENUE SOUTH INTERSECTION (PROJECT 3O)

The intersection of 34th Street / 32nd Avenue South was identified as congested and a safety issue during the street and highway issues identification process. The recommended improvement would:

- Provide a southbound right-turn lane on 34th Street and the 32nd Avenue South intersection.
- Adjust the traffic signal to provide "protected-permissive" left-turn operations to northbound and southbound traffic, as currently provided for eastbound and westbound traffic. The "protected" phase (green arrow signal indication) allows vehicles to turn while opposing traffic remains stopped. Within the same cycle, northbound and southbound left-turns will also be accommodated through a "permitted" phase (green ball signal indication), which allows left-turns to be made when there are acceptable gaps in opposing through traffic.

The recommended improvement should provide acceptable operations through 2035.

The cost estimate for this project is $100,000 in 2007 dollars.

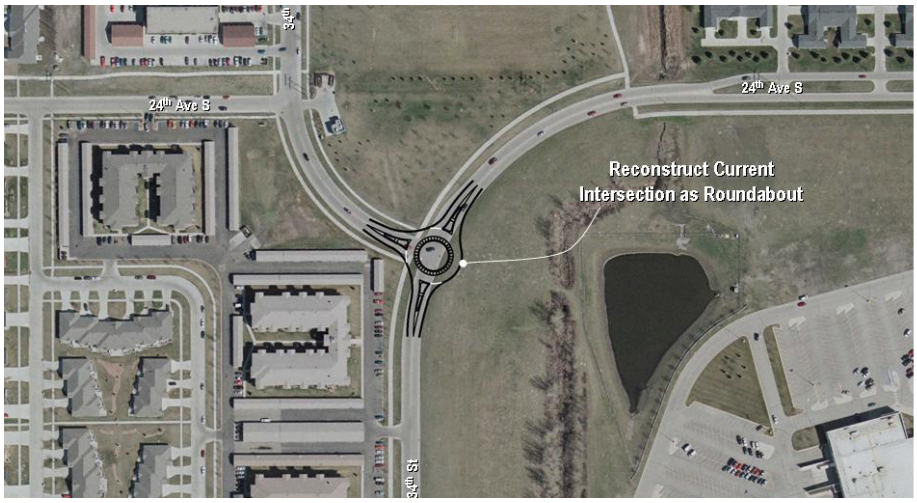
ROUNDABOUT AT 34TH STREET / 24TH AVENUE SOUTH (PROJECT 5A)

The intersection is currently a 1-way stop-controlled intersection for south- / southeast-bound 34th Street traffic. Issues were identified with delays and safety for vehicles coming from southbound 34th Street. As traffic volumes increase over the planning horizon, these delays will increase. The recommended improvement at the intersection is reconstructing the intersection as a roundabout. The roundabout would provide acceptable operations and access through 2035.

A traffic control study will soon be under way for Grand Forks' collector-to-collector intersections, including 24th Avenue South / 34th Street. The study will be completed by 2008. Traffic counts will be collected at the 34th Street – 24th Avenue South to

supplement the study. Thus, this recommendation may change based on the findings and strategies identified in that study.

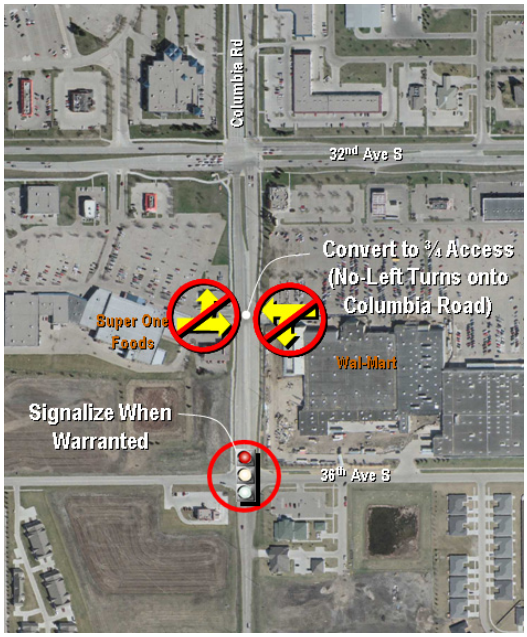
The cost estimate for this project is $400,000 in 2007 dollars.



IMPROVEMENTS AT COLUMBIA RD / 36TH AVE S AND COLUMBIA RD / SUPER ONE FOODS – WAL-MART DRIVEWAY (PROJECT 10A)

Both intersections are currently two-way stop controlled for eastbound - westbound traffic. At these two access points to Columbia Road, difficulty finding acceptable gaps for access onto / crossing Columbia Road was an identified issue. The project would improve accessibility and safety at these two intersections by:

- Adding a traffic signal at Columbia Road / 36th Avenue South. This provides Columbia Road with ¼ mile spacing between traffic signals at 32nd Avenue South and 36th Avenue, which is consistent with the spacing north of 32nd Avenue.
- Converting Columbia Road / Super One Foods Driveway – Wal-Mart to ¾ access which allows for all movements with the exception of left-turns from the east-west driveways. This improvement would be consistent with the *Columbia Road Corridor Study* (2000).



The signal would provide improved access to / from 36th Avenue, providing "backage" access to retail / commercial development north of the corridor; reducing traffic volumes along 32nd Avenue. A signal warrant study should be

conducted before a signal is installed at this location.

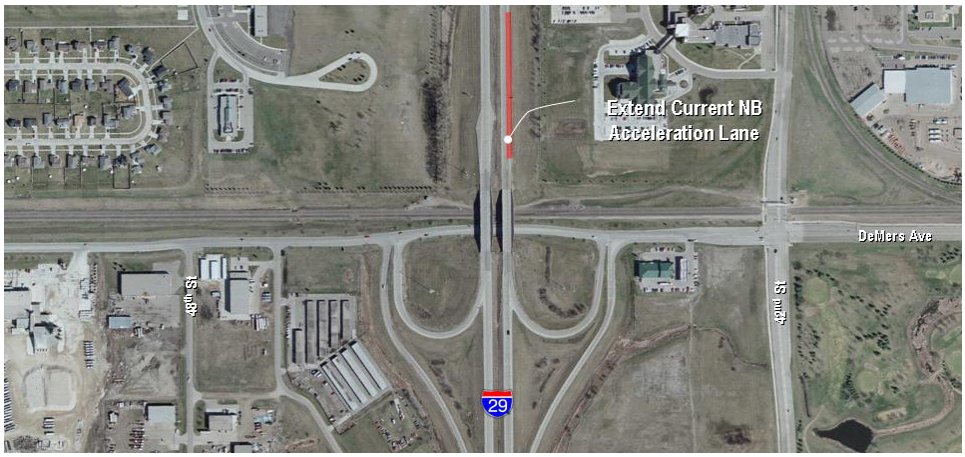
The cost estimate for this project is $300,000 in 2007 dollars.

EXTEND NORTHBOUND I-29 DEMERS AVENUE RAMP (PROJECT 20A)

There is currently a relatively short acceleration lane for northbound I-29 traffic from the DeMers Avenue ramp, which must accelerate up a hill as it merges. Trucking industry representatives identified this as a safety issue for heavy trucks.

The improvement would include a minor widening of approximately 400 to 600 feet of I-29 (north of the DeMers Avenue bridge) to accommodate the longer acceleration lane.

The cost estimate for this project is $150,000 in 2007 dollars.

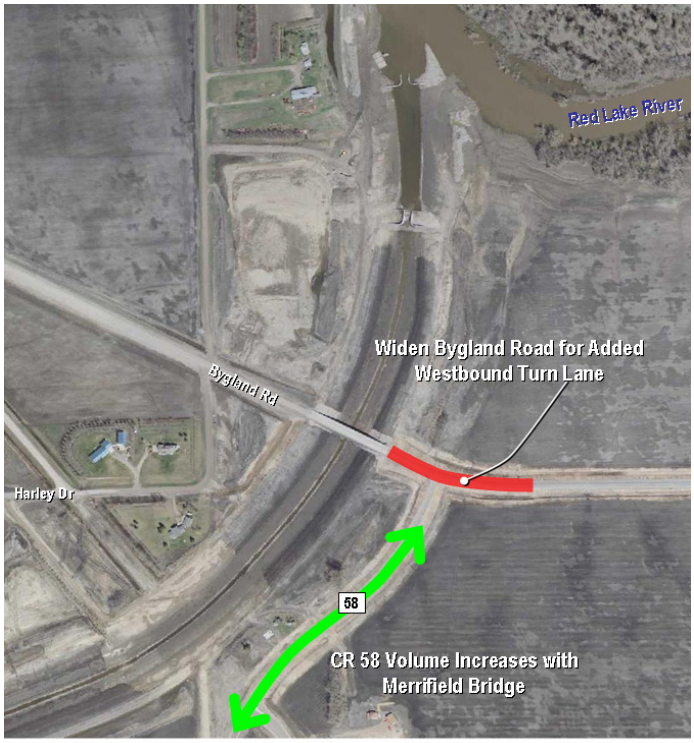


WESTBOUND LEFT-TURN LANE AT BYGLAND RD / CR 58 (PROJECT 22D)

The project would add a westbound turn lane at the intersection, to accommodate a forecasted increase in traffic turning onto County Route 58 to access the proposed Merrifield Road Bridge. If the Merrifield Road Red River crossing (Project 1K) is not built, this project would not be necessary.

It is anticipated that all of the widening required for the westbound left-turn lane could be accomplished east of the bridge over the diversion ditch. This would avoid any lane restriping on or widening of the bridge.

The cost estimate for this project is $100,000 in 2007 dollars.



RURAL-TO-URBAN TRANSITION IMPROVEMENTS (MID-TERM)

Two rural-to-urban roadway transition projects are recommended in the mid-term:

- 3-Lane 47th Ave South: Columbia Rd and Washington St (Project 18D).
- Widen Central Ave: 17th St to 23rd St (Project 18E).

These projects have been recommended for roadway segments that are adjacent to future development growth areas, as they transition from predominantly rural to predominantly urban over the planning horizon. As this transition occurs, traffic volumes will increase and congestion along the two-lane rural roads will increase.

The mid-term rural-to-urban transition improvements would include:

- The 47th Avenue South widening would add a continuous left-turn lane to provide better access to developed parcels. Traffic volumes along 47th Avenue South are forecasted to grow from 3,300 VPD today to 12,000 VPD by 2035. This project would provide sufficient capacity through the planning horizon.
- The Central Avenue widening would reconstruct Central Avenue as a four-lane roadway between 17th Street North and 23rd Street North. Traffic volumes along Central Avenue are forecasted to grow from 8,000 VPD today to 14,500 VPD by 2035. The project would provide sufficient capacity through the planning horizon.

The cost estimate for these two projects is a combined $3,900,000 in 2007 dollars:

- Approximately $2,500,000 of that total for 47th Avenue South widening (North Dakota).
- Approximately $1,400,000 of that total for Central Avenue widening (Minnesota).

LONG-TERM PROJECTS: 2023 THROUGH 2035

The long-term projects anticipated for implementation over the period 16 to 28 years from now (2007) are:

- 32nd Avenue South Red River Crossing (Project 1L).
- New East-West Arterial Connecting the 32nd Avenue Bridge to Bygland Road (Project 22B).
- Signalize TH 220 / US 2 (Project 22E).
- 32nd Avenue South / Columbia Road: Add Northbound and Westbound Dual Left-Turn Lanes (Project 3B).
- Signalize 48th / DeMers and I-29 / DeMers Ramps (Project 8A).
- DeMers / 42nd / Burlington Northern Santa Fe Railway (BNSF) Grade Separation (Project 19A).
- Urban-to-Rural Transition Improvements (Long-Term), including:
  - 4-Lane 32nd Ave: 52nd St to 48th St (Project 18A).

- 4-Lane Columbia Rd: 36h Ave to 50th Ave (Project 18B).
- 4-Lane Washington St: 48th Ave to 57th Ave (Project 18C).

32ND AVENUE SOUTH RED RIVER BRIDGE (PROJECT 1L)

The 32nd Avenue South Bridge would provide a more direct connection between relatively high-growth areas of southern Grand Forks and southern East Grand Forks. The closest of the existing three Red River bridges, the Point Bridge, is two miles north of the proposed 32nd Avenue South Bridge. In 2035 the 32nd Avenue South Bridge is forecasted to carry approximately 9,000 VPD.

The following impacts are associated with the 32nd Avenue South Bridge:

- A portion of the forecasted traffic growth on the Point Bridge is from development anticipated in southern Grand Forks and southern East Grand Forks. A 32nd Avenue South Bridge would create a more direct route for these new trips and would reduce through traffic growth in residential areas along 4th Avenue South. It should be noted that current land uses along 32nd Avenue South are also residential. Thus, the through traffic issues would not be eliminated, but rather transferred to another neighborhood.
- The bridge would divert 6,800 VPD from the Point Bridge by 2035. There would also be minor traffic diversion from the Sorlie and Kennedy Bridges.
- The bridge would divert approximately 3,000 VPD from congested portions of the DeMers Avenue corridor at Washington Street. This level of diversion allows the recommended improvement at Washington Street – DeMers Avenue, Project 2H, to operate at LOS D through the planning horizon.
- The bridge approach east of Belmont Road may require some property acquisition.
- The bridge would not require a new opening in the levee, as there is already an opening at 32nd Avenue South.

The cost estimate for this project is $20,200,000 in 2007 dollars.

NEW EAST-WEST ARTERIAL CONNECTING THE 32ND AVENUE BRIDGE TO BYGLAND ROAD (PROJECT 22B)

This project would develop a new two-lane arterial roadway along an east-west alignment approximately 1/3 mile north of Harley Drive. The entire alignment would be within the flood protection levee, with anticipated future residential and commercial development located on both sides of the road.

Part of the recommendation is to designate and reserve the new alignment associated with Project 22B. As adjacent land develops from current agriculture uses to residential and commercial uses over the planning horizon, the corridor should be platted and constructed.

The cost estimate for this project is $4,000,000 in 2007 dollars.

SIGNALIZE THE INTERSECTION OF TH 220 / US 2 (PROJECT 22E)

Traffic volumes along Trunk Highway 220 (TH 220) / Mallory Bridge are forecasted to increase from a 2,100 VPD without the 32nd Avenue and Merrifield Road bridges to 6,100 VPD with the two new river crossings in place. A traffic signal at the TH 220 / US 2 intersection would likely be warranted by 2035 to address the delays that would result from US 2 traffic turning onto TH 220. For safety, three different elements should be included / maintained with this project:

- Flashing Advanced Warning Signs: Without proper advanced warning, rural, isolated traffic signals along high-speed corridors can be a safety issue. Providing advanced warning, including flashing beacons, will improve the signalized intersection's safety. The intersection treatment would be similar to the current US 2 – Airport Drive intersection adjacent to the Grand Forks Airport.
- The stopbar for northeast-bound TH 220 traffic should be maintained in its current location, behind the BNSF rail line adjacent to US 2.

- As a part of this project, railroad gates should be installed at the current rail signal.

The cost estimate for this project is $300,000 in 2007 dollars.

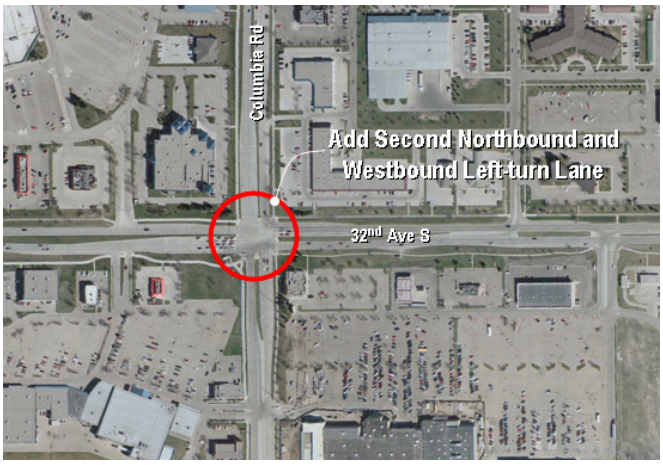
32nd Avenue South / Columbia Road: Add Northbound and Westbound Dual Left-Turn Lanes (Project 3B)

The intersection currently operates at LOS C during the PM peak hour. By 2035 congestion is projected to increase so that intersection operations are LOS E. The project would:

- Add a northbound left-turn lane. This would be the second northbound left-turn lane at the 32nd / Columbia intersection.
- Add a westbound left-turn lane. This would be the second westbound left-turn lane at the 32nd / Columbia intersection.

Both turn lanes could be provided within the existing median with no additional right-of-way needed. The project would provide acceptable traffic operations through 2035.

The cost estimate for this project is $150,000 in 2007 dollars.



SIGNALIZE 48TH STREET / DEMERS AVENUE AND I-29 / DEMERS AVENUE RAMPS (PROJECT 8A)

The extension of 48th Street south to 32nd Avenue and the 17th Avenue overpass are both forecasted to provide significant traffic diversion from DeMers Avenue through the planning horizon. In the long-term, however, it is anticipated that left-turning traffic from the I-29 off-ramps will encounter more significant delays. When warranted, this project would add traffic signals at:

- 48th Street / DeMers Avenue
- Northbound I-29 Ramps / DeMers Avenue
- Southbound I-29 Ramps / DeMers Avenue

The cost estimate for this project is $700,000 in 2007 dollars.

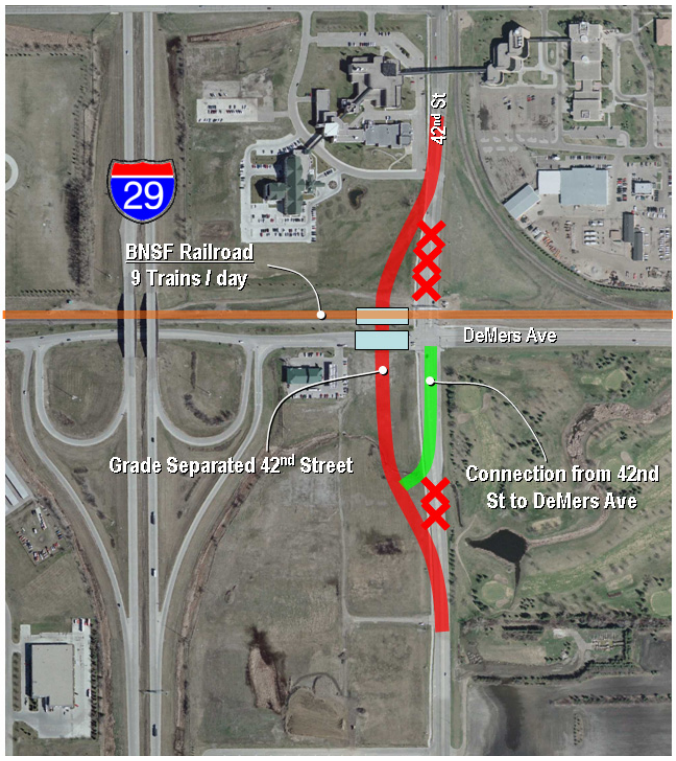
DeMers Avenue / 42nd Street / BNSF Grade Separation (Project 19A)

The BNSF railroad tracks at 42nd Street carry approximately 9 trains a day, which leads to driver delay and congestion along 42nd Street. The project would:

- Depress 42nd Street under the BNSF rail line and DeMers Avenue to provide a grade-separated crossing of the BNSF railroad tracks that run less than 100 feet north of DeMers Avenue.
- Provide a connecting roadway between 42nd Street and DeMers Avenue to maintain access between the two roadways.

There would be some land acquisition associated with this project.

The cost estimate for this project is $16,900,000 in 2007 dollars.



Rural-to-Urban Transition Improvements (Long-Term)

Three rural-to-urban roadway transition projects are recommended in the long-term:

- 4-Lane 32nd Ave: 52nd St to 48th St (Project 18A)
- 4-Lane Columbia Rd: 36h Ave to 50th Ave (Project 18B)
- 4-Lane Washington St: 48th Ave to 57th Ave (Project 18C)

These projects have been recommended for roadway segments that are adjacent to future development areas, and would be needed to accommodate traffic growth as the areas transition from predominantly rural to predominantly urban uses over the

planning period. As this transition occurs, traffic volumes will increase and congestion along the two-lane rural roads will increase.

The long-term rural-to-urban transition improvements would include:

- 32nd Avenue South widening: Reconstruct 32nd Avenue South as a 4-lane divided roadway on the west approach to the 32nd Avenue / 48th Street intersection. Traffic volumes along this portion of 32nd Avenue are forecasted to increase from 3,250 VPD today to 11,000 VPD by 2035. The project will provide sufficient capacity to accommodate the planning horizon traffic.
- Columbia Road widening: Reconstruct Columbia Road to a 4-lane divided roadway between 36th Avenue and 50th Avenue South. Traffic volumes along this portion of Columbia Road are forecasted to increase from 6,000 VPD today to 17,500 VPD by 2035. The improvement will provide adequate capacity through the planning horizon.
- Washington Street widening: Reconstruct Washington Street to a 4-lane divided roadway between 48th Avenue and 57th Avenue South. Traffic volumes along this portion of Washington Street are forecasted to increase from 3,000 VPD today to 17,000 VPD by 2035. The improvement will provide sufficient capacity through the planning horizon.

The cost estimate for these three projects is a combined $9,300,000 in 2007 dollars.

IDENTIFIED ISSUES NOT DIRECTLY ADDRESSED BY THE RECOMMENDED PLAN

Several identified street / highway issues are not directly addressed by the projects included in the recommended plan list. The entire identified street and highway system issues list was documented in Figure 2. There are various reasons why each issue was not directly addressed by a recommended improvement.

The remainder of this section describes each of the issues that were not directly addressed by an improvement project, by type of issue.

PERCEIVED CONGESTION ISSUES NOT ADDRESSED

Local residents of other stakeholders voiced concerns about congestion at specific intersections. Of these intersections identified as an issue, no improvement projects were recommended at four intersections. These four intersections were:

- Washington Street / 17th Avenue S: This intersection is forecasted to operate at level of service C / D by 2035. Improvement alternatives were considered at this location, including adding dual left-turn lanes for eastbound traffic. Only slight improvements to travel delay were forecasted with implementation of this alternative. The alternative would restrict eastbound left-turns onto the existing frontage road along Washington Street and it was believed that the limited benefits were outweighed by the access impacts associated with the alternative.
- Washington Street / 32nd Avenue S: The operations analysis did not identify any deficiencies (LOS "D" or worse) for existing or future conditions.
- Washington Street / Gateway Avenue: The operations analysis did not identify any deficiencies for existing or future conditions.
- Columbia Road / Gateway Avenue: There is a current TIP project that will reconstruct and improve the intersection.
- 1st Street SE / 3rd Avenue SE (East Grand Forks): The operations analysis did not identify any deficiencies for existing or future conditions at this intersection.

PERCEIVED SAFETY ISSUES NOT ADDRESSED

Through the initial input phase, safety issues were identified but no improvement projects recommended at four locations. These four locations were:

- Intersection of US 2 / Airport Road: The intersection was identified as needing improvements. This intersection will be a part of an upcoming US 2 reconstruction project that will address the issue.
- University Avenue Corridor, 42nd Street to Columbia Road: There were perceived pedestrian / vehicle conflicts in this corridor through the University of North Dakota (UND) campus. Improvements to the corridor have been recommended in previous work, but were not supported by key stakeholders.
- US 2 – Business US 2 intersection (East Grand Forks): This intersection was identified as a safety concern through the issues identification process, however there was no identified history of crashes at the intersection. Through the alternatives analysis process, it was suggested that the

superelevation of the curve be improved during the next reconstruction along US 2.

- CR 58 Intersections: Two intersections were identified along County Route 58 in Polk County as safety issues. Polk County has already made improvements to the intersections.

PERCEIVED RAIL SAFETY ISSUES NOT ADDRESSED

At three rail crossings local residents and / or stakeholders identified safety issues for which there were no recommended projects. These three intersections were:

- Gateway Avenue / BNSF crossing near 42nd Street: This crossing experienced one auto-train crash during the 3-year crash analysis period (2003-2005). The alternative considered at this intersection was a grade-separation, which would also include the need to separate 42nd and Gateway due to their proximity. The alternative was not included in the recommended plan due to the high costs and impacts associated with a grade separation.
- Gateway Avenue / BNSF crossing near 5th Street: This crossing did not experience any auto-train crashes during the 3-year crash analysis period. Alternative improvements were considered at this location, but no improvements were recommended since there were no documented crashes at this location.
- University Avenue / BNSF crossing near 8th Street: This crossing did not experience any auto-train crashes during the 3-year crash analysis period. As with the Gateway / BNSF crossing near 5th Street, no improvements were recommended at this location since there was no documented crash history.

THROUGH TRAFFIC ISSUES IN RESIDENTIAL NEIGHBORHOODS NOT ADDRESSED

There were concerns in residential neighborhoods adjacent to two corridors that carried relatively high levels of through-traffic volumes. These corridors were:

- 4th Avenue South
- Belmont Road

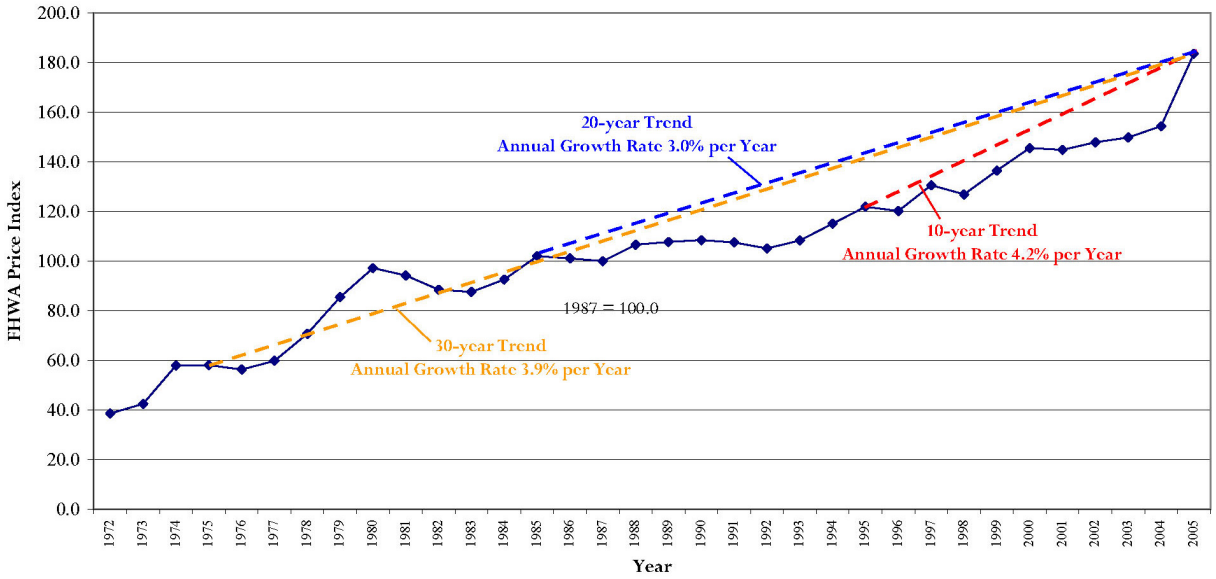
There were no recommended projects in either corridor that would directly address this issue. A project that indirectly addresses the issue is the 32nd Avenue South bridge project, which diverts significant levels of through traffic from both corridors.

STREET AND HIGHWAY COST PROJECTIONS FOR YEAR OF EXPENDITURE

New Federal requirements for metropolitan transportation plans state that the financial analysis for projects included in the recommended plan need to account for price inflation to an estimated "year of expenditure". Based on guidance received from FHWA, a cost escalation rate of four (4) percent per year was added to the base year cost estimates prepared for the study. Despite recent sharp increases in construction costs, a four percent per year rate of growth is relatively consistent with historical construction price trends. Figure 15 illustrates the FHWA Construction Cost Index between 1972 and 2005 (the last year for which complete cost data is

available.) As shown, there have been a few construction cost "spikes" over the past 33 years. The 10-year, 20-year and 30-year historical cost increases have ranged between 3 percent and 4.2 percent annually. The annual cost increase over the past 30-years (3.9 percent per year) is nearly identical to the 4 percent per year increases that the Plan anticipates through 2035.

FIGURE 15. FHWA CONSTRUCTION COST INDEX, 1972 - 2005



Determining the exact year of expenditure, or when each project will be constructed, is a relatively complex process that involves considering / conjecturing on multiple variables, including public and political opinions. There is no specific direction provided by FHWA on this portion of the analysis. To address this uncertainty, the Grand Forks / East Grand Forks Street and Highway Plan applied the following streamlined methodology:

- As previously described, the planning period was divided into Short-term, Mid-term and Long-term implementation periods. The short-term was defined as 0 to 5 years forward (2007 to 2012), the mid-term as 6 to 15 years forward (2013 to 2022) and the long-term as 16 to 28 years forward (2023 to 2035).
- Assign individual projects to one of the implementation periods based on need and funding levels. Each project's implementation period was documented earlier in this chapter.
- Escalating 2007 project costs to a year consistent with the mid-point of each implementation period. Thus, the "year of expenditure" in each of the three periods was set to correspond with the midpoint of the implementation period. The years forward from 2007 to be used in each period are:
  - Short-term: 2.5 years into the future.
  - Mid-term: 10.5 years into the future
  - Long-term: 22 years into the future

  Table 15 presents the project cost estimates for 2007 and the midpoint of the implementation period (year of expenditure). Table 15 also presents each project cost in a range, with costs shown for the first year of the

implementation period and the last year of the implementation period. This approach is consistent with Federal regulations allowing "optional use of cost ranges / cost bands".

- Based on the annual four (4) percent growth in construction costs assumed, application of the methodology resulted in the following escalation values for projects assigned to each of the implementation periods:
  - Short-term: 10 percent cost increase over the 2007 base year.
  - Mid-term: 51 percent cost increase over the 2007 base year.
  - Long-term: 137 percent cost increase over the 2007 base year.

COMPARISON OF PLAN COSTS AND FUNDING CAPACITY

The Plan development process has focused on providing a financially-constrained (i.e., fundable) recommended plan. The cumulative project costs of the recommended plan need to be summarized in terms of anticipated year of expenditure and weighted against the anticipated funding capacity of the region through 2035.

As documented in the previous chapter "Funding the Street and Highway Plan", it is anticipated that the Grand Forks – East Grand Forks MPO will have the following total funding levels for street and highway expansion projects for the region through 2035:

- North Dakota funding: $150,706,000
- Minnesota funding: $27,411,000, including the additional ATP allocation this total is anticipated to be $28,741,000

The current year project cost estimates were provided in each of the above project descriptions. A summary of the cost estimates in 2007 dollars and by implementation period is shown in Table 16. The table also includes summaries of anticipated funding levels.

As shown in Table 16, the year of expenditure cost estimates are relatively consistent with (within three percent) anticipated street and highway funding levels through 2035.

As noted in the table, alternate funding sources have been assumed for two different projects:

- The Merrifield Bridge project is within Polk and Grand Forks Counties' jurisdictions, and would be funded through sources identified by the counties.
- The New East-West Arterial connecting Bygland to 32nd Avenue Bridge project would require City of East Grand Forks funding.

TABLE 15. PROJECT COST RANGES BY IMPLEMENTATION PERIOD

Recommended Projects by Implementation Period		Cost Estimates, Range by Year of Expenditure			
		2007 Cost	Midpoint of Period	First Year of Period	Last Year of Period
Short-Term Projects (0 to 5 Years)					
TIP1	48th Street Extension Reconstruction	$7,900,000	$8,750,000	$7,900,000	$9,600,000
TIP2	5th Avenue NE / Gateway Drive Intersection	$1,200,000	$1,300,000	$1,200,000	$1,500,000
4A	CBD Traffic Signal System Upgrade	$500,000	$600,000	$500,000	$600,000
5B	Channelize 29th St at 24th Ave	$50,000	$100,000	$50,000	$100,000
13A	11th Ave / 14th St Parking Restrictions	$0	$0	$0	$0
14A	Gateway Drive Access Management	$200,000	$200,000	$200,000	$200,000
Mid-Term Projects (6 to 15 Years)					
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 29th Ave	$3,900,000	$5,900,000	$4,900,000	$7,000,000
1K	Merrifield Road Red River Crossing	$16,900,000	$25,500,000	$21,400,000	$30,400,000
3H	Merrifield Road Interchange	$7,100,000	$10,700,000	$9,000,000	$12,800,000
3K	17th Ave S Overpass of I-29	$5,800,000	$8,800,000	$7,300,000	$10,400,000
18D	3-Lane 47th Ave South, Columbia Rd and Washington St	$2,500,000	$3,800,000	$3,200,000	$4,500,000
18E	Widen Central Ave: 17th St to 23rd St	$1,400,000	$2,100,000	$1,800,000	$2,500,000
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000	$500,000	$400,000	$500,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000	$3,800,000	$3,200,000	$4,500,000
1E	20th Ave S Extension to Columbia Road	$400,000	$600,000	$500,000	$700,000
2H	DeMers / Washington: Add Eastbound and Westbound Through Lanes	$8,000,000	$12,100,000	$10,100,000	$14,400,000
22D	WB Left-Turn Lane at Bygland Rd / CR 58	$100,000	$200,000	$100,000	$200,000
3M	Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps	$7,000,000	$10,600,000	$8,900,000	$12,600,000
3O	SB Right-Turn Lane at 34th Street / 32nd Ave intersection	$100,000	$200,000	$100,000	$200,000
5A	Roundabout at 34th St / 24th Ave	$400,000	$600,000	$500,000	$700,000
6A	Bygland Road Turn Lanes	$350,000	$500,000	$400,000	$600,000
10A	Signalize 36th / Columbia and 3/4 access at Wal-Mart SuperOne Driveway	$300,000	$500,000	$400,000	$500,000
20A	Extend NB I-29 DeMers Ramp	$150,000	$200,000	$200,000	$300,000

TABLE 15. PROJECT COST RANGES BY IMPLEMENTATION PERIOD (CONTINUED)

Recommended Projects by Implementation Period		Cost Estimate Ranges by Approach			
		2007 Cost	Midpoint of Period	First Year of Period	Last Year of Period
Long-Term Projects (16 to 28 Years)					
1L	32nd Ave S Red River Crossing	$20,200,000	$47,900,000	$37,800,000	$60,600,000
18A	4-Lane 32nd Ave: 52nd St to 48th St	$1,100,000	$2,600,000	$2,100,000	$3,300,000
18B	4-Lane Columbia Rd: 34th Ave to 50th Ave	$5,300,000	$12,600,000	$9,900,000	$15,900,000
18C	4-Lane Washington St: 48th Ave to 57th Ave	$2,900,000	$6,900,000	$5,400,000	$8,700,000
3B	32nd / Columbia: NB and WB Dual Lefts	$150,000	$400,000	$300,000	$400,000
8A	Signalize 48th / DeMers and I-29 / DeMers Ramps	$700,000	$1,700,000	$1,300,000	$2,100,000
22B	New East-West Arterial Connecting 32nd Ave Bridge to Bygland Rd	$4,000,000	$9,500,000	$7,500,000	$12,000,000
22E	Signalize TH 220 / US 2	$300,000	$700,000	$600,000	$900,000
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000	$40,100,000	$31,700,000	$50,700,000
Cumulative Project Costs by Approach		**$118,600,000**	**$219,950,000**	**$178,850,000**	**$269,400,000**

TABLE 16. RECOMMENDED PROJECT COSTS BY EXPENDITURE PERIOD

	Projects Included	Cost Estimate				Project Cost by Expenditure Period	
		2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)	Minnesota	North Dakota
Short-Term Projects							
TIP1	48th Street Extension, Reconstruction	$8,750,000	$8,750,000				$8,750,000
TIP2	5th Avenue NE / Gateway Drive Intersection	$1,300,000	$1,300,000			$1,300,000	
4A	CBD Traffic Signal System Upgrade	$500,000	$600,000			$300,000	$300,000
5B	Channelize 29th St at 24th Ave	$50,000	$100,000				$100,000
13A	11th Ave / 14th St Parking Restrictions	$0	$0				$0
14A	Gateway Drive Access Management	$200,000	$200,000			$200,000	
Mid-Term Projects							
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 29th Ave	$3,900,000		$5,900,000			$5,900,000
1K	Merrifield Road Red River Crossing	$16,900,000		$25,500,000		$12,750,000	$12,750,000
3H	Merrifield Road Interchange	$7,100,000		$10,700,000			$10,700,000
3K	17th Ave S Overpass of I-29	$5,800,000		$8,800,000			$8,800,000
18 D	3-Lane 47th Ave South, Columbia Rd and Washington St	$2,500,000		$3,800,000			$3,800,000
18E	Widen Central Ave: 17th St to 23rd St	$1,400,000		$2,100,000		$2,100,000	

TABLE 16. RECOMMENDED PROJECT COSTS BY EXPENDITURE PERIOD (CONTINUED)

Projects Included		Cost Estimate				Project Cost by Expenditure Period	
		2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)	Minnesota	North Dakota
Mid-Term Projects (continued)							
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000		$500,000			$500,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000		$3,800,000			$3,800,000
1E	20th Ave S Extension to Columbia Road	$400,000		$600,000			$600,000
2H	DeMers / Washington: Add Eastbound and Westbound Through Lanes	$8,000,000		$12,100,000			$12,100,000
22D	WB Left-Turn Lane at Bygland Rd / CR 58	$100,000		$200,000		$200,000	
3M	Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps	$7,000,000		$10,600,000			$10,600,000
3O	SB Right-Turn Lane at 34th Street / 32nd Ave intersection	$100,000		$200,000			$200,000
5A	Roundabout at 34th St / 24th Ave	$400,000		$600,000			$600,000
6A	Bygland Road Turn Lanes	$350,000		$500,000		$500,000	
10A	Signalize 36th / Columbia and 3/4 access at Wal-Mart SuperOne Driveway	$300,000		$500,000			$500,000
20A	Extend NB I-29 DeMers Ramp	$150,000		$200,000			$200,000

TABLE 16. RECOMMENDED PROJECT COSTS BY EXPENDITURE PERIOD (CONTINUED)

Projects Included		Cost Estimate				Project Cost by Expenditure Period	
		2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)	Minnesota	North Dakota
Long-Term Projects							
1L	32nd Ave S Red River Crossing	$20,200,000			$47,900,000	$23,950,000	$23,950,000
18A	4-Lane 32nd Ave: 52nd St to 48th St	$1,100,000			$2,600,000		$2,600,000
18B	4-Lane Columbia Rd: 34th Ave to 50th Ave	$5,300,000			$12,600,000		$12,600,000
18C	4-Lane Washington St: 48th Ave to 57th Ave	$2,900,000			$6,900,000		$6,900,000
3B	32nd / Columbia: NB and WB Dual Lefts	$150,000			$400,000		$400,000
8A	Signalize 48th / DeMers and I-29 / DeMers Ramps	$700,000			$1,700,000		$1,700,000
22B	New East-West Arterial Connecting the 32nd Ave Bridge to Bygland Rd	$4,000,000			$9,500,000	$9,500,000	
22E	Signalize TH 220 / US 2	$300,000			$700,000	$700,000	
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000			$40,100,000		$40,100,000
	North Dakota Costs by Expenditure Period		$9,150,000	$71,050,000	$88,250,000		$168,450,000
	Minnesota Costs by Expenditure Period		$1,800,000	$15,550,000	$34,150,000	$51,500,000	
	Total Regional Costs by Period		$10,950,000	$86,600,000	$122,400,000		
Anticipated MPO Funding Levels						$27,411,000	$150,706,000
Anticipated ATP Expansion Fund Increase						$1,330,000	$0
Anticipated County Funding Contributions (For Merrifield Bridge)						$12,750,000	$12,750,000
Anticipated East Grand Forks City Funding Contribution (For Bygland - 32nd Ave Bridge Arterial)						$9,500,000	$0
Total Anticipated Total Funding Level						$50,991,000	$163,456,000

FUTURE FUNCTIONAL CLASSIFICATION

A future functional classification map has been established, based on the list of recommended projects and the locations of anticipated future development. The map is presented in Figure 16. As noted in the "Existing Conditions" chapter of this document, the current allocation / definition of routes and route mileage in the urban area is relatively consistent with guidelines provided by FHWA (documented previously in Table 3).

Table 17 provides the estimated future MPO, in relation to both current mileage and the FHWA guidelines for appropriate mix of functional classifications for a street and highway system. As shown in Table 17, the overall ratios of mileage by functional classification are in line with the suggested guidance from the FHWA. Thus, the future street and highway system expansion recommended in this document would maintain an appropriate functional balance for the street and highway system.

TABLE 17. FUNCTIONAL SYSTEM SUMMARY COMPARED TO FHWA GUIDELINES

Facility Type	Percentage of Total System Miles		
	Current MPO Mileage	Future MPO Mileage	FHWA Urban Guidance
Principal Arterials[8]	10%	9%	5 to 10 %
Principal Arterials plus Minor Arterials	20%	19%	15 to 25 %
Urban Collectors[9]	9%	10%	5 to 10 %
Local Streets[10]	64%	66%	65 to 80%

Sources: Grand Forks – East Grand Forks MPO GIS Centerline Data, URS Corporation and *FHWA Functional Classification Guidelines*, FHWA, 1989.

RECOMMENDED STREET AND HIGHWAY SYSTEM TRAFFIC FORECASTS

Daily traffic forecasts were developed for 2035, based on the recommended street and highway network and functional classification system. The 2035 recommended street and highway network forecasts are shown in Figure 17.

Table 18 documents the existing, base condition and recommended scenario forecasted trip levels. The following bullets summarize the change in trips between 2005 and the 2035 recommended network.

- Trip generation growth: The number of trips generated in the Grand Forks – East Grand Forks area is projected to increase by approximately 34 percent. The number of trips is forecasted to be the same in the 2035 base and recommended scenarios.

[8] Includes Interstate 29 mileage.
[9] Does not include rural collectors, which were not part of the FHWA guidance. Thus, total system miles will not sum to 100%.
[10] Includes UND and private streets. Future Local mileage estimated based on Urban Collector mileage.

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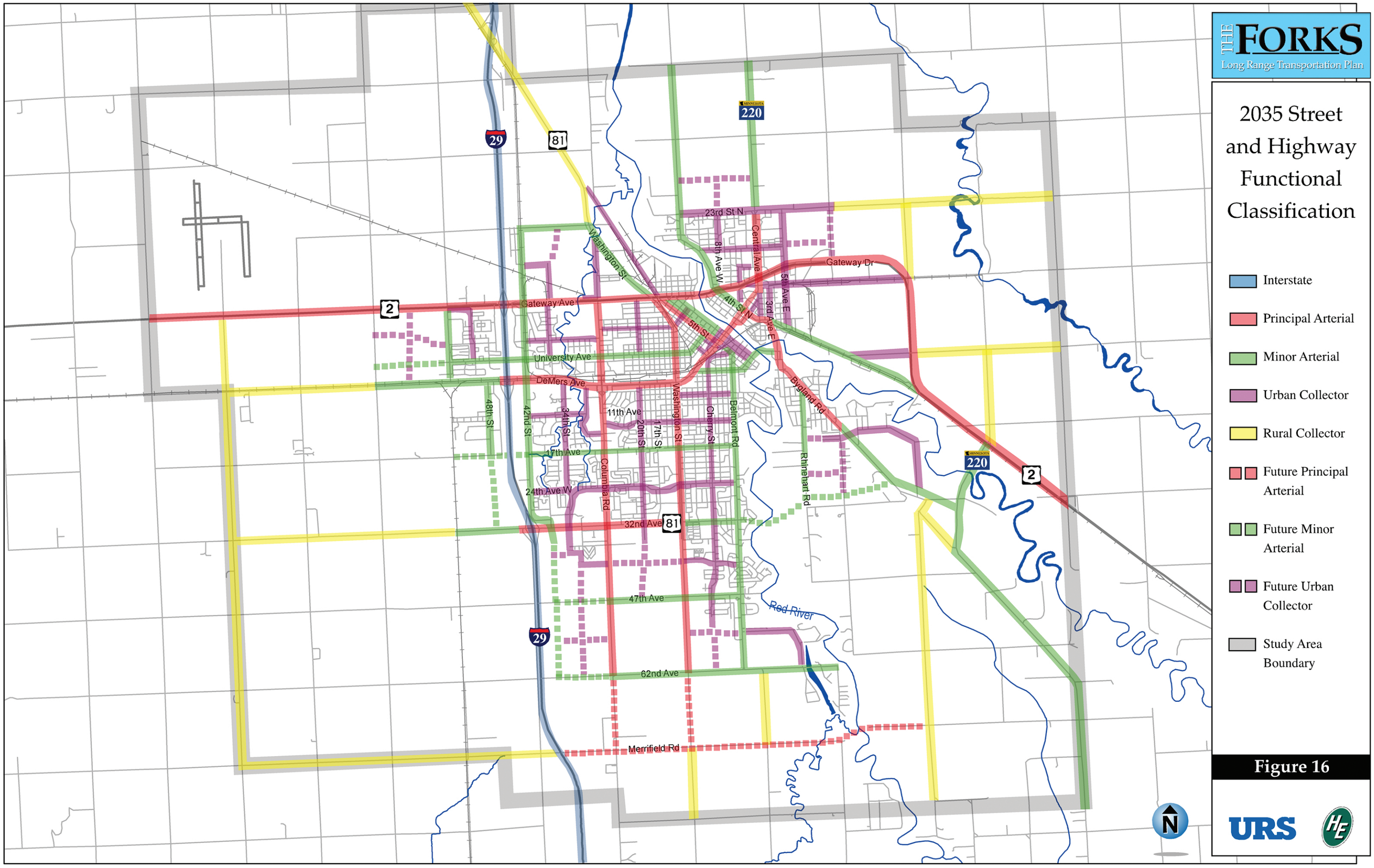
2035 Street and Highway Functional Classification

- Interstate
- Principal Arterial
- Minor Arterial
- Urban Collector
- Rural Collector
- Future Principal Arterial
- Future Minor Arterial
- Future Urban Collector
- Study Area Boundary

Figure 16

URS



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2035 Daily Traffic Forecasts, Recommended Future Network

1,000 - 2005 Daily Traffic Count

1,000 - 2035 Daily Traffic Forecast

Figure 17

URS

HE

N

Gateway Ave
Gateway Dr
DeMers Ave
University Ave
11th Ave
17th Ave
24th Ave W
32nd Ave
47th Ave
62nd Ave
Merrifield Rd
23rd St N
8th St N
5th St
3rd Ave E
Washington St
Central Ave
Columbia Rd
Belmont Rd
Cherry St
Bygland Rd
Rhinehart Rd
17th St
20th St
34th St
42nd St
48th St
Red Lake River
Red River
29
81
2
220
MINNESOTA

- VMT growth: VMT is projected to increase by 54 percent 2005 and the 2035 recommended scenario. VMT growth is forecasted to be slightly lower in the recommended scenario than in the base network.
- VHT growth: VHT is projected to increase by 54 percent between 2005 and the 2035 recommended scenario. VHT growth is forecasted to be slightly lower in the recommended scenario than in the base network.

TABLE 18.TRIP GENERATION AND VEHICLE MILES TRAVELED GROWTH

Model Scenario	Daily Vehicle Trips	Daily VMT	Daily VHT
2005	620,000	1,080,000	31,600
2035 Base Network	830,000	1,690,000	49,500
2035 Recommended Network	830,000	1,658,000	48,500
Percentage Growth (2005 to 2035 Recommended)	34%	54%	54%

Sources: Grand Forks / East Grand Forks Travel Demand Model and URS Corporation

ENVIRONMENTAL COORDINATION AND MITIGATION

BACKGROUND

SAFETEA-LU requires that the Grand Forks-East Grand Forks MPO consult with Federal, State, and Tribal land management, wildlife, and regulatory agencies on possible environmental mitigation activities that may be appropriate for the types of system improvement projects identified in this Plan update. A summary of the resource agency coordination is provided. This chapter also provides a summary of the environmental mitigation activities which are relevant to the MPO's transportation planning activities.

AGENCY COORDINATION

The Grand Forks-East Grand Forks MPO maintains a database of the various agencies with which it consults regarding its planning activities. Comments were solicited from agencies at the Plan development stage where improvement alternatives were being developed. There were 34 different agencies from which comments were solicited. The database list and the letter from the MPO to the agencies is shown in Appendix B. As documented, the letter invited the agencies to provide any comments or suggestions they might have. The letter also provided information on issues / opportunities identified through the study involvement program and information on future traffic volumes and operations.

The responses received from agencies are also documented in Appendix B. The responses received are summarized in the bullets below:

- The Grand Forks Air Force Base: The letter received from base staff indicated that there was no Grand Forks Air Base property within the study area, and there were no comments.
- The Army Corps of Engineers, Omaha District, North Dakota Office: The letter received from the Corp of Engineers provided a brief summary of the activities which would require the Corps' review. The letter stated that any project that would result in discharge of fill material into or affecting navigable waters would require a Department of Army permit. The letter also provided an overview of the Army's permitting process and requirements.
- The United States Environmental Protection Agency, Region 5: The letter received from EPA staff indicated that there was not yet any detailed FHWA guidance for coordination requirements outlined in SAFETEA-LU. The letter did provide the MPO with information on environmental aspects to consider in the planning process.
- North Dakota Parks and Recreation Department: The letter received from the parks and recreation department outlined their oversight responsibilities, including park land and biological resources. It provided information on the

areas where they may have potential concerns, including protection of park land that received any assistance from Land and Water Conservation Funds (LWCF). The Parks and Recreation Department also provided a list and map of the rare biological resources in the study area. Both of these are provided in Appendix B. There were six species of plants and animals listed.

The letter advised that potential projects be completed with minimal impacts while not disturbing the identified critical habitats.

For reference, *Merrifield Road Bridge Feasibility Study* documentation related to agency coordination and a map of the river crossing alternatives is also provided in Appendix B.

ENVIRONMENTAL MITIGATION

The MPO's Transportation planning activities are regional in scope and all of the ideas included in the alternatives analysis are general concepts with limited detail on those elements that would impact the physical and social environment. Thus, the environmental mitigation discussion does not focus on individual projects within the LRTP, but rather offers a summary of:

- The types of environmentally sensitive areas of interest.
- The analyses to be conducted in future early stages of project development to identify potential conflicts between improvement concepts and environmentally-sensitive areas.
- The generalized mitigation strategies that could be considered in an effort to minimize negative effects that a project may have on an environmentally-sensitive area.

IDENTIFYING SENSITIVE AREAS

There are numerous environmentally-sensitive areas found throughout the Grand Forks-East Grand Forks region. An overview of some of the identified sensitive areas, including wetlands, species of concern and identified cultural sites, is provided in Figure 18.

Many areas are too small or too numerous to map at a regional level and can only be clearly identified through a project-level analysis. Some areas are yet to be identified and will only become known once a project-level analysis is completed, such as potentially historical properties and wetlands. When a project is ready to move from the LRTP into the design / engineering phases, the project sponsor will be responsible for conducting the necessary analyses as required by state and Federal regulations to determine the type, location, and impact to environmentally-sensitive areas within the project study area.

The alternatives analysis conducted to develop the project list for the LRTP incorporated a cursory analysis of each project concept, which included identification of potential environmental resources. Specifically, the alternatives analysis process looked at proposed project locations throughout the region to determine their proximity to the following natural, socio-cultural resources and / or developments:

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Environmentally Sensitive Areas

Oporornis Philadelphia

Potentilla Palustris

Notropis Rubellus

Ligumia Recta

Dicentra Cucullaria

Dryocopus Pileatus

- Study Area Boundary
- Identified Cultural Sites[1]

Wetlands

- Freshwater Emergent
- Freshwater Forested / Shrub
- Freshwater Lake, Pond or Riverine
- Other Wetland

Species of Concern

- Animal Species of Concern
- Plant Species of Concern

Figure 18

URS

[1] Based on Merrifield Road Bridge Feasibility Study Survey

- Cemeteries
- Regional water resources
- Documented historical properties
- Threatened and endangered species habitats
- Historic National Register districts
- Residential and commercial properties
- Parklands and other public spaces
- Waterways, streams, rivers, and other water bodies
- Floodplains

ENVIRONMENTAL MITIGATION ACTIVITIES

The Grand Forks-East Grand Forks MPO and the jurisdictional partners are committed to minimizing and mitigating the negative effects of transportation projects on the natural and built environments in order to preserve the current high quality of life. In doing so, the MPO recognizes that not every project will require the same type and / or level of mitigation. Some projects such as new roadways and roadway expansion projects involve major construction with greater areas of disturbance. Other improvements, such as intersection turn lanes or control improvements, involve limited construction areas and minimal disturbance, if any. The mitigation efforts used for a project should be dependant upon how severe the impact on environmentally sensitive areas is expected to be. The following three step process should be used to determine the type of mitigation strategy to apply for any given project:

1. Identify environmentally sensitive areas throughout the project study area.
2. Determine how and to what extent the project will impact these environmentally-sensitive areas.
3. Develop appropriate mitigation strategies to lessen the impact these projects have on the environmentally-sensitive areas.

To the extent possible, the design phase for transportation projects should include strategies to minimize off-site disturbance in sensitive areas, to preserve air and water quality, to limit tree removal, to minimize grading and other earth disturbance, to incorporate Best Management Practices (BMP) for erosion and sediment control, and limit noise and vibration impacts. Alternative designs or alignments should be promoted, where feasible, to avoid environmentally-sensitive areas. The three step mitigation planning process should solicit public input and offer alternative designs or alignments and mitigation strategies for comment by the MPO and local governments.

For major construction projects, such as new roadways, or for projects that may have a region-wide environmental impact, a context sensitive solutions process should be considered. This process should include considerable public participation and alternative design solutions are used to lessen the impact of the project.

Table 19 details mitigation activities that could be considered to deal with the primary areas of concern.

TABLE 19. ENVIRONMENTAL MITIGATION ACTIVITIES

Environmental Concern	Potential Mitigation Activities
Wetlands or Water Resources	Mitigation sequencing requirements involving avoidance, minimization, compensation (could include preservation, creation, restoration, in lieu fees, riparian buffers); design exceptions and variances; environmental compliance monitoring
Forested and other Natural Areas	Avoidance, minimization; Replacement property for open space easements to be of equal fair market value and of equivalent usefulness; design exceptions and variances; environmental compliance monitoring
Agricultural Areas	Avoidance, minimization; design exceptions and variances; environmental compliance monitoring
Endangered and Threatened Species	Avoidance, minimization; time of year restrictions; construction sequencing; design exceptions and variances; species research; species fact sheets; Memoranda of Agreements for species management; environmental compliance monitoring
Ambient Air Quality	Transportation control measures, transportation emission reduction measures
Neighborhoods, Communities, Homes and Businesses	Impact avoidance or minimization; context sensitive solutions for communities (appropriate functional and / or esthetic design features)
Cultural Resources (historical properties, cemeteries, cultural areas, etc.)	Avoidance, minimization; landscaping for historic properties; preservation in place or excavation for archeological sites; Memoranda of Agreement with the State Historical Society of North Dakota and the Minnesota Historical Society; design exceptions and variances; environmental compliance monitoring
Parks and Recreation Areas	Avoidance, minimization, mitigation; design exceptions and variances; environmental compliance monitoring

Transportation System Security

Overview

In the SAFETEA-LU legislation, security has been separated from safety as a planning factor to increase the focus on each of the factors, and due to the emphasis on identification of surface transportation facilities as potential targets worldwide. Addressing the transportation system infrastructure's vulnerability to natural and social acts can be attributed to several features:

- Transportation infrastructure (roadway networks, vehicles, airports and transit facilities) serve high concentrations of people, thereby increasing the potential number of casualties.
- Transportation systems provide essential services to the public, thereby threatening our economic and cultural way of life if damaged / closed through a natural or social act.
- Transportation systems can be used as both the delivery and escape avenues. Use of the transportation infrastructure is critical in responding to evacuation due to natural disasters (flooding) or social actions.

These features make transportation infrastructure a both vulnerable, critical asset to natural disaster and a target of choice for those wanting to spread fear to the widest segment of society. Conversely, these features also make transportation infrastructure harder to secure.

Over the past few years the focus on the need to improve the security and stability of our nation's transportation infrastructure has intensified. Actions taken to date across the county include:

- Determining the vulnerability of transportation infrastructure to natural disaster and terrorist attack.
- Developing strategies to better protect key assets from natural disaster and terrorist attack.
- Generating policies and procedures to mitigate the effects of natural and terrorist

events and to expedite response and recovery.

In many of the programs administered across the country security prevention and mitigation strategies are heavily oriented to facility design and retrofitting, and through these efforts it has been recognized that it is more cost-effective to begin addressing transportation infrastructure security issues when the facilities are being planned and designed. Addressing facility/asset security in the post-construction or operations phase generally makes efforts to enhance the asset protection much more expensive. Most efforts to address security issues at the metropolitan planning level have been limited to the operational aspects of facilities, with little or no consideration of security in the development of the long range transportation plans or the statewide transportation improvement programs. The purpose of separating security from the safety planning factor is to enhance the emphasis on directly addressing issues and concerns in the planning process.

While this Plan document focuses on street and highway elements of the transportation system, the overall MPO transportation planning approach recognizes the critical role of transit and non-motorized modes in terms of transportation security. For instance, while transit vehicles and facilities are a critical asset in terms of potential terrorist targets, the MPO also recognizes the role of transit infrastructure in terms of its capabilities to provide evacuation / response utility during disasters.

In recognition of the importance of transportation security to the long-range planning process in Grand Forks – East Grand Forks, a separate goal to "provide a secure transportation system" has been developed for this Plan update. The related objectives include:

- Identify critical street and highway system assets.
- Identify and incorporate state and regional emergency, evacuation and security plans into Plan update.
- Coordinate traffic operations with flood control operations during flood events.
- Maintain and update the regional ITS architecture.

RECOMMENDATIONS

The Grand Forks – East Grand Forks region has already done significant amount of security planning due to its history of Red River flooding. The Grand Forks – East Grand Forks *Bridge Closure Management Study* (2007) is a primary example of how the MPO is addressing the new security emphasis of SAFETEA-LU. The study provides a comprehensive action plan for efficient and safe travel during bridge closures due to flooding, bridge maintenance and incidents. The study includes an action plan for agency tasks and coordination on both sides of the river and provides detour routes, proposes traffic signal timing plans and modifications and provides training and coordination efforts for key stakeholders on both sides of the river.

Other aspects of transportation system security and the security of local facilities that would substantially rely on an effective transportation system in the event of a disaster or attack in the Grand Forks – East Grand Forks area, have not been assessed as to their vulnerability, relative to protection from disaster / attack or process for

recovery from such an event. Thus, development of an overall transportation security assessment and protection plan is a recommendation of the Street and Highway plan.

Key security elements and elements of a future work program to be incorporated into the transportation planning process include:

- Working with emergency response representatives, the NDDOT, Mn/DOT, the FHWA and the Department of Homeland Security to establish a definition of "security" for the transportation system.
- Build off of the cooperation and inter-relationships developed through past flood-response efforts and the *Bridge Closure Management Study* to improve planning processes and communication between transportation system owners and managers and public health and safety officials and staff.
- Using the definition of security developed, further refine and establish security goals and objectives.
- Identify a list of key transportation assets, including:
  - The Kennedy, Sorlie and Point Bridges over the Red River and the Murray and Mallory Bridges over the Red Lake River
  - Each of the interchanges along I-29 and DeMers Avenue.
  - The Alerus Center and Ralph Engelstad Arena, which represent facilities that house large crowds and would need to be evacuated in the event of a disaster or attack, or could be used as evacuation centers during a disaster or attack.
  - Utility plants.
  - Medical facilities.
  - Federal, state and local government buildings.
- Conduct a security risk assessment, including potential transportation system bottlenecks or choke points, by asset in the region.
- Evaluate the probability of an incident attempt occurrence assessment and a vulnerability assessment by transportation asset.
- Complete a risk / consequence trade-off analysis of potential action strategies, based on the probability of natural disasters / terrorist attacks occurring, the severity of the consequences of such an event, and the impact value of proposed strategies for mitigating the likelihood and consequences of the events.
- Coordinate the planning and prioritization of security enhancement projects, both short-term and long-term.
- Establish project funding and programming, with involvement of both public and private sector stakeholders.

The process and recommendations developed as part of this continued transportation planning effort should be consistent with the National Infrastructure Protection Plan (NIPP) developed through the Department of Homeland Security. The purpose of the NIPP is to provide a unified national structure for the integrated protection of the existing and future infrastructure. The NIPP provides a framework for prioritizing protection programs and investments with the goal of ensuring that government and private sector resources are applied where they offer the most benefit for mitigating risk. The intent of the plan is to identify various means of lessening vulnerabilities, deterring threats, and minimizing the consequences of terrorist attacks and other manmade and natural disasters. The NIPP risk management framework recognizes and builds on existing protective programs and initiatives.

PLAN COMPLIANCE WITH SAFETEA-LU PROVISIONS

OVERVIEW

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) signed into law on August 10, 2005, replaces the Transportation Equity Act for the 21st Century (TEA-21) as authorization of the Federal surface transportation programs for highways, highway safety, and transit. SAFETEA-LU retains many of the goals and programs found in TEA-21, but there are a number of modified and / or new requirements that MPOs must address through the long range transportation planning process. The purpose of this section of the Grand Forks-East Grand Forks LRTP is to provide documentation of how the update process for the Street and Highway Element, initiated in May 2006, addresses the issues and / or how the MPO and local, state and Federal transportation system providers will be addressing the SAFETEA-LU planning requirements.

Listed below are the SAFETEA-LU planning and programming requirements that have been revised or added to the TEA-21 transportation bill requirements:

- Regional transportation plan and transportation improvement program update cycles.
- Annual listing of projects in the TIP.
- Metropolitan and statewide transportation planning factor modifications to separate safety and security factors.
- Coordination of the MPO planning efforts with the state strategic highway safety plan.
- Environmental mitigation activities associated with recommended improvement plan.
- Consultation with agencies on recommended actions in the plan.
- Transit major capital project improvement review / approval process.
- Management / maintenance of existing facilities.
- Establishment of a congestion management process for transportation management areas (TMA).
- Coordination with the local public participation plan / program
- Coordinated public transit / human services transit plans.
- Air quality conformity analysis for non-attainment areas.

Table 20 documents the key SAFETEA-LU planning and programming requirement changes relative to those found in the TEA-21 legislation, includes a summary of the general guidance on addressing the changes, and provides a brief overview of how the on-going planning process in the Grand Forks-East Grand Forks MPO area is in compliance with the legislation or changes to current activities that will be enacted to be in compliance.

TABLE 20. SAFETEA-LU COMPLIANCE ANALYSIS

Statutory Planning and Programming Requirements	Key Changes Between ISTEA / TEA-21 and SAFETEA-LU	Potential SAFETEA-LU "Closing the Gap" Steps	MPO Steps for Assuring Compliance (what has been done / how to address gaps)	Where Compliance Can Be Found
UPDATE CYCLES ▪ Metropolitan transportation plans [23 U.S.C. 134/49 U.S.C. 5303(i)(1)] ▪ TIPs and STIPs [23 U.S.C. 134/49 U.S.C. 5303(j)(1)(D) and 23 U.S.C. 135/49 U.S.C. 5304(g)(1)]	Metropolitan transportation plans in air quality nonattainment and maintenance areas • To be updated every four years (as opposed to the former requirement of every three years).	This SAFETEA-LU provision took effect on August 10, 2005. MPOs in nonattainment and maintenance areas should be reviewing and revising the update cycles for the metropolitan transportation plans.	• The Grand Forks-East Grand Forks MPO is located in an attainment area. The current update of the Street and Highway Element of the multimodal LRTP was initiated to ensure compliance with the SAFETEA-LU requirements. • The LRTP was last updated in 2003 and will be updated again in 2008 to include the Alternate Transportation Mode elements, freight, aviation, ITS, and other pertinent elements.	The MPO is in full compliance.
	Metropolitan transportation plans in air quality attainment areas • No key change (to be updated every five years).	No additional steps for update cycles are likely necessary for MPOs in attainment areas.		
	Transportation Improvement Program (TIP): • To be updated every four years (as opposed to the former requirement of every two years). • Span of TIP increased from 3 to 4 years	Develop an approvable TIP with projects / project phases covering four years.	The Grand Forks-East Grand Forks TIP approved in August 2007 includes the four-year period from 2008 through 2011. The TIP is updated annually for the next four-year period.	The MPO is in full compliance.
ANNUAL LISTING OF PROJECTS [23 U.S.C. 134/49 U.S.C. 5303(j)(7)(B) and 23 U.S.C. 135/49 U.S.C. 5304(g)(4)(B)]	New project element to be specifically included (pedestrian walkways and bicycle transportation facilities).	• MPO (with State(s) and public transportation operator(s)) should review existing process for developing the Annual Listing. • Publish list identifying all bicycle / pedestrian projects for which Federal funds were obligated in the preceding program year.	The 2008 – 2011 TIP provides documentation of projects programmed for implementation in the following systems: • Roadway • Pedestrian / bicycle • Transit	The current TIP and annual projects list addresses the region's multimodal system and the process of development of the TIP is consistent with SAFETEA-LU guidelines.
	Added requirement for cooperative development by MPO partners (i.e., State and public transportation operators).		In compliance (no gap exists)	The regional TIP and annual project list is developed through a cooperative process involving Grand Forks, East Grand Forks, Polk County, Grand Forks County, CAT, NDDOT and Mn/DOT.

Statutory Planning and Programming Requirements	Key Changes Between ISTEA / TEA-21 and SAFETEA-LU	Potential SAFETEA-LU "Closing the Gap" Steps	MPO Steps for Assuring Compliance (what has been done / how to address gaps)	Where Compliance Can Be Found
METROPOLITAN AND STATEWIDE TRANSPORTATION PLANNING FACTORS [23 U.S.C. 134/49 U.S.C. 5303(h)(1) and 23 U.S.C. 135/49 U.S.C. 5304(d)(1)]	Added a new stand-alone factor "increase the safety of the transportation system for motorized and non-motorized users."	• Review current safety goals, objectives, performance measures, and strategies. • Ensure that adequate safety data are available to support development of a safety element in statewide and metropolitan transportation plans. • Ensure outreach to and input from safety stakeholders. • Incorporate the SHSP element into statewide and metropolitan transportation plans (for metropolitan transportation plans, use the portion of the SHSP related to the MPO region). • Incorporate the transit System Safety Program Plan (if available) into statewide and metropolitan transportation plans. • Review TIP / STIP project selection criteria to ensure they reflect safety priorities (e.g., SHSP and / or MPO region's priorities).	• A unique safety goal and specific objectives have been developed as part of the 2035 Street and Highway Plan Update. • An analysis of the crash records for the latest three-year period was completed as part of the assessment of the Existing Conditions. • Improvements evaluated as part of the Alternatives Analysis incorporated safety (potential to reduce the observed types of crashes) as a key criterion in the engineering assessment. • Emergency responders were incorporated into the public / stakeholder involvement conducted as part of the Street and Highway Plan Element update.	• The revised transportation goals include a unique safety goal. • Crash records along routes throughout the MPO area were evaluated as part of the Existing Conditions assessment, which was a key component to developing transportation issues. • The alternatives analysis included criteria focusing on safety.
	Added a new stand-alone factor "increase the security of the transportation system for motorized and non-motorized users."	• Review current statewide and metropolitan transportation plans for emergency planning / security elements. • Incorporate the transit System Security Program Plan (required for rail systems) into statewide and metropolitan transportation plans. • Define the role of the public transportation operators / MPO / State in promoting security (e.g., review State / local legislation for roles and responsibilities). • Identify critical facilities and transportation system elements (e.g., transit system, rails, ports, Interstate system, NHS routes, and STRAHNET routes). • Develop security goals and appropriate strategies (this may be an important role for MPOs and / or States that are near or on the Mexico / Canada borders).	• A stand alone transportation plan goal addressing system security was incorporated into the current update of the street and Highway Plan element. • The Street and Highway Plan element contains a Security Section identifying key highway facilities within the MPO area. • The Security Section references the Bridge Closure Management Study (2007) which documents actions to be taken to manage traffic flow in the event that one or more of the four urban area vehicle crossings and / or the railroad crossing are closed due to an incident or maintenance.	• In the goals and objectives. • Through identification of key assets. • By reference to the Bridge Closure Management Study documentation.

Statutory Planning and Programming Requirements	Key Changes Between ISTEA / TEA-21 and SAFETEA-LU	Potential SAFETEA-LU "Closing the Gap" Steps	MPO Steps for Assuring Compliance (what has been done / how to address gaps)	Where Compliance Can Be Found
	Expanded the environmental factor by adding the phrase "promote consistency of transportation plan and transportation improvements with State and local planned growth and economic development patterns."	• MPOs / State DOTs review current process to coordinate transportation and land use / economic development planning. • Where needed, consider methods to improve or expand coordination. • Identify implementation timeframes. • Include appropriate activities in statewide / metropolitan transportation planning work programs, as well as in MPO Participation Plans.	• The Alternatives Analysis conducted as part of the process of preparing the recommended improvement plan included assessment of the concepts from the Social, Environmental and Engineering perspectives. Through the screening process the potential for adverse / positive environmental impacts were identified. • Agencies were provided opportunity to comment on the alternatives analysis and the recommended improvement plan.	• Transportation goals and objectives. • Alternatives analysis screening criteria. • Public involvement plan.
FISCAL CONSTRAINT [23 U.S.C. 134/49 U.S.C. 5303(i)(2)(C); (j)(1)(C); (j)(2)(B); and (j)(3)(D) and 23 U.S.C. 135/49 U.S.C. 5304(f)(5); (g)(4)(E); and (g)(4)(F)]	Revenue and cost estimates in year of expenditure dollars	• Review and reaffirm fiscal constraint of transportation plans and programs as they are updated or amended. • Confirm revenues and costs related to system operations and maintenance activities covered in transportation plans and programs. *Refer to the FHWA / FTA Interim Guidance on Fiscal Constraint of Transportation Plans and Programs (http://www.fhwa.dot.gov/planning/fcindex.htm or www.fta.dot.gov → Grant Programs → Transportation Planning & Environment → Statewide & Metropolitan Planning)*	• The cost estimates developed for each of the improvement concepts were escalated to the anticipated period of expenditure using a four percent per year inflation rate. • The funding analysis assumed expansion of the current year funding by 2 percent per year in ND and 1 percent per year in MN. • The projects included in the LRTP improvements list were restricted to those that could reasonably be funded based on currently programmed dollars and dollars reasonably anticipated to be available through the 2035 planning period.	• Cost estimates were completed for the expected period of completion. • Funding analysis. • Balancing the projects list with the anticipated funding level.
ENVIRONMENTAL MITIGATION ACTIVITIES [23 U.S.C. 134/49 U.S.C. 5303(i)(2)(B) and 23 U.S.C. 135/49 U.S.C. 5304(f)(4)]	♦ Metropolitan and statewide transportation plans shall include "discussion" of environmental mitigation activities. ♦ This "discussion" shall be developed with Federal, State, and Tribal wildlife, land management, and regulatory agencies.	• Metropolitan and statewide transportation plans must include a generalized discussion of potential mitigation activities (at the policy / strategy-level, not project-specific). • Compare transportation plans with available State conservation plans, maps, and inventories.	• The 2035 Street and Highway Plan element includes a section addressing potential mitigation activities to be implemented as projects proceed through the project development process. As the LRTP project list reflects projects at a concept level, no specific mitigation measures are provided. • The 2035 Street and Highway Plan Environmental Mitigation Activities section has been made available to the MPO maintained resource agency contacts for comment. • In compliance (no gap exists).	• Through inclusion of a mitigation process in the project review. • Environmental Mitigation chapter.

Statutory Planning and Programming Requirements	Key Changes Between ISTEA / TEA-21 and SAFETEA-LU	Potential SAFETEA-LU "Closing the Gap" Steps	MPO Steps for Assuring Compliance (what has been done / how to address gaps)	Where Compliance Can Be Found
CONSULTATION AND COOPERATION ▪ Transportation Plans [23 U.S.C. 134/49 U.S.C. 5303(g) and (i)(4) and 23 U.S.C. 135/49 U.S.C. 5304(f)(2)] ▪ TIP and STIP [23 U.S.C 134/49 U.S.C. 5303(j)(1)(C) and 23 U.S.C. 135/49 U.S.C. 5304(g)(2)] ▪ Land Use Management and other Resource Agencies [23 U.S.C. 134/49 U.S.C. 5303(i)(4) and 23 U.S.C. 135/49 U.S.C. 5304(f)(2)(D)]	♦ Consultation with non-metropolitan local officials and Tribal governments in the development of the long-range statewide transportation plan and STIP. ♦ MPOs and State DOTs shall consult with local / State land use management, natural resource, historic and other agencies in the development of transportation plans.	• Continuing consultation with partners (i.e., State, MPOs, non-metropolitan local officials, and Tribal government) [no change]. • Compare transportation plans with available conservation plans and maps and / or compare with available inventories of historic or natural resources.	• The MPO maintains a mailing / contact list of local, regional, state and Federal agencies and officials and provides notice of availability of updated information associated with the transportation planning process in the MPO jurisdiction. Included in the mailing / contact list are the US Economic Development Administration, FEMA, the Army Corp of Engineers, the Advisory Council on Historic Preservation, National Park Service, Environmental Protection Agency, Natural Resources Conservation Service, Minnesota Department of Health, Minnesota Environmental Quality Board, ND State Historical Society, Minnesota Pollution Control Agency, US Fish and Wildlife Service, Sierra Club, Bureau of Indian Affairs, Federal Railroad Authority, Federal Aviation Administration, Grand Forks Historical Preservation Commission, Grad Forks and East Grand Forks Public Schools, BNSF, local / regional shipping and freight hauling companies, and others. • The regional travel demand model assumptions for growth in employment and dwelling units reflects the approved Land Use Plans for the communities and the counties in both North Dakota and Minnesota. • The approved TIP has been included in the project list and the cost constrained financial analysis includes provisions for the TIP projects.	• Compliance with the consultation and cooperation requirements can be observed in each of the key areas of: – Consultation with non-metropolitan officials and Tribal governments. – Land use planning, historical preservations, etc. – Incorporation of the TIP.
AIR QUALITY[11] CONFORMITY [23 U.S.C. 134(i)(3)]	♦ Requirement to determine conformity is now every four years (instead of every three years).		Not applicable – The Grand Forks-East Grand Forks MPO area is an attainment area.	
PUBLIC TRANSIT ELEMENT	♦ Coordinated Public Transit-Human Services Transportation Plan (per 49 U.S.C. 5310, 5316, and 5317).	• Entity responsible for developing the Coordinated Public Transit-Human Services Transportation Plan is not defined in SAFETEA-LU. • Solicitation for projects from plan to be done in cooperation with MPO		

[11] *Section 6011 of SAFETEA-LU contained other transportation conformity provisions. USDOT and USEPA issued joint "Interim Guidance for Implementing the Transportation Conformity Provisions in the SAFETEA-LU" on February 14, 2006. The Interim guidance is available at: http://www.fhwa.dot.gov/environment/conformity/sec6011guidmemo.htm*

Statutory Planning and Programming Requirements	Key Changes Between ISTEA / TEA-21 and SAFETEA-LU	Potential SAFETEA-LU "Closing the Gap" Steps	MPO Steps for Assuring Compliance (what has been done / how to address gaps)	Where Compliance Can Be Found
TRANSPORTATION FACILITIES [23 U.S.C. 134/49 U.S.C. 5303(i)(2)(D);23 U.S.C. 134/49 U.S.C. 5303(k)(3); 23 U.S.C. 135/49 U.S.C. 5304(f)(7); and 23 U.S.C. 135/49 U.S.C. 5304(i)]	♦ Operations and management strategies in metropolitan transportation plans and long-range statewide transportation plans.	• Determine if the current transportation plan adequately address operations and management strategies (for both the transit and highway network). • Develop / confirm performance measures for the transportation system operations and management, with the focus on mobility and safety. • Consider and develop strategies and costs (capital and operational investment) to preserve the existing transportation system.	• In estimating the funding anticipated to be available for transportation system improvements a screening to identify and set aside funding for operation and management need was conducted. The amount identified was consistent with historical levels as a percent of total funding.	• In the base methodology for determining the anticipated level of funding through the planning horizon.
	♦ Congestion Management Process in Transportation Management Areas TMAs (formerly known as Congestion Management System (CMS) in ISTEA / TEA-21).	• Review the existing CMS and its application within the TMA planning process and the metropolitan transportation plan(s). • Review State laws, rules, and regulations to ensure consistency with the SAFETEA-LU revised statutory language on the Congestion Management Process. • Identify operations partners (e.g., traffic operations centers, ITS, and traffic engineers). • Identify travel demand reduction and operation management strategies to be implemented. • Work with partners to develop projects, priorities and schedule for implementation.	• The Grand forks-East Grand Forks MPO is less than 200,000 in population. Thus, the region does not meet the definition of a TMA.	• Not Applicable.

Statutory Planning and Programming Requirements	Key Changes Between ISTEA / TEA-21 and SAFETEA-LU	Potential SAFETEA-LU "Closing the Gap" Steps	MPO Steps for Assuring Compliance (what has been done / how to address gaps)	Where Compliance Can Be Found
INTERESTED PARTIES AND PARTICIPATION [23 U.S.C. 134/49 U.S.C. 5303(i)(5), (i)(6), and (j)(4) and 23 U.S.C. 135/49 U.S.C. 5304 (f)(3) and (g)(3)]	♦ Definition of "interested parties" to be engaged in statewide and metropolitan transportation planning has been expanded. ♦ Participation Plan (required for MPOs): – Shall be developed in consultation with "interested parties." – Publish or make available for public view transportation plans, STIPs and TIPs. – Hold public meetings at convenient and accessible times and locations. ♦ Publication of statewide and metropolitan transportation plans, and TIP… to the maximum extent practicable. - Make information available in electronically accessible formats (e.g., world wide web). ♦ Employ visualization techniques to depict statewide and metropolitan transportation plans.	• State DOTs and MPOs should review current public involvement plan / procedures and make necessary changes to reflect SAFETEA-LU provisions. • Confirm that stakeholders, interest groups, general public had / have opportunity to comment on public involvement plans and transportation plans / programs. • Where not apparent, give groups / general public opportunity to review / comment; update or amend participation plan, as needed. • To maximum extent practicable, statewide and metropolitan transportation plans and programs (with the exception of the STIP) shall be available in electronic formats (e.g., on a website). • Refer to FHWA Scenario Planning website or Land Use / Transportation Tool Kit (add web links) for examples of visualization techniques.	• The Grand Forks-East Grand Forks MPO updated the Public Participation Plan in 2006 to address the mission of making the public / interested parties key stakeholders in the transportation planning process. • Consistent with the Public Participation Plan, the MPO has conducted the update to include: – Providing interested parties (a list of agencies / groups / individuals is maintained by the MPO) with notice of all meetings. – Maintained all of the key information developed as part of the Street and Highway Plan update on the MPO's webpage, providing access to a broad audience. – Provided notice consistent with the requirements for all public meetings held. – Organized three public information meetings. • Issues, existing / future transportation conditions, the alternatives analysis and recommendations were presented using descriptive visual materials, including maps, charts, photographs, etc.	• Development of the Public Participation Plan and adherence to the plan throughout the Street and Highway Plan update. • Notice of meetings was provided to the MPO's List of Interests. • Advanced notice of public information and MPO Technical Advisory Committee and Executive Committee meetings was provided consistent with the approved Public Participation Plan. • All pertinent material developed for each stage of the plan was uploaded to the MPO web site for access by the public. • Presentation and discussion material used at the three public meetings relied heavily on charts, graphs, descriptive maps and improvements on aerial base maps as a means of relating the material.